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UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

MARC OPPERMAN, et al.,

Plaintiffs,

v.

PATH, INC., et al.

Defendants.

Case No. 13-cv-00453-JST

CLASS ACTION

**SECOND CONSOLIDATED AMENDED
COMPLAINT**

Hernandez v. Path, Inc., No. 12-cv-1515-JST
Pirozzi v. Apple Inc., No. 12-cv-1529-JST
Gutierrez v. Instagram, Inc., No. 12-cv-6550-JST
Espitia v. Hipster, Inc., No. 4:13-cv-432-JST
(collectively, the “Related Actions”)

1 Plaintiffs Allen Beuershausen, Giuliana Biondi, Lauren Carter, Stephanie Cooley,
 2 Stephen Dean, Jason Green, Claire Hodgins, Gentry Hoffman, Rachelle King, Nirali
 3 Mandalaywala, Judy Paul, Maria Pirozzi, Theda Sandiford, Gregory Varner (collectively,
 4 “Plaintiffs”) individually and on behalf of all others similarly situated, allege as follows:

5 INTRODUCTION

6 1. This case arises from the actions of Apple, Inc. (“Apple”) and various developers
 7 of applications (the “App Defendants”) created for use on three popular wireless mobile devices
 8 designed and sold by Apple: the iPhone, the iPad, and the iPod touch (collectively, the
 9 “iDevices”). The claims presented in this Second Consolidated Amended Complaint relate to
 10 three primary areas of liability.

11 2. First, Plaintiffs allege that with the assistance and cooperation of Apple, the App
 12 Defendants intentionally caused their Apps to secretly upload, store, and in some cases
 13 disseminate their personal and private address books as stored in the “Contacts” App from the
 14 iDevices without the knowledge or consent of the owners of the iDevices.

15 3. Second, Plaintiffs allege that Apple consciously and continuously misrepresented
 16 its iDevices as secure, and that the personal information contained on iDevices—including,
 17 specifically, address books—could not be taken without their owners’ consent. Apple
 18 deliberately and widely disseminated that message by means of traditional marketing efforts, but
 19 also by means of “earned media” or a “buzz campaign,” through which the company capitalized
 20 on its ubiquitous corporate presence and the immense public attention given anything Apple
 21 does. Through its deliberate statements that it knew would be broadcast worldwide by that vast
 22 network of traditional and non-traditional media, Apple created the false impression in the minds
 23 of the consumers that the iDevices were a safe and secure location for the storage of highly
 24 personal information like address book data.

25 4. Third, Plaintiffs allege that Apple had unique knowledge that its iDevices were
 26 not as secure as represented, but consistently and deliberately failed to reveal its products’
 27 security flaws to consumers, thereby continuing the false impression created by its partial
 28 statements. Apple not only failed to disclose that material information, which was in its

1 exclusive possession, but took active steps to conceal it. Plaintiffs allege that, as a result of
 2 Apple's conduct, Plaintiffs and millions of other people purchased iDevices reasonably believing
 3 that they were secure when, in fact, they are not, and then downloaded Apps, including the Apps
 4 manufactured by the App Defendants, and suffered the unexpected and unauthorized theft of
 5 their personal data.

6 5. Plaintiffs seek damages, injunctive relief, and disgorgement of the unjust
 7 enrichment and ill-gotten profits gained by defendants through their misconduct, as well as an
 8 injunction against Defendants' ongoing misconduct, including their use of wrongfully obtained
 9 address book data, among other relief.

10 JURISDICTION AND VENUE

11 6. This Court has original jurisdiction of this action under the Class Action Fairness
 12 Act of 2005. The amount-in-controversy exceeds the sum or value of \$5,000,000 exclusive of
 13 interest and costs, there are 100 or more class members, and there is minimal diversity because
 14 certain members of the class are citizens of a different state than any Defendant as required by 28
 15 United States Code section 1332(d)(2).

16 7. This Court also has supplemental subject matter jurisdiction over Plaintiffs'
 17 related state law claims under 28 United States Code section 1367.

18 8. This Court has personal jurisdiction over Defendants. Each Defendant regularly
 19 conducts business in this judicial district and this action arose, at least in part, out of each
 20 Defendant's business in this judicial district. Each App Defendant (defined below) has done
 21 substantial business in California, with Apple, including appointing Apple as their agent to
 22 market and deploy the Apps to Plaintiffs' iDevices, which constitutes part of the conduct from
 23 which this action arose. The following Defendants are also headquartered within this federal
 24 judicial district: Apple, Inc., Electronic Arts, Inc., Foodspotting, Inc., Hipster, Inc., Instagram,
 25 LLC, Path, Inc., Twitter, Inc., and Yelp! Inc. All Defendants have sufficient minimum contacts
 26 with the United States, California, and this judicial district so that they are amenable to service of
 27 process, including under California's long-arm statute, and so that requiring them to respond to
 28 this action would not violate due process. This Court's jurisdiction over Defendants has been

1 confirmed in prior court rulings and/or by Defendants appearing without an objection to personal
2 jurisdiction.

3 9. Venue is proper in this District under 28 United States Code section 1391(b)
4 because each Defendants' improper conduct alleged in this Complaint occurred in, was directed
5 from, and/or emanated from, in whole or in part, this judicial district. Additionally, the Court
6 previously determined in its transfer order (Dkt. No. 217) that venue of this action is proper for
7 all Defendants in the Northern District of California.

8 **THE PARTIES**

9 **Plaintiffs**

10 10. Plaintiff Lauren Carter is resident of the state of California.

11 11. Plaintiffs Allen Beuershausen, Claire Hodgins, Gentry Hoffman, Rachelle King,
12 Nirali Mandaywala, Claire Moses, Judy Paul, and Greg Varner are residents of the state of
13 Texas.

14 12. Plaintiff Giuliana Biondi is a resident of the state of Alabama. During the time of
15 the conduct at issue in this case, she was a resident of the state of Texas.

16 13. Plaintiff Stephen Dean is a resident of the state of Illinois. During the time of the
17 conduct at issue in this case, he was a resident of the state of Texas.

18 14. Plaintiff Stephanie Dennis-Cooley is a resident of the state of Virginia.

19 15. Plaintiff Jason Green is a resident of the state of Arkansas.

20 16. Plaintiff Maria Pirozzi is a resident of the state of New Jersey.

21 17. Plaintiff Theda Sandiford is a resident of the state of New York. During the time
22 of the conduct at issue in this case, she was a resident of the state of Texas.

23 18. As described in more detail below, each Plaintiff purchased one or more iDevices
24 after being exposed to Apple's continuous and deliberate media campaign concerning the
25 security and safety of the iDevices, with the expectation that iDevices were secure (in particular,
26 with respect to address book data), and that they either would not have purchased or would not
27 have paid as much for those iDevices had the true facts concerning the insecurity of the iDevices
28 been known to them. As further described in those paragraphs, many of the Plaintiffs

1 subsequently had personal information taken from their iDevices without their consent by one or
2 more of the App Defendants.

3 Defendants

4 19. Defendant Apple, Inc. is a California corporation licensed to do business in
5 California and throughout the United States. Its principal place of business is located in
6 Cupertino, California. Apple has appeared in this action. At all relevant times, Apple designed,
7 manufactured, promoted, marketed, distributed, and/or sold the Apple iDevices throughout the
8 United States and California. Apple also sells Apps (including third party Apps) for iDevices in
9 its App Store, and receives a portion of fees for Apps that it sells in the App Store. The App
10 Store is operated from Apple's offices in the United States.

11 20. The following defendants are referred to collectively as the "App Defendants."

12 21. Defendant Chillingo Ltd. ("Chillingo") is a United Kingdom limited company
13 with its principal place of business at Beechfield House, Winterton Way, Macclesfield, SK 11
14 OLP, United Kingdom.

15 22. Defendant Electronic Arts Inc. ("Electronic Arts") is a Delaware corporation with
16 its principal place of business in Redwood City, California.

17 23. Defendant Foodspotting, Inc. ("Foodspotting") is a Delaware corporation with its
18 principal place of business in San Francisco, California.

19 24. Defendant Foursquare Labs, Inc. ("Foursquare Labs") is a Delaware corporation
20 with its principal place of business in New York, New York.

21 25. Defendant Gowalla Inc. ("Gowalla") is a Delaware corporation with its principal
22 place of business in Austin, Texas.

23 26. Defendant Hipster, Inc. ("Hipster") is a Delaware corporation with its principal
24 place of business in San Francisco, California. Hipster has already been served with process
25 twice in the Opperman case through its registered Delaware agent for service of process, Agents
26 and Corporations, Inc., 1201 Orange Street, Suite 600, One Commerce Center, Delaware 19801,
27 but has not appeared and default has been entered against it on Opperman Plaintiffs' Second
28 Amended Complaint. Dkt. Nos. 103, 346. Solely as against Hipster and in furtherance of that

entry of default and to pursue default judgment, Plaintiffs from the *Opperman* case maintain and expressly incorporate herein the allegations and claims of their Second Amended Complaint, Dkt. No. 103, against Hipster. The present document is not intended to amend Plaintiffs' action against Hipster.

27. Defendant Instagram, LLC ("Instagram") (originally named as Instagram, Inc.) is a Delaware limited liability company. On information and belief, Instagram's principal place of business is in San Francisco, California.

28. Defendant Kik Interactive, Inc. ("Kik Interactive") is a Canadian corporation with its principal place of business in Waterloo, Ontario, Canada. Kik Interactive has done substantial business in California, including with Apple since 2010. Plaintiffs' claims against Kik Interactive arise, in whole or in part, out of that business conducted by Kik Interactive in California, including the joint development with Apple of Kik Messenger (the Kik Interactive App at issue), and the marketing and distribution of Kik Messenger through the Apple App Store. Kik Interactive appointed Apple as its agent in connection with Kik Messenger, and Apple, operating from California in furtherance of that role, marketed Kik Messenger to Plaintiffs and deployed Kik Messenger on Plaintiffs' iDevices.

29. Defendant Path, Inc. ("Path") is a Delaware corporation with its principal place of business in San Francisco, California.

30. Defendant Rovio Entertainment, Ltd. s/h/a Rovio Mobile Oy ("Rovio") is a Finland corporation with its principal place of business in Espoo, Finland. Rovio has done substantial business in California, including with Apple since 2009. Plaintiffs' claims against Rovio arise, in whole or in part, out of that business conducted by Rovio in California, including the joint development with Apple of Angry Birds Classic (the Rovio App at issue), and the marketing and distribution of Angry Birds Classic through the Apple App Store. Rovio appointed Apple as its agent in connection with Angry Birds Classic, and Apple, operating from California in furtherance of that role, marketed Angry Birds Classic to Plaintiffs and deployed Angry Birds Classic on Plaintiffs' iDevices.

31. Defendant Twitter, Inc. (“Twitter”) is a Delaware corporation with its principal place of business in San Francisco, California.

32. Defendant Yelp! Inc. (“Yelp”) is a Delaware corporation with its principal place of business in San Francisco, California.

33. Defendant ZeptoLab UK Limited, also known as ZeptoLab (“ZeptoLab”) is a United Kingdom limited company in London, United Kingdom. ZeptoLab has done substantial business in California, including with Apple since 2010. Plaintiffs’ claims against ZeptoLab arise, in whole or in part, out of that business conducted by ZeptoLab in California, including the joint development with Apple of Cut the Rope (the ZeptoLab App at issue), and the marketing and distribution of Cut the Rope through the Apple App Store. ZeptoLab appointed Apple as its agent in connection with Cut the Rope, and Apple, operating from California in furtherance of that role, marketed Cut the Rope to Plaintiffs and deployed Cut the Rope on Plaintiffs’ iDevices.

SUBSTANTIVE ALLEGATIONS¹

Apple and its iDevices

34. Apple has the highest value of any corporation in the United States (nearly \$480 billion), and is ranked fifth in the Forbes 500 with over \$170 billion in annual revenue. A 2012 survey reported that half of all American households owned an Apple product, and Apple has over 41 percent of the United States market-share for smartphones. The Apple brand is one of the most recognizable in history. As discussed in more detail below, Apple’s enormous scale and omnipresent role in American life means that every representation, promise, hint, or even rumor about Apple’s products quickly spreads through traditional and non-traditional media to virtually the entire population of this country.

¹ Pursuant to the parties’ Stipulation to Preserve Appellate Rights of Previously Asserted Claims, filed concurrently with this amended complaint, Plaintiffs have not replied certain claims and factual allegations related to those claims.

1 35. Since Apple launched the first iPhone in June 2007, iDevices have propelled the
2 company's popularity and revenue, and have been a game-changer for Apple and the mobile
3 device industry in general.

4 36. A similar revolution occurred with the iPad, a tablet based touch-screen computer
5 whose impact on society and the computer industry was aptly summarized in the title of an
6 online article published by businessinsider.com in 2013: "How the iPad Totally Changed The
7 World In Just Three Years."

8 37. The iPod touch is a portable digital music and media player that utilizes Apple's
9 proprietary iOS mobile operating system, and includes the ability to run most of the same Apps
10 as an iPhone, essentially operating for purposes of this case as an iPhone without the phone
11 capability.

12 38. iDevices come with a written limited warranty with a warranty period of one year
13 from the date of purchase. Additional extended warranties were not available for purchase.

14 **The App Store and Apple's Control Over App Development**

15 39. In addition to their innovative hardware and operating system, iDevices'
16 popularity and utility are driven by ready availability of mobile software applications ("Apps")
17 for these iDevices. Apps are available exclusively from an Apple-controlled "App Store" which
18 was launched in July 2008. Unlike most other manufacturers' mobile devices, iDevices run in a
19 closed environment where third party software cannot be added except through the App Store.
20 Apple has exclusive control over what Apps are available in the App Store, and the iDevices are
21 designed to only accept software downloads from the App Store (thus, for example, clicking a
22 link on a bank website for the bank's iPad App will take the consumer to the App Store; the bank
23 cannot offer the software directly).

24 40. The App Store and the availability of numerous Apps to perform different
25 functions are key parts of Apple's marketing strategy and the popularity of the iDevices. Since
26 the launch of the App Store, Apple's Annual Report to shareholders has cautioned that "[t]he
27 Company believes decisions by customers to purchase its hardware products depend in part on
28 the availability of third-party software applications and services for the Company's

1 products...with respect to iOS devices, the Company relies on the continued availability and
 2 development of compelling and innovative software applications, which are distributed through a
 3 single distribution channel, the App Store.”

4 41. Each iDevice comes pre-programmed with certain built-in Apps created by
 5 Apple. These Apple Apps cannot be deleted from the iDevice. Access to the App Store is
 6 provided through one of the built-in Apps and provides iDevice purchasers with instant access to
 7 any App available through the App Store. Another built-in Apps is the Contacts App as
 8 discussed further below.

9 42. Apple boasts approximately 700,000 Apps in the App Store for the iPhone/iPod
 10 Touch and around 275,000 Apps designed specifically for the iPad. Since July 2008, well over
 11 40 billion Apps have been downloaded by customers using iDevices. The App Store generated
 12 \$1.782 billion in revenues in 2010, \$6.9 billion in 2011, and was on track to generate over \$9
 13 billion for calendar year 2012. While Apple shares App Store revenue with developers, it
 14 nevertheless profits from the Apps directly through sales and, more importantly, through the
 15 increased popularity of its iDevices. For example, Apple reported third-party App sales were
 16 one of the primary contributors to the \$13.8 billion increase in Apple’s net sales for its North
 17 American segment in 2011 along with the higher sales of the iPhone.

18 43. Apple prides itself on complete control over its products. Apple’s former Chief
 19 Executive Officer (“CEO”) Stephen Jobs publicly stated, “[O]ur job is to take responsibility for
 20 the complete user experience. And if it’s not up to par, it’s our fault, plain and simply.”

21 44. To offer an application for download in the App Store, a third-party developer
 22 must be registered as an “Apple Developer,” agree to the iOS Developer Program License
 23 Agreement with Apple, and pay a \$99 yearly registration fee. Apple provides third-party
 24 developers with review guidelines, and conducts a review of all applications submitted for
 25 inclusion in the App Store for compliance with these documents. Developers are then licensed to
 26 use proprietary Apple software, code and tools—the same ones that Apple created and uses—to
 27 build iDevice Apps. Together, this Apple software (collectively known as the Apple iOS
 28 “Software Development Kit” or “SDK”) and App Developer Program resources provide App

1 developers access to a wealth of information, tools, diagnostics and technical support services
2 that Apple designed and published to facilitate and expedite the development of Apps for
3 Apple's iDevices.

4 45. The resources Apple provides to these participants include editing software,
5 simulators, forums, guides, design and approval criteria, code, code resources and libraries,
6 APIs, performance enhancing tools, testing software, and mentoring via access to Apple
7 engineers who "provide...code-level assistance, helpful guidance, [and] point [the developer]
8 towards the appropriate technical documentation to fast-track [his/her] development process."

9 46. Thus, App developers do not start from scratch; Apple provides App developers
10 all the pieces and components pre-built that they need to build iDevice Apps. As a result, all
11 iDevice Apps were built, in part, by Apple.

12 47. The App Store Review Guidelines set forth the technical, design, and content
13 guidelines Apple will use when reviewing an App for inclusion in Apple's App Store. These
14 guidelines state that Apps "cannot transmit data about a user without obtaining the user's prior
15 permission and providing the user with access to information about how and where the data will
16 be used." In addition, Apple's requirements purport to require that Apps empower users to
17 control access to user or device data, and require user consent before user or device data can be
18 collected. Before allowing Apps into the App Store, Apple requires developers to submit their
19 App and wait for approval or rejection by Apple (and rejected Apps are given feedback on the
20 reason they were rejected so they can be modified and resubmitted). Apple has sole discretion
21 over the App approval process and may reject a proposed App for any reason. Apple may
22 further unilaterally choose to cease distributing any App at any time and for any reason. Apple
23 has explicitly reserved the right to cease distributing any App that, among other things, (i) the
24 App developer breaches the terms and conditions of the licensing agreements, (ii) the App
25 developer provides Apple with inaccurate documents or information, or (iii) if Apple has been
26 notified or has reason to believe that the App violates, misappropriates, or infringes the rights of
27 a third party.

1 48. Apple also requires each App developer to re-submit his or her App for another
2 round of testing and compliance verification whenever a change, update, or new version is built.

3 49. In addition to having exclusive control of the Apps offered for sale or download at
4 the App Store, Apple controls the App development process. For example, App developers must
5 buy and use Apple's Software Development Kit, which provides highly detailed guidelines for
6 App development.

7 50. After Apple approves and provides a digital certificate for an App, Apple then
8 markets, promotes, sells and deploys the App through the App Store, collecting all gross
9 revenues and sales taxes. Apple retains 30 percent of the sale price of an App or any subsequent
10 "digital goods" sold through an App, and 60 percent of any additional future revenues from Apps
11 that incorporate Apple's iAd advertising program. Apple pays any applicable state sales tax for
12 an App sale (for both itself and the App developer) based upon the stored account address it has
13 for the recipient iDevice owner.

14 51. Apple contracts to serve as each App developer's agent for its App for these tasks.

15 52. Despite Apple's public statements that it protects its iDevice owners' privacy,
16 Apple's App Developer Program tutorials and developer sites (which Apple does not make
17 available to consumers) teach App developers just the opposite—how to code and build Apps
18 that non-consensually access, use and upload the mobile address books maintained on Apple
19 iDevices—precisely what these App Defendants' identified Apps did. As App developers, the
20 App Defendants were exposed to and aware of these tutorials and developer sites and, on
21 information and belief, their personnel utilized them to build the identified Apps.

22 53. Apple thus completely controls owners' experience from development of the
23 iDevice, development and selection of the Apps available at the App Store, as well as restriction
24 of how the iDevice can be modified by owners (*e.g.*, such as blocking owners from modifying
25 their devices or installing unapproved software on their Apple Devices). Through the iOS
26 Developer Program License Agreement, Apple further restricts information concerning the
27 development process and prohibits developers from publicly discussing Apple's standards for
28 App development.

Contacts on the iDevices

54. As discussed above, each iDevice comes pre-loaded with, among other things, an Apple “Contacts” App. The Contacts App allows iDevice owners to customize address books using the following fields: (1) first and last name and phonetic spelling of each, (2) nickname, (3) company, job title and department, (4) address(es), (5) phone number(s), (6) e-mail address(es), (7) instant messenger contact, (8) photo, (9) birthday, (10) related people, (11) homepage, (12) notes, (13) ringtone, and (14) text tone.

55. When the owner first receives the iDevice, all of the fields for the Contacts App address book are blank. To utilize the Contacts App, the owner must individually input entries for each of the address book fields, using the touch screen key pad on the iDevice, or they can import contacts that they created on their computer. Address book data can be synced with a computer or cloud-based data sources.

56. In the recent words of the United States Supreme Court, “Modern cell phones are not just another technological convenience. With all they contain and all they may reveal, they hold for many Americans ‘the privacies of life.’” Riley v. California, 573 U.S. ____ (2014) (citations omitted). The information in the Contacts App is among the most private and personal of such information a user maintains on an iDevice. The address book data reflects the connections, associations, and relationships that are unique to the owner of the iDevice. The information stored therein, as well as the manner in which it is stored, is highly personal and private. Address book data is not shared, is not publicly available, is not publicly accessible, and is not ordinarily obtainable by a third party unless the owner physically relinquishes custody of his or her iDevice to another individual.

57. Most consumers are highly concerned about the privacy of their address book data. In a survey reported by the Berkeley Center for Law & Technology at the UC Berkeley School of Law published in July 2012, 81 percent of respondents said they would either probably or definitely not allow a social networking App to collect their contact list to suggest more friends, and 93 percent said they would probably or definitely not allow a coupon App to collect their contact list to send coupons to their contacts.

1 58. In addition to being highly private, the address book data has independent value,
2 both reflecting the effort required for the individual user to compile the data, and also its
3 commercial value to third parties.

4 59. Contact data is of particular commercial value to businesses engaged in profiting
5 from and exploiting social media, including through advertising. Even mere lists of addresses,
6 phone numbers, and email addresses are by themselves commodities available for sale in the
7 marketplace, but data reflecting the real-world social connections between people is of the
8 highest value, and has driven the titanic success of Facebook and others.

9 60. Address book data is exactly that type of richly valuable information. By taking
10 Plaintiff and other class members' address book data, Defendants acquired a road map to users'
11 personal lives, and were able to exploit that wrongfully obtained valuable data to grow of their
12 businesses.

13 **Apple's Ubiquitous Media Presence and the**
14 **Wide Dissemination of Its Statements**

15 61. Apple engaged in a long-term, widely distributed marketing campaign to
16 convince potential customers that Apple iDevices were safe and secure, and that they protected
17 consumers' privacy.

18 62. Apple's marketing campaign included traditional and non-traditional methods.
19 Apple was well aware that everything said by its CEO, Stephen Jobs, and other top executives,
20 especially involving Apple's policies and new products or versions, would be eagerly followed
21 by the media and the public. Such statements were invariably reported by thousands of media
22 outlets, dissected by pundits and bloggers, frequently posted on Apple's own website, and
23 available on countless websites and social media platforms, and thus made available to virtually
24 all potential customers.

25 63. Apple intentionally used this type of marketing campaign, sometimes referred to
26 as "earned media" or "buzz marketing," as a major part of its marketing and advertising strategy,
27 and as an adjunct to its traditional paid advertising. Apple even employed a "Worldwide Global
28 Director of Buzz Marketing" who worked on all the iPhone product launches.

64. According to data released by Dow Jones, Apple was mentioned approximately 89,222 times in English global print publications in 2010 and up to 130,511 times in 2011. Similarly, data shows that Apple product releases are widely reported. For example, when the new iPad was announced in January 2010, there was over 5.2 million posts on social networking sites, 70,796 news articles, 199,979 forum posts, and 246,866 blog entries within a one-month period. Adding to the reporting frenzy are the over one million third-party Apple developers who are invested in promoting and publicizing Apple buzz statements and marketing efforts to consumers.

65. A Nielsen study in 2013 found that “earned” media is the most trusted source of information in all countries it surveyed worldwide. It also found that earned media is the channel most likely to stimulate the consumer to action.

66. Apple also uses its website to feed the buzz, as well as to provide information directly to the public (including individuals who seek out additional information as a result of Apple’s publicity campaigns). Surveys show that Apple’s website is one of the most visible and highly trafficked in the world (with roughly 80 million unique visitors per month), and that consumers spend a good deal of time on Apple’s websites (usually around 1¼ hours). In 2008, Apple’s website, Apple.com, was the fifth most-visited retail site on Cyber Monday, the online shopping day after the Thanksgiving holiday weekend sales. By 2010, Apple’s website ranked second among online retailers. And by 2011, Apple had more online visitors to its website than Walmart and rivaled that of the New York Times.

67. Apple uses other technologies to communicate directly to consumers, including “Hot News” (a compilation of Apple announcements published by the company) and an RSS news stream. Consumers can sign up for these services and receive “news” articles and press releases by Apple and about Apple’s statements, advertisements, and product launches. These services also promote and disseminate statements made by Apple representatives at technology conferences. On information and belief, a large number of consumers and media outlets subscribe to those services.

1 68. Apple also utilizes informal but strategic leaks, as well as formal press releases to
2 publicize its products and deliver its marketing message to consumers.

3 69. According to Apple's Director for the App Store, Matthew Fischer, Apple relied
4 on traditional media, Apple's website, third-party websites, promotional emails, in Apple's own
5 brick-and-mortar retail stores, as well as unsolicited media coverage in the United States and
6 worldwide to advertise the launch of the App Store. Since launching the App Store on July 10,
7 2008, Apple has spent hundreds of millions of dollars on advertising the App Store. Apple also
8 touts the App Store as a key feature of its iDevices, for example in its widely disseminated
9 traditional print and television commercials, Apple emphasizes to consumers that "if you don't
10 have an iPhone, you don't have the App Store, so you don't have the world's largest selection of
11 apps that are this easy to find and this easy to download right to your phone...."

12 70. As Apple was creating the App Store and subsequent App market, Apple was also
13 ramping up its security settings for the next iteration of the iPhone (the iPhone 3G launched in
14 July 2008). Apple's efforts were aimed at creating widespread acceptance of the iPhone for
15 corporate use. As such, Apple aggressively marketed the iPhone as safe and secure for corporate
16 applications.

17 71. Apple communicated its message of safety in other ways as well, including
18 through its product literature and even on its receipts. For example, as Apple launched its
19 marketing effort for the iPhone 3G, Apple's privacy policy began using the phrase, "Your
20 privacy is a priority at Apple, and we go to great lengths to protect it." Apple has continuously
21 used this phrase and/or similar variations to expound its commitment to its customers' security.

22 72. Around 2010, Apple launched another marketing effort to demonstrate to
23 customers that it valued and protected their privacy. Like numerous prior product marketing
24 efforts, Apple purposely leaked information to amplify its media attention. In addition to the
25 "earned media" campaign, Apple also publicized its commitment to privacy by testifying before
26 the United States Senate. These efforts were part of Apple's campaign to convince consumers
27 that it is a trustworthy company that protected consumers' privacy.

73. Apple's marketing campaign was successful in convincing a large number of consumers that it could be trusted for protecting consumer privacy. For example, a 2009 consumer survey conducted by the Ponemon Institute ranked Apple eighth among all companies as "most trusted for privacy." In 2010, Apple ranked twelfth, in 2011 it ranked fourteenth, but in 2012, after the damaging revelations of various privacy violations, such as the one at issue in this case, it fell out of the top twenty.

74. Thus, since at least the inception of the iPhone in 2007 and up to the filing of this lawsuit, Apple has meticulously disseminated its privacy and security message to the public through traditional and non-traditional marketing efforts, with a particular emphasis on "earned media" and "buzz marketing," and a robust online presence through its website.

75. Apple's marketing campaign, the contents of which are described in greater detail below, has been widely disseminated through both traditional and non-traditional means, including channels Apple is uniquely positioned to exploit. In short, nothing Apple says goes unnoticed, but is repeatedly broadcast to a highly interested public audience worldwide.

Apple's Marketing of iDevices As Private and Secure

76. Apple's focus on privacy has been a cornerstone of its marketing strategy for the iPhone (and later iDevices) as well as for Apps. Since the first iPhone, Apple has claimed that it acts with the goal of protecting the customers' privacy and repeatedly marketed Apple's products as "safe" and "secure," pervasive themes running through Apple's traditional and non-traditional marketing efforts. The following are examples of the publicized representations that Apple has made regarding the safety, security, and privacy of Apple's iDevices, the address books as stored on these iDevices, and the iOS system (the operating system that runs on iDevices):

- i) On January 9, 2007, at the unveiling of the iPhone, Apple's CEO Stephen Jobs stated that Apple chose to use the iOS operating system on the iPhone because "it's got everything we need...*We've been doing this on mobile computers for years. It's got awesome security...*It's got all the stuff we want...Not the crippled stuff that find on most phones. This is real, desktop-class applications." (Ex. A (emphasis added).) Video clips

of this presentation as posted on YouTube.com have generated well-over one million views. Furthermore, these statements were made at the Apple MacWorld 2007 conference and were widely publicized and disseminated through the mainstream and non-traditional media.

ii) The April 10, 2007 Apple Customer Privacy Policy as available on the Apple website stated, “***Apple takes precautions***—including administrative, technical, and physical measures—***to safeguard your personal information*** against loss, theft, and misuse, as well as unauthorized access, disclosure, alteration, and destruction.” (Ex. B (emphasis added).) These representations and similar variations, such as “Apple takes the security of your personal information very seriously” have been continuously available on Apple’s Apple Store website. This statement was widely publicized and disseminated through the mainstream and non-traditional media.

iii) On May 30, 2007 at the D5 conference, *i.e.* All Things Digital Conference, hosted by the Wall Street Journal, Mr. Jobs stated in response to a question as to whether the iPhone will be opened up to App developers in the future, “This is a very important tradeoff between security and openness, right, and what we want is we want both. We want to have our cake and eat it too.” He also said, “Until we find that way, ***we can’t compromise the security of the phone.***” (Ex. C (emphasis added).) As the sponsor, the Wall Street Journal covered the conference in a worldwide report. In addition, other mainstream and non-traditional media widely publicized the conference. This statement was widely publicized and disseminated through the mainstream and non-traditional media.

iv) During the keynote presentation at the June 11, 2007 Apple Worldwide Developer Conference (“WWDC”), Mr. Jobs claimed that Apple had

1 innovated a way to “let[] developers write great apps and yet *keep the*
 2 *iPhone reliable and secure.*” Mr. Jobs emphasized that Apple had
 3 selected Web 2.0 apps that would be “*sandboxed* on the iPhone,” meaning
 4 “they *run securely on the iPhone so they don’t compromise its security*
 5 *or reliability.*” “[T]hey’re secure, with the same sort of security you’d use
 6 for transactions with Amazon or a bank,” he explained to the crowd.
 7 In a follow-up press release titled *iPhone to Support Third-Party Web 2.0*
 8 *Applications*, also issued in connection with the WWDC on June 11, 2007,
 9 by Apple representative Stephen Dowling, Apple stated, “Third-party
 10 applications created using Web 2.0 standards can extend iPhone’s
 11 capabilities without compromising its reliability or security...Our
 12 innovative approach, using Web 2.0-based standards, lets developers
 13 create amazing new applications while keeping the *iPhone secure and*
 14 *reliable.*” (Ex. D (emphasis added).) The described statements in Mr.
 15 Jobs’ keynote regarding iPhone security and this press release were both
 16 widely disseminated and publicized in the news media, and via online
 17 reports and blogs, with numerous media outlets covering the keynote in
 18 real time and live-blogging it to the online versions of their news sites.
 19 Apple also immediately posted a video of Mr. Jobs’ keynote on its
 20 website, made it available to consumers via a QuickTime video-on-
 21 demand, and kept it posted and available for several years. The keynote
 22 video has also been posted to YouTube, where it remains posted and
 23 available and has received over 500,000 views. Further, Apple directly
 24 disseminated this statement to consumers and interested media through its
 25 Hot News service and RSS news feed. This statement was widely
 26 publicized and disseminated through the mainstream and non-traditional
 27 media. As with all of Apple’s press releases, the press release was posted
 28 to its website and remained available there.

- 1 v) On or about October 18, 2007, Apple posted an open letter, again from
2 Mr. Jobs, on its website regarding its decision to delay allowing outside
3 App developers to create and run Apps on the iPhone. The letter
4 explained that Apple intended to wait to roll out the software development
5 package for App developers until it could ensure that it could “**protect**
6 **iPhone users** from viruses, malware, privacy attacks, etc.” (Ex. E
7 (emphasis added).) This statement was widely publicized and
8 disseminated through the mainstream and non-traditional media.
- 9 vi) On or about March 6, 2008, at an event promoting the App Store, Mr. Jobs
10 stated, “You [the consumer] don’t have to worry about 3rd party Apps
11 mucking it up. On the other side you’ve got a Windows PC where people
12 spend a lot of time every day making it usable. **We want to take the best**
13 **of both: reliability of the iPod, but the ability to run 3rd party Apps.**
14 They get an electronic certificate... if they write a malicious app we can
15 track them down and tell their parents...We define the software on the
16 phone, we run the dev program, we distribute the Apps! This is our
17 program, and we’re running it.” He further stated, “Now, will there be
18 some limitations? Of course. **There are going to be some Apps that we’re**
19 **not going to distribute.** Porn, malicious Apps, **Apps that invade your**
20 **privacy. So there will be some Apps that we’re going to say no to....**”
21 (Ex. F (emphasis added).) This statement was widely publicized and
22 disseminated through the mainstream and non-traditional media.
- 23 vii) Beginning on or about July 11, 2008, upon Apple’s launch of the iPhone
24 3G, Apple’s product page explained why the iPhone was the “best phone
25 for business. Ever.” The webpage stated that the iPhone “delivers **secure**
26 **access** to corporate intranets” and corporate resources, and “companies
27 can **securely sync.**” (Ex. G (emphasis added).) These statements were
28 part of Apple’s concentrated marketing strategy and efforts to sell the

iPhone to business-users. This statement was widely publicized and disseminated through the mainstream and non-traditional media.

- viii) On or around July 20, 2008, as available on the Apple website, Apple's privacy policy began using the phrase "***Your privacy is a priority at Apple, and we go to great lengths to protect it.***" (Ex. H (emphasis added).) Apple continuously used this phrase and/or variations of it (*i.e.* "Your privacy is important to Apple.") in all subsequent iterations of its privacy policy. This statement was widely publicized and disseminated through the mainstream and non-traditional media.
- ix) On or around August 28, 2008, in an article, *Apple Working on iPhone Software Update to Fix Security Flaw*, Apple issued a statement that it was "readying a software update to the iPhone, fixing a security flaw in the device ***that gives unauthorized access to contacts and e-mails.***" In the article, Apple spokeswoman Jennifer Bowcock said, "We are aware of this bug." This article was widely publicized and disseminated through the mainstream and non-traditional media.
- x) Since 2009, Apple's "iPhone User Guide for iPhone OS 3.1 Software," and on information and belief subsequent versions of the same, which were publicly available on the Apple website, stated that the iPhone's security features "protect the information on the iPhone from being accessed by others." (Ex. I.)
- xi) The March 17, 2009 version of Apple's iOS Developer Program License Agreement stated: "Any form of user or device data collection...must comply with all applicable privacy laws and regulations as well as any Apple program requirements related to such aspects, including but not limited to any notice or consent requirements." (Ex. J.) Apple continuously used this phrase and/or variations of it in all subsequent iterations of its Developer Program License Agreement. This statement

1 was widely publicized and disseminated through the mainstream and non-
2 traditional media.

3 xii) On or around June 1, 2009, Apple's product description, *iPhone in*
4 *Business – Security Overview*, as available on the Apple website, stated,
5 “[an] *iPhone can securely access corporate services and protect data on*
6 *the device*. It provides strong encryption for data in transmission, proven
7 authentication methods for access to corporate services, and for iPhone
8 3GS, hardware encryption for all data stored on the device.” (Ex. K
9 (emphasis added).) These statements were part of Apple's concentrated
10 marketing strategy to sell the iPhone to business-users. This statement
11 was widely publicized and disseminated through the mainstream and non-
12 traditional media.

13 xiii) On or around June 19, 2009, after the launch of the new iPhone 3G,
14 Apple's webpage advertised the iPhone's security features as making
15 “each *iPhone secure and ready for business*[.]” (Ex. L (emphasis
16 added).) The iPhone 3G incorporated Microsoft Exchange, along with a
17 host of other pro-business updates, which was advertised as enabling a
18 company's IT administrators to “*securely manage any iPhone*[.]” (Ex. L
19 (emphasis added).) These statements were part of Apple's concentrated
20 marketing strategy to sell the iPhone to business-users. This statement was
21 widely publicized and disseminated through the mainstream and non-
22 traditional media.

23 xiv) In a November 22, 2009 article, *Apple's Schiller Defends iPhone App*
24 *Approval Process*, published by the widely distributed Bloomberg
25 Businessweek, Apple's senior vice president for worldwide product
26 marketing, Phil Schiller, stated, “[Apple has] built a store for the most part
27 that *people can trust*,” and that “We [(Apple)] review the applications to
28 make sure they work as the customers expect them to work when they

download them.” In discussing Apps that were not approved, Schiller said, “There have been applications submitted for approval ***that will steal personal data***, or which are intended to help the user break the law, or which contain inappropriate content.” (Ex. M (emphasis added).) This statement was widely publicized and disseminated through the mainstream and non-traditional media.

xv) In an April 8, 2010 Apple press release, *Apple Previews iPhone 4 OS*, by Apple representative Trudy Muller, Apple stated that the operating system provides “enhanced Enterprise support with ***even better data protection***, ...New enterprise features in iPhone OS 4 include ***improvements in security***,...The ***new Data Protection feature***...iPhone OS 4 now provides the option to set longer, more complex passcode, ***making the iPhone and its data even more secure***.” (Ex. N (emphasis added).) Apple directly disseminated this statement to consumers and interested media through its Hot News service and RSS news feed. All of Apple’s press releases are posted to its website and remain available there. This statement was widely publicized and disseminated through the mainstream and non-traditional media.

xvi) In a May 2010 email correspondence to Valleywag website editor Ryan Tate, Mr. Jobs stated that the App Store provides “***freedom from programs that steal your private data***. Freedom from programs that trash your battery. Freedom from porn. Yep, freedom. The times they are a changin’, and some traditional PC folks feel like their world is slipping away. It is [.]” (Ex. O (emphasis added).) This email and statement were widely publicized and disseminated through the mainstream and non-traditional media.

xvii) On June 1, 2010, at the D8 Conference, or the All Things Digital Conference, hosted by the Wall Street Journal, Mr. Jobs stated, “***We take***

1 *privacy extremely seriously*...That's one of the reasons we have the
 2 curated Apps store. We have rejected a lot of Apps that want to take a lot
 3 of your personal data and suck it up into the cloud....” (Ex. P (emphasis
 4 added).) He also stated, “[P]rivity means people know what they’re
 5 signing up for, in plain English, and repeatedly. That’s what it means.
 6 ... And some people want to share more data than other people do. Ask
 7 ‘em. Ask ‘em every time. Make them tell you to stop asking them if they
 8 get tired of your asking them. Let them know precisely what you’re
 9 going to do with their data. That’s what we think.” As the sponsor, the
 10 Wall Street Journal covered the conference and publicized Mr. Jobs’
 11 statements. In addition, other mainstream and non-traditional media
 12 outlets widely publicized the conference.

13 xviii) On or around June 7, 2010 at Apple’s World Wide Developer Conference
 14 in San Francisco, California, Mr. Jobs announced that Apple’s products,
 15 including iDevices, will have “[e]ven better *data protection*[.]” (Ex. Q.)
 16 The Conference has been hosted by Apple since the 1990s. The 2010
 17 Conference was particularly popular, Apple sold out of the 5,000 tickets
 18 (priced at \$1,599 each) within twelve hours. The Conference was widely
 19 reported by mainstream and non-traditional media and reached consumers,
 20 some of whom posted online comments regarding Apple’s presentations
 21 and products.

22 xix) In a June 7, 2010 article, *Recap: Apple Announces New iPhone*, as
 23 published by the Wall Street Journal regarding Apple’s World Wide
 24 Developer Conference, Mr. Jobs was quoted as calling the App Store a
 25 “curated platform” because it is “the most vibrant app store on the planet.”
 26 (Ex. R.) This statement was widely publicized and disseminated through
 27 the mainstream and non-traditional media.
 28

xx) Since July 2010, Apple’s website consistently represented the iPhone as “*Safe and secure by design*. iOS 4 [the iPhone operating system] is *highly secure* from the moment you turn on your iPhone. *All Apps run in a safe environment*, so a website or app can’t access data from other Apps. iOS 4 supports encrypted network communication to protect your sensitive information....” For example, with the release of Apple’s iOS 4 software, Apple touted: “iOS 4 is highly secure from the moment you turn on your iPhone. All apps run in a safe environment, so a website or app can’t access data from other apps. iOS 4 supports encrypted network communication to protect your sensitive information. Optional parental controls let you manage iTunes purchases, Internet browsing, and access to explicit material. To guard your privacy, apps requesting location information must get your permission first. You can set a passcode lock to prevent unauthorized access to your phone and configure iPhone to delete all your data after too many unsuccessful passcode attempts.” This message was substantially repeated at all relevant times. In September 2012, Apple extended the safety message to all devices and provided on its website that “iOS is highly secure from the moment you turn on your device. All apps run in a safe environment, so a website or app can’t access data from other apps. iOS also supports encrypted network communication to protect your sensitive information. To guard your privacy, apps requesting location information are required to get your permission first. You can set a passcode lock to prevent unauthorized access to your device and configure it to delete all your data after too many unsuccessful passcode attempts.” This statement was widely publicized and disseminated through the mainstream and non-traditional media.

xxi) On or around September 9, 2010, Apple published the App Store Guidelines on the Apple website, which stated, “Developers that attempt to reverse lookup, trace, relate, associate, mine, harvest, or otherwise exploit Player IDs, alias, or other information obtained through the Game Center will be removed from the iOS Developer Program.” (Ex. S.) The Guidelines also stated, “*Apps cannot transmit data about a user without obtaining the user’s prior permission and providing the user with access to information about how and where the data will be used.*” Apps that require users to share personal information, such as email address and date of birth, in order to function will be rejected.” Since this version, the Guidelines have continuously represented that Apple will reject Apps that transmit data without consent or remove private user data. These guidelines were publically posted on Apple’s website. To further promote dissemination of the Guidelines to consumers, Apple linked this webpage to other webpages on its website to promote its claim that Apps were reliable, performed as expected, and were free from material that take users’ data. This statement was widely publicized and disseminated through the mainstream and non-traditional media.

xxii) On or before September 9, 2010, Apple’s 2010 License Agreement Update stated that “You [(App developers)] and *Your Applications may not collect user or device data without prior user consent*, and then only to provide a service or function that is directly relevant to the use of the Application, or to serve advertising. You may not use analytics software in Your Application to collect and send device data to a third party.” This statement was widely publicized and disseminated through the mainstream and non-traditional media. For example, this was discussed in an article, *A Taste of What’s New in the Updated App Store License Agreement*, by John Gruber. (Ex. T (emphasis added).)

xxiii) In a December 17, 2010 article, *Your Apps Are Watching You*, by Scott Thurm and Yukari Iwatani Kane of the Wall Street Journal, Apple spokesman Tom Neumayar was quoted as stating: “We have created ***strong privacy protections for our customers . . . Privacy and trust are vitally important.***” Mr. Neumayar further stated that iPhone Apps “***cannot transmit data about a user without obtaining the user’s prior permission and providing the user with access to information about how and where the data will be used.***” (Ex. U (emphasis added).) This statement was widely publicized and disseminated through the mainstream and non-traditional media.

xxiv) Starting at least as early as January 1, 2011, Apple’s official electronic receipts from Apple’s App Store stated, “***Apple respects your privacy***” across the bottom. On information and belief, billions of such receipts have been distributed.

xxv) In a February 15, 2011 Apple press release, *Apple Launches Subscriptions on the App Store*, by Apple representative Trudy Miller, Apple stated that “***Protecting customer privacy is a key feature*** of all App Store transactions.” (Ex. V (emphasis added).) Apple directly disseminated this statement to consumers and interested media through its Hot News service and RSS news feed. All of Apple’s press releases are posted to its website and remain available there. This statement was widely publicized and disseminated through the mainstream and non-traditional media.

xxvi) At or around the same time, after Apple’s launch of the App subscription service from the App Store, Apple’s website regarding the service stated, “Protecting ***customer privacy is a key feature*** of all App Store transactions.” This statement was widely publicized and disseminated through the mainstream and non-traditional media.

xxvii) In an April 27, 2011 article, *Apple Responds To Location Log Scrutiny With Extensive Q&A Response*, by Graham Spencer, Apple was asked, “Does Apple believe that personal information security and privacy are important?” Apple responded, “Yes, we strongly do. For example, iPhone was the first to ask users to give their permission for each and every app that wanted to use location. ***Apple will continue to be one of the leaders in strengthening personal information security and privacy.***” Apple further stated that it is leading the way when it comes to privacy. (Ex. W (emphasis added).) This statement was widely publicized and disseminated through the mainstream and non-traditional media.

xxviii) In the July 5, 2011 version of the Apple Developer Agreement, Apple stated, “You and Your Application ***may not collect user or device data without prior user consent***, and then only to provide a service or function that is directly relevant to the use of the Application, or to serve advertising. You may not use analytics software in Your Application to collect and send device data to a third party.” (Ex. X (emphasis added).) This statement was widely publicized and disseminated through the mainstream and non-traditional media.

xxix) In a February 15, 2012 article, *There’s an Easy Fix to Apple’s Latest iPhone Privacy Problem*, by Rebecca Greenfield for the Atlantic Wire, Mr. Jobs is quoted as having said, in regards to users’ privacy, “Ask them. Ask them every time. Make them tell you to stop asking if they get tired of you asking. Let them know precisely what you are going to do with their data.” (Ex. Y.) This statement was widely publicized and disseminated through the mainstream and non-traditional media.

77. In addition to these more general representations regarding the security and privacy of iDevices, Apple went further by publicizing the iDevices’ specific security features. In particular, Apple made repeated statements regarding the “sandboxing” security feature,

1 which compartmentalizes the Apps and their related data sets from each other. Apple
 2 represented that “sandboxing” protected and secured the owners’ iDevices—for example,
 3 preventing address book data stored in the Contacts App from being accessed by other, third-
 4 party Apps. Specifically, Apple made the following additional representations regarding
 5 sandboxing:

- 6 i) In a 2008 videotaped question and answer session after the introduction of
 7 the App Store, an Apple representative stated that Apple is “putting . . . a
 8 number of different things in place, from *sandboxing to other . . .*
 9 *technical things you want to do to protect applications and the [iPhone]*
 10 *system.*” Mr. Jobs, also stated that “...we think we’ve put in good
 11 safeguards where, if we miss something, we’ll be alerted to it real fast by
 12 users, and we’ll just turn off the spigot so no more users have problem[.]”
 13 This statement was widely publicized and disseminated through the
 14 mainstream and non-traditional media.
- 15 ii) In a 2010 scholarly article, *iPhone Privacy*, by Nicolas Seriot, an Apple
 16 representative stated, “*Applications on the device are ‘sandboxed’ so they*
 17 *cannot access data stored by other applications.* In addition, system files,
 18 resources, and the kernel are shielded from the user’s application space.”
 19 (Ex. Z (emphasis added).)
- 20 iii) In a February 23, 2011 statement at Apple’s annual shareholder meeting,
 21 Apple’s iOS development leader, Mr. Forstall, explained that the iOS was
 22 secure by mentioning its sandbox design that prevents viruses or malware
 23 from “stealing contacts.” He further stated that “sandboxing” provides
 24 iDevice security and prevents Apps from stealing contacts. This statement
 25 was distributed widely on the internet by appleinsider.com among other
 26 websites and media outlets. (Ex. AA.)
- 27 iv) In an April 27, 2011 article, *Stephen Jobs Discusses Location Tracking,*
 28 *Privacy*, by Federico Viticci for MacStories, Mr. Jobs, explained that the

1 system on iDevices “had **root protection and was sandboxed** from any
 2 other application[.]” (Ex. BB.) This statement was widely publicized and
 3 disseminated through the mainstream and non-traditional media.

- 4 v) In a June 18, 2011 article, *Security Through Sandboxing-Towards More*
 5 *Secure Smartphone Platforms*, by the Center for Computing Technologies,
 6 Apple stated, “**Applications on the device are ‘sandboxed’** so they cannot
 7 access data stored by other applications.” Apple’s head of iTunes, Greg
 8 Joswaik, was quoted for stating, “Why do we have these security
 9 mechanisms in [the iPhone]? ..[W]e want to secure the user’s data.
 10 Again, their E-mail, their contacts [sic], their pictures, et cetera.” (Ex. CC
 11 (emphasis added).) This statement was widely publicized and
 12 disseminated through the mainstream and non-traditional media.

13 78. In addition, Apple has repeatedly publicly stated that it has intentionally
 14 cultivated consumer confidence that Apple is protecting its customer’s private data, and in
 15 particular that Apple does not allow access to data stored on customers’ iDevices without prior
 16 notice and clear consent. Those public admissions include the following examples:

- 17 i) In an August 21, 2009 article, *Apple Answers the FCC’s Questions*, Apple
 18 stated, “We created an approval process that reviews every application
 19 submitted to Apple for the App Store in order to **protect consumer**
 20 **privacy**, safeguard children from inappropriate content, and avoid
 21 applications that degrade the core experience of the iPhone[.]”
 22 ii) In a July 12, 2010 letter to United States Representatives Markey and
 23 Barton, *Apple Inc.’s Response to Request for Information Regarding its*
 24 *Privacy Policy and Location Based Services*, by Apple’s general counsel
 25 and senior vice president of legal and government affairs, Bruce Sewell,
 26 Apple stated: “Apple is **committed to** giving its customers **clear notice**
 27 **and control over their information**, and we believe our products do this in
 28 a simple and elegant way.”

- 1 iii) On July 27, 2010 before the United States Senate, Apple’s vice president
 2 for software technology, Dr. Guy Tribble, repeated these themes in widely
 3 reported testimony: “Apple shares your [(the Senate’s)] concerns about
 4 privacy, and we remain *deeply committed to protecting the privacy of our*
 5 *customers* through a comprehensive approach implemented throughout
 6 the company. We’re committed to providing our customers with clear
 7 notice, choice, and control over their information.”
- 8 iv) In an April 12, 2011 sworn declaration, Apple’s director for the App
 9 Store, Matthew Fischer, stated that Apple’s “App Store name has a robust
 10 presence throughout the United States[.]...Apple has taken rigorous steps
 11 to ensure that software available from the service [*i.e.* Apps] does not
 12 include inappropriate content, viruses, or malware. Apple has invested in
 13 these screening measures because it views them as essential to building
 14 and maintaining *a public reputation for providing a service that offers*
 15 *safe, secure software that protects the integrity, performance, and*
 16 *stability of users’ mobile devices.*” Fischer further explained that Apple
 17 built this robust presence and public understanding through traditional
 18 media, Apple’s website, third-party websites, promotional emails, in
 19 Apple’s own brick-and-mortar retail stores, as well as through unsolicited
 20 media coverage in the United States and worldwide.
- 21 v) In May 10, 2011 written testimony of Dr. Tribble stated: “*Apple is deeply*
 22 *committed to protecting the privacy of our customers* who use Apple
 23 mobile devices, including iPhone, iPad and iPod touch. Apple has adopted
 24 a comprehensive privacy policy for all its products and implemented
 25 industry-leading privacy features in its products to protect our customers’
 26 personal data.” Dr. Tribble further testified: “We do not share personally
 27 identifiable information with third parties for their marketing purposes
 28 without consent, and we require third-party application developers to

1 agree to specific restrictions protecting our customers' privacy. *Apple is*
 2 *constantly innovating new technology, features and designs to provide*
 3 *our customers with greater privacy protection and the best possible user*
 4 *experience.*" He also testified: "Apple is strongly committed to protecting
 5 our customers' privacy. We give our customers clear notice of our privacy
 6 policies, and our mobile products enable our customers to exercise control
 7 over their personal information in a simple and elegant way."

8 vi) During an appearance in May 2011, before the United States Senate, Dr.
 9 Tribble testified that Apple goes beyond stated privacy policies to inform
 10 users of the use of their private information. Dr. Tribble also testified that
 11 Apple will "yank" Apps that are collecting private user data without users
 12 consent.

13 **Apple's Undisclosed Knowledge That Private Data**

14 **On The iDevices Is, In Fact, Not Secure**

15 79. Contrary to the repeated assurances Apple has provided to the public, Apple-
 16 approved Apps have repeatedly accessed, downloaded and copied owners' private address books
 17 without the owners' knowledge or consent.

18 80. In early February 2012, it was discovered that the Path App was uploading data
 19 stored on owners' iDevices (including address books and calendars) to its servers. The discovery
 20 of this data breach, which Apple had led the public to believe was impossible, was followed by a
 21 public admission and apology by Path's Chief Executive Officer.

22 81. The public revealing of these data thefts led to several Congressional inquiries
 23 and newspaper articles. At all times Apple contended that it had done nothing wrong and that it
 24 took necessary steps to protect consumers' private information.

25 82. However, while the Path's disclosures were the first well-known public
 26 examples of data theft by Apps, Apple was long aware that the address books were not actually
 27 secure.

83. In 2008, just a few weeks after the launch of the App Store, Apple approved and released the Aurora Feint App to the App Store, where it was downloaded and installed on hundreds of thousands of consumers' iDevices. Apple later removed the App when it was revealed to be transmitting iDevice owners' address books to the developer's servers without asking if it could do so. After a three-day ban from the App Store, it returned with Apple's approval (but this time missing the malicious portion that caused Apple to pull it). Apple again promoted the re-released Aurora Feint App on its "What We're Playing App Store" list despite the developer having just flouted Apple's policies and violated consumers' privacy.

84. The next year, four months after releasing the Google Voice App to the App Store and downloading and deploying the App to a substantial number of consumers' iDevices, Apple delisted that App. When questioned by the FCC about the removal of its competitor's App, Apple admitted that "the iPhone user's entire Contacts database is transferred to Google's servers, and we [Apple] have yet to obtain any assurances from Google that this data will only be used in appropriate ways."

85. Despite this clear knowledge that its prior and ongoing representations were false and misleading, Apple never disclosed to the public, including Plaintiffs, that iDevices could transmit the address books without owner input or authorization, that the "Contacts" feature and its address books were not sandboxed and lacked promised security protections, or that Apple had experienced repeated instances of Apps exploiting these security flaws.

86. To the contrary, Apple led consumers to believe that it timely addressed all vulnerabilities to keep the iDevices safe and secure. For example, on July 31, 2009, Apple made an iOS software upgrade available to fix a software vulnerability. Apple's spokesman said that the upgrade was offered less than 24-hours after Apple was alerted to the vulnerability. He assured consumers that "no one [was] able to take control of the iPhone to gain access to personal information using this exploit."

87. Apple actively concealed its failure to correct the security problem and the ability of Apps to access users' address book data without consent. For example, Apple removed BitDefender's Clueful, an App designed to inform its users of whether other Apps were stealing

1 their address books among other data. Apple also imposed a one-year ban on security researcher
 2 Charlie Miller when in late 2011, he intentionally passed a non-compliant App through Apple's
 3 review and onto the App Store in a proof-of-concept security test and reported to Apple the
 4 gaping security hole that he found in Apple's App procedures. Apple thus not only failed to
 5 reveal the iDevices' lack of security, it sought to prevent consumers from learning those facts
 6 and punished those who revealed them.

7 88. Even worse, despite its purported policies preventing data theft, Apple
 8 contractually required App developers to abide by its *iOS Human Interface Guidelines* reference
 9 manual included in Apple's iOS Developer Library, which made the following statements.

- 10 i) "Get information from iOS, when appropriate. People store lots of
 11 information on their devices. When it makes sense, *don't force people to*
 12 *give you information you can easily find for yourself, such as their*
 13 *contacts* or calendar information."
 14 ii) "It's often said that *people spend no more than a minute or two*
 15 *evaluating a new app. ... Avoid displaying an About window or a splash*
 16 *screen*. In general, try to *avoid providing any type of startup experience*
 17 *that prevents people from using your application immediately. Delay a*
 18 *login requirement for long as possible*. Ideally, users should be able to
 19 navigate through much of your app and understand what they can do with
 20 it before logging in."
 21 iii) "If possible, *avoid requiring users to indicate their agreement to your*
 22 *EULA when they first start your application*. Without an agreement
 23 displayed, users can enjoy your application without delay."

24 89. Thus, in direct conflict with the customer assurances and standards it espoused
 25 and purportedly mandated, Apple's *iOS Human Interface Guidelines* manual taught and
 26 suggested App developers to design and build Apps that: (a) directly and automatically accessed
 27 address books—particularly whenever the developer may desire it for collaborative or sharing
 28 purposes—without any prior alert(s) to the App user; and (b) download, operate, and function in

1 advance of any presentation of or user consent to an End User License Agreement (“EULA”) or
 2 privacy policy. In accord with Apple’s instructions, the App Defendants to Plaintiffs’
 3 recollection did not present either an EULA, terms of service, privacy policies or any other terms
 4 to Plaintiffs in advance of the download, installation, activation and initial operation on
 5 Plaintiffs’ respective iDevices of each App Defendants’ respective App.

6 **Actions of the Specific App Defendants Sued Here**

7 90. Each of the App Defendants here created and distributed an App, in conjunction
 8 with Apple, which improperly invaded Plaintiffs’ privacy and misappropriated address book data
 9 stored in the iDevices’ Contacts App without authorization to do so. Each App Defendant and
 10 Apple also worked together to jointly develop each App in question, to knowingly,
 11 collaboratively and repeatedly deploy on Plaintiffs’ and Class Members’ iDevices the Apps in
 12 question, which improperly invaded Plaintiffs’ privacy and misappropriated address book data as
 13 stored in the iDevices’ Contacts App without authorization to do so.

14 91. The App Defendants each followed Apple’s standard protocol for placing the
 15 Apps in question for distribution in the App Store. Each App Defendant collaborated with Apple
 16 to place their App for distribution in the App Store, collaborated with Apple to distribute the App
 17 through the App Store, and actually deployed their Apps to consumers in collaboration with
 18 Apple through the App Store.

19 92. Plaintiffs were not made aware of, nor did they consent to the taking of their data
 20 by the App Defendants.

21 **Gowalla**

22 93. App Defendant Gowalla built the Gowalla App using Apple-supplied components
 23 and tools, with Apple providing substantial assistance through the Program. Following Apple’s
 24 review (during which time Apple learned or should have learned of the App’s malicious,
 25 prohibited features), Apple released, promoted and deployed the Gowalla App on the App Store
 26 and served as Gowalla’s agent for the solicitation of orders for and the delivery of the App to
 27 iDevice end-users.

94. Without prior user consent, the Gowalla App uploaded iPhone address book data to Gowalla or someone acting on its behalf. As a consequence, Gowalla improperly obtained the address book data belonging to Plaintiffs and class members.

95. Apple did not remove the Gowalla App from the App Store even after being advised of its data theft. The Gowalla App remained available on the App Store to iDevice owners for more than a year after that, until it shut down.

96. Plaintiffs Beurhasen, Dean, King, Mandaywalla, Paul, Sandiford and Varner (the “Gowalla Plaintiffs”) each recall using the Gowalla App, logging in and navigating within the App to a “Find Friends” menu screen, and being offered various options (including an option entitled “Address Book”).

97. Gowalla benefitted substantially from its misappropriation of users' address books. On information and belief, the misappropriation of that property enabled the company to more rapidly grow its user base, avoid the costs of customer acquisition, enhance its social networking features, and increase the value of the company, among other benefits.

Hipster

98. Hipster has already been served with process twice in the above-captioned lead case through its registered Delaware agent for service of process, Agents and Corporations, Inc., 1201 Orange Street, Suite 600, One Commerce Center, Delaware 19801, but has not appeared and default has been entered against it on the Plaintiffs' Second Amended Complaint. Dkt. Nos. 103, 346. Solely as against Hipster and in furtherance of that entry of default and to pursue default judgment, Plaintiffs (Plaintiff King particularly) from the lead *Opperman* case maintain the allegations and claims of their Second Amended Complaint, Dkt. No. 103, against Hipster. Accordingly, the current pleading is not meant to amend the prior complaint as to Hipster.

Kik Interactive

99. App Defendant Kik Interactive built the Kik Messenger App using Apple-supplied components and tools, with Apple providing substantial assistance through the Program. Following Apple's review (during which time Apple learned or should have learned of the App's malicious, prohibited features), Apple released, promoted and deployed the Kik

1 Messenger App on the App Store and served as Kik Interactive's world-wide agent for the
2 solicitation of orders for and the delivery of the App to iDevice end-users.

3 100. Without prior user consent, the Kik Messenger App uploaded iDevice address
4 book data to Kik Interactive or someone acting on its behalf. As a consequence, Kik Interactive
5 improperly obtained the address book data belonging to Plaintiffs and class members.

6 101. Apple knew this was transpiring. Kik Messenger's viral growth taxed Apple
7 servers. Plus, reporters wrote up numerous reports with titles like, "Speedy Messaging App
8 Kik Goes Viral, But is It Cool With Apple's T[erms]O[f]S[ervice]?" and contacted Apple for
9 answers to these questions. Apple chose not to comment or warn consumers. Apple did not
10 remove the App from the App Store.

11 102. Plaintiffs Dennis-Cooley and Green (the "Kik Interactive Plaintiffs") each recall
12 using the Kik Messenger App, logging in, and navigating within the App.

13 103. Kik Interactive benefitted substantially from its misappropriation of users'
14 address books. On information and belief, the misappropriation of that property enabled the
15 company to more rapidly grow its user base, avoid the costs of customer acquisition, enhance its
16 social networking features, and increase the value of the company, among other benefits.

17 Path

18 104. App Defendant Path built the Path App using Apple-supplied components and
19 tools, with Apple providing substantial assistance through the Program. Following Apple's
20 review (during which time Apple learned or should have learned of the App's malicious,
21 prohibited features), Apple released, promoted and deployed the Path App on the App Store and
22 served as Path's world-wide agent for the solicitation of orders for and the delivery of the App to
23 iDevice end-users.

24 105. Without prior user consent, the Path App uploaded iDevice address book data to
25 Path or someone acting on its behalf. As a consequence, Path improperly obtained the address
26 book data belonging to Plaintiffs and class members.

27 106. Apple is a joint-venturer in the iFund venture capital fund and mentoring program
28 ("iFund"). Path is an iFund company. On information and belief, Apple owns a portion of the

1 iFund and provided mentoring to iFund-financed companies (including Path) and the iFund owns
 2 or owned a portion of Path's equity. On information and belief, Apple provided direct guidance,
 3 assistance, and mentoring to Path on its Path App and knew that Path was uploading consumers'
 4 address books.

5 107. On or about February 8, 2013, Path entered into a Consent Decree with the United
 6 States Department of Justice enjoining it from, *inter alia*, continuing to misrepresent to
 7 consumers the extent to which it maintains and protects the privacy and confidentiality of
 8 information stored on iDevices, including users' address books.

9 108. Plaintiffs Carter, Dennis-Cooley, Green, and Paul (the "Path Plaintiffs"), each
 10 recalls opening the Path App, signing up via a "Sign Up" screen, and using and navigating
 11 around the App.

12 109. Path benefitted substantially from its misappropriation of users' address books.
 13 On information and belief, the misappropriation of that property enabled the company to more
 14 rapidly grow its user base, avoid the costs of customer acquisition, enhance its social networking
 15 features, and increase the value of the company, among other benefits.

16 **Foursquare Labs**

17 110. App Defendant Foursquare Labs built the Foursquare App using Apple-supplied
 18 components and tools, with Apple providing substantial assistance through the Program.
 19 Following Apple's review (during which time Apple learned or should have learned of the App's
 20 malicious, prohibited features), Apple released, promoted and deployed the Foursquare App on
 21 the App Store and served as Foursquare Labs' world-wide agent for the solicitation of orders for
 22 and the delivery of the App to iDevice end-users.

23 111. Without prior user consent, the Foursquare App uploaded iDevice address book
 24 data to Foursquare Labs or someone acting on its behalf. As a consequence, Foursquare Labs
 25 improperly obtained the address book data belonging to Plaintiffs and class members.

26 112. Plaintiffs Beuershausen, Hoffman, King, Mandaywala, Paul, Sandiford and
 27 Varner (the "Foursquare Labs Plaintiffs") obtained the Foursquare App and recall signing up and
 28

1 logging in on the Foursquare App's sign-up/log-in screen prior to February 2012 and then using
2 and navigating around the App.

3 113. Foursquare Labs benefitted substantially from its misappropriation of users'
4 address books. On information and belief, the misappropriation of that property enabled the
5 company to more rapidly grow its user base, avoid the costs of customer acquisition, enhance its
6 social networking features, and increase the value of the company, among other benefits.

7 **Instagram**

8 114. App Defendant Instagram built the Instagram App using Apple-supplied
9 components and tools, with Apple providing substantial assistance through the Program.
10 Following Apple's review (during which time Apple learned or should have learned of the App's
11 malicious, prohibited features), Apple released, promoted and deployed the Instagram App on
12 the App Store and served as Instagram's world-wide agent for the solicitation of orders for and
13 the delivery of the App to iDevice end-users.

14 115. Without prior user consent, the Instagram App uploaded iDevice address book
15 data to Instagram or someone acting on its behalf. As a consequence, Instagram improperly
16 obtained the address book data belonging to Plaintiffs and class members.

17 116. Plaintiffs Biondi, Dennis-Cooley, Green, Hoffman, King, Mandaywala, Moses,
18 Sandiford, and Varner (the "Instagram Plaintiffs") recall using and navigating around the
19 Instagram App.

20 117. Instagram benefitted substantially from its misappropriation of users' address
21 books. On information and belief, the misappropriation of that property enabled the company to
22 more rapidly grow its user base, avoid the costs of customer acquisition, enhance its social
23 networking features, and increase the value of the company, among other benefits.

24 **Yelp**

25 118. App Defendant Yelp built the Yelp! App using Apple-supplied components and
26 tools, with Apple providing substantial assistance through the Program. Following Apple's
27 review (during which time Apple learned or should have learned of the App's malicious,
28 prohibited features), Apple released, promoted and deployed the Yelp! App on the App Store and

1 served as Yelp's world-wide agent for the solicitation of orders for and the delivery of the App to
2 iDevice end-users.

3 119. Without prior user consent, the Yelp! App uploaded iDevice address book data to
4 Yelp or someone acting on its behalf. As a consequence, Yelp improperly obtained the address
5 book data belonging to Plaintiffs and class members.

6 120. Plaintiffs Biondi, Hodgins, Hoffman, Mandaywala, and Paul (the "Yelp
7 Plaintiffs") each recall navigating to various screens on and using the Yelp! App. They recall
8 providing a log in and navigating within the Yelp! App to a screen containing a ["Find Friends"]
9 button with the accompanying displayed text: "Find friends on Yelp using your Contacts and
10 Facebook friends? You'll be able to see their bookmarks and find out when they're nearby.
11 [Yes, Find Friends] [No, Skip This]", and pressing the ["Yes, Find Friends"] button. Plaintiffs
12 do not recall being presented at any time in that process with an intervening alert or pop-up
13 display indicating that the Yelp! App would transfer any portion of his or her private address
14 book to Yelp to perform this function or warning that such a transmission was about to occur.

15 121. Yelp benefitted substantially from its misappropriation of users' address books.
16 On information and belief, the misappropriation of that property enabled the company to more
17 rapidly grow its user base, avoid the costs of customer acquisition, enhance its social networking
18 features, and increase the value of the company, among other benefits.

19 Twitter

20 122. App Defendant Twitter built the Twitter App using Apple-supplied components
21 and tools, with Apple providing substantial assistance through the Program. Following Apple's
22 review (during which time Apple learned or should have learned of the App's malicious,
23 prohibited features), Apple released, promoted and deployed the Twitter App on the App Store
24 and served as Twitter's world-wide agent for the solicitation of orders for and the delivery of the
25 App to iDevice end-users.

26 123. Without prior user consent, the Twitter App uploaded iDevice address book data
27 to Twitter or someone acting on its behalf. As a consequence, Twitter improperly obtained the
28 address book data belonging to Plaintiffs and class members.

124. Plaintiffs Beuershausen, Biondi, Dean, Dennis-Cooley, Green, Hodgins, Hoffman, King, Mandaywala, Moses, Paul, Sandiford, and Varner (the “Twitter Plaintiffs”) recall opening the Twitter App, signing up via its displayed registration screen, and using the App. They were initially presented a “Welcome” screen prompting them to press an on-screen button labeled [“Follow your friends”], under which was written in small type: “Scan your contacts for people you already know on Twitter.” They also recall another screen labeled “Follow Friends” that similarly prompted them to press an on-screen button labeled [“Follow your friends”], under which was written in small type the identical phrase as before.

125. Twitter benefitted substantially from its misappropriation of users’ address books. On information and belief, the misappropriation of that property enabled the company to more rapidly grow its user base, avoid the costs of customer acquisition, enhance its social networking features, and increase the value of the company, among other benefits.

Foodspotting

126. App Defendant Foodspotting built the Foodspotting App using Apple-supplied components and tools, with Apple providing substantial assistance through the Program. Following Apple’s review (during which time Apple learned or should have learned of the App’s malicious, prohibited features), Apple released, promoted and deployed the Foodspotting App on the App Store and served as Foodspotting’s world-wide agent for the solicitation of orders for and the delivery of the App to iDevice end-users.

127. Without prior user consent, the Foodspotting App uploaded iDevice address book data to Foodspotting or someone acting on its behalf. As a consequence, Foodspotting improperly obtained the address book data belonging to Plaintiffs and class members.

128. Plaintiffs King and Sandiford (the “Foodspotting Plaintiffs”) recall opening the Foodspotting App, signing up via its registration screen, and using the App. More particularly, they recall navigating to the Foodspotting App’s “Follow People” screen containing an on-screen button labeled [“Find iPhone Contacts.”]. While on that screen, the Foodspotting Plaintiffs tapped that button. The screen contained no warnings whatsoever indicating that the App was relaying his or her address book to Foodspotting.

129. Foodspotting benefitted substantially from its misappropriation of users' address books. On information and belief, the misappropriation of that property enabled the company to more rapidly grow its user base, avoid the costs of customer acquisition, enhance its social networking features, and increase the value of the company, among other benefits.

Rovio & Chillingo

130. On information and belief, App Defendant Rovio built the Angry Birds Classic, with Defendant Chillingo providing its Crystal Platform as integrated into the App, using Apple-supplied components and tools, with Apple providing substantial assistance through the Program. Following Apple's review (during which time Apple learned or should have learned of the App's malicious, prohibited features), Apple released, promoted and deployed the Angry Birds Classic App on the App Store and served as Rovio and Chillingo's world-wide agent for the solicitation of orders for and the delivery of the App to iDevice end-users.

131. Without prior user consent, the Angry Birds Classic App uploaded iDevice address book data to Rovio and/or Chillingo or someone acting on its behalf. As a consequence, Rovio and/or Chillingo improperly obtained the address book data belonging to Plaintiffs and class members.

132. Plaintiffs Beuershausen, Dean, Green, Hodgins, Mandaywala, Sandiford and Varner (the "The Rovio and Chillingo Plaintiffs") recall opening the Angry Birds Classic App, playing Angry Birds, and navigating around to other screens and menus within the App. On information and belief, Plaintiffs' address book data was uploaded without their consent during their use of Angry Birds Classic App.

133. Rovio and Chillingo benefitted substantially from their misappropriation of users' address books. On information and belief, the misappropriation of that property enabled the companies to more rapidly grow their user bases, avoid the costs of customer acquisition, enhance their social networking features, and increase the value of the companies, among other benefits.

ZeptoLab, Chillingo & Electronic Arts

134. On information and belief, App Defendant ZeptoLab built the Cut the Rope App, with Defendant Chillingo providing its Crystal Platform as integrated into the App by using Apple-supplied components and tools, with Apple providing substantial assistance through the Program. Following Apple's review (during which time Apple learned or should have learned of the App's malicious, prohibited features), Apple released, promoted and deployed the Cut the Rope App on the App Store and served as ZeptoLab and Chillingo's world-wide agent for the solicitation of orders for and the delivery of the App to iDevice end-users.

135. Without prior user consent, the Cut the Rope App uploaded iDevice address book data to ZeptoLab and/or Chillingo or someone acting on its behalf. As a consequence, ZeptoLab and/or Chillingo improperly obtained the address book data belonging to Plaintiffs and class members.

136. Plaintiffs Biondi, Green, Hodgins, Mandaywala, Sandiford and Varner (the "ZeptoLab and Chillingo Plaintiffs") recall opening the Cut the Rope App, playing some games of Cut the Rope, and navigating around to other screens and menus within the App. On information and belief, Plaintiffs' address book data was uploaded without their consent during their use of the Cut the Rope App.

137. ZeptoLab and Chillingo benefitted substantially from their misappropriation of users' address books. On information and belief, the misappropriation of that property enabled the companies to more rapidly grow their user bases, avoid the costs of customer acquisition, enhance their social networking features, and increase the value of the companies, among other benefits.

138. Defendant Electronic Arts acquired Chillingo around October 2010 and has operated Chillingo as a reporting division or wholly-owned, joint-reporting subsidiary of Electronic Arts. On information and belief, Electronic Arts has controlled Chillingo since October 2010 and directed and is aware of its business operations, including with respect to Crystal and the Gaming Program. On information and belief, Electronic Arts is a successor-in-interest to or is vicariously liable for Chillingo's obligations and liabilities, including its joint and

several liabilities alleged herein pertaining to the Cut the Rope App, the Angry Birds Classic App, and the Crystal platform.

Each Plaintiff Was Injured by The Defendants

Allen Beuershausen

139. To the best of Plaintiff Allen Beuershausen's recollection, he purchased an iPhone 3G in approximately mid-2009. He subsequently purchased an iPhone 3S in mid-2011, an iPhone 4S in mid-2013, and another iPhone 4S as a replacement. He has consistently owned and used an iPhone since 2009.

140. Beuershausen downloaded the following Apps made by the App Defendants: Angry Birds Classic, Foursquare, Gowalla, and Twitter. Each of those Apps took Beuershausen's address book data without his consent.

141. Beuershausen purchased his iPhone with the expectation that address book data stored on his iDevice would be secure, and could not be accessed or copied by third parties, including through Apps, without his express consent.

142. If Beuershausen had known that his address book data stored on his iDevice was not secure, and could be accessed or copied by third parties, including through Apps, without his express consent, then he would not have paid as much for the iDevice.

143. At no time did Apple disclose to Beuershausen that his address book data stored on his iDevice was not secure, and could be accessed or copied by third parties, including through Apps, without his express consent.

144. Beuershausen viewed and relied on information disseminated by Apple concerning the security features of iDevices. Specifically, he was exposed to Apple's publicity campaign as follows:

- i) Beuershasen viewed Apple television advertisements as well as statements and news reports regarding Apple products and Apple representations, including those emphasizing the resistance of Apple iOS-based products to malware and viruses. Beuershasen generally reads or watches both traditional and non-traditional media, and is exposed to marketing and

1 publicity material in a variety of forms. Through that exposure,
 2 Beuershasen has viewed numerous advertisements and reports about
 3 Apple's safety and security, which led to his confidence in those features
 4 of Apple's products.

5 ii) Beuershasen was exposed to the above statements by Apple and received
 6 invoice email communication from Apple touting its respect for his
 7 privacy prior to purchasing one or more iDevices.

8 iii) Beuershasen conducted research regarding the iDevice product and its
 9 features, including security, through operation of earlier iterations of
 10 iDevices and being exposed to its features.

11 iv) Beuershasen relied on the Apple statements he viewed through both
 12 traditional and non-traditional media when he decided to purchase an
 13 iDevice.

14 **Giuliana Biondi**

15 145. To the best of Plaintiff Giuliana Biondi's recollection, she purchased an iPhone
 16 3G in early 2009. Biondi subsequently purchased an iPhone 4 in early 2010, and iPhone 4S in
 17 April 2012. She has consistently owned and used an iPhone since 2009

18 146. Biondi downloaded the following Apps made by the App Defendants: Cut the
 19 Rope, Instagram, Twitter, and Yelp!. Each of those Apps took Biondi's address book data
 20 without her consent.

21 147. Biondi purchased her iPhone with the expectation that address book data stored
 22 on her iDevice would be secure, and could not be accessed or copied by third parties, including
 23 through Apps, without her express consent.

24 148. If Biondi had known that her address book data stored on her iPhone was not
 25 secure, and could be accessed or copied by third parties, including through Apps, without her
 26 express consent, then she would not have paid as much for the iPhone.

149. At no time did Apple disclose to Biondi that her address book data stored on her iDevice was not secure, and could be accessed or copied by third parties, including through Apps, without her express consent.

150. Biondi viewed and relied on information disseminated by Apple concerning the security of iDevices. Specifically, she was exposed to Apple's publicity campaign as follows:

i) Biondi generally reads or watches both traditional and non-traditional media, and is exposed to marketing and publicity material in a variety of forms. Through that exposure, Biondi has viewed numerous advertisements and reports about Apple's safety and security, which led to her confidence in those features of Apple's products.

ii) Biondi was exposed to the above statements by Apple prior to purchasing an iPhone.

iii) Biondi recalls representations to the effect that Apple's phones and mobile products were safe, including the Apple ID and password feature of the App Store and iDevices, as well as a television advertisement that depicted Apple computers as virus-free.

iv) Biondi relied on Apple's representations regarding safety when she decided to purchase an iPhone.

Lauren Carter

151. To the best of Plaintiff Lauren Carter's recollection, she purchased an iPhone in December 2011. She has consistently had an iPhone since December 2011.

152. Carter downloaded the Path App. This App took Carter's address book data without her consent.

153. Carter purchased her iPhone with the expectation that address book data stored on her iDevice would be secure, and could not be accessed or copied by third parties, including through Apps, without her express consent.

1 154. If Carter had known that her address book data stored on her iPhone was not
2 secure, and could be accessed or copied by third parties, including through Apps, without her
3 express consent, then she would not have paid as much for the iPhone.

4 155. At no time did Apple disclose to Carter that her address book data stored on her
5 iPhone was not secure, and could be accessed or copied by third parties, including through
6 Apps, without her express consent.

7 156. Carter viewed and relied on information disseminated by Apple concerning the
8 security of iPhones. Specifically, she was exposed to Apple's publicity campaign as follows:

- 9 i) Carter generally reads or watches both traditional and non-traditional
10 media, and is exposed to marketing and publicity material in a variety of
11 forms. Through that exposure, Carter has viewed numerous
12 advertisements and reports about Apple's safety and security, which led to
13 her confidence in those features of Apple's products.
- 14 ii) Carter was exposed to the above statements by Apple prior to purchasing
15 an iPhone.
- 16 iii) Carter recalls representations to the effect that Apple's phones and mobile
17 products were safe, including the Apple ID and password feature of the
18 App Store.
- 19 iv) Carter relied on Apple's representations regarding safety when she
20 decided to purchase an iPhone.

21 **Stephanie Dennis-Cooley**

22 157. To the best of Plaintiff Stephanie Dennis-Cooley's recollection, she purchased an
23 iPhone 3G on or around July 2008. She has subsequently purchased an iPhone 4 in 2010 and an
24 iPhone 5 shortly after it was released in September 2012. She has consistently owned an iPhone
25 since 2008.

26 158. Dennis-Cooley also purchased a first-generation iPad a few months after it was
27 released on or around April 3, 2010. She subsequently purchased another iPad in 2011. She has
28 consistently owned an iPad since mid-2010.

1 159. Dennis-Cooley downloaded the following Apps made by the App Defendants:
2 Instagram, Kik Messenger, Path, and Twitter. Each of those Apps took Dennis-Cooley's address
3 book data without her consent.

4 160. Dennis-Cooley purchased her iDevices with the expectation that address book
5 data stored on her iDevices would be secure, and could not be accessed or copied by third
6 parties, including through Apps, without her express consent.

7 161. If Dennis-Cooley had known that her address book data stored on her iDevices
8 was not secure, and could be accessed or copied by third parties, including through Apps,
9 without her express consent, then she would not have paid as much for the iDevices.

10 162. At no time did Apple disclose to Dennis-Cooley that her address book data stored
11 on her iDevices was not secure, and could be accessed or copied by third parties, including
12 through Apps, without her express consent.

13 163. Dennis-Cooley viewed and relied on information disseminated by Apple
14 concerning the security of iDevices. Specifically, she was exposed to Apple's publicity
15 campaign as follows:

- 16 i) Dennis-Cooley viewed Apple television advertisements and presentations
17 by Stephen Jobs. She generally reads or watches both traditional and non-
18 traditional media, and is exposed to marketing and publicity material in a
19 variety of forms. Through that exposure, Dennis-Cooley has viewed
20 numerous advertisements and reports about Apple's safety and security,
21 which led to her confidence in those features of Apple's products.
- 22 ii) Dennis-Cooley was exposed to the above statements by Apple prior to
23 purchasing an iPhone.
- 24 iii) Dennis-Cooley recalls the television advertisement about Apple's
25 computers being safe from computer viruses.
- 26 iv) Dennis-Cooley relied on representations that Apple products were safe
27 when she decided to purchase an iDevice.

28 **Stephen Dean**

1 164. To the best of Plaintiff Stephen Dean's recollection, he purchased a first-
2 generation iPhone in late 2007. He subsequently purchased an iPhone 3G in approximately
3 October 2008, and an iPhone 4 in July 2010, and an iPhone 5 in February 2013. Dean has
4 consistently owned and used the iPhone since 2007.

5 165. Dean also purchased an iPad in 2009. He subsequently purchased an iPad mini in
6 summer 2013. He has consistently owned and used an iPad since 2009.

7 166. Dean downloaded the following Apps made by the App Defendants: Angry Birds
8 Classic, Gowalla, and Twitter. Each of those Apps took Dean's address book data without his
9 consent.

10 167. Dean purchased his iDevices with the expectation that address book data stored
11 on his iDevices would be secure, and could not be accessed or copied by third parties, including
12 through Apps, without his express consent.

13 168. If Dean had known that his address book data stored on his iDevices was not
14 secure, and could be accessed or copied by third parties, including through Apps, without his
15 express consent, then he would not have paid as much for the iDevices.

16 169. At no time did Apple disclose to Dean that his address book data stored on his
17 iDevices was not secure, and could be accessed or copied by third parties, including through
18 Apps, without his express consent.

19 170. Dean viewed and relied on information disseminated by Apple concerning the
20 security of iDevices. Specifically, he was exposed to Apple's publicity campaign as follows:

- 21 i) Dean viewed television advertisements, Apple advertising and marketing
22 statements, as well as articles regarding the statements, online research of
23 Apple productions from third-party websites as well as Apple's website
24 and product descriptions. Dean generally reads or watches both traditional
25 and non-traditional media, and is exposed to marketing and publicity
26 material in a variety of forms. Through that exposure, Dean has viewed
27 numerous advertisements and reports about Apple's safety and security,
28 which led to his confidence in those features of Apple's products.

1 ii) Dean was exposed to the above statements by Apple prior to purchasing
2 an iDevice.

3 iii) Dean recalls the television advertisement about Apple's computers being
4 safe from computer viruses, he generally recalls statements that Apple's
5 products were safe and secure.

6 iv) Dean relied on these statements and representations when he decided to
7 purchase an iDevice.

8 **Jason Green**

9 171. To the best of Plaintiff Jason Green's recollection, he purchased an iPhone 3G in
10 approximately September 2008. He subsequently purchased an iPhone 4 in or around September
11 2010. He has consistently had an iPhone since 2008.

12 172. Green downloaded the following Apps made by the App Defendants: Angry Birds
13 Classic, Cut the Rope, Instagram, Kik Messenger, Path, and Twitter. Each of those Apps took
14 Green's address book data without his consent.

15 173. Green purchased his iPhone with the expectation that address book data stored on
16 his iDevice would be secure, and could not be accessed or copied by third parties, including
17 through Apps, without his express consent.

18 174. If Green had known that his address book data stored on his iPhone was not
19 secure, and could be accessed or copied by third parties, including through Apps, without his
20 express consent, then he would not have paid as much for the iPhone.

21 175. At no time did Apple disclose to Green that his address book data stored on his
22 iDevice was not secure, and could be accessed or copied by third parties, including through
23 Apps, without his express consent.

24 176. Green viewed and relied on information disseminated by Apple concerning the
25 security of iDevices. Green generally reads or watches both traditional and non-traditional
26 media, and is exposed to marketing and publicity material in a variety of forms. Through that
27 exposure, Green has viewed numerous advertisements and reports about Apple's safety and
28 security, which led to his confidence in those features of Apple's products.

Claire Hodgins

177. To the best of Plaintiff Claire Hodgins's recollection, she purchased an iPhone 4 in 2011. She has subsequently purchased an iPhone 4S in 2012. She has consistently owned and used an iPhone since 2008.

178. Hodgins downloaded the following Apps made by the App Defendants: Angry Birds Classic, Cut the Rope, Twitter, and Yelp!. Each of those Apps took Hodgins's address book data without her consent.

179. Hodgins purchased her iPhone with the expectation that address book data stored on her iDevice would be secure, and could not be accessed or copied by third parties, including through Apps, without her express consent.

180. If Hodgins had known that her address book data stored on her iDevice was not secure, and could be accessed or copied by third parties, including through Apps, without her express consent, then she would not have paid as much for the iDevice.

181. At no time did Apple disclose to Hodgins that her address book data stored on her iDevice was not secure, and could be accessed or copied by third parties, including through Apps, without her express consent.

182. Hodgins viewed and relied on information disseminated by Apple concerning the security of iDevices. Specifically, she was exposed to Apple's publicity campaign as follows:

- i) Hodgins generally reads or watches both traditional and non-traditional media, and is exposed to marketing and publicity material in a variety of forms. Through that exposure, Hodgins has viewed numerous advertisements and reports about Apple's safety and security, which led to her confidence in those features of Apple's products.
- ii) Hodgins was exposed to the above statements by Apple prior to purchasing an iPhone.
- iii) Hodgins relied on the Apple statements she viewed through both traditional and non-traditional media when she decided to purchase an iPhone.

Gentry Hoffman

183. To the best of Plaintiff Gentry Hoffman's recollection, he purchased an iPhone 3 approximately two weeks after it was released on or around July 11, 2008. Hoffman subsequently purchased an iPhone 3G around July 2008; an iPhone 4 around October 2011; an iPhone 4S around September 2012; and an iPhone 5 around September 2013. Hoffman has consistently owned and used an iPhone since 2008.

184. Hoffman downloaded the following Apps made by the App Defendants: Foursquare, Instagram, Twitter, and Yelp! prior to February 2012. Each of those Apps took Hoffman's address book data without his consent.

185. Hoffman purchased his iPhone with the expectation that address book data stored on his iDevice would be secure, and could not be accessed or copied by third parties, including through Apps, without his express consent.

186. If Hoffman had known that his address book data stored on his iDevice was not secure, and could be accessed or copied by third parties, including through Apps, without his express consent, then he would not have paid as much for the iDevice.

187. At no time did Apple disclose to Hoffman that his address book data stored on his iDevice was not secure, and could be accessed or copied by third parties, including through Apps, without his express consent. Hoffman viewed and relied on information disseminated by Apple concerning the security of iDevices. Specifically, he was exposed to Apple's publicity campaign as follows:

- i) Hoffman viewed statements made by Apple and its representatives at Apple conferences, presentations, product release events and in other technology media sources and interviews. He watched several of Apple's yearly product launch events, and would often observe a live blog of such events. Hoffman generally reads or watches both traditional and non-traditional media, and is exposed to marketing and publicity material in a variety of forms. Through that exposure, Hoffman has viewed numerous

1 advertisements and reports about Apple's safety and security, which led to
2 his confidence in those features of Apple's products.

3 ii) Hoffman was exposed to the above statements by Apple as early as 2007,
4 but in any event prior to purchasing an iPhone.

5 iii) Hoffman recalls numerous representations to the effect that Apple's
6 phones and mobile products were more secure generally, in particular, that
7 they better protected against theft of personal information, and that they
8 actively protected users' private information.

9 iv) Hoffman relied on Apple's representations regarding privacy, personal
10 information security, a more secure App ecosystem, and tougher vetting
11 process for Apps to keep his information safe. In particular, Apple's
12 representations that its products would keep his information safer than
13 other companies' products was a significant factor in his decision to
14 purchase an iDevice.

15 **Rachelle King**

16 188. To the best of Plaintiff Rachelle King's recollection, she pre-ordered and
17 purchased the first generation iPhone in 2007. King subsequently purchased an iPhone 3G in
18 2008. King has consistently owned and used an iPhone since 2007.

19 189. King also purchased an iPad in March 2010.

20 190. King downloaded the following Apps made by the App Defendants:
21 Foodspotting, Foursquare, Gowalla, Hipster, Instagram, and Twitter prior to February 2012.
22 Each of those Apps took King's address book data without her consent.

23 191. King purchased her iDevices with the expectation that address book data stored
24 on her iDevices would be secure, and could not be accessed or copied by third parties, including
25 through Apps, without her express consent.

26 192. If King had known that her address book data stored on her iDevices was not
27 secure, and could be accessed or copied by third parties, including through Apps, without her
28 express consent, then she would not have paid as much for the iDevices.

193. At no time did Apple disclose to King that her address book data stored on her iDevices was not secure, and could be accessed or copied by third parties, including through Apps, without her express consent. King viewed and relied on information disseminated by Apple concerning the security of iDevices. Specifically, she was exposed to Apple's publicity campaign as follows:

- i) King viewed statements made by Apple and its representatives at Apple conferences, presentations, product release events and in other technology media sources and interviews. She watched several of Apple's yearly product launch events. King generally reads or watches both traditional and non-traditional media, and is exposed to marketing and publicity material in a variety of forms. Through that exposure, King has viewed numerous advertisements and reports about Apple's safety and security, which led to her confidence in those features of Apple's products.
- ii) King was exposed to the above statements by Apple as early as 2007, but in any event prior to purchasing an iDevice.
- iii) King recalls representations to the effect that Apple's products were more secure generally than other similar devices.
- iv) King relied on Apple's representations as a factor in her decision to purchase an iDevice.

Nirali Mandalaywala

194. To the best of Plaintiff Nirali Mandalaywala's recollection, she purchased a first generation iPhone in or around January 2008. She has subsequently purchased an iPhone 3G, 4, 4S, and most recently an iPhone 5S in November 2013. She has consistently owned and used an iPhone since January 2008.

195. Mandalaywala downloaded the following Apps made by the App Defendants: Angry Birds Classic, Cut the Rope, Foursquare, Gowalla, Instagram, Twitter, and Yelp!. Each of those Apps took Mandalaywala's address book data without her consent.

1 196. Mandalaywala purchased her iPhone with the expectation that address book data
2 stored on her iDevice would be secure, and could not be accessed or copied by third parties,
3 including through Apps, without her express consent.

4 197. If Mandalaywala had known that her address book data stored on her iDevice was
5 not secure, and could be accessed or copied by third parties, including through Apps, without her
6 express consent, then she would not have paid as much for the iDevice.

7 198. At no time did Apple disclose to Mandalaywala that her address book data stored
8 on his iDevice was not secure, and could be accessed or copied by third parties, including
9 through Apps, without her express consent.

10 199. Mandalaywala viewed and relied on information disseminated by Apple
11 concerning the security of iDevices. Specifically, she was exposed to Apple's publicity
12 campaign as follows:

- 13 i) Mandalaywa viewed statements made by Apple and its representatives at
14 Apple conferences, presentations, keynote speeches, product release
15 events, and in other technology media blogs, as well as television
16 advertisements. Mandalaywala generally reads or watches both traditional
17 and non-traditional media, and is exposed to marketing and publicity
18 material in a variety of forms. Through that exposure, Mandalaywala has
19 viewed numerous advertisements and reports about Apple's safety and
20 security, which led to her confidence in those features of Apple's
21 products.
- 22 ii) Mandalaywala was exposed to the above statements by Apple prior to
23 purchasing an iPhone.
- 24 iii) Mandalaywala recalls numerous representations that Apple's products
25 were safe and secure, such as the television advertisement about Apple's
26 computers being safe from computer viruses.
- 27 iv) Mandalaywala relied on Apple's representations regarding the safety and
28 security of Apple's iDevices when she decided to purchased an iPhone.

Claire Moses

200. To the best of Plaintiff Claire Moses's recollection, she received an iPhone 3G in December 2008. She has subsequently received an iPhone 4S in January 2012. She has consistently owned and used an iPhone since 2008.

201. Moses downloaded the following Apps made by the App Defendants: Instagram and Twitter. Each of those Apps took Moses's address book data without her consent.

202. Moses purchased her iPhone with the expectation that address book data stored on her iDevice would be secure, and could not be accessed or copied by third parties, including through Apps, without her express consent.

203. If Moses had known that her address book data stored on her iDevice was not secure, and could be accessed or copied by third parties, including through Apps, without her express consent, then she would not have paid as much for the iDevice.

204. At no time did Apple disclose to Moses that her address book data stored on her iDevice was not secure, and could be accessed or copied by third parties, including through Apps, without her express consent.

205. Moses viewed and relied on information disseminated by Apple concerning the security of iDevices. Specifically, she was exposed to Apple's publicity campaign as follows:

- iv) Moses generally reads or watches both traditional and non-traditional media, and is exposed to marketing and publicity material in a variety of forms. Through that exposure, Moses has viewed numerous advertisements and reports about Apple's safety and security, which led to her confidence in those features of Apple's products.
- v) Moses was exposed to the above statements by Apple prior to purchasing an iPhone.
- vi) Moses relied on the Apple statements she viewed through both traditional and non-traditional media when she decided to purchase an iPhone.

Judy Paul

1 206. To the best of Plaintiff Judy Paul's recollection, she purchased a first-generation
2 iPhone in August 2008. She subsequently purchased an iPhone 4 in September 2010, and 5S in
3 February 2014. She has consistently used an iPhone since 2008.

4 207. Paul also purchased an iPad in December 2011.

5 208. Paul downloaded the following Apps made by the App Defendants: Foursquare,
6 Gowalla, Path, Twitter, and Yelp!. Each of those Apps took Paul's address book data without
7 her consent.

8 209. Paul purchased her iDevices with the expectation that address book data stored on
9 her iDevices would be secure, and could not be accessed or copied by third parties, including
10 through Apps, without her express consent.

11 210. If Paul had known that her address book data stored on her iDevices was not
12 secure, and could be accessed or copied by third parties, including through Apps, without her
13 express consent, then she would not have paid as much for the iDevices.

14 211. At no time did Apple disclose to Paul that her address book data stored on her
15 iDevices was not secure, and could be accessed or copied by third parties, including through
16 Apps, without her express consent.

17 212. Paul viewed and relied on information disseminated by Apple concerning the
18 security of iDevices. Specifically, she was exposed to Apple's publicity campaign as follows:

- 19 i) Paul viewed television advertisements, product launch statements and
20 press releases by Apple and its representatives. She generally reads or
21 watches both traditional and non-traditional media, and is exposed to
22 marketing and publicity material in a variety of forms. Through that
23 exposure, Paul has viewed numerous advertisements and reports about
24 Apple's safety and security, which led to her confidence in those features
25 of Apple's products.
- 26 ii) Paul was exposed to the above statements by Apple prior to purchasing an
27 iDevice.

1 iii) Paul recalls the television advertisement about Apple's computers being
2 safe from computer viruses.

3 iv) Paul relied on representations that Apple products were safe when she
4 decided to purchase an iDevice. Specifically, she trusted Apple in the
5 same way that she trusts her bank with her private information.

6 **Maria Pirozzi**

7 213. To the best of Plaintiff Maria Pirozzi's recollection, she purchased her iPhone 4 in
8 or about September 2011.

9 214. Following her purchase of her iPhone, she downloaded a number of apps from the
10 App Store, including the Facebook and Angry Birds apps.

11 215. Pirozzi purchased her iPhone with the expectation that address book data stored
12 on her iDevice would be secure, and could not be accessed or copied by third parties, including
13 through Apps, without her express consent.

14 216. If Pirozzi had known that her address book data stored on her iDevice was not
15 secure, and could be accessed or copied by third parties, including through Apps, without her
16 express consent, then she would not have paid as much for the iDevice.

17 217. At no time did Apple disclose to Pirozzi that her address book data stored on her
18 iDevice was not secure, and could be accessed or copied by third parties, including through
19 Apps, without his express consent.

20 218. Before purchasing her iPhone in September 2011, Pirozzi visited Apple's website
21 as well as viewed Apple's in-store advertisements. In addition, Pirozzi relied on Apple's
22 reputation for safety and security.

23 **Theda Sandiford**

24 219. To the best of Plaintiff Theda Sandiford's recollection, she purchased an iPad in
25 summer 2010. She subsequently purchased on iPad 2 in March 2012. Sandiford has consistently
26 had an iPad since 2010.

27 220. Sandiford also purchased an iPhone in 2012.

221. Sandiford downloaded the following Apps made by the App Defendants: Angry Birds Classic, Cut the Rope, Foodspotting, Foursquare, Gowalla, Instagram, and Twitter. Each of those Apps took Sandiford's address book data without her consent.

222. Sandiford purchased her iDevices with the expectation that address book data stored on her iDevices would be secure, and could not be accessed or copied by third parties, including through Apps, without her express consent.

223. If Sandiford had known that her address book data stored on her iDevices was not secure, and could be accessed or copied by third parties, including through Apps, without her express consent, then she would not have paid as much for the iDevices.

224. At no time did Apple disclose to Sandiford that her address book data stored on her iDevices was not secure, and could be accessed or copied by third parties, including through Apps, without his express consent.

225. Sandiford viewed and relied on information disseminated by Apple concerning the security of iDevices. Specifically, she was exposed to Apple's publicity campaign as follows:

- i) Sandiford generally reads or watches both traditional and non-traditional media, and is exposed to marketing and publicity material in a variety of forms. Through that exposure, Pirozzi has viewed numerous advertisements and reports about Apple's safety and security, which led to her confidence in those features of Apple's products.
- ii) Sandiford was exposed to the above statements by Apple prior to purchasing an iPhone.
- iii) Sandiford relied on the Apple statements she viewed through both traditional and non-traditional media when she decided to purchase an iDevice.

Gregory Varner

226. To the best of Plaintiff Gregory Varner's recollection, he purchased an iPhone in September 2007. He has subsequently purchased an iPhone 3 in 2008, an iPhone 3G in mid-

2009, an iPhone 4 in late 2011, and an iPhone 5 on or around late 2013. Varner has consistently owned and used an iPhone since 2007.

227. Varner also purchased a first-generation iPad within approximately 45 days of its release on or around April 3, 2010. He subsequently purchased an iPad 3 within approximately 45 days of its release on or around March 16, 2012. He has consistently owned and used an iPad since 2010.

228. Varner downloaded the following Apps made by the App Defendants: Angry Birds Classic, Cut the Rope, Foursquare, Gowalla, Instagram, and Twitter prior to February 2012. Each of those Apps took Varner's address book data without his consent.

229. Varner purchased his iDevices with the expectation that address book data stored on his iDevices would be secure, and could not be accessed or copied by third parties, including through Apps, without his express consent.

230. If Varner had known that his address book data stored on his iDevices was not secure, and could be accessed or copied by third parties, including through Apps, without his express consent, then he would not have paid as much for the iDevices.

231. At no time did Apple disclose to Varner that his address book data stored on his iDevices was not secure, and could be accessed or copied by third parties, including through Apps, without his express consent.

232. Varner viewed and relied on information disseminated by Apple concerning the security of iDevices. Specifically, he was exposed to Apple's publicity campaign as follows:

- i) Varner viewed Apple statements on videos and online, reading Gizmodo, Engadget, and MacLife blogs that covered Apple product launches, viewing Mr. Jobs' interviews and presentations regarding Apple's iDevices. Varner generally reads or watches both traditional and non-traditional media, and is exposed to marketing and publicity material in a variety of forms. Through that exposure, Varner has viewed numerous advertisements and reports about Apple's safety and security, which led to his confidence in those features of Apple's products.

1 ii) Varner was exposed to the above statements by Apple prior to purchasing
2 an iPhone.

3 iii) Varner recalls representations that Apple emphasized security of its
4 iDevices and products. He further recalls representations that Apple's
5 App Store was secure because it was created by Apple.
6 Varner relied on Apple's representations regarding security and trusted
7 Apple with his private information, including his address book, when he
8 decided to purchase an iDevice.

9 **CLASS ACTION ALLEGATIONS**

10 233. Plaintiffs bring this lawsuit as a class action under Rules 23(a), 23(b)(1), 23(b)(2)
11 and/or 23(b)(3) of the Federal Rules of Civil Procedure on behalf of a class of similarly situated
12 persons consisting of:

13 **The iDevice Class:** All United States residents who purchased iDevices between
14 July 10, 2008 and February 2012.

15 **The Address Book Misappropriation Subclasses:** All members of the iDevice
16 Class on whose iDevice one or more of the following Apps was installed: Angry
17 Birds Classic (with integrated Crystal platform), Cut the Rope (with integrated
18 Crystal platform), Foursquare, Foodspotting, Gowalla, Hipster, Kik Messenger,
19 Instagram, Path, Twitter, or Yelp! iDevice Apps.

20 234. **Numerosity.** The members of the Class, who are ascertainable from Defendants'
21 records, are so numerous that joinder of all members is impracticable. The Class is likely to
22 exceed five million members from reported iDevice sales figures and reported user- bases for the
23 identified Apps.

24 235. **Typicality.** Plaintiffs' claims are typical of the claims of the members of the
25 Class. Plaintiffs and all members of the Class purchased an Apple iDevice, maintained his or her
26 private address book with that iDevice, installed one or more identified iDevice Apps from
27 Apple, and have sustained damages arising out of Defendants' conduct.

1 236. **Commonality.** Common questions of law and fact exist as to all members of the
 2 Class and predominate over any questions solely affecting individual members. Questions of
 3 law and fact common to the Class include:

- 4 i) Whether Defendant Apple advertised the iDevices as safe and secure;
- 5 ii) Whether Defendant Apple knew and failed to disclose that the iDevices’
 6 Contacts App and the address books contained therein were not safe and
 7 secure from third-party Apps;
- 8 iii) What security features were included in Apple’s iDevices for safeguarding
 9 the Contacts App’s address books;
- 10 iv) Whether Defendant Apple provided App Defendants with guidelines or
 11 other resources to develop Apps with the ability to access and copy users’
 12 address book data;
- 13 v) Whether each App Defendants uploaded Plaintiffs’ address books from
 14 Plaintiffs’ iDevices;
- 15 vi) What benefits each App Defendant gained as a result of its
 16 misappropriation of class members’ address books;
- 17 vii) What representations were made by Apple concerning the security of its
 18 iDevices;
- 19 viii) What material information Apple knew but failed to disclose concerning
 20 the security of its iDevices, and its legal obligation to disclose such
 21 information;
- 22 ix) Whether iDevice owners have a privacy and property interest in their
 23 address book data;
- 24 x) Whether acquisition of users’ address book data without their consent
 25 violates their right to privacy;
- 26 xi) The proper measure and amount of damages or other recovery available to
 27 the class; and
- 28 xii) The unjust enrichment realized by any Defendants.

237. **Adequacy.** Plaintiffs will continue to fairly and adequately represent the interests of the class and have no interests adverse to or in conflict with other class members. Plaintiffs' retained counsel have and will continue to vigorously prosecute this case, have previously been designated class counsel on cases in this judicial district, and are highly experienced in class and complex, multi-party litigation matters.

238. **Superiority.** A class action is superior to other available methods for the fair and efficient adjudication of this controversy because, among other things, joinder of all class members is impracticable and a class action will reduce the risk of inconsistent adjudications or repeated litigation on the same conduct. Further, the expense and burden of individual lawsuits would make it virtually impossible for class members, Defendants, or the Court to cost-effectively redress separately the unlawful conduct alleged. Thus, absent a class action, Defendants would unjustly retain the benefits of their wrongdoings. Plaintiffs know of no difficulties to be encountered in the management of this action that would preclude its maintenance as a class action, either with or without sub-classes.

239. The State of California has sufficient state interest through a significant contact or aggregation of contacts to the claims asserted by each member of the Class so that the choice of California law is not arbitrary or unfair.

240. Adequate notice can be given to Class members directly using information maintained in Apple's and other Defendants' records, or through notice by publication.

241. Accordingly, class certification is appropriate under Rule 23.

CLAIMS FOR RELIEF

242. Based on the foregoing allegations, Plaintiffs make the following claims for relief. As indicated at each cause of action below, each claim is asserted by various Plaintiffs on behalf of themselves and the applicable Class. Except as otherwise specifically indicated, each claim incorporates all of the allegations of this Complaint as if set forth fully therein.

Count One

Invasion of Privacy (Intrusion upon Seclusion) (Against All Defendants on Behalf of All Plaintiffs)

243. Each Plaintiff, on his or her own behalf and on behalf of all class members,

1 incorporates the above allegations by reference as if fully set forth herein, and further alleges as
2 follows:

3 244. Plaintiffs have reasonable expectations of privacy in their iDevices and their
4 mobile address books.

5 245. The Plaintiffs' private affairs include the contents of their iDevices, their private
6 address books, and those address books' unique contacts and fields, which identify persons with
7 whom Plaintiffs associate and communicate. These are not matters of legitimate public concern.

8 246. By surreptitiously obtaining, improperly gaining knowledge, reviewing and
9 retaining Plaintiffs' private address books (or substantial portions thereof) as stored in the
10 Contacts App on Plaintiffs' iDevices, the App Defendants intentionally intruded on and into each
11 respective Plaintiff's solitude, seclusion or private affairs.

12 247. The App Defendants intrusions were highly offensive to a reasonable person.
13 These intrusions were so highly offensive that myriad newspaper articles, blogs, op-eds, and
14 investigative exposés were written complaining and objecting vehemently to these defendants'
15 practices, Congressional inquiries were opened to investigate these practices and some
16 defendants even publicly apologized. The surreptitious manner in which the App Defendants'
17 conducted these intrusions confirms their outrageous nature.

18 248. As a direct and proximate result of the respective App Defendants' actions,
19 Plaintiffs suffered harm and damages.

20 249. Apple received substantial financial, economic, and advertising, public relations
21 and other benefits from its approval, release, sale and deployment of the identified Apps.

22 250. Despite its ostensible policies against the collection of iDevice users' private
23 information and public representations that Apple prohibited such misconduct, Apple in fact
24 materially supported, assisted and helped build, market and deploy the identified Apps, and
25 knowingly and/or recklessly permitted the unauthorized access and collection of Plaintiffs' and
26 class members' private address books.

27 251. Prior to February 2012, Apple never instructed App Defendant to design its App
28 to include any user alerts or permission dialogue boxes to ensure user consent before the

1 collection of address books, and even thereafter failed to take steps to ensure that alerts and
 2 dialogue boxes were sufficient to provide actual notice and sufficient consent. Apple's
 3 encouragement, assistance and support were substantial factors leading to each App Defendant
 4 inflicting the above-described injuries and harms on Plaintiffs and class members and a
 5 proximate cause of their damages.

6 252. In so doing, Apple aided and abetted the foregoing misconduct of the App
 7 Defendants and is liable for the resulting harm to Plaintiffs and class members.

8 253. Defendants' conduct described herein was willful, malicious and oppressive, and
 9 constitutes despicable conduct in conscious disregard of the rights of Plaintiffs and the class.

10 254. As a result of Defendants' conduct described herein, Defendants were unjustly
 11 enriched.

12 255. Wherefore, Plaintiffs pray for relief and judgment as set forth below.

13 **Count Two**

14 **Conversion**

15 ***(Against All Defendants on Behalf of All Plaintiffs)***

16 256. Each Plaintiff, on his or her own behalf and on behalf of all class members,
 17 incorporates the above allegations by reference as if fully set forth herein, and further alleges as
 18 follows:

19 257. Each Plaintiff and class member owns his or her iDevice and the contents thereof,
 20 including his or her address book and all information contained therein. The information
 21 contained in each Plaintiff's and each class member's address book was compiled by or for them
 22 for their own personal use.

23 258. That information is the personal property of each Plaintiff and class member, and
 24 has intrinsic, extrinsic and commercial value, including to the App Defendants, who improperly
 25 made use of the information for their own benefit without consent.

26 259. The ownership rights of Plaintiffs and class members in their address books as
 27 stored in the Contacts App on Plaintiffs' iDevices include the exclusive right of possession and
 28 control, including exclusive right to sell, transfer, license or allow use of their address books.

259. Defendants do not have any property right in Plaintiffs' and class members'

1 address books and the information contained therein.

2 261. The App Defendants intentionally and substantially interfered with Plaintiffs' and
3 class members' property by taking possession of the information contained in their address
4 books, without consent.

5 262. That conduct deprived each Plaintiff and class member of his or her property
6 rights in his or her mobile address book and the information contained therein, including their
7 right to exclusive possession and control thereof.

8 263. The App Defendants made use of that property, benefitted from that use, and, on
9 information and belief, profited from that use.

10 264. As a direct and proximate result of the foregoing, each Plaintiff and class member
11 has been injured. That injury includes the deprivation of benefits and profits realized by the App
12 Defendants as a result of their use of the wrongfully converted property.

13 265. Apple receives substantial financial, economic, and advertising, public relations
14 and other benefits from its approval, release, sale and deployment of the identified Apps.

15 266. Despite its ostensible policies against the collection of iDevice users' private
16 information and public representations that Apple prohibited such misconduct, Apple in fact
17 materially supported, assisted and helped build, market and deploy the identified Apps, and
18 knowingly and/or recklessly permitted the unauthorized access and collection of Plaintiffs' and
19 class members' private mobile address book information.

20 267. Prior to February 2012, Apple never instructed the App Defendants to design their
21 App to include any user alerts or permission dialogue boxes to ensure user consent before the
22 collection of mobile address book information, and even thereafter failed to take steps to ensure
23 that alerts and dialogue boxes were sufficient to provide actual notice and sufficient consent.
24 Apple's encouragement, assistance and support were substantial factors leading to each App
25 Defendant inflicting the above-described injuries and harms on Plaintiffs and class members and
26 a proximate cause of their damages.

27 268. In so doing, Apple aided and abetted the foregoing misconduct of the App
28 Defendants and is liable for the resulting harm to Plaintiffs and class members.

269. Defendants' conduct described herein was willful, malicious and oppressive, and constitutes despicable conduct in conscious disregard of the rights of Plaintiffs and the class.

270. As a result of Defendants' conduct described herein, Defendants were unjustly enriched.

271. Wherefore, Plaintiffs pray for relief and judgment as set forth below.

Count Three
Violations of False and Misleading Advertising Law (FAL)
California Business & Professions Code § 17500 *et seq.*
(Against Apple on Behalf of All Plaintiffs)

272. Each Plaintiff, on his or her own behalf and on behalf of all class members, incorporates the above allegations by reference as if fully set forth herein, and further alleges as follows:

273. Beginning on at least January 9, 2007, Apple has committed acts of untrue and misleading advertising, as defined by Business & Professions Code sections 17500 *et seq.* (the "FAL") by engaging in the following acts and practices, detailed above, with intent to induce members of the public to purchase iDevices:

- i) Falsely and misleadingly representing that iDevices, and the information contained on iDevices, are safe and secure;
- ii) Falsely and misleadingly representing that information contained in iDevices could not be accessed by others;
- iii) Falsely and misleadingly representing that iDevice address books could not be accessed or collected by other Apps without the user's express permission;
- iv) Falsely and misleadingly representing that it Apple gave users clear notice and control over the information contained in their iDevices, including address books;
- v) Falsely and misleadingly representing that iDevices, including their operating system, protected users from privacy attacks;
- vi) Falsely and misleadingly representing that the iDevice, and its operating

1 system, “sandboxed” data, including Contacts and the address books,
 2 thereby preventing other Apps from accessing that data;

3 vii) Falsely and misleadingly representing that Apple protected the security of
 4 personal information and other data on the iPhone;

5 viii) Falsely and misleadingly representing that Apple subjected Apps to an
 6 approval process that ensured that users’ private data was protected, and
 7 that Apple screened iDevice Apps to prevent the dissemination of Apps
 8 that access personal information or invade users’ privacy;

9 ix) Falsely and misleadingly representing that Apple took precautions to
 10 protect personal information on users’ iDevices; and

11 x) Falsely and misleadingly representing that Apple fixed security issues that
 12 allowed improper access to users’ private information on iDevices,
 13 including the address books.

14 274. Apple’s statements were untrue and/or misleading. Apple knew, or by the
 15 exercise of reasonable care should have known, that they were untrue and/or misleading.

16 275. Apple also falsely advertised by failing to disclose the material facts set forth
 17 herein, including:

18 i) That iDevices, and the information contained on iDevices, were not in fact
 19 safe and secure as represented;

20 ii) That information contained in iDevices could in fact be accessed by
 21 others;

22 iii) That iDevice address books could in fact be accessed or collected by other
 23 Apps without the user’s express permission;

24 iv) That Apple gave users clear notice and control over the information
 25 contained in their iDevices, including address books;

26 v) That iDevices, including their operating system, did not in fact protect
 27 users from privacy attacks;

28 vi) That the iDevice, and its operating system, did not in fact “sandbox” data,

including Contacts information and users' private address books, and did not prevent other Apps from accessing that data;

vii) That Apple did not in fact protect the security of personal information and other data on the iPhone;

viii) That Apple did not in fact subject Apps to an approval process that ensured that users' private data was protected, and that Apple did not in fact screen iDevice Apps to prevent the dissemination of Apps that accessed personal information or invaded users' privacy;

ix) That Apple did not in fact take the represented precautions to protect personal information on users' iDevices; and

x) That Apple did not in fact adequately fix security issues that allowed improper access to users' private information on iDevices, including address books.

276. The foregoing representations and omissions were materially misleading.

277. Apple's foregoing acts and practices did deceive and were likely to deceive Plaintiffs, class members, and the public.

278. Plaintiffs and class members relied upon the foregoing material representations and omissions to their detriment in that they would not have purchased the iDevices for the retail price paid or at all had they known of the true facts.

279. As a result of the foregoing, each Plaintiff and class member was injured in fact, and lost money or property, and each is entitled to restitution and injunctive relief.

280. As a result of the foregoing, Apple has been, and will continue to be unjustly enriched at the expense of Plaintiffs and class members.

281. Apple's foregoing misconduct is ongoing, and unless restrained by this Court, is likely to recur.

282. Defendant's conduct described herein was willful, malicious and oppressive, and constitutes despicable conduct in conscious disregard of the rights of Plaintiffs and the class.

283. Wherefore, Plaintiffs pray for relief and judgment as set forth below.

Count Four
Violations of the Consumer Legal Remedies Act (CLRA): Misrepresentation
California Civil Code, §1750 *et seq.*
(Against Apple on Behalf of All Plaintiffs)

284. Each Plaintiff, on his or her own behalf and on behalf of all class members, incorporates the above allegations by reference as if fully set forth herein, and further alleges as follows:

285. Plaintiffs are purchasers of iDevices and consumers within the meaning California Civil Code, sections 1750 *et seq.* (the “CLRA”).

286. In violation of the CLRA Apple has engaged and is engaging in unfair and/or deceptive acts and practices in the course of transactions with the Plaintiffs; such transactions are intended to and have resulted in sales of merchandise. Those unfair and/or deceptive acts and practices include:

- i) Representing that its goods had characteristics, uses and/or benefits which they do not have;
- ii) Representing that its goods are of a particular standard, quality, and grade that they are not;
- iii) Advertising its goods with intent not to sell them as advertised.

287. Specifically, Apple’s past and/or ongoing conduct in violation of the CLRA include the following misrepresentations:

- i) Falsely and misleadingly representing that iDevices, and the information contained on iDevices, are safe and secure;
- ii) Falsely and misleadingly representing that information contained in iDevices cannot be accessed by others;
- iii) Falsely and misleadingly representing that iDevice address books cannot be accessed or collected by other Apps without the user’s express permission;
- iv) Falsely and misleadingly representing that it Apple gives users clear notice and control over the information contained in their iDevices, including

1 mobile contact book data;

- 2 v) Falsely and misleadingly representing that iDevices, including their
3 operating system, protect users from privacy attacks;
- 4 vi) Falsely and misleadingly representing that the iDevice, and its operating
5 system, “sandbox” data, including Contacts information and users’ private
6 address books, thereby preventing other Apps from accessing that data;
- 7 vii) Falsely and misleadingly representing that Apple protects the security of
8 personal information and other data on the iPhone;
- 9 viii) Falsely and misleadingly representing that Apple subjects Apps to an
10 approval process that ensures that users’ private data is protected, and that
11 Apple screens iDevice Apps to prevent the dissemination of Apps that
12 access personal information or invade users’ privacy;
- 13 ix) Falsely and misleadingly representing that Apple takes precautions to
14 protect personal information on users’ iDevices; and
- 15 x) Falsely and misleadingly representing that Apple fixed security issues that
16 allowed improper access to users’ private information on iDevices,
17 including address books.

18 288. The foregoing representations were/are materially misleading. At the time that
19 Apple made the foregoing representations, Apple did not believe they were true, or had no
20 reasonable grounds for believing they were true.

21 289. In addition, Apple’s past and/or ongoing conduct in violation of the CLRA
22 include its failure to disclose material facts that it was obligated to disclose because (a) Apple
23 had exclusive knowledge of those material facts that were not known or reasonably accessible
24 to Plaintiffs, the class, and the public; (b) Apple actively concealed those material facts from
25 Plaintiffs, the class, and the public; and (c) the above representations by Apple, even if not
26 deemed misrepresentations giving rise to independent liability, were partial representations that
27 were misleading because those other material fact had not been disclosed. The material facts
28 not disclosed by Apple in violation of the CLRA include:

- i) That iDevices, and the information contained on iDevices, were not in fact safe and secure as represented;
- ii) That information contained in iDevices could in fact be accessed by others;
- iii) That iDevice address books could in fact be accessed or collected by other Apps without the user's express permission;
- iv) That Apple gave users clear notice and control over the information contained in their iDevices, including mobile contact book data;
- v) That the iDevices, including their operating system, did not in fact users from privacy attacks;
- vi) That the iDevice, and its operating system, did not in fact "sandbox" data, including Contacts information and users' private address books, and did not prevent other Apps from accessing that data;
- vii) That Apple did not in fact protect the security of personal information and other data on the iPhone;
- viii) That Apple did not in fact subject Apps to an approval process that ensures that users' private data was protected, and that Apple did not in fact screen iDevice Apps to prevent the dissemination of Apps that access personal information or invade users' privacy;
- ix) That Apple did not in fact take the represented precautions to protect personal information on users' iDevices; and
- x) That Apple did not in fact adequately fix security issues that allowed improper access to users' private information on iDevices, including address books.

290. The foregoing omissions were materially misleading.

291. The foregoing omissions concerned material facts relating to deficiencies in the iDevices purchased by Plaintiffs and class members that were inherent in the products and existed at the time of purchase and at all times thereafter. Though the iDevices are covered by

1 a limited one-year warranty, the deficiencies at issue were present from the outset, and
2 therefore arose and manifested within the warranty period.

3 292. Plaintiffs and class members relied upon the foregoing material representations
4 and omissions to their detriment by purchasing and overpaying for iDevices that did not have the
5 characteristics represented by Apple and which they understood the iDevices to have. Had they
6 been aware of the facts omitted by Apple, they would not have purchased the iDevices, at least
7 for the retail price actually paid.

8 293. As a result of the foregoing, each Plaintiff and class member has suffered harm.

9 294. Apple's violations of the CLRA have caused damage to Plaintiffs and the other
10 Class members and threaten additional injury if the violations continue.

11 295. Under section 1782 of the CLRA, Apple has received notice in writing by
12 certified mail of the particular violations of section 1770 of the CLRA from Plaintiffs on behalf
13 of all Class members, demanding Defendant offer to resolve the problems associated with the
14 actions detailed above and give notice to all affected consumers of the intent to so act.

15 296. Thirty days have passed since Plaintiffs sent their CLRA letters, by certified
16 mail, and Apple has failed to take the actions required by the CLRA on behalf of all affected
17 consumers. Plaintiffs and the Class are therefore entitled to all forms of relief provided under
18 section 1780 of the CLRA.

19 297. Defendant's conduct described herein was willful, malicious and oppressive, and
20 constitutes despicable conduct in conscious disregard of the rights of Plaintiffs and the class.

21 298. Wherefore, Plaintiffs pray for relief and judgment as set forth below.

22 **Count Five**

Deceit

23 **Violations of the California Civil Code § 1709 *et seq.***
24 ***(Against Apple on Behalf of All Plaintiffs)***

25 299. Each Plaintiff, on his or her own behalf and on behalf of all class members,
26 incorporates the above allegations by reference as if fully set forth herein, and further alleges as
27 follows:
28

1 300. By its actions described in this complaint, Defendants have committed deceit in
2 violation of California Civil Code section 1709 *et seq.*

3 301. Apple's acts of deceit include making the following misrepresentations:

- 4 i) Falsely and misleadingly representing that iDevices, and the information
5 contained on iDevices, were safe and secure;
- 6 ii) Falsely and misleadingly representing that information contained in
7 iDevices could not be accessed by others;
- 8 iii) Falsely and misleadingly representing that iDevice address books could
9 not be accessed or collected by other Apps without the user's express
10 permission;
- 11 iv) Falsely and misleadingly representing that it Apple gave users clear notice
12 and control over the information contained in their iDevices, including
13 address books;
- 14 v) Falsely and misleadingly representing that iDevices, including their
15 operating system, protected users from privacy attacks;
- 16 vi) Falsely and misleadingly representing that the iDevice, and its operating
17 system, "sandboxed" data, including Contacts information and users'
18 private address books, thereby preventing other Apps from accessing that
19 data;
- 20 vii) Falsely and misleadingly representing that Apple protected the security of
21 personal information and other data on the iPhone;
- 22 viii) Falsely and misleadingly representing that Apple subjected Apps to an
23 approval process that ensured that users' private data is protected, and
24 that Apple screens iDevice Apps to prevent the dissemination of Apps that
25 access personal information or invade users' privacy;
- 26 ix) Falsely and misleadingly representing that Apple took precautions to
27 protect personal information on users' iDevices; and
- 28 x) Falsely and misleadingly representing that Apple fixed security issues that

1 allowed improper access to users' private information on iDevices,
2 including address books.

3 302. The foregoing representations were materially misleading. At the time that
4 Apple made the foregoing representations, Apple did not believe they were true, or had no
5 reasonable grounds for believing they were true.

6 303. Apple's acts of deceit include its failure to disclose material facts that it was
7 obligated to disclose because (a) Apple had exclusive knowledge of those material facts that
8 were not known or reasonably accessible to Plaintiffs, the class, and the public; (b) Apple
9 actively concealed those material facts from Plaintiffs, the class, and the public; and (c) the
10 above representations by Apple, even if not deemed misrepresentations giving rise to
11 independent liability, were partial representations that are misleading because those other
12 material fact has not been disclosed. The material facts not disclosed by Apple in violation of
13 the UCL include:

- 14 i) That iDevices, and the information contained on iDevices, were not in fact
- 15 safe and secure as represented;
- 16 ii) That information contained in iDevices could in fact be accessed by
- 17 others;
- 18 iii) That iDevice address books could in fact be accessed or collected by other
- 19 Apps without the user's express permission;
- 20 iv) That Apple gave users clear notice and control over the information
- 21 contained in their iDevices, including address books;
- 22 v) That the iDevices, including their operating system, did not in fact protect
- 23 users from privacy attacks;
- 24 vi) That the iDevice, and its operating system, did not in fact "sandbox" data,
- 25 including Contacts information and users' private address books, and did
- 26 not prevent other Apps from accessing that data;
- 27 vii) That Apple did not in fact protect the security of personal information and
- 28 other data on the iPhone;

- viii) That Apple did not in fact subject Apps to an approval process that ensured that users' private data is protected, and that Apple did not in fact screen iDevice Apps to prevent the dissemination of Apps that access personal information or invade users' privacy;
- ix) That Apple did not in fact take the represented precautions to protect personal information on users' iDevices; and
- x) That Apple did not in fact adequately fix security issues that allowed improper access to users' private information on iDevices, including address books.

304. The foregoing omissions were materially misleading.

305. Plaintiffs and class members relied upon the foregoing unlawful and fraudulent business acts and practices, including the foregoing material representations and omissions, to their detriment in that they overpaid for their iDevices, and would not have purchased the iDevices for the retail price paid had they known of the true facts.

306. As a result of the foregoing, each Plaintiff and class member has suffered harm.

307. Plaintiffs and class members relied upon the foregoing material representations and omissions to their detriment in that they overpaid for their iDevices, and would not have purchased the iDevices for the retail price paid or at all had they known of the true facts.

308. As a result of the foregoing, each Plaintiff and class member has been injured in fact, and has lost money or property, and each is entitled to restitution and injunctive relief.

309. Wherefore, Plaintiffs pray for relief and judgment as set forth below.

Count Six
Violations of the Unfair Competition Law (UCL)
California Business and Professions Code, § 17200 *et seq.*
(Against Apple on Behalf of All Plaintiffs)

310. Each Plaintiff, on his or her own behalf and on behalf of all class members, incorporates the above allegations by reference as if fully set forth herein, and further alleges as follows:

1 311. By its actions described in this complaint, Defendants have committed unlawful
2 and fraudulent practices in violation of California Business & Professions Code section 17200
3 *et seq.* (the “UCL”).

4 312. As a result of such actions, Plaintiffs and class members have suffered injury,
5 and have lost money and property, including the inflated purchase price of their iDevices and
6 their property in their mobile address books.

7 313. All Defendants engaged in unlawful business acts and practices in violation of
8 the UCL by, among other things:

- 9 i) Invading Plaintiffs’ and class members’ privacy, as described above in
10 Count One.
- 11 ii) Converting Plaintiffs’ and class members’ property, as describe above in
12 Count Two.

13 314. In addition, Apple engaged in unlawful business acts and practices in violation
14 of the UCL by, among other things:

- 15 i) Violating the FAL, as described above in Count Three;
- 16 ii) Violating the CLRA, as described above in Count Four;
- 17 iii) Violating California Civil Code section 1709 *et seq.*, as described in Count
18 Five.

19 315. Apple engaged in fraudulent acts and practices in violation of the UCL, including
20 by making the following misrepresentations:

- 21 i) Falsely and misleadingly representing that iDevices, and the information
22 contained on iDevices, were safe and secure;
- 23 ii) Falsely and misleadingly representing that information contained in
24 iDevices could not be accessed by others;
- 25 iii) Falsely and misleadingly representing that iDevice address books could
26 not be accessed or collected by other Apps without the user’s express
27 permission;
- 28 iv) Falsely and misleadingly representing that it Apple gave users clear notice

and control over the information contained in their iDevices, including mobile contact book data;

v) Falsely and misleadingly representing that the iDevices, including their operating system, protected users from privacy attacks;

vi) Falsely and misleadingly representing that the iDevice, and its operating system, “sandboxed” data, including Contacts information and users’ private address books, thereby preventing other Apps from accessing that data;

vii) Falsely and misleadingly representing that Apple protected the security of personal information and other data on the iPhone;

viii) Falsely and misleadingly representing that Apple subjected Apps to an approval process that ensured that users’ private data is protected, and that Apple screens iDevice Apps to prevent the dissemination of Apps that access personal information or invade users’ privacy;

ix) Falsely and misleadingly representing that Apple takes precautions to protect personal information on users’ iDevices; and

x) Falsely and misleadingly representing that Apple fixed security issues that allowed improper access to users’ private information on iDevices, including address books.

316. The foregoing representations were materially misleading. At the time that Apple made the foregoing representations, Apple did not believe they were true, or had no reasonable grounds for believing they were true.

317. Apple engaged in fraudulent acts and practices in violation of the UCL by its failure to disclose material facts that it was obligated to disclose because (a) Apple had exclusive knowledge of those material facts that were not known or reasonably accessible to Plaintiffs, the class, and the public; (b) Apple actively concealed those material facts from Plaintiffs, the class, and the public; and (c) the above representations by Apple, even if not deemed misrepresentations giving rise to independent liability, were partial representations that are

misleading because those other material fact has not been disclosed. The material facts not disclosed by Apple in violation of the UCL include:

- i) That iDevices, and the information contained on iDevices, were not in fact safe and secure as represented;
- ii) That information contained in iDevices could in fact be accessed by others;
- iii) That iDevice address books could in fact be accessed or collected by other Apps without the user's express permission;
- iv) That Apple gave users clear notice and control over the information contained in their iDevices, including mobile contact book data;
- v) That the iDevices, including their operating system, did not in fact protect users from privacy attacks;
- vi) That the iDevice, and its operating system, did not in fact "sandbox" data, including Contacts information and users' private mobile address books, and did not prevent other Apps from accessing that data;
- vii) That Apple did not in fact protect the security of personal information and other data on the iPhone;
- viii) That Apple did not in fact subject Apps to an approval process that ensures that users' private data is protected, and that Apple did not in fact screen iDevice Apps to prevent the dissemination of Apps that accessed personal information or invade users' privacy;
- ix) That Apple did not in fact take the represented precautions to protect personal information on users' iDevices; and
- x) That Apple did not in fact adequately fix security issues that allowed improper access to users' private information on iDevices, including address books.

318. The foregoing omissions were materially misleading.

319. Plaintiffs and class members relied upon the foregoing unlawful and fraudulent

business acts and practices, including the foregoing material representations and omissions, to their detriment in that they overpaid for their iDevices, and would not have purchased the iDevices for the retail price paid had they known of the true facts.

320. As a result of the foregoing, each Plaintiff and class member has suffered harm.

321. Plaintiffs and class members relied upon the foregoing material representations and omissions to their detriment in that they overpaid for their iDevices, and would not have purchased the iDevices for the retail price paid had they known of the true facts.

322. As a result of the foregoing, each Plaintiff and class member has been injured in fact, and has lost money or property, and each is entitled to restitution and injunctive relief.

323. Wherefore, Plaintiffs pray for relief and judgment as set forth below.

DEMAND FOR RELIEF

WHEREFORE, Plaintiffs, on behalf of themselves and on behalf of the members of the Class defined herein, as applicable, pray for judgment and relief as follows as appropriate for the above causes of action:

A. An order certifying this case as a class action and appointing Plaintiffs and their counsel to represent the Class;

B. An order that Defendants be enjoined from their improper activities and practices described herein, including but not limited to the following:

- (1) That Apple immediately cease its unlawful, unfair and/or fraudulent business acts and/or practices and false and misleading advertising complained of herein;
- (2) That Apple refrain from the false and misleading statements, and disclosing all material facts they were required to disclose, as described herein;
- (3) That the App Defendants destroy and/or return to Plaintiffs and class members all information improperly obtained; and

(4) That Defendants refrain from any continued non-authorized use of the information of Plaintiffs and class members that was improperly obtained.

C. A judgment awarding Plaintiffs and class members actual, compensatory, statutory, presumed, punitive and/or exemplary damages, as appropriate for the particular Causes of Action;

D. A judgment granting declaratory relief, as appropriate for the particular Causes of Action;

E. A judgment awarding Plaintiffs and class members restitution for the unlawful, unfair and/or fraudulent business acts and/or practices and false and misleading advertising complained of herein; and requiring disgorgement of Defendants' unjust enrichment, wrongful profit or ill-gotten gains by requiring the payment of restitution to Plaintiffs and class members, as appropriate for the particular Causes of Action;

F. A judgment imposing on Defendants constructive trusts, as appropriate for the particular Causes of Action over any benefits wrongfully received or obtained by the Defendants or proceeds thereof;

G. Reasonable attorneys' fees, including but not limited to fees pursuant to California Code of Civil Procedure section 1021.5 and California Civil Code section 1780(d);

H. All related costs of this suit;

I. Pre- and post-judgment interest; and

J. Such other and further relief as the Court may deem just, necessary, or appropriate.

JURY TRIAL DEMANDED

Plaintiffs hereby demand a trial by jury on all claims and issues herein.

Respectfully submitted,

Dated: June 27, 2014

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ATTORNEYS FOR PLAINTIFFS

EXHIBIT A

European Rhetoric

*Rhetorical Analysis, Presentation &
Public Speaking*

Transcript – iPhone Keynote 2007

Introduction

Here is the complete transcript of [Steve Jobs](#) iPhone Keynote at the MacWorld 2007. It was originally typed by Todd Bishop and published [here](#), allowed me to use the transcript. For my thesis *iKeynote – Representation, Rhetoric, and Visual Communication by Steve Jobs in His Keynote at Macworld 2007* ([analysis](#)) I added various information, like interjections (“uh”) and timestamps. Special thanks to Liz Fleshman for reviewing and adding important parts. If you need the transcript without the brackets and additional information, just drop me an [email](#).

Transcript with Timestamps and Notes

Morning,

[0:00:28]

James Brown!

[0:00:30]

So thank you.

[0:00:37]

Thank you for coming.

We’re gonna make some history together today.

[0:00:50]

So, welcome to Macworld.

You know, it was.. uh it was just a year ago that I was up here and announced that we were gonna switch to Intel processors.[0:01:03]

A huge, heart transplant to Intel microprocessors. And uh I said that we would do it over the coming 12 months. We did it in seven months, and it was the [cough]

- it’s been the smoothest and most successful transition that we’ve ever seen in the history of our industry.

[0:01:25]

And it was because [cough] we made a beautiful, seamless version of OSX for Intel processors. And our team created Rosetta software which lets you run PowerPC apps on top of OSX on Intel processors.

Our hardware team got to cranking out a new Mac with Intel processors every month, and we completed this transition in seven months. But we didn’t do this alone. We did this with the help of a lotta folks. [0:01:57]

Our new colleagues at Intel really helped us. Thank you very much. [cough] [0:02:04]

Our thir... [0:02:06]

Our third-party developers rapidly moving their apps to universal versions to run at native speeds on Intel processors. Thank you very much. [0:02:18]

And most of all, our users. The minute you saw these lightning-fast machines, ya bought ‘em. And we’ve had an

extremely successful year, and I want to thank our users very much.[0:02:32]

Now, as many of you know, our retail stores have for a while been selling over half their Macs to people who have never owned a Mac before: switchers. [0:02:48]

Well, I'm pleased to report that now, in the U.S., Macs selling through all channels, over half of them are selling to people who've never owned a Mac before. It's not just limited to our retail stores anymore. Half the Macs we're selling in the U.S.

We are picking up lots and lots of new members of the Mac family, and we couldn't be happier. As a matter of fact, here's uh uh uh one that might be coming on soon. Jim Allchin at Microsoft was quoted recently as saying if he didn't work for Microsoft, he would buy a Mac, and he's retiring soon, so I've alerted our Seattle stores to keep an eye out for him and give him really good service. [cough] [0:03:27]

You know, uh Vista's coming out, and uh you know our ads with the Mac guy and the PC guy, uh we made a little ad for Vista, and I'd love to show it to you now, if you'd like to see it? So let's go ahead and run it. [0:03:39]

[cough]

[Apple ad]

[0:04:17]

So, 2007 is gonna be a great year for the Mac. But this is all we're gonna talk about the Mac today.

We're gonna move on to some other things and over the course of the next several months we're gonna roll out some awesome stuff for the Mac.

But for today, we're gonna move on. [0:04:42]

So, the first thing I'd like to do is give you an update about our music business.

As you know, we've got the.. the iPod, best music player in the world.

We've got the iPod nanos, brand new models, colors are back.

We've got the amazing new iPod Shuffle. [0:05:01]

The iPod, in addition to being the world's best MP3 player, has become the world's most popular video player, and by a large margin.

The iPod Nano is the world's most popular MP3 player, by a wide margin.[0:05:18]

And the new shuffle is the world's most wearable MP3 player.

So we had an incredible line-up for this holiday season, all refreshed and new products.[0:05:31]

Now I'd like to tell you a few things about iTunes now that are pretty exciting.

Number one, we have crossed a major milestone. We have sold over 2 billion songs on iTunes. It's amazing.

Now, there were some.. there was an article recently that said iTunes sales had slowed dramatically. I don't know what data they're looking at, but uh this is our data, and what we see is iTunes sales were really up this past year. uh It took us over three years to get to a billion songs. We got our second billion in 10 months in 2006. And growing off us over 600 million song base, we doubled it in 2006.

So we couldn't be happier with the growth rate of iTunes and selling 2 billion songs.[0:06:26]

Now, we are selling over 5 million songs a day, now. Isn't that unbelievable?

5 million songs a day. That's 58 songs every second of every minute of every hour of every day. And the last time we talked to you, we said that we were the 5th largest music reseller in the U.S. Now all these other guys sell music on CDs, and of course we sell it online. But if you add up all the music that's sold, we were the fifth-

largest reseller. Because of the growth of iTunes, I am pleased to report that we have now passed Amazon.

[0:06:59]

We sell more music than Amazon, and we are now number four. And you can guess who our next Target might be. So, so that's an update for music.

[0:07:15]

Now I wanna talk about TV shows.

We've got awesome TV shows on iTunes. As a matter of fact we have over 350 TV shows that you can buy episodes from on iTunes. And I'm very pleased to report that we have sold now 50 million TV shows on iTunes. Isn't that incredible? [0:07:34]

Now, now, let me go on to movies.

When we started with television shows, the pioneering partner we had was the Walt Disney Company.

[0:07:47]

They decided to throw in with us and sell TV shows, and boy did it work. Well, when we decided to sell movies, they were right there with us again as our pioneering partner to sell movies. And I am really pleased to announce that in the first four months of selling movies, we have sold 1.3 million movies on iTunes, which I think has exceeded all of our expectations. [0:08:11]

And today, we have a new partner joining the Walt Disney Company to sell movies on iTunes, and that is Paramount.

Paramount is gonna be selling movies on iTunes. And uh we're thrilled because they have some awesome movies. Let me just show you a few of the titles here that are going up as we..

as we speak. [Cover flow of Movies]

[0:08:38]

All.. all six Star Trek movies. [0:08:45]

So we are gonna be moving up from the hundred movies we've offered so far to over 250 movies now offered on iTunes. These are getting up as fast as we can over the next week or so.

And we hope to be adding even more movies as other studios throw in with us as 2006 rolls on. So that's an update on iTunes. [0:09:05]

Now, as I said, we had a very strong lineup of music players for this holiday season. We always have stiff competition. That's just part of this business.

And we had a new competitor this last holiday season, which was, of course, Microsoft's Zune. [00:09:21]

So how'd they do? Well, we don't have data for December yet, cuz it's not out till next week or the week after, I forget. [NOTE: present tense]

But we have data for November, which was their launch month, should have been real big. And they garnered two percent market share.

Two percent market share. uh iPod had 62 percent market share, and the rest had 36. [0:09:43]

Now again, we don't have data for December. We know we went up uh uh quite a bit in December in terms of market share. And uh we'll find out how they did. But two percent in their launch month.

So, no matter how you try to spin this, UHM what can you say? [0:10:01]

So that's an update on how we're doing in the new music business, and we've got a few new ads for iPods. And we work with some of the greatest folks to create advertising. And uh.. uh they created this.. this wonderful ad that I'd love to show you right now, so let me go ahead and roll it. [0:10:22]

[Ad plays] [cough]

Whew. [0:10:58]

Now, just to let you in on our process a little bit. These guys are incredibly creative, they couldn't stop. And they took the same song, which is a uh you know uh uh uh uh a up-and-coming British pop group, and they uhm.. they took the same dancers, and they did some different animation, and they came up with what you're about to see. [0:11:20]

[Ad plays]

[0:11:55]

Isn't that great? So, those'll be running shortly. And that is an update to our music business. [0:12:07]

Now, I'd like to talk about a product we introduced in September. uh called, it was called the code name was iTV. We have a new name for it. It's called Apple TV. uh but you should never, you should either go with your code name, like we did with the Mac, or you should pick a code name quite a bit – a real name quite a bit different than your code name, so I'll probably stumble and call this iTV five times today by mistake. I apologize. So Apple TV. [0:12:32]

And uh Apple TV is a way to enjoy your media on your big screen TV.

So let's let's uh backtrack and talk about what we did when we uh previewed this in September.

You can buy great content on the iTunes music store: Movies, TV shows and music, of course. [0:12:49]

And you can download it to your computer, be it a PC or a Mac. I'm.. I'm gonna use a Mac here. You can put other content on your computer from other places too, of course. [0:12:57]

And you can put that content on your iPod, right?

Now, you can go out and buy a wide-screen TV, hook up an Apple TV to it, and wirelessly transmit that content from your PC to your Apple TV and watch it on your big screen TV.

It's that simple. Right? It's that simple. [0:13:15]

So, this is it. Let's take a look at around the back at the connectors to refresh ourselves.

We have a power connector, USB 2, and Ethernet.

We have wi-fi wireless networking built in. And then we have ways to get video out. An HDMI connector, which is digital audio and video. Or component video and analog and digital audio. Right? All out the back.

Most people, however, will just use these three. They'll plug it in. There's no power brick necessary. And they'll hook up an HDMI cable to their wide-screen TV, and they'll use wireless networking to get their content. So it's really, really easy to use. [0:13:50]

And let me tell you more a little more in-depth about what this box does. First of all it delivers up to 720p high-definition video. Right?

Number one.

Number two, it's got a 40 gigabyte hard-drive inside it. So it will store up to 50 hours of video. Which comes in handy for something I'm about to show you. [0:14:10]

And it has 802.11 wi-fi wireless networking, and it's got all three of the popular standards. It's got B, G, and the new Draft N standard, which is really, really fast. And it's got an Intel processor in it, so it's got the processing horsepower to do the kinds of user interfaces we like to do. [0:14:31]

So it's a really cool box. It works with video, music and photos. It was designed for wide-screen TVs. It's got wi-

fi wireless networking, internal 40 gig hard drive.

It, you can auto-sync your content from one computer.

And you can stream content from up to five computers. So let's examine this in a little more detail. Auto-sync from one computer. What does this mean?

It means you can take one of the computers in your house, and right from iTunes, just like you would set up an iPod, you could set up your Apple TV. And you can set up your Apple TV to say, oh, take my ten most recently purchased unwatched movies and automatically put them on the hard drive of Apple TV. So that whenever I walk up to Apple TV, they're there. Right? [0:15:20]

So let me show you, I'm gonna to do this with six TV shows. They just automatically, whenever I buy them, they just automatically will stream in the background to Apple TV and be stored on the hard drive. [0:15:30] Right? So whenever I go to watch something, they are there.[0:15:34]

Now, I can also stream from up to five computers. In this case, I'm gonna take content from five computers, and I can watch it on Apple TV but I will..will not store it on the hard drive.[0:15:45]

Right, so you can just stream it live and watch it from other computers in the house. Or if your neighbor comes over with a.. a notebook and they've got something cool that you wanna watch on your widescreen TV. Again, PCs or Macs, I just choose the computer that I like. [0:15:57]

So, this is Apple TV, and oh why don't we go ahead and show it to you? You can control it with this very simple remote. So let's go see a demo. [0:16:06]

This is the screen saver. Takes all your photographs here and just puts them on your TV and they're gorgeous, because as you know, phot...photography these days is high-def, with these amazing digital cameras that we have. [0:16:21]

So, let's go into the main menu of iTV, and uh here's what it looks like. We've got movies, TV shows, music, podcasts, photos. So let's go into movies here. And we go into movies and uh, let's see here now, we have uhm all my movies that are stored on iTV, as well as the iTunes top movies. I can go see what's selling on iTunes and stream it down and watch it on iTV. I can also look at theatrical trailers. Again, this is not stored on iTV. This is actually coming over the live Internet. Into my house through my Internet gateway, wirelessly to i – to Apple TV, and I can watch theatrical trailers streaming right from Apple.com. So let's go in here. [0:17:08]

And uh what's a cool trailer? Uhm...gonna watch..yeah this one called the Good Shepherd. [Mumbling where'd it go..oh G.. Good Shepard, there we go]

Boom. So let's watch this, I just click on it, and this is streaming live from Apple.com. [0:17:23]

[Movie trailer] [0:18:01]

So you get the idea. You can sit on your couch and watch theatrical movie trailers with iTV.

Now, let's back up here, and let's go play a movie. uhm We've got Zoolander here. Let's go play a little part of Zoolander. One of our new Paramount movies.[0:18:17]

[Movie clip] [0:19:07]

Isn't this great?

So, that's movies, and uh let's go take a look at uh at in ZooTV shows here.

It's.... again, incredibly cool. Let's go into uh "Heroes," a really great new show, and uh let's play an episode called Better Halves. [0:19:26]

[TV clip] [0:20:47]

[Chuckles]. OK, well, that's TV shows. And uh Now let me show you uh music.

You know, iTV, of course is – Apple TV is uh primarily for video, but it turns out it's awesome for listening to music on your home theater system, as well. We think a lot of people are going to buy it uh buy it for that.

So we've got music here, we've got the iTunes top music and top music videos.

And uh let me go down into a playlist here. [0:21:15]

And uh, We've got a favorites playlist, I'll go into that.

And I'll just shuffle some songs, cause I wanna show you what it's like when you're playing music here.

[0:21:24]

[Music plays] [cough]

[0:21:44]

So it does that so it doesn't burn a hole in your uh plasma TV there.[0:21:48]

And uh we can go ahead and just go to the next track here.

next track.

So that's what it's like to play music. [0:22:07]

Alright. [0:22:12]

So now let's go to photos. You know, Again, your photos are high-def. These new digital cameras are awesome.

[0:22:19]

And so you can just, again, move your photos to iTV or stream them over, over wireless networking. And see your photos right on your TV. So as an example, here's a photo album I made of uh. [0:22:33]

[slideshow plays with music]

just beautiful.

[0:23:04]

So you get the idea. It's really cool to watch photos on your widescreen TV.

[0:23:10]

Now, uh what I've been demonstrating so far uh is primarily content that has been synced to Apple TV from my computer and I'd like to show you what it's like uh when you uh wanna connect to someone else's computer. [0:23:24]

Let's say uh Phil Schiller my neighbor comes over and uh he's got his MacBook and.. Phil, what do you got on your MacBook. You got some content we could watch? [0:23:31]

[Phil Schiller]

[0:23:35]

Great, Well, let me just go down here to sources, and uh here's the uh you know Apple TV that I've been playing off the hard drive of, and I just say I wanna connect to a new iTunes right here, and iTunes is running on Phil's machine. It says type in this PIN, for security reasons, and Phil types in the PIN into his MacBook and uh the minute. They're fully authenticated now, and there's Phil's MacBook right up there and I push it, and now I'm gonna be looking at the content right off of Phil's MacBook and what you wanna watch, Phil? [0:24:07]

[Phil Schiller]

Alright, here we go. Which one?

[Phil Schiller]

Alright go to 30 Rock here.

[Phil Schiller]

... Jack meets Dennis, OK, great. Here we go. [0:24:21]

We're streaming off of Phil's MacBook to this Apple TV live. [0:24:24]

[30 Rock clip]

[0:25:05]

Alright, so, Thanks Phil.

[Phil Schiller]

That is Apple TV. [0:25:14]

[0:25:22] So we think this is pretty cool.

Apple TV. Movies, TV shows, music and photos all on your widescreen TV.

I'm really excited about it. So Apple TV is gonna be priced at \$299.

Right? \$299 for all this built in. [0:25:48]

And we're gonna be shipping them next month, in February, and we are taking orders starting today.

So, Apple TV. Enjoy your media on your big-screen TV. We think this is gonna be really something quite special. Apple TV.[0:26:09]

[0:26:22]

This is a day I've been looking forward to for two-and-a-half years.[0:26:28]

Every once in a while, a revolutionary product comes along that changes everything. And Apple has been – well, first of all, one's very fortunate if you get to work on just one of these in your career.

Apple's been very fortunate. It's been able to introduce a few of these into the world.

In 1984, we introduced the Macintosh. It didn't just change Apple, it changed the whole computer industry.

[0:27:12]

In 2001, we introduced the first iPod, and... it didn't just – it didn't just change the way we all listen to music, it changed the entire music industry. [0:27:36]

Well, today, we're introducing three revolutionary products of this class. [0:27:48]

The first one: is a widescreen iPod with touch controls. [0:27:59]

The second: is a revolutionary mobile phone. [0:28:13]

And the third is a breakthrough Internet communications device.[0:28:28]

So, three things: a widescreen iPod with touch controls; a revolutionary mobile phone; and a breakthrough Internet communications device. [0:28:44]

An iPod, a phone, and an Internet communicator. An iPod, a phone ... are you getting it? [0:29:01]

These are not three separate devices, this is one device, and we are calling it iPhone. [0:29:19]

Today, today Apple is going to reinvent the phone, and here it is. [0:29:30]

No, actually here it is, but we're gonna leave it there for now. [0:29:41]

So, before we get into it, let me uh talk about a category of things. The most advanced phones are called smart

phones. So they say. [0:29:57]

And uh they typically combine a phone plus some e-mail capability, plus they say it's the Internet. It's sort of the baby Internet, into one device, and they all have these plastic little keyboards on them.

uh And the problem is that they're not so smart and they're not so easy to use, so if you kinda make a...

Business School 101 graph of the smart axis and the easy-to-use axis, phones, regular cell phones are kinda right there, they're not so smart, and they're – you know – not so easy to use. [0:30:28]

uhm But smart phones are definitely a little smarter, but they actually are harder to use. They're really complicated. Just for the basic stuff a hard time figuring out how to use them. [0:30:41]

Well, we don't wanna do either one of these things. What we wanna do is make a leapfrog product that is way smarter than any mobile device has ever been, and super-easy to use.

This is what iPhone is. OK? [0:30:57]

[0:30:59]

So, we're gonna reinvent the phone. [0:31:01]

Now, we're gonna start... with a revolutionary user interface.. is the result of years of research and development, and of course, it's an interplay of hardware and software.

Now, why do we need a revolutionary user interface? I mean, Here's four smart phones, right? Motorola Q, the BlackBerry, Palm Treo, Nokia E62 – the usual suspects. [0:31:33]

And, what's wrong with their user interfaces? Well, the problem with them is really sort of in the bottom 40 there. It's, it's this stuff right here.

They all have these keyboards that are there whether you need them or not to be there.

And they all have these control buttons that are fixed in plastic and are the same for every application. Well, every application wants a slightly different user interface, a slightly optimized set of buttons, just for it.

And what happens if you think of a great idea six months from now? You can't run around and add a button to these things. They're already shipped. [0:32:07]

So what do you do?

It doesn't work because the buttons and the controls can't change. They can't change for each application, and they can't change down the road if you think of another great idea you wanna add to this product. [0:32:22]

Well, how do you solve this?

Hmm. It turns out, we have solved it! [0:32:27]

We solved it in computers 20 years ago. We solved it with a bit-mapped screen that could display anything we want. Put any user interface up. And a pointing device. We solved it with the mouse. Right?

We solved this problem. So how're we gonna take this to a mobile device?

What we gonna do is get rid of all these buttons and just make a giant screen.

A giant screen. [0:32:54]

Now, how are we gonna communicate this? We don't wanna carry around a mouse, right?

So what are we gonna do? Oh, a stylus, right?

We're gonna use a stylus.

No. No. Who wants a stylus?

You have to get em and put em away, and you lose em. Yuck.

Nobody wants a stylus. So let's not use a stylus.

We're gonna use the best pointing device in the world. We're gonna use a pointing device that we're all born with – we're born with ten of them. We're gonna use our fingers.

We're gonna touch this with our fingers. And we have invented a new technology called multi-touch, which is

phenomenal. [0:33:33]

It works like magic.

You don't need a stylus. It's far more accurate than any touch display that's ever been shipped.

It ignores unintended touches, it's super-smart.

You can do multi-finger gestures on it.

And boy, have we patented it. [0:33:54]

So, so we have been very lucky to have brought a few revolutionary user interfaces to the market in our time.

First was the mouse.

The second was the click wheel.

And now, we're gonna bring multi-touch to the market. [0:34:20]

And each of these revolutionary user interfaces has made possible a revolutionary product – the Mac, the iPod and now the iPhone. [0:34:30]

So, a revolutionary user interface.

We're gonna build on top of that with software. Now, software on mobile phones is like is like baby software. It's not so powerful, and today we gonna show you a software breakthrough. Software that's at least five years ahead of what's on any other phone. [0:34:55]

Now how do we do this? Well, we start with a strong foundation: iPhone runs OSX.

Now, why, why would we wanna run such a sophisticated operating system on a mobile device? Well, because it's got everything we need.

It's got multi-tasking.

It's got the best networking.

It already knows how to power manage. We've been doing this on mobile computers for years. It's got awesome security.

And the right apps.

It's got everything from Cocoa and the graphics and it's got core animation built in and it's got the audio and video that OSX is famous for.

It's got all the stuff we want. [0:35:43]

And it's built right into iPhone. And that has let us create desktop class applications and networking, right. [0:35:52]

Not the crippled stuff that you find on most phones. This is real, desktop-class applications. [0:35:59]

Now, you know, one of the pioneers of our industry, Alan Kay, has had a lot of great quotes throughout the years. And I ran across one of them recently that explains how we look at this.

Explains why we go about doing things the way we do, cause we love software. [0:36:18]

And here's the quote: "People who are really serious about software should make their own hardware." [0:36:25]

You know, Alan said this 30 years ago, and this is how we feel about it.

And so we're bringing breakthrough software to a mobile device for the first time.

It's five years ahead of anything on any other phone.

The second thing we're doing is we're learning from the iPod, syncing with iTunes.

You know, we're gonna ship our 100 millionth iPod this year, and that's a lo... 10s of millions of people that know how to sync these devices with their PCs or Mac and sync all of their media right on to their iPod.

[0:36:59]

Right?

So you just drop your iPod in, and it automatically syncs.

You're gonna do the same thing with iPhone. It automatically syncs to your PC or Mac right through iTunes. And iTunes is gonna sync all of your media onto your iPhone: Your music, your audio books, podcasts, movies, TV shows, music videos. [0:37:19]

But it also syncs a ton of data: Your contacts, your calendars and your photos, which you can get on your iPod today, your notes, your..your bookmarks from your Web browser, your e-mail accounts, your whole e-mail set-up. All that stuff can be moved over to your iPhone completely automatically.

It's really nice.

And we do it, we do it through iTunes. [0:37:41]

Again, you go to iTunes and you set it up. Just like you'd set up an iPod or an Apple TV. And you set up what you want synced to your iPhone. And it's just like an iPod. Charge and sync. So sync with iTunes.[0:37:55]

Third thing I wanna talk about a little is design. [0:38:00]

We've designed something wonderful for your hand, just wonderful.

And this is what it looks like.

It's got a three-and-a-half-inch screen on it. It's really big.

And, it's the highest-resolution screen we've ever shipped. It's 160 pixels per inch.

Highest we've ever shipped. It's gorgeous.

And on the front, there's only one button down there.

We call it the home button. Takes you home from wherever you are.

And that's it. Let's take a look at the side. [0:38:31]

It's really thin. It's thinner than any smart phone out there, at 11.6 millimeters.

Thinner than the Q, thinner than the BlackJack, thinner than all of them.

It's really nice.

And we've got some controls on the side, we've got a little switch for ring and silent, we've got a volume up and down control.

Let's look at the back.

On the back, the biggest thing of note is we've got a two-megapixel camera built right in.

The other side, we're back in the front.

So let's take a look at the top now.

We've got a headset jack. 3 and half millimeter all your iPod headphones fit right in.

We've got a place, a little tray for your SIM card, and we've got one switch for sleep and wake. Just push it to go to sleep, push it to wake up. [0:39:18]

Let's take a look at the bottom.

We've got a speaker, we've got a microphone, and we've got our 30-pin iPod connector.

So that's the bottom.

Now, we've also got some stuff you can't see.

We've got three really advanced sensors built into this phone. [0:39:38]

The first one is a proximity sensor. It senses when physical objects get close, so when you bring iPhone up to your ear, to take a phone call, it turns off the display, and it turns off the touch sensor, instantly.

Well, why do you wanna do that?

Well, one to save battery, but two, so you don't get spurious inputs from your face into the touch screen.

Just automatically turns them off, take it away, boom, it's back on.

So it's got a proximity sensor built in.

It's got an ambient light sensor, as well. We sense the ambient lighting conditions and adjust the brightness of the display to match the ambient lighting conditions.

Again, better user experience, saves power. [0:40:10]

And the third thing we've got is an accelerometer, so that we can tell when you switch from portrait to landscape. It's pretty cool. Show it to you in a minute. So three advanced sensors built in. [0:40:22]

So, let's go ahead and turn it on.

This is the size of it. It fits beautifully in the palm of your hand.

So, an iPod, a phone, and an internet communicator.

Let's start with the iPod. You can touch your music.

You can just touch your music, it's so cool.

You've got a widescreen video. [0:40:51]

You can find your music even faster.

Gorgeous album art on this display.

Built-in speaker, and, why not? Cover flow. First time ever on an iPod.

So rather than talk about this some more, let me show it to you. [0:41:08]

Alrighty.

Now, I've got some special – some special – iPhones up here, they've got a little special board in them so I can get some digital video out, and I've got a little cord here which goes up to these projectors, and uh so I've got some great images, and you get to see what it really looks like.

So, let me, I've got a camera here so you can see what I'm doing with my finger for a few seconds [sniff].

And uh let me go ahead and get that picture within picture up.

I'm gonna go ahead and just push the sleep/wake button and there we go, right there. [0:41:47]

And to unlock the phone I just take my finger and slide it across.

Want to see that again? Sleep.

We wanted something you couldn't do by accident in your pocket.

Just slide it across. Boom.

And this is the home screen of iPhone right here.

And so if I want to get in the iPod, I just go down to that lower right hand corner and push this icon right here, and boom, I'm in the iPod.

I wanna get home, I push the home button right here, and I'm home. [0:42:16]

Back in the iPod. I am back in the iPod.

Now, here I am you see five buttons across the bottom.

Playlists, artists, songs, videos and more. I'm in artists right now.

Well, how do I scroll through my lists of artists? [0:42:29]

How do I do this? I just take my finger, and I scroll. [0:42:35]

That's it. Isn't that cool?

A little rubber banding up when I run off the edge.

And if I wanna pick somebody, let's say I wanna pick the Beatles, I just tap them, and here's the Beatles songs with their albums right here.

If I wanna play Sgt. Pepper's I just hit Sgt. Pepper's right there, and uh "A Little Help From My Friends."

[0:43:00]

Look at this gorgeous album artwork here.

Of course, I've got a volume control.

Now, I've got a little button up in the corner right here, you can see in the upper right-hand corner, I can hit that and flip the album art around.

There's all the other songs back here.

And I can play "Lovely Rita" if I want to.

Flip it back around. Very simple.

Right, I can set some stars back here just by setting the arrows. Right?

That's a five star album. Isn't that cool? Yeah, it's pretty nice. [0:43:40]

Now, let me show you something else.

I just take my unit here, and I turn it landscape mode, oh, look what happens!

I'm in cover flow.

Let's go into Dylan here, let's play "Like a Rolling Stone."

I just thumb through, just thumb through my albums.

It's really easy.

Anytime I find something I like, I can just turn it around, and play something.

It's that easy.

[playing around with different music]

It's that simple.

Isn't that great? Yeah.

Alright. I could play with this for a long time. uh [0:45:05]

Now, Again, I've got playlists here.

I can go into my playlists. I've got artists. I've got songs.

Uh I've got more over here. I've got you know – albums.

I've got a great album view again that shows all my album artwork right here if I want.

uh And uh I've also got audio books and compilations and things like that.

I've also got videos here. [0:45:24]

So I push videos and uh I've got here i've got a podca.. video podcast loaded on, and a music video.

And I've got a TV show and a movie, and I'd like you to just show the uh TV show here. This is an episode from The Office. All videos we look at in uh.. in landscape. [0:45:38]

[Video plays - The Office] [0:46:33]

We have touch controls on here, of course.

Isn't that awesome? Isn't that awesome?

Let's go uh... [0:45:40]

Now I wanna show you uh a movie playing. Let's play Pirates of the Caribbean, the second one, here.

Great movie, by the way. And uh... [0:46:48]

[Movie plays] [continues to talk]

Now this is a widescreen movie so I just double-tap and I can see the whole thing here, or I can fill up the screen, whichever I like.

[stops talking]

[watches movie]

And again, I've got on-screen controls here. Isn't this cool? [0:47:15]

So we can be watching feature-length movies just like this.

Alrighty. So that – is the iPod.

Pretty cool, huh? [0:47:30]

We've just started. So again, touch your music. [0:47:38]

scroll through your songs, scroll through your playlists. [0:47:41]

It's incredible. Widescreen video like you've never seen on a portable device, 160 pixels per inch, gorgeous screen quality.

Gorgeous album art, and cover flow. [0:47:54]

It's the best iPod we've ever made.

Again, some of the screen shots [sniff]. It's unbelievable.

Here's some album art I just put up, so you can see what it looks like.

Just, no matter what you like, it looks pretty doggone gorgeous.

And of course, cover flow and video, with on-screen controls.[0:48:28]

You know, I was showing this to somebody –

I was giving a demo to somebody a little while ago, who had never seen this before, inside Apple. And I uh finished the demo, I said what do you think.

He told me this, he said, you had me at scrolling. [0:48:45]

So, the iPhone with the most amazing iPod ever.

You can now touch your music. [0:48:55]

So that's the iPod.

Now, let's take a look at a revolutionary phone. [0:49:02]

We wanna reinvent the phone.

Now, what's the killer app?

The killer app is making calls!

It's amazing, it's amazing how hard it is to make calls on most phones.

Most people actually dial them every time. [0:49:19]

Most people don't have very many numbers in their address book they use their recents as their address book. Right?

How many of you do that? I bet more than a few.

So, we wanna let you use contacts like never before.

You can sync your iPhone with your PC or Mac and bring down all your contacts right into your phone. So you've got everybody's numbers with you at all times. [0:49:41]

We have something that's going to revolutionize voice mail today. We call it visual voice mail.

Wouldn't it be great – if you didn't – if you had six voice mails if you didn't have to listen to five of them first before you wanted to listen to the sixth?

Wouldn't that be great if you had random access voice mail? [0:49:58]

Well, we've got it. Just like e-mail you can go directly to the voice mails that interest you. Excellent audio audio quality. iPhone is a quad-band, GSM plus Edge phone.

We have decided, we decided, to go with the most popular international standard, which is GSM. We're on that bandwagon, headed on that roadmap, and uh plan to make 3G phones and all sorts of other amazing

things in the future. So, quad-band GSM plus edge, and of course we have wi-fi and Bluetooth 2.0 EDR built in, as well.[0:50:34]

[0:50:36]

And so this is what it looks like when you get a call.

This is what it sounds like. It's one of our ring tones, you can pick of course.[0:50:45]

So, I wanna show you four things.

I wanna show you the phone app, photos, got a calendar, and SMS messaging. [0:50:00]

The kind of things you would find on a typical phone, but in a very untypical way now.

So let's go ahead and take a look.

So let's go to our phone, first. [0:51:17]

You see that uh icon in the lower left-hand corner, the phone?

I just push it right here, and boom, I'm in the phone.

And I've got five buttons across the bottom: favorites, recents, contacts, keypad and voice mail. I'm in contacts, right now, again. How do I move around my contacts?

I just scroll through them.

And so, let's say I wanna make a call to Jony Ive.

I can just push here, and I see Jony Ive's context, with all his information: his three phone numbers, his e-mail, whatever else, his address, whatever else I've got.

It's all in one place.

And if I wanna call Jony, all I do is push his phone number. I'll call his mobile number right now. And now, we are calling Jony here.

[0:52:07] Hey, Jony, how you doing?

Well, it's been 2 and a half years, and I.. I can't tell you how thrilled I am to make the first public phone call with iPhone.

I... I remember when we first started working on this, and it's.. it's just unbelievable. Wah, whoa, what is this? I've got another call coming in. Jony, can I put you on hold for a minute? Ok. So I put Jony on hold and ...

Hi Phil.[0:52:44]

[Schiller says: Hey, Steve, I wanted to be the first call!"]

Sorry Phil! As you can see, it's pu.. put Jony on hold, and Phil, I can just touch Jony and bring Jony back. Hey, Jony are you there?

Hey listen, uh Phil called. Do you mind if I conference him in?

["I guess so," Ive says]

You can see the m.. uh button has changed to merge calls right there in the middle, so I just push that right here, and now, I've created a conference call.

Jony, you there? Phil, you there?

So here we are, and uh listen I gotta get back to my keynote, so uh if I wanna do that, what i'm gonna.. I just touch this arrow right here, and uh I'm gonna go ahead and take Jony private here and uh put Phil on hold.

Jony, do you have anything to say on the first phone call? [0:53:43]

["It's not too shabby is it?" Ive says]

It's not too shabby. You take care, Jony.

And I end this call. and it..Phil's on hold. I take him off of hold.

Phil, thanks very much, I gotta get back to the keynote now.

Bye-Bye.

Alrighty.[0:54:02]

So, now I've also got a way to make a list of favorites here, from my most-often called numbers so I can just touch it once and dial.. dial the number.

And I might wanna add somebody to favorites, so let's say I wanna add Phil Schiller, I just push that plus button in the upper right-hand corner right there, and up pop my favorites, and I can just go to uh "S" is here and there's Phil, so uh Phil Schiller is right there.

And uh I'll put, let's say I wanna put Phil's work number, and it's added Phil, right there you can see the favorites.

I can edit favorites by pushing the edit button in the upper left-hand corner, and I can move Phil up if I want to, you know maybe to the top.

And uh let's see, i'm not gonna.. you know type Tony's changed his number I've got to update this anyway, so I'm gonna get rid of that and I can just remove Tony. Boom, there we go.

It's that simple to edit these things. Very, very easy.

I've got recents right here, which is all my recent phone calls. [0:55:02]

If I wanna see the ones I've missed, which are in red, I can just go up and touch that button at the top, and boom, those are all the ones I've missed, and those are all the calls that I've placed or have gotten.[0:55:14]

If I wanna dial the phone, if I'm real last-century, I can push keypad here, and uh I can dial a call just with ... oops, called four, sorry.

Wrong number.

uh 408 uh 996-1010.

And it formats the numbers and uh if I want to, I can just keep dialing, let's say it's a European number, and the numbers just keep getting smaller, real simple.

Very simple to dial with the keypad.

Now let me show you visual voice mail. This is so cool.

This is a collaboration that we've done, which I'll talk more about later, and uh it allows us to have random access voice mail.

Go directly to the voice mails we want.

So as an example, I come to my voice mail, and I say, oh, there's one by Al Gore.

I wanna hear that one. I just push it. [Congratulatory message from Al Gore plays.]

[Sniff] [0:56:20]

Now, if I wanna call Al back right now, I can just push that call back button.

But I wanna listen to one from Tim Cook I've got here, so let me listen to Tim.

[Message plays with Joke about revenue]

Isn't this awesome.

And so I've got voice mail how I wanna listen to it, when I wanna listen to it, in any order I wanna listen to it with visual voice mail. [0:56:49]

So that is a quick tour of the phone app.

Now what I wanna do is show you SMS texting.

So I just go to that SMS icon in the upper-left-hand corner and push it.

And I not only have SMS texting, but I have multiple sessions.

So I can be carrying on conversations with people, and every time I get a new message from them, I'll be alerted to that, and go check it out.

So. As an example here, I've got Eddie Q and I've been carrying on a conversation with Eddie, and I just tap this, and here's the conversation I've been carrying on right here, right. [0:57:22]

And if there's a new message it will tell me.

And so there's a new message from Phil, and uh let's see the conversation was what: [0:57:27]

[SMS messages:]

Hey Steve

Hi

Still on for dinner tonight?

absolutely

your turn to pick

hmmm I pick Sushi Ran

how about 7 o'clock tonight?

and I say, I can can just say, you know

sounds great

[0:57:37]

And I've got this little keyboard which is phenomenal.

It does error prot uh prevention and correction.

Not that I won't make some, I probably will. [0:57:45]

But it's actually really fast to type on. It's faster than all these little plastic keyboards on all these smart phones.

So I can just say sounds great, see you there.

And I can send that. And there it is, right.

It's that simple.

And when Phil messages me back, I'll be alerted, I'll see the dot, and I can just go pick up that conversation where it left off.

If I wanna send a message to Eddie I or Scott, I just push this and send a message and go.

It's so simple.

So that's SMS messaging, and uh you know again, you've seen the keyboard, it's pretty awesome. We'll come back to that a little bit later.

And the third app I wanna show you as part of the phone package is photos.[0:58:42]

You know, we have a two-megapixel camera built in, as I said. We also have the coolest photo management app uh ever, certainly on a mobile device, but I think maybe ever.

And uh so here's uh here's our photos. I'm going to go into our photo library, and this is our library and again, I can just scroll through photos here with my finger.

Pretty cool. Let me go to uh photo album, I'll pick Italy, and I just uh, let's start at the top.

And to go through pictures, I just swipe them. [0:59:09]

I can just swipe through my photo library. Oh There's one that's uh that's landscape. I can just turn my device and take a look at it. Pretty cool, huh?

So.. Alright? So I can even swipe when I'm in landscape here.

Yeah? Isn't this awesome?

The other thing I can do is uh I can take any of these pictures and uh I can make them bigger. And uh So let me go ahead and get the camera back up yeah there it is right there.

I can uh.. I can just take my fingers and I can, we call it the pinch, I can bring them closer together and move them further apart to make it bigger or smaller.

And So I can just move them further apart and stretch the image.

Isn't that cool? [0:59:54]

I can move it around, and ... isn't that cool?

And now, now what I can do is I can uh pick to uh make this my uh wallpaper.

And of course, I could you know.. jigger it around then and just set the wallpaper, and now when I uh if I'm back at home and I go to sleep, when I wake up from here on out, until I reset it, that's my wallpaper. [1:00:22]

Whenever I'm making a call, that's what I'm gonna see. Boom.

There we go. So photos, SMS and the phone app. [1:00:31]

That is part of our phone package for iPhone.

[1:00:44] Get a call, again, really great call management features, just scroll through contacts with your finger.

All the information at your fingertips here.

Favorites, last century, visual voice mail.

Calendar, SMS texting, incredible photo app, the ability to just take any picture and make it your wallpaper.

It's pretty unbelievable, and I think when you have a chance to get your hand on it, you'll agree, we have reinvented the phone. OK. [1:01:23]

So, now, let's take a look at an Internet communications device as part of iPhone.

So what's this all about?

Well, we've got some real breakthroughs here.[1:01:41]

To start off with, we've got rich, html e-mail on iPhone.

The first time really rich e-mail on a mobile device. And it works with any IMAP or POP e-mail service. You got your favorite mail service, it'll likely work with it. [1:01:59]

And it's rich text e-mail.

We wanted the best web browser in the world on our phone, not a baby web browser or a WAP browser, a real Web browser, and we picked the best one in the world, Safari, and we have Safari running on iPhone.

It is the first fully usable html browser on a phone.

Third, we have Google Maps.

Maps, satellite images, directions and traffic. [1:02:34]

This is unbelievable, wait til you see it. We have widgets, starting off with weather and stocks. And this communicates with the Internet over EDGE and wi-fi.

And iPhone automatically detects wi-fi and switches seamlessly to.

You don't have to manage the network. It just does the right thing.

Now, I wanna take a second and talk about email. we hook up to almost any IMAP or POP3 mail service. I just

want to give you some examples. IMAP of course is the best because you can keep your folders and all your e-mail on the server and access it from anywhere.

uh Yahoo E.. Yahoo Mail is IMAP. Microsoft Exchange has an IMAP option. And obviously .Mac mail is IMAP, as well.

POP3, Google Gmail, AOL Mail, and most ISPs are POP3 e-mail. [1:03:27]

Now, I wanna take a minute and highlight one.

Yahoo Mail.

Yahoo Mail is the biggest mail service in the world.

They have over a quarter billion users.

Biggest e-mail service in the world, and today, we are announcing with Yahoo that they are going to provide free push IMAP e-mail to all iPhone customers. [1:03:51]

So, this isn't just IMAP e-mail.

It is push IMAP e-mail. So when you get a message, it will push it right out to the phone for you. Same as a BlackBerry. Free IMAP push e-mail from Yahoo.

So we think this is a pretty big deal.

So what I'd like to do now is I'd like to show you:

Mail, Safari, Google Maps and widgets running on iPhone.

So let's go see. [1:04:19]

So let's go into mail.

Second icon from the left on the bottom there.

I just touch it with my finger, and boom, I'm there.

And so I've got an in-box here, and this is, by the way, running live on Yahoo IMAP e-mail.

This stuff is coming off a Yahoo server somewhere up in the cloud.

And uh so I can say James Vincent here sent me an e-mail.

And he's a proud father.

And there we there we go. And I can just scroll here.

I've got in-line photos, rich text e-mail. there we go.

So let's look at another one. Phil Schiller. [1:05:02]

She loved the gift.

Again, in-line photos, rich text, pretty nice.

Shopping list. [1:05:12] Again, rich text right here. Pretty cool.

Directions to Sushi Ran for tonight's dinner.

Now, iPhone of course parses out phone numbers and as you can see there's a phone number in blue.

I can just touch it, and boom, I'm gonna call this place.

I don't really wanna call them so I'm going to end the call here.

But you get the idea.

And uh this last one uh, Ken Bereskin is uh one of our marketing folks.

He just returned from Antarctica. Ken's a great photographer, and he took all these great photos of uh of penguins in Antarctica. [1:05:47]

It's really cool. Look at this, it's great. Right in your e-mail, right on your phone.

And if I want to – by the way – , I can uh look at my e-mail with a split view just like I do on my computer, and so I can select something here and just look at it down here if I want to peruse my messages real fast and just find that one message I was looking for.

But I actually like the full-screen view.

And of course, we have a standard in-box and drafts, and sent, and eh and and all sorts of folders you can put things in as well.

So it's real e-mail, just like you're used to uh on your computer, right here on your phone.

It's extraordinary.

And again, free IMAP e-mail from Yahoo. [1:06:26]

Now, let me go ahead and just uh create an e-mail message.

Show you what that's like.

So again, when I don't need a keyboard it's not there.

When I do, it's there. I want to send a message to uh, let's say, Phil.

I just type PH, and boom, Phil Schiller, it's address completion and maybe I'll send one to Scott Forrester, as well, and there's Scott right there, and uh let's say the subject is uh dinner.

Dinner and uh.. uh. you know. oops.

See you tonight. Boom, and I just hit send.

Sends that e-mail, and we're done.

So that is mail. Full desktop class e-mail running on a mobile device. [1:07:21]

Alright, now I wanna show you something incredible.

I wanna show you Safari running on a mobile device.

So let's go to the Web, and here we are.

I'm gonna load in, rather than apple.com here, a.. a little uh.. more universal site.

I'm gonna load in the New York Times, it's kind of a slow site because it's got a lot of images, but here we are loading and we're loading over wi-fi right now.

And rather than just give you a WAP version of the New York Times, rather than give you this wrapped version all around, we're showing you the whole New York Times Web site, and there it is.

And Guess what I can do, I can just put this into landscape mode, and there it is right there.

And I can scroll here if I want.

Scroll up and down here. Still loading it in.

There we go. Or I can just get back like this. [1:08:19]

Now, this is really great and I can see the whole page but of course I can't read it.

It's a little too small. So I can get in with my fingers and pinch it but we have an optimization here. I can just double-tap on anything and it automatically fills up the screen with it.

And I can just scroll around like this and scroll over here and I can even make this text bigger if I want to, and there it is. [1:08:39]

Just double-tap again to get back to the full page. Isn't this cool?

So I can just. Look at this.

There is the New York Times. And again, any article I want, boom, there we go.

Boom. Unbelievable.

Now, you can look at multiple Web pages as well. You can have multiple Web pages open. So I just push this button in the lower-right hand corner.

Shrinks it down, and I can add a new page if I want.

And uh I'll go to uh Amazon here out of my bookmarks.

So let's go to Amazon. And I love to go the DVD section of Amazon and see what DVDs are selling.

I like it especially when Disney's are at the top.

Uh, [cough] And, uh so here's Amazon coming, and even before the whole page is loaded on, I'm just going to double-tap on this, and.. and uh I'm gonna say let's go to the DVD section here, and now it's doing that.

And here we are. [1:09:51]

And there's a section over here on the right hand side, right there, and these are the top sellers, updated hourly.

Oh look, Al's Inconvenient Truth is number one.

Alright. And here's all the other movies.

Grey's Anatomy, I like that. Pirates of the Caribbean. Fantastic.

And so I've got this right here, and I can go back to the New York Times if I want.

You know. Zoom up to that picture so we can all see it.

And again, here isn't this cool?

Just go over there and go back to this one.

I can get rid of them just by hitting the X. And there we go.

Isn't that incredible? Safari.

You know, if you've ever used what's called a Web browser on a mobile phone, you'll know how incredible this is.

I hope you'll never really know, because it's it's bad out there today, and this is a revolution of the first order, to really bring the real Internet to your phone.[1:10:57]

Let me show you something about widgets here.

uh Let's go to stocks right now, i'm gonna load stock information off the Web, and uh just right onto the phone here.

Oh, look, Apple's up!

That's great! [1:11:13]

Well, I could look at different graphs here if I want to.

And uh that's fantastic. Let's look at the percentages here.

Oh, good. Good good. So I've got stocks right here, and uh I can go look at the weather.

Let's see what uh what it's like outside.

49 degrees, but it's supposed to get to 61 today, so that's good.

We'll just stay in here until it warms up.

Now, I've got uh Paris right here. I can have as many of these as I want, so it's nighttime in Paris. It's actually warmer in Paris at night than it is here today.

Wow. Aspen, well, no snow til later in the week. [1:11:53]

And Hawaii. Oh, it's raining, that's not good.

Well, anyway, here's four places. Hawaii, Aspen, Paris and San Francisco, and again, the weather widget.

[1:12:06]

Now, to conclude with the Internet device section here, I wanna show you something truly remarkable, which is, Google Maps on iPhone.[1:12:18]

I hit our maps application here and it's coming up.

And it shows us North America, and I'm gonna go to Moscone West.

That's where we are right now.

And here we are. Boom.

That's where we are. Now, what I'm gonna do, is I'm gonna go uh look for something.

I'm I'm gonna certainly want a cup of coffee afterwards, so I'm just gonna look for Starbucks, right?

Starbucks, so I'm gonna search for Starbucks, and sure enough, there's all the Starbucks. Now, I can get a list of Starbucks here, so I can pick that one if I want, and I can even go look at that Starbucks, and there it is, and let's give em a call. [1:13:02]

[Good morning, Starbucks, how can I help you?]

Yes, I'd like to order 4,000 lattes to go, please.
No, just kidding, wrong number. Thank you. Bye-bye. OK. [1:13:25]

Now, I can zoom in by just again pinching if I want to.
Or I can just double click to zoom in, and uh I get just uh higher and higher resolution versions of the map. So let's go somewhere else here that I've got bookmarked.
And uh Let's go to the Washington Monument.
And so here's Washington, D.C, and I could uh just double-tap and uh I'm going in a little further here. Just double-tapping in. [1:13:57]
And there's the Washington Monument there, and I'll double-tap in again.
And uh but now I wanna show you something else. Satellite images.
So I just hit this button called satellite down at the bottom. and It's gonna replace the map with satellite images, there we go.

And uh I can just double-tap in, and double-tap in again.

And uh let's it's catching up to me.

There we go.

And let's double-tap in again.

This is the Washington Monument.

There we go. Look at this.

I can see people down there.

Whoops, there we go.

Yep. Isn't that incredible.[1:14:38]

Right on my phone! It's unbelievable.

So let's go, uh I've got another one, uh the Eiffel Tower, which is very cool.

I set this one uh to be uh, look at this, there's the Eiffel tower.

There's people at the Eiffel Tower you can see.

Look at that. isn't that incredible.

And here, one last one I have to show you, the Colosseum in Rome. [1:14:59]

So again, here we are in Rome. That's as far as we can go with the map, but we can go a little further with the satellite.

There's the Colosseum. There's the Roman Colosseum.

Satellite imagery, right on the phone.

Look at that. That's the Colosseum. Unbelievable.

Right on the phone. What'd'ya you think? Isn't that incredible? [1:15:27]

So, So, all these amazing things.

This is a breakthrough Internet communicator built right into iPhone.

The first rich html e-mail on a phone.

The first real Web browser on a phone.

Best version of Google Maps on the planet, widgets, and all with Edge and wi-fi networking. We're very, very happy with this. [1:15:56]

Again, e-mail. Push e-mail IMAP free Yahoo and almost any other IMAP and POP mail service you wanna hook up to.

Incredible new technology for entering text.

Far better than we've seen on phones before.

A real browser on the phone. We can see real Web pages in portrait or landscape.

We can zoom in on what we wanna take a look at more closely.

Google Maps and widgets.

It's the Internet in your pockets for the first time ever.

Now, you can't you can't really think about the Internet, of course, without thinking about Google, right?

And for Google, what we have on our phone, working with them is of course Google search, we have that built right into the browser.

Just type what you want, hit Google and you're off.

And Google Maps. We've been working very closely with them to make this all happen.

We're thrilled with the results, and it's my pleasure now to introduce Dr. Eric Schmidt, Google's CEO. [1:17:05]

[1:17:07][Eric Schmidt][1:19:47]

As a boardmember you'll get one of the first ones. [1:19:51]

Ok, now, you also can't think about the Internet without thinking about Yahoo.

And again on the phone, we've got Yahoo Search built right in, you can select which one you wanna use.

Just type in something, hit that Yahoo button and boom, you're off.

And of course, we also have Yahoo IMAP e-mail services.

And so, it is my great pleasure to introduce Jerry Yang, co-founder and chief Yahoo. Jerry. [1:20:26]

[Jerry says, "congrats"]

thank you

[Jerry says, "thank you"]

[1:20:38]

[Jerry Yang]

[1:22:49]

[1:22:56] Thanks. You know, it's been great having the two greatest companies on the Web right down the block.

Google and Yahoo.

And we've been able to work with these guys really closely, and it's been an incredible pleasure to work on this great technology and bring it to everybody in iPhone.

So thank you guys so much. You've really helped us put the Internet in your pocket. [1:23:18]

[1:23:20]

So, Internet communicator, an iPod and a phone.

Let's put them all together and see what you can do in a real-life scenario.

So, let's take a look.

I'm uh I wanna listen to some music, so I'm gonna go into my iPod here and uh let's see uh, in artists, I wanna listen to uh, oh, maybe Red Hot Chili Peppers, I love those guys.

And so I'm listening to a song of theirs. [1:23:57]

[1:23:58] [music plays]

And let's see what happens when I get a phone call. [1:24:06]

Music fades out. Screen changes. Got a phone call coming in.

So I can ignore it, but I think I'm gonna answer it.

So I'll answer it. Howdy. Hi Phil.

Now it knows who Phil is cause he is in my address book.

So it puts his little picture here and everything up there. Uh Hi Phil Listen I'm kind of busy right now. What can I do for you?

[Schiller discussion.]

Oh, OK, uh hold on just a sec.

So I push the home button here, down at the bottom on my – go home right here, and I'm still on the call.

You can see the uh the phone thing flashing right there on the lower left.

And I go into photos and now I'm in photos and again you can see the bar across the top, the green bar, I can just touch that to return to the call.

And uh Phil wants a photo that uh he wanted to use it for his screensaver, it was one of the ones that was taken in Hawaii, I think it was this one.

Yep, there it is. So you want me to mail this to you, Phil?

Alright, So I again I just go down here and push this button, and rather than use it as wallpaper, I'm going to e-mail it.

And uh So watch what happens now.

It shrinks it a little bit, and then a compose windows will come up right behind it. [1:25:21]

There we go. And uh I will uh just tap in the to field and send this to Phil here, Phil Schiller there we go.

And uh the e-mail is there, yep, it's there, and I'm just gonna send it.

Hey, Phil, that should be on its way right now. [1:25:36]

Yup, Any else?

uhm Let me go check it out.

I Got uh.. I think I've got Fandango in my uh bookmarks here.

And uh, Yes, I do. Let's go to Fandango, figure out what movies are playing.

Yeah, ok. Here is fandango let's just double tap and here is the movies playing.

yep. How about we go see uh "night at the museum"? I haven't seen that yet. [1:26:15]

Great, alrighty. Hey, take care Phil.

now what I'm gonna do is: To go back to my uh call I just touch the top here, and I'm back at my call, and I'm just gonna go ahead and end the call.

And uh What happens now?

Back in my music.

So, this is what it's like when you put it all together. [1:26:50]

iPhone. Today Apple is reinventing the phone. [1:26:56]

Now how does this stack up.

Let's go back to these guys.

Let's take a look.

Well, these are their these are their home screens.

And again, as you recall, this is iPhone's home screen.

uhm this this is what their contacts look like.

This is what iPhone's contacts look like, and again, you just pick one and you see everything about that person, all the information you have. [1:27:23]

This is what mail looks like on these smart phones.

Again this what mail looks like on iPhone.

You have rich, html, rich text e-mail.

This is what calendars look like on these guys.

This is what calendars look like on iPhone.

This is what the Web looks like, and we tried to make it look as good as we could on these.

It usually looks worse and this is what you get, and of course, this is what you get on iPhone, and you can zoom in and see anything you want.

And this is what you get for music players, nobody really uses them much.

Uh and this is what you get on iPhone.

So after today, I don't think anyone is gonna look at these phones quite the same way again.[1:28:11]

Now let me tell you about some accessories we've got for iPhone.

Got some great stereo headphones we're gonna be shipping.

And uh they've got a little addition to them, which is this little thing right over here.

It's a microphone and a switch, so you can talk, uh you have them in there, you can get a call and just talk.

they've Beautiful reception on the microphone. And just push it together to answer a call or hang up on a call.

And So you can be wearing them and..

It just dangles right there and picks up your voice beautifully.

And we also have a Bluetooth accessory headset that we're gonna be shipping and there it is right there.

It's incredibly small and uh just to let you see what it looks like, it's got one button on the top for answering and hanging up a phone call.

You never have to turn it off or on. It just goes to sleep.

It automatically pairs with iPhone so you don't have to worry about pairing.

It's really simple. And uh it's very tiny.

This is what it looks like in-ear. It's just beautiful.

It's the coolest one that we've ever seen.

So Bluetooth headset coming as well.[1:29:12]

Battery life. There's a lot of stuff.

A lot of these phones, a lot of these smart phones have pretty pretty low battery lives.

We've managed to get five hours of battery, and that's for talk time, video or browsing.

Five hours of battery life, and 16 hours of audio playback.

So that's dramatically better than any of these smart phones.

There is a tremendous amount of high technology in iPhone.

We've been pushing the state of the art in every facet of this design.

So lemme just talk a little bit about it here.

We've got the multi-touch screen. A first.

Miniaturization, more than we've done before.

A lot of custom silicon.

Tremendous power management.

OSX[cough] inside a mobile device.

Featherweight precision enclosures.

Three advanced sensors.

Desktop class applications, and of course, the widescreen video iPod.

We've been innovating like crazy for the last few years on this, and we filed for over 200 patents for all the inventions in iPhone, and we intend to protect them. [1:30:35]

So, a lot of high technology.

I think we're advancing the state of the art in every aspect of this design.

So iPhone is like having your life in your pocket. It's the ultimate digital device. [1:30:53]

So what should we price it at?

Well, what do these things normally cost?

An iPod, the most popular iPod, \$199 for 4 gig nano.

What's a smart phone cost?

Well, they say you get the phone and some of the Internet with it, although that's questionable. But they cost somewhere around \$299. You can get them for \$199. Palm just introduced one at \$399 yesterday, so they generally average about \$299 with a two-year contract. [01:31:28]

Now, these phones sort of do music but nobody uses them for music because they're not very good and so they end up buying an iPod to go with the phone.

We know, we sell the iPod. [01:31:36]

And so people spend \$499 on this combination.

What should we charge for iPhone? [01:31:46]

Cause iPhone has got a lot more than this stuff, right.

It's got video. Real video.

It's got wha... this beautiful gorgeous wide screen.

It's got multi-touch user interface. It's got wi-fi.

It's got a real browser. It's got html e-mail.

It's got coverflow and on and on and on.

And this stuff would normally cost hundreds of dollars.

So how much more than \$499 should we price iPhone? [01:32:15]

Well, we thought long and hard about it, because iPhone just does so much stuff.

So much better experience on call, on managing your contacts, and visual voice mail.

Random access voice mail for the first time.

Texting and e-mail and real browser and Google Maps.

Tremendous iPod and cover flow and video.

What should we price this thing at?

Well, for a 4 gigabyte model, we're gonna price it at that same \$499. No premium whatsoever. \$499.

And we're gonna have an 8 gigabyte model for just \$599. [1:32:58]

So we're gonna price it starting at \$499.

Now, when's its gonna be available?

We're gonna be shipping these in June. Yeah, June.

We're announcing it today because with products like this we gotta go and get FCC approval which takes a few months, and we thought it would be better if we introduced this rather than ask the FCC introduce... to to introduce it for us. [1:33:23]

So here we are, and we're gonna be shipping it in June in the U.S.

We're going to Europe hopefully by the fourth calendar quarter of this year.

And Asia in 2008.

So June, in just a few months, we'll be shipping in the U.S.

And when we do, our partner is gonna be Cingular.

We've chosen Cingular. They are they are the best and most popular network in the country.

58 million subscribers. They are number one. [1:33:55]

And they're gonna be our exclusive partner in the U.S.

Now, it's a unique partnership though.

We're not just gonna be selling phones and services together.

We're gonna be doing innovation together.

We worked with Cingular on visual voice mail.

Because it's an innovation that requires both innovation on the phone and in the network.

You can't do it in just one place.

You have to do it in both places and collaborate.

And so visual voice mail is the first fruit of this collaboration, and you will see more.

And when we start shipping in June, we will be selling iPhone through our own stores, and through Cingular stores. [1:34:31]

And it's my pleasure to introduce the CEO of Cingular, Stan Sigman.

Thank you. Welcome friend.

[1:34:57]

[Sigman]

[1:40:30]

[1:40:43] You know, as Stan said we started working together at about 2 years ago and we come from pretty different worlds.

The telecommunications industry, the computer industry and of course music with the iPod.

And, uh and yet we have worked wonderfully together and we love these guys.

Ad we think its... we're gonna bring some great stuff to the market over the years together. [1:41:04]

So, Let's take a look at uh, at this market, and how big it is.

My clicker's not working.

Oh. There it is.

Maybe it is working. So how big is this market, well let's take a look.

No.

Alrighty.

Clicker is not working[with loud voice].

Alright. They're scrambling backstage right now.

You know, when I was in high school.

Steve Wozniak and I, m.. mostly Steve, uh made this little device called the TV jammer. And it, was, it was this little oscillator that put out frequencies that would screw up the TV. And Woz would have it in his pocket, and we'd go into like a dorm at Berkeley where he was going to school and a bunch of folks was watching like Star Trek and he'd screw up the TV, and somebody'd go up to fix it, and and just as they had their foot off the ground, he'd turn it back on. And If they put their foot back on the ground he'd screw up the TV again. And within five minutes he'd have somebody like this for the rest of the Star Trek episode. [1:42:29]

Ok. So maybe it's working now, maybe they're gonna have to click 'em for me. [1:42:32]

So game consoles.

26 million game consoles were sold in 2006 worldwide, actually a little smaller than you'd think. It's not such a big market.

Digital cameras dwarfed it at 94 million.

MP3 players 135 million. And PCs, about 209.

Mobile phones, just about a billion last year, worldwide.

So what does this tell you?

What this tells you is, that 1 percent market share equals 10 million units.

This is a giant market.

If you just One percent market share, you're gonna sell 10 million phones.

And this is exactly what we're gonna try to do in 2008, our first full year in the market, is grab 1 percent market share and go from there.

So we're gonna enter a very competitive market, lotta players, we think we're gonna have the best product in the world, and we're gonna go for it and see if we can get 1 percent market share, 10 million units in 2008, and go from there.[1:43:33]

So, today, we've added to the Mac and the iPod.

We've added Apple TV and now iPhone.

And you know, the Mac is the only one that you think really of as a computer. Right?

And so we've thought about this and we thought, you know, maybe our name should reflect this a little bit more than it does.

So we're announcing today we're dropping the computer from our name, and from this day forward, we're gonna be known as Apple Incorporated, to reflect the product mix that we have today. [1:44:14]

And I didn't sleep a wink last night.

And uh I was so excited about today, because we've been so lucky at Apple.

We've had some real revolutionary products.

The Mac in 1984 is an experience that those of us that were there will never forget.

And I don't think the world will forget it either.

The iPod in 2001 changed everything about music, and we're gonna do it again with the iPhone in 2007.

We're very excited about this.

You know, there's an old Wayne Gretzky quote that I love. [1:45:03]

I skate to where the puck is going to be, not where it has been.

And we've always tried to do that at Apple.

Since the very very beginning.

And we always will. So thank you very very much for being a part of this.[1:45:20]

Now

thanks

[Music]

Thank you very much. [1:46:50]

Thank you. It's uh....

I could ask you, uh I wanna highlight the folks here who worked on this products.

I could ask them to sit down, but you wouldn't see them.

So if we all could sit down, I could ask them to stand stand up.

Could all the folks around here, who worked on these products stand up?

Let's get 'em a round of applause.

There's a lot of them back in Cupertino as well, so thank you guys so much.

And I also can't leave without thanking the families.

All of our families.

They haven't seen a lot of us, 'specially in the last 6 months.

And uh, as I've said said often, you know, without the support of our families, we couldn't do what we do.

We get to do this amazing work and uh they

they understand when we're not home for dinner on time and.

when commitments we've made we can't keep, cause we gotta be in the lab, working on something cause the intro is coming up.

And uh you don't know how much we need you and appreciate you.

So thank you.

So we've got a really special treat today.

uhm We don't have a lot of traditions at Apple,

outside of making great products.

But One of them is that John Mayer helped us at almost every MacWorld in the last several years.

And uh uh John Agreed to come and perform for us today

John's a three time a grammy winner.

And This year he's been nominated for 5 Grammy Awards.

Including album of the year for Continuum.

Best rock album for Try.

Best solo vocal performance for Route 66 from the movie Cars

The other you can read up there.

Its great. We are so lucky to have him.

It is our pleasure to welcome John Mayer.

[John Mayer plays]

so thank you all very much for coming this morning
and uh, we'll see you all soon
thanks

Google Shopping Express

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European Rhetoric

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EXHIBIT B

Apple Customer Privacy Policy

Apple's privacy policy covers the collection and use of personal information that may be collected by Apple anytime you interact with Apple, such as when you visit our website, when you purchase Apple products and services, or when you call our sales or support associates. Please take a moment to read the following to learn more about our information practices, including what type of information is gathered, how the information is used and for what purposes, to whom we disclose the information, and how we safeguard your personal information. Your privacy is a priority at Apple, and we go to great lengths to protect it.

Why we collect personal information

Why do we collect your personal information? Because it helps us deliver a superior level of customer service. It enables us to give you convenient access to our products and services and focus on categories of greatest interest to you. In addition, your personal information helps us keep you posted on the latest product announcements, software updates, special offers, and events that you might like to hear about.

If you do not want Apple to keep you up to date with Apple news, software updates and the latest information on products and services click

www.apple.com/contact/myinfo and update your personal contact information and preferences.

What information we collect

There are a number of situations in which your personal information may help us give you better service. For example, we may ask for your personal information when you're discussing a service issue on the phone with an associate, downloading a software update, registering for a seminar, participating in an online survey, registering your products, or purchasing a product. At such times, we may collect personal information relevant to the situation, such as your name, mailing address, phone number, email address, and contact preferences; your credit card information and information about the Apple products you own, such as their serial numbers, and date of purchase; and information relating to a support or service issue. We collect information for market research purposes — such as your occupation and where you use your computer — to gain a better understanding of our customers and thus provide more valuable service. We also collect information regarding customer activities on our website, .Mac, the iTunes Music Store, and on related websites. This helps us to determine how best to provide useful information to customers and to understand which parts of our websites and Internet services are of most interest to them.

The Apple website, as well as Apple services such as .Mac and the iTunes Music Store, allows you to create an "Apple ID" based on your personal information. This convenient service saves you time and allows for easier use of our web services. Here's how it works: You create a personal profile — providing your name, phone number, email address, and in some cases your mailing address or a credit card number — and choose a password and password hint (such as the month and day of your birth) for security. The system saves your information and assigns you a personal Apple ID — in many cases simply your email address, because it's unique and easy to remember. The next time you order from the Apple Store or register a new product, all you need to do is enter your Apple ID and password; the system looks up the information it needs to assist you. In addition, if you update the information associated with your Apple ID it will be available for all your transactions with Apple globally.

Apple also enables you to send 'iCards', set up allowances on the iTunes Music Store and purchase and send gift certificates and products, to family members, friends or colleagues. To fulfill your request, Apple may require personal information about the person to whom you are sending the product or service such as their name, physical address, email address, etc. The personal information you provide about that person is used only for the purpose for which it is collected. Apple will not use the information collected to market directly to that person.

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TRUSTe is an independent, nonprofit organization whose mission is to build users' trust and confidence in the Internet by promoting the use of fair information practices. Because Apple wants to demonstrate our commitment to your privacy, we have agreed to disclose our information privacy practices for compliance review by TRUSTe.



The TRUSTe trustmark reflects our promise to tell you what personal information we collect; the types of companies we may share your information with; the choices available to you regarding the collection, use, and distribution of the information; the security procedures in place to protect the loss or misuse of information under our control; and how you can correct inaccuracies in the information. The TRUSTe program covers only information that is collected through this Web site, and does not cover information that may be collected through software downloaded from the site.

If you have questions or concerns about Apple's collection, use, or disclosure of your personal information, please email us at privacy@apple.com. If Apple doesn't respond or your inquiry hasn't been addressed to your satisfaction, please visit the [TRUSTe website](http://www.truste.com) for contact information. This certification applies to all sites under the apple.com domain.

If you use a bulletin board or chat room on an Apple website you should be aware that any information you share is visible to other users. Personally identifiable information you submit to one of these forums can be read, collected, or used by other individuals to send you unsolicited messages. Apple is not responsible for the personally identifiable information you choose to submit in these forums.

When we disclose your information

Apple takes your privacy very seriously. Be assured that Apple does not sell or rent your contact information to other marketers. To help us provide superior service, your personal information may be shared with legal entities within the Apple group globally who will safeguard it in accordance with Apple's privacy policy. There are also times when it may be advantageous for Apple to make certain personal information about you available to companies that Apple has a strategic relationship with or that perform work for Apple to provide products and services to you on our behalf. These companies may help us process information, extend credit, fulfill customer orders, deliver products to you, manage and enhance customer data, provide customer service, assess your interest in our products and services, or conduct customer research or satisfaction surveys. These companies are also obligated to protect your personal information in accordance with Apple's policies. Without such information being made available, it would be difficult for you to purchase products, have products delivered to you, receive customer service, provide us feedback to improve our products and services, or access certain services, offers, and content on the Apple website.

At times we may be required by law or litigation to disclose your personal information. We may also disclose information about you if we determine that for national security, law enforcement, or other issues of public importance, disclosure is necessary.

How we protect your personal information

Apple takes precautions — including administrative, technical, and physical measures — to safeguard your personal information against loss, theft, and misuse, as well as unauthorized access, disclosure, alteration, and destruction.

The Apple Online Store and iTunes Music Store use Secure Sockets Layer (SSL) encryption on all web pages where personal information is required. To make purchases from the Apple Online Store or iTunes Music Store, you must use an SSL-enabled browser such as Safari, Netscape Navigator 3.0 or later, or Internet Explorer. Doing so protects the confidentiality of your personal and credit card information while it's transmitted over the Internet.

You can help us by also taking precautions to protect your personal data when you are on the Internet. Change your passwords often using a combination of letters and numbers, and make sure you use a secure web browser like Safari.

Integrity of your personal information

Apple has safeguards in place to keep your personal information accurate, complete, and up to date for the purposes for which it is used. Naturally, you always have the right to access and correct the personal information you have provided. You can help us ensure that your contact information and preferences are accurate, complete, and up to date by checking at www.apple.com/contact/myinfo. And you can request a copy of your personal information, your product registration history, and your interactions with our sales and support agents by contacting us at the email address below.

Cookies and other technologies

As is standard practice on many corporate websites, Apple's website uses "cookies" and other technologies to help us understand which parts of our websites are the most popular, where our visitors are going, and how much time they spend there. We also use cookies and other technologies to make sure that our online advertising is bringing customers to our products and services, such as iTunes. We use cookies and other technologies to study traffic patterns on our website, to make it even more rewarding as well as to study the effectiveness of our customer communications. And we use cookies to customize your experience and provide greater convenience each time you interact with us.

For example, knowing your first name lets us welcome you with a greeting the next time you visit the Apple Store. Information such as your country and language — and if you're an educator, your school — helps us provide a more useful online shopping experience. And your contact information, product serial numbers, and information about your computer helps us register your products, personalize Mac

OS X, and set up your Internet Service and .Mac accounts and provide you with customer service.

If, however, you prefer not to enable cookies, please go to www.apple.com/legal/privacy/aboutcookies.html, which explains step by step how you can disable cookies. Please note that certain features of the Apple website will not be available once cookies are disabled.

As is true of most Web sites, we gather certain information automatically and store it in log files. This information includes internet protocol (IP) addresses, browser type, internet service provider (ISP), referring/exit pages, operating system, date/time stamp, and clickstream data.

We use this information, which does not identify individual users, to analyze trends, to administer the site, to track users' movements around the site and to gather demographic information about our user base as a whole. Apple will not use the information collected to market directly to that person.

In some of our email messages we use a "click-through URL" linked to content on the Apple website. When a customer clicks one of these URLs, they pass through our web server before arriving at the destination web page. We track this click-through data to help us determine interest in particular topics and measure the effectiveness of our customer communications. If you prefer not to be tracked simply avoid clicking text or graphic links in the email.

In addition we use pixel tags — tiny graphic images — to tell us what parts of our website customers have visited or to measure the effectiveness of searches customers perform on our site.

Pixel tags also enable us to send email messages in a format customers can read. And they tell us whether emails have been opened to assure that we're only sending messages that are of interest to our customers. We store all of this information in a secure database located in Cupertino, California, in the United States.

Our companywide commitment to your privacy

As we said, Apple takes protecting your privacy very seriously. To make sure your personal information is secure, we communicate these guidelines to Apple employees and strictly enforce privacy safeguards within the company. In addition, Apple supports industry initiatives — such as the [Online Privacy Alliance](#) and TRUSTe — to preserve privacy rights on the Internet and in all aspects of electronic commerce. And we do not knowingly solicit personal information from minors or send them requests for personal information.

Apple abides by the safe harbor framework set forth by the U.S. Department of Commerce regarding the collection, use, and retention of personal information collected from the European Union. You'll find more information about the U.S. Department of Commerce [Safe Harbor Program](#). Note that personal information regarding individuals who reside in the EU is jointly controlled by Apple Computer International in Cork, Ireland, and by Apple Computer Limited in Uxbridge, United Kingdom.

Apple's website has links to the sites of other companies. Apple is not responsible for their privacy practices. We encourage you to learn about the privacy policies of those companies.

Privacy questions

If you have questions or concerns about Apple's Customer Privacy Policy or data processing, please use the appropriate regional email addresses (see list below) to contact us. The Apple Data Controller in your region will respond to your inquiry within 30 days.

Country or Region:	Contact Information:
United States	privacy@apple.com
Canada	privacy-ca@apple.com
Latin America	privacy-la@apple.com
Europe	privacyeurope@apple.com
Japan	privacy-japan@apple.com
Australia	privacy@apple.com.au
Asia/Pacific	privacy@asia.apple.com

If you do not want Apple to keep you up to date with Apple news, software updates and the latest information on products and services click www.apple.com/contact/myinfo and update your personal contact information and preferences. Naturally, if you notify us that you do not want us to use your information for a particular purpose, we will not do so.

Apple may update its privacy policy from time to time. When we change the policy in a material way a notice will be posted on our website along with the updated privacy policy.

Apple Computer, 1 Infinite Loop, MS60-DR, Cupertino, California, USA, 95014

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[Home](#) > [Legal](#) > Privacy Policy

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EXHIBIT C

- [Samsung and its lawyers must pay \\$2M to Apple and Nokia over leaked patent document](#)
- [ABC News is coming to Apple TV](#)
- [FireChat bridges the platform gap: Android and iOS users can now chat without an internet connection](#)
- [Loop's programmable credit card is now available in an iPhone case](#)

[Macworld UK](#)

- [New MakerBot app lets you design, modify, and print 3D objects from your iPad](#)
- [iPhone 6 rumor rollup for the week ending June 27](#)
- [Final Cut Pro X, Motion, and Compressor get new updates](#)
- [Google, broadening its reach, tries for a snazzier look](#)
- [Wal-Mart slashes iPhone 5S and 5C prices by as much as 71% off list](#)
- [Google answers Apple's 'Continuity' with partial measures](#)
- [Apple iPod Touch pricing slashed by up to 25 percent in Australia](#)
- [5 reasons NOT to buy a MacBook Air](#)
- [5 reasons to buy a MacBook Air](#)
- [The 13 most ridiculously expensive iPad & iPhone apps](#)

Jun 27, 2014 - 05:15 PM EDT — AAPL: 91.98 (+1.08, +1.19%) | NASDAQ: 4397.93 (+18.884, +0.43%)

[Apple CEO Steve Jobs at D5; Apple TV with YouTube coming in June](#)

Wednesday, May 30, 2007 · 3:59 pm · [28 Comments](#)



Apple CEO Steve Jobs is speaking with The Wall Street Journal's Walt Mossberg at the D5 conference today.

Some excerpts John Paczkowski report for AllThingsD:

- *Walt to Jobs: When you changed your name to Apple Inc., people wondered if Apple was exiting the personal computer business. Is it? Jobs says no and stresses Apple's commitment to the PC business, touts Apple's forthcoming Leopard operating system.*
- *Jobs says Apple is on track to ship iPhone in late June as planned. Walt: Like the last day of June? Jobs: (Laughs) Yeah, probably.*
- *Walt: Any undisclosed iPhone features you'd like to share with us today? Jobs: (Smiles) No.*
- *Jobs: The iPhone is the best iPod we've ever made.*

- *Apple TV: "The other thing you can do is buy TV shows." Jobs pulls up [a clip](#) from "The Office." He says sending stuff from your computer to the Apple TV isn't the main deal here. "Wouldn't it be great if you could see YouTube on your TV?" Apple will be offering a [free software](#) upgrade come June that will allow Apple TV users to view [YouTube videos](#) on their [televisions](#).*
- *Walt: [How many](#) copies of iTunes are out there? Jobs: Lots. Several times more than the number of iPods. Walt notes that that makes it one of the most ubiquitous pieces of software out there—and it's predominantly on Windows machines. "That makes Apple one of the biggest developers of Windows software around," Walt observes. Jobs: "That's right. ... It's like offering glasses of ice water to people in hell."*
- *From the Q&A: All indications appear that the iPhone is closed, we'd love to develop apps... Jobs: This is an important tradeoff between security and openness. We want both. We're working through a way... we'll find a way to let 3rd parties write apps and still preserve security on the iPhone. But until we find that way we can't compromise the security of the phone.*
- *Jobs on iPhone and network speed: Interesting thing, it automatically switches to WiFi automatically... But if you're in a place and you want to join a WiFi network you haven't joined before it prompts you. But it's EVERYWHERE. There's like 10x more WiFi out there than I ever thought there was. WiFi is faster than any 3G, and EDGE is very fast too.*
- *Jobs on his health: I'm still vertical! (laughter) I'm feeling great, thanks.*
- *Jobs on AAC vs. MP3: We chose AAC because it's a much better encoder... We don't own it. Anyone can license it... We're not trying to keep anyone out, we're just trying to use a superior audio technology.*

Much more via AllThingsD [here](#) and also via Engadget [here](#).

UPDATE: 9:29pm EDT: The Steve [Jobs interview](#) is now available:

EXHIBIT D



Apple Press Info

[Press Releases](#)[Product Images & Info](#)[Apple Leadership](#)

iPhone to Support Third-Party Web 2.0 Applications

Innovative New Way to Create Applications for iPhone

WWDC 2007, SAN FRANCISCO—June 11, 2007—Apple® today announced that its revolutionary iPhone™ will run applications created with Web 2.0 Internet standards when it begins shipping on June 29. Developers can create Web 2.0 applications which look and behave just like the applications built into iPhone, and which can seamlessly access iPhone's services, including making a phone call, sending an email and displaying a location in Google Maps. Third-party applications created using Web 2.0 standards can extend iPhone's capabilities without compromising its reliability or security.

"Developers and users alike are going to be very surprised and pleased at how great these applications look and work on iPhone," said Steve Jobs, Apple's CEO. "Our innovative approach, using Web 2.0-based standards, lets developers create amazing new applications while keeping the iPhone secure and reliable."

Web 2.0-based applications are being embraced by leading developers because they are far more interactive and responsive than traditional web applications, and can be easily distributed over the Internet and painlessly updated by simply changing the code on the developers' own servers. The modern web standards also provide secure data access and transactions, like those used with Amazon.com or online banking.

Apple ignited the personal computer revolution in the 1970s with the Apple II and reinvented the personal computer in the 1980s with the Macintosh. Today, Apple continues to lead the industry in innovation with its award-winning computers, OS X operating system and iLife and professional applications. Apple is also spearheading the digital media revolution with its iPod portable music and video players and iTunes online store, and will enter the mobile phone market this year with its revolutionary iPhone.

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Apple Media Helpline (408) 974-2042 media.help@apple.com

EXHIBIT E

Apple Support Communities

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Apple Support Communities > iPhone > Using iPhone > Discussions

THIS DISCUSSION IS ARCHIVED

iPhone SDK (software development kit) announced

8950 Views 19 Replies Latest reply: Oct 18, 2007 3:01 PM by Earless Puppy

1 2 Previous Next

Level 6
(16,080 points)**Michael Lafferty**

Oct 18, 2007 7:35 AM

As noted in a previous thread, in which almost no one has commented,* Apple yesterday announced the availability in February 2008 of a software development kit for iPhone developers.

A note from Steve Jobs was posted to Apple's Hot News site, which reads:

Third Party Applications on the iPhone

Let me just say it: We want native third party applications on the iPhone, and we plan to have an SDK in developers' hands in February. We are excited about creating a vibrant third party developer community around the iPhone and enabling hundreds of new applications for our users. With our revolutionary multi-touch interface, powerful hardware and advanced software architecture, we believe we have created the best mobile platform ever for developers.

It will take until February to release an SDK because we're trying to do two diametrically opposed things at once—provide an advanced and open platform to developers while at the same time protect iPhone users from viruses, malware, privacy attacks, etc. This is no easy task. Some claim that viruses and malware are not a problem on mobile phones—this is simply not true. There have been serious viruses on other mobile phones already, including some that silently spread from phone to phone over the cell network. As our phones become more powerful, these malicious programs will become more dangerous. And since the iPhone is the most advanced phone ever, it will be a highly visible target.

Some companies are already taking action. Nokia, for example, is not allowing any applications to be loaded onto some of their newest phones unless they have a digital signature that can be traced back to a known developer. While this makes such a phone less than "totally open," we believe it is a step in the right direction. We are working on an advanced system which will offer developers broad access to natively program the iPhone's amazing software platform while at the same time protecting users from malicious programs.

We think a few months of patience now will be rewarded by many years of great third party applications running on safe and reliable iPhones.

Steve

This means that registered developers will be able to—within guidelines established by Apple—create iPhone specific applications which can then be installed on individual iPhone and iPod touch devices. This development addresses the long held desire by users that their favorite business tools, such as Microsoft Office an Epocrates for medical professionals—not currently available for installation—may ultimately be ported to the iPhone.

Watch for announcements of iPhone and iPod touch support from major developers and from small application niche-specific developers in the coming months!

*The fact that there has been so little discussion of this announcement greatly surprises me, as a huge number of pre-release iPhone forum messages concerned the lack of support for third-party applications, and many users still post queries about when or if such options will be made available.

Edited to include this note: This matter, along with an unrelated but interesting

More Like This

Re: Games for ipod touch
Re: Third Party?
Re: iPod Touch? Games?
Re: u tube remove
Re: Adobe Flash Player...

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No public bookmarks exist for this content.

twist to the reported availability of an iPhone in France is also now being discussed here.

Edited once again to note that an additional related thread has popped up.

PowerBook G4 12 1.5 GHz 1280 meg 80 gig SuperDrive, Mac OS X (10.4.9), coupled with a UMA-capable Nokia 6086 and T-Mobile HotSpot™ @Home

Categories: Phone and Messaging

Tags: [phone_messaging_iphone](#)

I have this question too (0)



Level 1 (65 points)

sneirbo2k7

Re: iPhone SDK (software development kit) announced

Oct 18, 2007 7:26 AM (in response to Michael Lafferty)

EXCELLENT News! I'm hopeful the first things available will be mobile APPLE Apps – Pages, Numbers, Keynote and some form of mobile Quicken!

iMac Intel, Mac OS X (10.4.10), 8Gb iPhone

Like (0)



Level 2 (175 points)

Sanford Sardo1

Long Island, NY

Re: iPhone SDK (software development kit) announced

Oct 18, 2007 7:30 AM (in response to sneirbo2k7)

I'm hoping for a 3rd party speakerphone booster.

TiBook, AiBook 15; MacBook, iPhone, Mac OS X (10.4.10)

Like (0)



Level 3 (565 points)

MobileDev

Re: iPhone SDK (software development kit) announced

Oct 18, 2007 8:03 AM (in response to Michael Lafferty)

Big questions remain. How much will it cost? Who will be allowed in the program? Will free software still be unavailable? Will you have to give source code to Apple? Will distribution have to be through them? In other words, will it be an open model or something more like BREW?

I think it's great news for iPhone users who'd love to see some particular apps come in. As you mentioned, medical software will probably be a big category.

Not so sure about other categories. Think we'd see mobile TV/radio or Skype get approved? Slingbox? Will there be censorship... categories that are disallowed, and/or will apps have to get an Apple seal of okayship?

Touchscreen laptop and industrial handhelds, Other OS

Like (0)



Level 3 (690 points)

Jane Knox

Re: iPhone SDK (software development kit) announced

Oct 18, 2007 8:12 AM (in response to Michael Lafferty)

I would be happy with existing technologies that were (intentionally?) left off the iPhone:

iChat

Rotate the keyboard in Mail and Test messaging like it does in Safari

Take a picture and send it to picture enabled cell phones

Cut and Paste.

C'mon Apple. There is NO new technology in any of those items. All you need to do is turn them on.

(jk-ll)

MacBook Pro – MacBook – PowerBook TiG4, Mac OS X (10.4.10), AEBS 802.11(n)

Like (0)



Bobbbo



3130
(530 points)

Re: iPhone SDK (software development kit) announced
Oct 18, 2007 10:22 AM (in response to MobileDev)

I think you hit on the right question. Applications on the phone that are applied without controls can cause big Cell System problems. Apple has to figure a way to control what the software can and cannot do. If the software can get into the phone call process it can easily take down parts of the cell system. BREW applications are under control by Qualcomm for that very reason. I would expect that the applications will be restricted to be stand alone and have no ability to control the call processing. This would be like a calendar that you can sync up with your desk top through USB, but not by way of the cell phone network.

Certainly Apple will try to sell some of the Applications, but once the SDK is out I am certain you will be able to by most directly from the developers.

Mac Pro 2.66 GHz, Mac OS X (10.4.10), 250GB, 500GB, 500GB HD's; 3GB RAM

Like (0)



Level 1 (10
points)

egojab

Re: iPhone SDK (software development kit) announced
Oct 18, 2007 10:41 AM (in response to Bobbbo)

If the software can get into the phone call process it can easily take down parts of the cell system

you bought into that hype huh? This is simply FUD and not true. I wish people would stop saying it like it is.

Certainly Apple will try to sell some of the Applications, but once the SDK is out I am certain you will be able to by most directly from the developers.

I would actually be willing to bet that it's an iTunes based distribution model. I can only hope it's a bet I lose.

Like (0)



Level 3 (850
points)

Cander

Re: iPhone SDK (software development kit) announced
Oct 18, 2007 10:55 AM (in response to Jane Knox)

"C'mon Apple. There is NO new technology in any of those items. All you need to do is turn them on."

Right. Because we all know programming new features is a simple flip of a switch.

Well I guess it is. Just a whole bunch of switches ala binary.

Windows XP

Like (0)



Level 3 (530
points)

Bobbbo

Re: iPhone SDK (software development kit) announced
Oct 18, 2007 10:55 AM (in response to egojab)

I do know what I am talking about. Back in the early days of GSM in Europe a manufacturer of cell phones had a software bug that took down the system. If someone wrote software to randomly make calls to anywhere all the time, is that not an issue? I think you need to read Apples announcement again as they also state the issue of application problems.

Mac Pro 2.66 GHz, Mac OS X (10.4.10), 250GB, 500GB, 500GB HD's; 3GB RAM

Like (0)



R C-R Texas, USA

Re: iPhone SDK (software development kit) announced



Level 3 (13,945 points)

Oct 18, 2007 11:12 AM (in response to egojab)

you bought into that hype huh? This is simply FUD and not true. I wish people would stop saying it like it is.

I wish you would substantiate this with something more than repetition, but we can't always get what we want, can we?

iMac G5/2.0 GHz 17" ALS (Rev B), Mac OS X (10.4.10), 1.5 GB, Kensington Trackball

Like (0)



Level 3 (565 points)

MobileDev

Re: iPhone SDK (software development kit) announced

Oct 18, 2007 12:07 PM (in response to Bobbbo)

Applications on the phone that are applied without controls can cause big Cell System problems.

Got an example of how this might be done, via an iPhone, in the current cell system?

Touchscreen laptop and industrial handhelds, Other OS

Like (0)



Level 3 (565 points)

MobileDev

Re: iPhone SDK (software development kit) announced

Oct 18, 2007 12:13 PM (in response to Bobbbo)

If someone wrote software to randomly make calls to anywhere all the time, is that not an issue?

Not to the carrier. That's what phones do.

If it suddenly started calling Kenya, then as many of us have experienced in the past, a red flag goes up because of a change in calling habits, and the phone is denied service and/or the owner is notified.

There are also protections in place for denial of service attacks due to SMS, network pings, etc. I helped put in one of them.

Touchscreen laptop and industrial handhelds, Other OS

Like (0)



Level 3 (530 points)

Bobbbo

Re: iPhone SDK (software development kit) announced

Oct 18, 2007 12:31 PM (in response to MobileDev)

So if people do not believe there is an issue, take your example. Let say someone wrote software to call Kenya every 10 minutes and that software is sent out to every iPhone. So you now have over a million customers calling Kenya, the operator shuts them down. The Carrier just lost a million customers and there are a million users that cannot make any phone calls.

I am in the cell phone business and have been involved with the issues that Apple talks about in their announcement that started this post. Each cell phone has to go through extensive testing before it is approved to go on the air. A cell phone can wreak havoc on a cell system. If your cell phone starts transmitting garbage on a channel, that channel can be disabled at that cell site. If you have millions of phones doing the same the whole system can go down.

If 3rd party applications can get into operations of the phone call making and receiving process that can be a concern for the carrier. So Apple has to make



Level 1 (30 points)

sure the new software does not do anything to hurt the Carrier's system or hurt the customer. Certainly a large majority of these new applications will not be malicious, but it only takes one to create a disastrous situation, as that software can migrate or be installed in millions of phones.

Mac Pro 2.66 GHz, Mac OS X (10.4.10), 250GB, 500GB, 500GB HD's; 3GB RAM

Like (0)

ITpro4Mac

Re: iPhone SDK (software development kit) announced

Oct 18, 2007 1:09 PM (in response to Michael Lafferty)

Michael Lafferty wrote:

As noted in a previous thread, in which almost no one has commented,* Apple yesterday announced the availability in February 2008 of a software development kit for iPhone developers.

The "previous thread", how about the previous dozens of threads...with hundreds of comments? If most of them no longer exist, then they have been removed by Apple as violations of the *Technical support*/discussions TOS. Where have you been?

I'm sick to death with all the threads on this issue, and the comments from all of the self appointed experts. Sicker still of those who think they somehow "pressured" Apple into doing what they were planning on doing all along anyway.

As many of us have said from the start, Apple had to get OS 10.5 Leopard completed before they could commit a substantial portion of the brain trust to development of an iPhone/iPod Touch SDK or Apple designed resident iPhone/iPod applications. Many seem to have forgotten that Apple delayed the release of Leopard because they had to redirect software designers to the iPhone project to get it released on time. With Leopard complete, they can once again devote software design resources to the iPhone/iPod.

Apple announced the Mac OS X 10.5 Leopard Gold Master version on 10/12/2007. "Gold Master" status is given the final shipping version of the software which is sent to duplicators for distribution. They officially announced the 10/26/2007 release date for Leopard on 10/16/2007. Why then should it be surprising that on 10/17/2007, Steve Jobs posted an open letter revealing that Apple will be releasing a 3rd party Software Development Kit (SDK) for iPhone and iPod Touch applications in February of 2008?

As Jobs said, and as many of us have been basically stating in these discussions for months, + "We think a few months of patience now will be rewarded by many years of great third party applications running on safe and reliable iPhones." +

Let it rest, stop the speculation, the discussion, and the obsession with what "might be coming." Just let it be and wait patiently.

400 Mhz G3 iMac, 1.25Ghz G4 eMac, 17" G4 1 Ghz iMac, Dual 2.7Ghz G5 PowerMac,, Mac OS X (10.4.10), 2.33Ghz 15" MacBook Pro, Homebuilt PC Clone, 3 iPhones, 4 iPods, 2-Airports

Like (0)



Level 3 (565 points)

MobileDev

Re: iPhone SDK (software development kit) announced

Oct 18, 2007 1:16 PM (in response to Bobbbo)

Agreed, that's why, in a properly designed phone, application software cannot directly control the radio.

None of this handwaving has anything to do with why we don't have third party applications already, or who the new cert program will really target. Bear in mind what certificates are for: as a way to trace the origin of a program.

What would've been the security threat of software from Adobe, Slingbox, Skype, medical companies, or a hundred other well known firms? Answer: none.

So the security worry must be mainly because of the potential of users downloading free, but malicious, applications written by unknown artists. Okay, I can go with that. (Hasn't been a problem with phones before, but apparently people fear the iPhone is going to start a new phone virus flood.)

One downside is, if a certificate costs, and it must, there will be a lot of freelance apps that will never happen.

A medium model that's often used on WM phones is this: if an app isn't signed, you are warned. Then it's up to you to let it run or not. Also, activeX are not downloaded over the web at all.

Touchscreen laptop and industrial handhelds, Other OS

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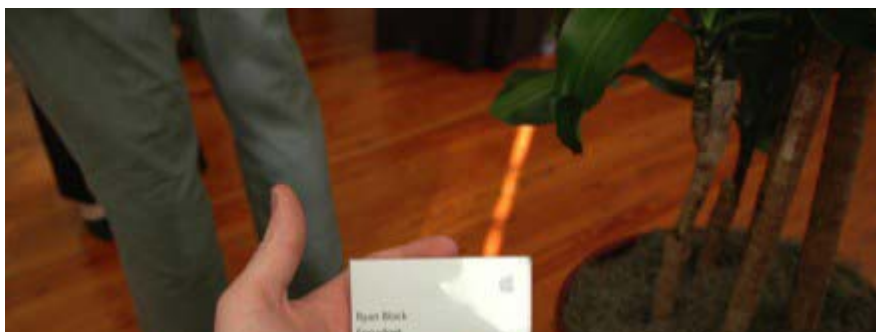
Live from Apple's iPhone SDK press conference

BY [RYAN BLOCK](#) MARCH 6TH 2008, AT 12:51:00 PM ET

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9:05AM - Alright, we're here and registered! We'll be checking in as things get going shortly.





9:26AM - It's minglin' time! The space usually reserved for product demos is hollowed out for the Apple Continental Breakfast today, tons of journos and execs hanging out before the keynote kicks off.



9:51AM - And we're heading in!





9:57AM - "Good morning ladies and gentlemen, welcome to this Apple special event."



10:01AM - Steve's out, "Welcome, we're really excited to share some great news with you about the iPhone software roadmap. We've got some cool stuff to announce, so let's get on with it. I want to share a few statistics about how far we've come with the iPhone..."





The iPhone took 28% market share in Q407, compared to 41% RIM. "As you know, the iPhone really brings the internet to a mobile device for the first time, you have the internet in your pocket -- and that's being borne out by usage stats for mobile browser usage. 71% of US mobile browser usage!"



"So let's get on with what we have to talk about today. I've asked two of my colleagues do the heavy lifting..." Schiller, and Forstall. "First thing we're going to talk about is iPhone in enterprise." Tossing to Phil Schiller. Applause.

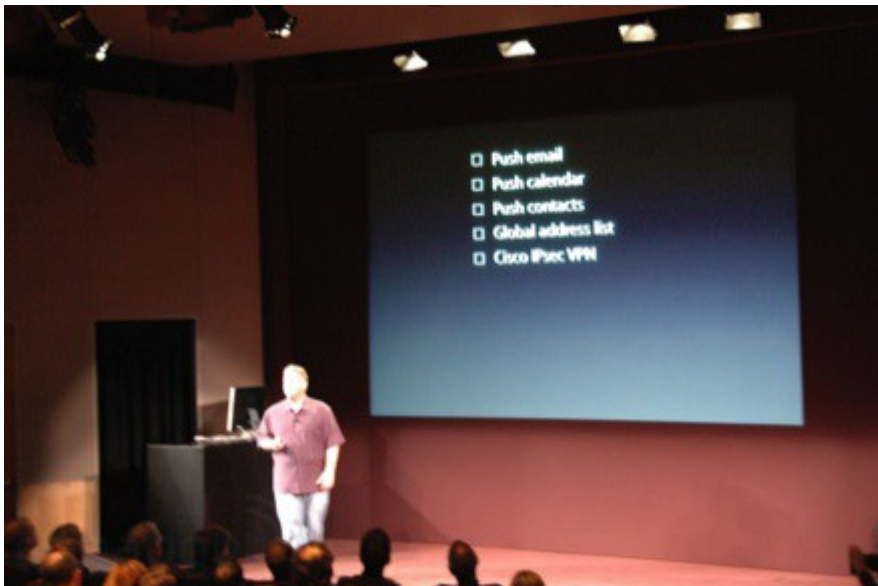




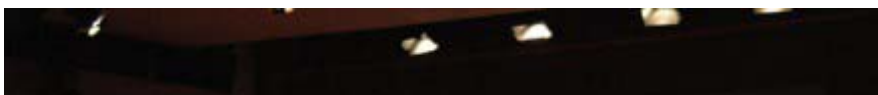
10:04AM - "I'm really excited to be the one to talk to you about iPhone in the enterprise. We've had some great customers at the forefront wanting to adopt the iPhone into their enterprises." Talking about using Genentech using a fleet of iPhones. "We have a lot of great university customers." Stanford, for example; hundreds of iPhones for faculty and staff.

"There are a lot of things enterprise customers have told us that have hold us back from being HUGE in the enterprise. What do they want to take the iPhone into the enterprise. What do they want? Push email -- huge request. They want great calendar integration. They want it pushed to them wherever they are.

10:05AM - They want push contacts, global address list, Cisco IPsec VPN, they want authentication and certs, enterprise class WiFi (WPA2 / 802.1x), security policies, enterprise configuration tools, and they want remote wipe.

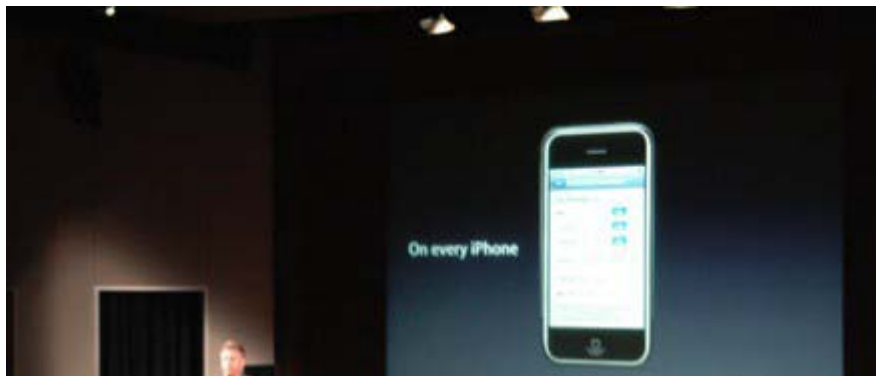


10:06AM - "That's a long list of important features enterprise customers want. Well, I'm excited to be the one to tell you today, we're doing ALL these things in the next release of the iPhone software." Big applause, couple of cheers.



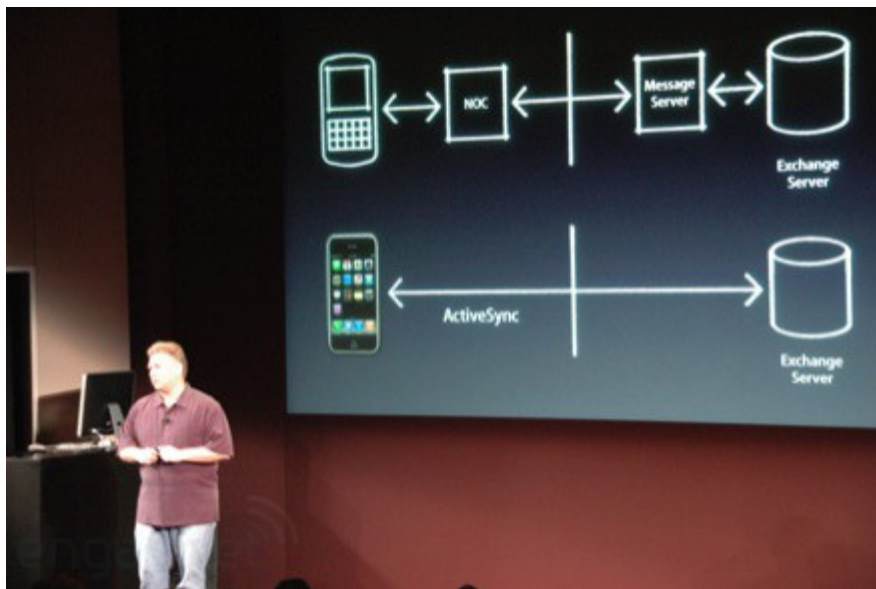


10:07AM - "Our customers have asked us to build in MS Exchange right into the iPhone -- we have licensed ActiveSync for the iPhone." Daaamn!

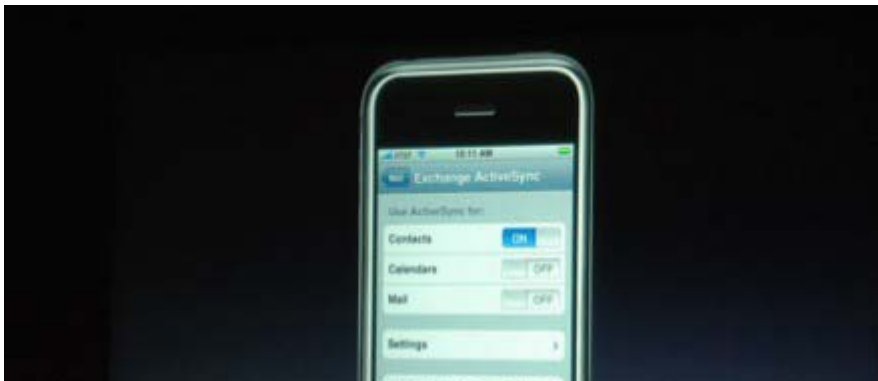




"That's a HUGE request, but how does that work? There's an old way..." icon of a crappy looking QWERTY phone on screen, "with older generation smartphones." He's going over messaging, firewalls, and enterprise scenarios.



10:08AM - "Microsoft has come up with a much more advanced architecture, where the iPhone can work directly with the Exchange server in a more reliable and affordable way. We're building Exchange support so you get push email, push calendaring, push contacts, global address lists, and the ability to remote wipe it."





"The same email app, calendar app, and contact apps that customers really love will get information directly from the Exchange server." So no new apps on the iPhone for using Exchange. Demo time!

10:10AM - Contacts, calendar, mail are all empty -- looks like it's time to do some syncing. "No events -- I kind of like that, keep my day free." Chuckles.



Exchange is at the top of email services, even above .Mac; going into settings; you can flip on contacts, calendars, mail, and all this stuff flipping simple switches. Not bad!

10:13AM - The contacts are all there instantly. If Steve were on stage, we're sure there'd be a "Boom" or two. "It's the same apps that customers know and love on the iPhone, but now it's all coming from Exchange."

Testing adding a new contact out in the field. "For those of you who've never typed into an iPhone -- it's awwesome." Chuckles. And now Bob already has that contact. Bob just updated that same record and it pushed down to the iPhone instantaneously. Applause.

10:14AM - Bob just sent Phil an email and there it is, direct Exchange push email. Demoing meeting changes with live pushes over Exchange.

Demoing remote wipe of the phone -- no user interaction, "I can't stop it, the phone's been wiped and protected." Applause. "Lots of great new features, but you've seen Exchange live, working on the iPhone -- we've been working hard on this." Talking about testing this on-site -- like Nike, for example.

10:18AM - "Another company we've been working with is Disney -- as you may know, we have an executive relationship with Disney." Chuckles. Oh, Phil, you old cornball. "These are the features customers have asked for in the enterprise, and I think when we release these features people will be blown away that the iPhone is The. Best. mobile device ever in enterprise." Tossing to Scott Forstall on the iPhone SDK. Scott!



10:19AM - "Ok, I'm here to tell you about how developers can build great apps on the iPhone. Before I get into the SDK, I want to give an update on web apps. This has been incredibly successful, there are over 1,000 web applications for the iPhone."

He's highlighting some web apps, including Facebook. Yep, great, let's get to the SDK dude.

"Already the iPhone is the most popular mobile device with Bank of America -- it accounts for 20% of ALL mobile banking with them. But today what I really want to tell you about is the

native iPhone SDK."

10:21AM - "Starting today... we're opening the same native APIs and tools to build our iPhone apps."



"3rd party developers can build native iPhone apps using the same SDK that WE do. There are a lot of pieces that make up the SDK in a set of APIs -- that suits us well, Apple is a platform company. We have the most advanced platform in the world in the form of OS X. It's comprised of four layers..."



"The core OS, core services, media layer, and Cocoa -- to build the iPhone OS we took the bottom three layers to form the iPhone OS. Cocoa is interesting and it's the best app framework out there, but it's based on a mouse and keyboard. So we took everything we knew.. and built Cocoa Touch."



10:22AM - "This here is the architecture of the iPhone OS -- let me dig a little deeper. We'll start with the kernel. This is the same OS X kernel based on the same project and same source files of OS X; the networking layer we use is the same BSD networking layer we use on OS X. And power management... Apple has more than a decade of experience in advanced power management."



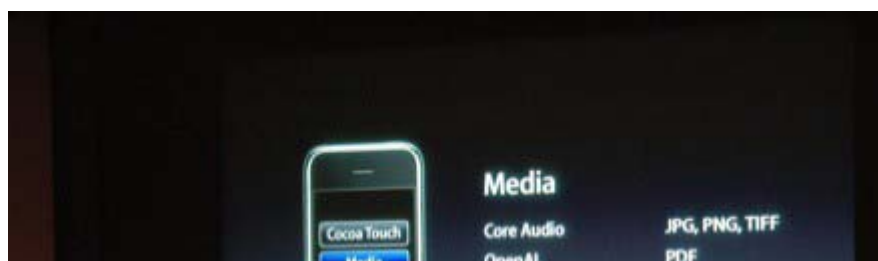


10:25AM - "We started with those advanced power management techniques and went beyond that -- the core OS power manages all of the chips, all the sensors, your application, automatically. Now, core services, I'll just highlight a few. We have a complete set of APIs for your app to talk directly to the contacts DB on the iPhone, and an entire database API with SQLite.

"Core Location - we've taken that and patched it into an API so you can create location-aware applications. The media layer... starting with Core Audio, this is the low-level audio layer; on top of that we've built OpenAL, an industry standard."



10:27AM - "Video playback: seamless video playback, uses our h.264 codec, built right in." So we can add new video codecs right? RIGHT? Sigh. "Core animation... OpenGL ES, the embedded version of OpenGL and a screamer for 3D graphics on the iPhone. In fact, this entire layer is heavily hardware accelerated."





10:29AM - "Cocoa Touch - our advanced touch event system; the accelerometer - what you might not know is that it's a full 3-axis sensor, and you can use that in your apps as well. ... this is the architecture for the iPhone OS, the most advanced mobile platform out there. We think we're years ahead of any other platform. We borrowed heavily from OS X -- we started on the shoulders of a giant."

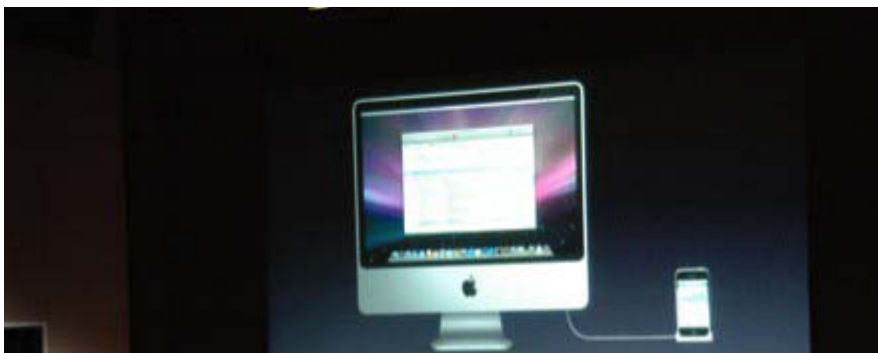


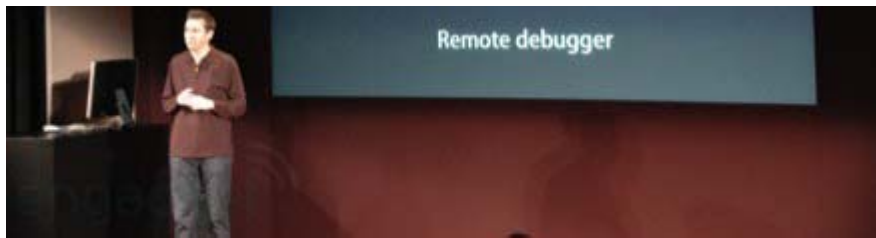


"We have a comprehensive set of tools to help developers create and debug apps -- let's start with Xcode. We started there and enhanced it to support the iPhone; now we use Xcode to build the OS and apps for the iPhone. What is Xcode? It starts as a great source code editor -- it knows all about the iPhone SDK, will code-complete the APIs for the iPhone SDK."



10:30AM - "... it also integrates directly with source control management system, subversion, cvs... integrates with iPhone SDK documentation, and also has a nice debugger -- it's also a great remote debugger. Plug an iPhone in, run the app live on your iPhone, and be debugging it from your Mac. This is incredibly powerful."





10:32AM - "The next tool I'd like to talk about is Interface-Builder -- this is the tool you'll use to... wait for it... build your application interface. We have the complete library of iPhone interface assets, just drag them onto the canvas." Showing making connections from the view layers to control layers; it's also localizeable. "Next: Instruments..."



"We took those three and enhanced them for the iPhone, but there's a brand new tool: the iPhone Simulator. It runs on a Mac and simulates the entire API stack on your computer."





10:34AM - "So, we have a fantastic set of tools in addition to an amazing set of frameworks."
Demo time. iPhone Simulator gets going -- looks identical to using an iPhone. Tiny bit creepy, actually.

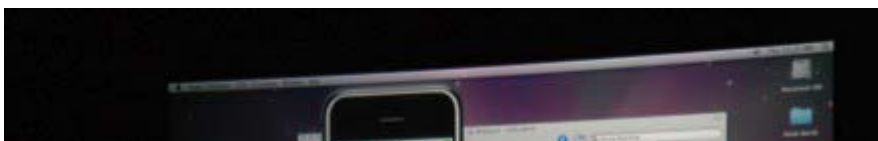




10:35AM - Showing Safari in the Simulator, now he's about to build a quick Hello World! app.



10:37AM - Just threw that app together and ran it on the Simulator; "It's just as easy to build and run it live on an iPhone!"

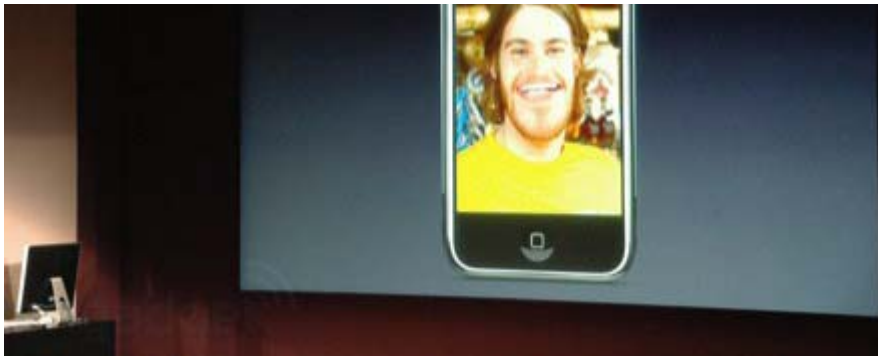




10:39AM - He just compiled the app, dropped it onto the iPhone, ran it, and started the debugger in one step. Not shabby. "This is an app I just built in two minutes -- but we wanted to see what we could build in two days. So we did this app, we called it Touch FX."

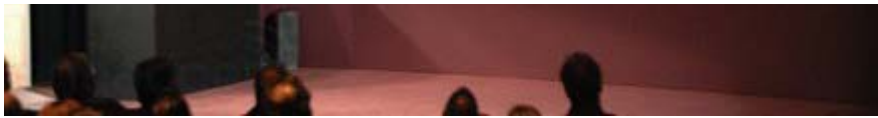
10:40AM - Photo picker, applies OpenGL distortion effects on finger tracking; he's pinching and exploding some dude's face -- shaking the phone performs an undo. Applause and giggles.





10:42AM - "Next we decided, what can we do in two weeks? So we wrote a game... Touch Fighter." Dang, not bad, it's 3D, OpenGL... tap anywhere to fire, steer with the accelerometer. Lots of loud "Whoa!"-ing from the audience and applause.





10:44AM - He's testing optimization of the Wing Commander-style game; its live-recording frame rate (about 27-30fps!) and other performance metrics.





He pulls up a low-framerate point, grabs the live stack-trace from that moment to dev. "Don't just take my word on how good this platform is -- we called up a handful of companies and asked them to send out a couple of engineers to see what they could accomplish in two weeks with an SDK that they've never even seen before."

10:47AM - EA is up to bat; Travis Boatman talking about using the SDK. "Thanks to Apple for inviting us to join in on the SDK process." Spore!





It's a stripped down, cartoony version of Spore; accelerometer moves the spore around to eat things in the primordial pond. And, of course, there's the Spore customizer.





10:49AM - Showing video capabilities, too -- big applause. Forstall: "That was TWO weeks of work!" You can see we have a great platform to develop games on, but it's also great for verticals." Toss to Salesforce.com, Chuck Dietrich.



10:51AM - Demoing their SFA app with monthly sales stats - "I'd like to use the accelerometer to shake them into deals -- but we're not gonna do that just yet." Waaaahh, chuckles.



10:53AM - More Salesforce.com stuff -- integrates with maps; most is totally sales-geek that's over our head, but that we're sure our sales guys are somewhere flipping out about right now.

10:55AM - "The next one: AOL, which runs AIM, the most popular IM service in the US." AIM for

iPhone!



"I've never developed on a Mac before, never used Objective C -- and we had a live buddy list in five days. This is a live conversation happening over the network..."

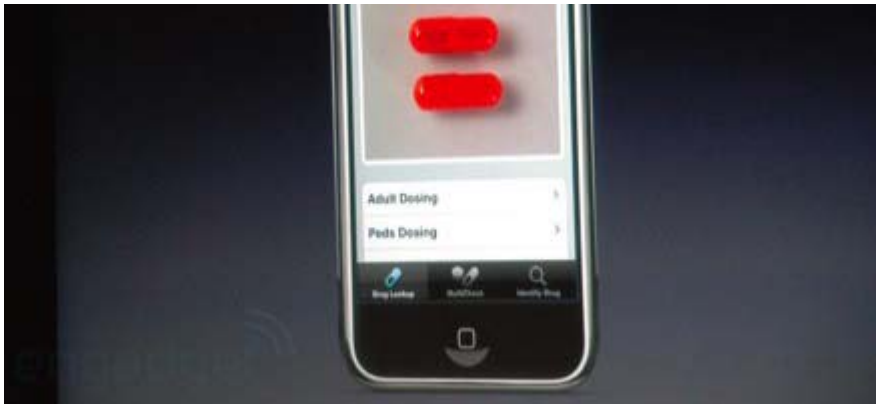




10:56AM - Switch between active chats by swiping left and right (applause), status update panel ("Playing Spore!", giggles), choosing photos from your iPhone photo library as your AIM buddy pic. (PS, disclaimer, Engadget is owned by AOL / Time Warner.) Forstall: "Next up, Epocrates," Tossing to Glenn Keighley.

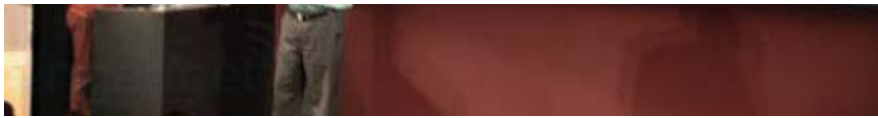
10:58AM - "Developing for the iPhone is like developing for no other platform... it's an almost desktop-like experience." Showing drug monographs (drug spec sheets), SQLite database use for the medication database, reactions, etc.





11:00AM - Back to Scott... Sega! "Sega's been a household gaming name for more than 25 years..." tossing to Ethan Einhorn from Sega.





"Super Monkey Ball was a natural choice."



11:02AM - SMB is entirely accelerometer-based, "This is NOT a cellphone game. It's a console game, if anything, we underestimated what the iPhone was able to do from the start, we had to

fly in another artist to scale up the art to match what the iPhone could actually output." Big applause.

11:03AM - Steve's back to answer how you get the stuff on the phone. "You're a dev and you just spent two weeks or a bit longer writing this app, and what's your dream? To get it in front of every iPhone user."

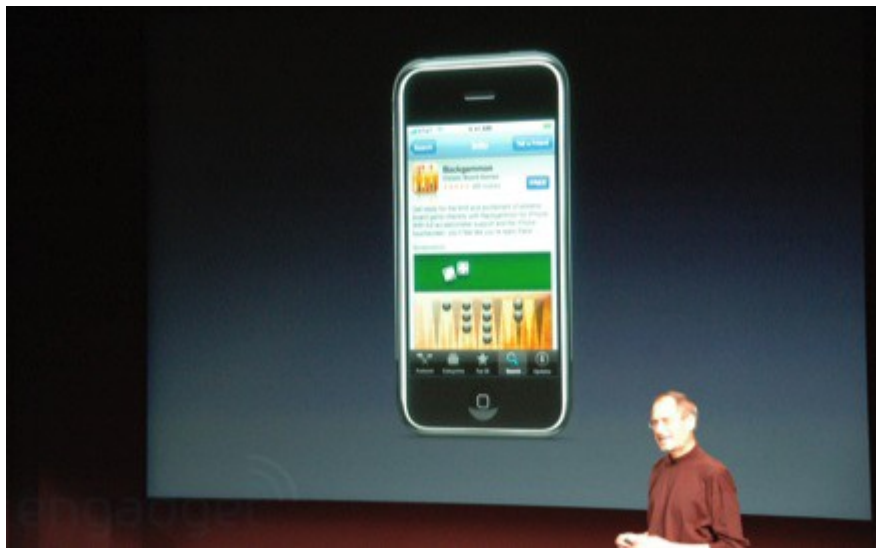
"Hopefully they love it and buy it -- but that's not possible today, even the big developers would have a problem getting their app in front of every iPhone user. It's called the App Store -- and we're putting it on every single iPhone on the next release of the software. This is how we're distributing apps to the iPhone."





11:05AM - "Let's take a look at the App Store -- featured apps, just added, staff favorites... easy to find stuff and browse the categories. Of course, I can see what the most popular apps are that are being downloaded, I can easily search, I can tap on it... this one's free... and it's wirelessly downloaded [over the air!] to the iPhone via cellular or WiFi."





"You can sideload them into the iPhone as well from iTunes. But it goes further: if you've downloaded an app and the dev updates that app, the App Store will tell you it's been updated! If you like it, tap the update button and it'll be replaced by the updated version all over the air, automatically. It will be the EXCLUSIVE way to distribute iPhone applications."

11:07AM - "Devs are going to ask -- this is great! But what's the DEAL? What's the business deal. We've got a great biz deal for developers: you pick the price you want to sell your app at. The dev gets 70% of the revenues right off the top, we keep 30% to pay for running the app store. No CC fees or hosting fees or marketing fees for hosting the app, devs get 70% paid monthly."





11:08AM - "You know what price a lot of devs pick? Free. When they want to distribute their app free, there's NO charge to distribute free apps -- we'll pay everything to get those apps out there for free. Will there be limitations? Of course. Some apps we won't distribute: porn! Malicious apps!"



"So, we've talked about some amazing new enterprise capabilities, we've talked about the SDK -- how are we going to deliver this stuff? Both will be delivered together in the iPhone 2.0

software update. Let me tell you about that."



11:10AM - "It will again combine the SDK + the new capabilities, there will be a beta release going out today to thousands of developers. We need their fantastic feedback. We're going to ship this to every iPhone customer in June, and it's going to be a free software update." Mild applause.

"In just a few months..." MONTHS! "every iPhone user will get what they saw today. But there's another part to this as well: the iPod touch. Everything will run on the iPod touch as well,

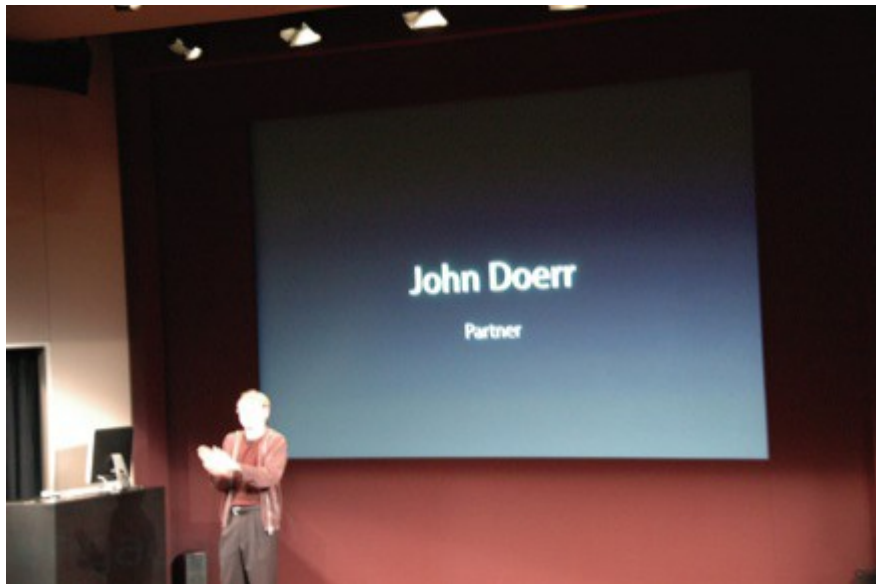
including enterprise features. We account for the touch differently than we do for the iPhone so there will be a nominal charge for the touch."



11:12AM - "We think a lot of people will want to become an iPhone developer -- go to our site, probably in about an hour, and download the SDK. You can join the developer program to test your app on the iPhone and iPod touch and distribute your app -- to join the dev program costs just \$99. If you have any questions about anything give us a ping at developer.apple.com." Irony: someone's Windows Mobile phone just went off.



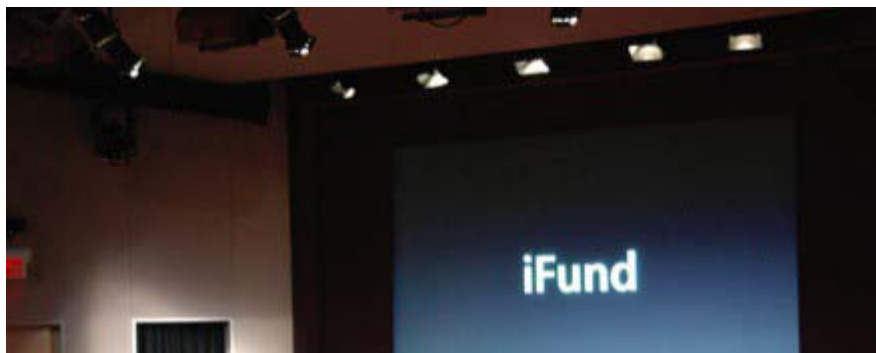
11:14AM - "The premiere VC firm in the world, KPCB, and it's my great pleasure the most well known partner, John Doerr."



"We're all here today because we LOVE Apple products, and I'm here because I really love Apple entrepreneurs. They do more than anyone thinks possible with less than anyone thinks possible -- the risk takers, the rebels. So it's particularly touching to be here today with the supreme commander of the rebels, Steve Jobs."

11:15AM - "Steve started the whole personal computer industry -- when he left Apple it went downhill fast. He return and resurrected Apple, and even ran Pixar -- please join me in a salute for the World's Greatest Entrepreneur, Steve Jobs." Big applause.

"Alan Kay said, 'The best way to predict the future is to invent it...' today we're proud to announce the iFund, for the iPhone platform."





"New platforms are rare... we gave a lot of thought to how to start an iFund, so we decided the iFund should be \$100m." Ok, but... what is it?



11:16AM - "That should be enough to start a dozen Amazons and a few Googles... you know the Mac and iPod are truly amazing platforms... today we're witnessing history. That's the launching of the SDK, the creation of the third great platform."

"It's about this great opportunity, but it's about more than the money -- it's about the great team at Apple and the great talent we can recruit together. ... if you want to build the future, the iFund wants to help you fund it. I can't wait to see the companies we'll build together." Big, big applause for Doerr.

11:18AM - Steve's back: "I look forward to working with you guys to do just that, it's very exciting. If I could ask the press to just stay here for a few more minutes... thanks for coming!"





We're not done!

11:20AM - A lot of people are filing out, we're still seated waiting for what's next. Looks like it's going to be Q&A, bear with us.

Steve's on stage, Phil as well, they're waiting for people to take off. Steve: "If we can get the press to take their seats..."

11:22AM - Just a peppering of people left. "We wanted to do a Q&A, maybe ten minutes."



Q: "What's the 100m do for the iPhone community, exactly?"

A: "It's because they believe there's an opportunity to invest in the community. We love young innovative developers, and they love it because that's the business they're in too. It helps the whole ecosystem surrounding the iPhone."

11:24AM - Q: "Do you think RIM should be worried? What's the message for them?"

A: "You should ask them... we're not sending them a message, we're sending customers and developers a message that we're trying to serve their needs. Remember, the iPhone's been out less than a year, this stuff will be shipping right around the one year anniversary to every iPhone customer."

Q: "What sort of safeguards are built in to ensure security?"

A: "This is a big concern - it's a dangerous world out there. We've tried to strike a good path here, on one side you've got a closed device like the iPod, it always works. You don't have to worry about 3rd party apps mucking it up. On the other side you've got a Windows PC where people spend a lot of time every day making it usable. We want to take the best of both: reliability of the iPod, but the ability to run 3rd party apps. They get an electronic certificate... if they write a malicious app we can track them down and tell their parents." (Laughter)

11:27AM - Q: "How likely will there be a VoIP?"

A: "We will only limit over cellular -- if you want to dev them for WiFi, that's fine."

Q: "Can people choose multiple sync methods? Let's say you select Exchange, will you also be able to use iCal as well."

A: "Yes, you can have multiple accounts, multiple calendar accounts, multiple contact DBs. Only Exchange account at time though."





Q: "Isn't the fact that Apple is the sole distributor of apps likely to cause monopoly issues?"

A: "We think this is going to be a boon for developers, there's no other way to get an app in front of every single iPhone user." Just to make it a little clearer -- we don't intend to make money off the app store; the split with the music companies is about the same. We give all the money to the content owners and the developers here, and the 30% that pays for the store, that will be great.

11:32AM - We asked: Will SIM unlock software be considered software not allowed in the app store?

A: Steve: (pause) "... yes." Laughter.

Q: "What's the nominal fee on the iPod touch?"

A: "We'll set that in June, we don't look at this as a profit opportunity."

Q: "What do you see as being the IT ease of use? So IT managers can convert from BlackBerry to iPhone?"

A: Phil: "It uses ActiveSync, a familiar system, but also has tools for managing these devices."

11:36AM - Q: "Is this an international rollout? Anything preventing open source apps?"

A: "This is international, but not an open-source project. It's a for-profit project only, even though it's a free update."

Q: "Anything about additional connections? WiMAX?"

A: "We're not here to talk about hardware today."

Q: "How would an enterprise distribute internal applications?"

A: "Working on a special app for internal enterprise applications, it's being worked on."



11:39AM - Apple's added parental controls to the iPhone! In 2.0 parents can turn off features in the iPhone like Safari or the App Store.

11:41AM - Q: "Why'd you change your mind from last year when you said web apps would be the only method of development for the iPhone?"

A: They wanted to create something "great," and "the attention to detail is unbelievable." Steve mentioned living with an SDK for 20 years.

Q: "What's relationship with the carriers? Are you working with the carriers on the App Store?"

A: "We have great relationships with our carriers -- we struck a new kind of relationship where Apple is responsible on the phone. We define the software on the phone, we run the dev program, we distribute the apps! This is our program, and we're running it. (Side Q: no rev share with carriers on apps?) We don't go into it, but we like to see the revenue going the other way."

Q: Will there be a dock-connector API?

A: The answer given was unclear, looks like you still have to work through the Made for iPhone program, but it's difficult to tell whether there's integration between the SDK and external hardware beyond what's already out there.



11:46AM - We're done, thanks everybody!

0 COMMENTS

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EXHIBIT G

INTERNET ARCHIVE
Wayback Machine

111 captures
7 Mar 08 - 5 Nov 13

http://www.apple.com/iphone/enterprise/ Go

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21 2008 2009 Help ?

iPhone 3G

Features

App Store

iTunes

Gallery

Tech Specs

Where to Buy

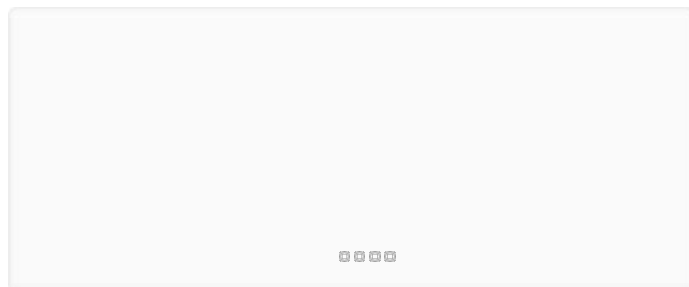
iPhone in Enterprise

Overview

Enterprise integration

The best phone for business. Ever.

What makes iPhone a great business phone? Simple. The same features that make it a revolutionary mobile device. With iPhone 2.0 software, iPhone does even more for your enterprise. It supports Microsoft Exchange ActiveSync, delivering push email, calendar, and contacts. And it gives mobile users secure access to corporate resources with Cisco IPSec VPN and wireless network services with WPA2 Enterprise and 802.1X authentication.



Best email on a mobile device.

Email on iPhone offers a viewing experience unlike any other mobile device. Its rich HTML format means email looks and acts like email on your computer. With support for Microsoft Word, Excel, and PowerPoint, PDF, JPEG, and now iWork, attachments can be viewed exactly as they were designed to be. Users can even zoom in on important information with the tap of a finger. And now that iPhone has built-in support for Microsoft Exchange ActiveSync, users get all the benefits of push email.

Learn how to integrate iPhone into your enterprise.

Support for Microsoft Exchange ActiveSync and industry-standard corporate security standards allows IT professionals to seamlessly integrate iPhone into their corporate environments.



Want to deploy iPhone in your enterprise? [Learn more](#)

Features include:

- Push email
- Push contacts
- Push calendar
- Global Address List (GAL) support
- Certificates and identities
- WPA2/802.1X
- Enforced security policies
- More VPN protocols
- Device configuration
- Remote wipe



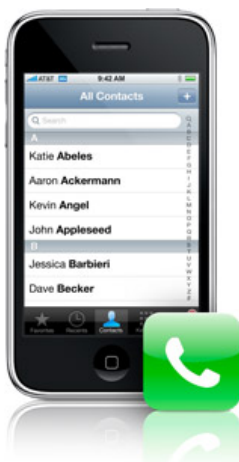
Up-to-the-minute calendar.

With its Multi-Touch interface, no other mobile calendar application is as intuitive or simple to use. Tap to accept or decline a meeting invitation. Tap again to see who's attending, check scheduling conflicts, review the agenda, or add alerts. Color coding makes calendar entries easy to organize and view at a glance. And push calendar and integrated support for time zones means users can stay up to date no matter where their business takes them.



More powerful contacts.

Finding contacts on iPhone is as simple as scrolling through your contact list or using the search feature. Add or change a contact and it updates everywhere automatically. But what really makes Contacts ideal for business is its seamless integration with features such as Maps, Safari, and SMS. Find customer offices using Maps with GPS. Get directions and call directly from map listings to confirm. Add vCards received via email. Look up contacts faster with search support for companywide Global Address Lists (GAL). And with push contacts on iPhone, contact lists are always up to date.



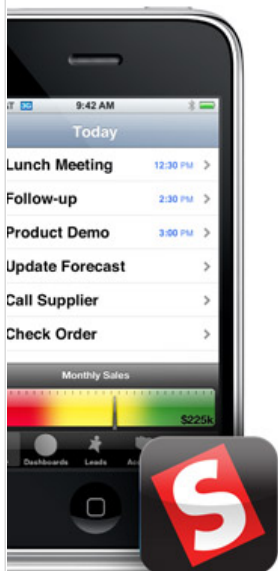
Desktop-class web browsing.

iPhone uses Safari — the most advanced browser on a mobile device — and displays the web the way it was designed to be seen. With support for web standards, SSL, and Cisco IPSec VPN, iPhone delivers secure access to corporate intranets so users can access their company's resources wherever they are. Web Clips give quick, one-tap access from the Home screen to important websites and web applications. And the fastest available connection to the web is always ensured, whether it's EDGE, 3G, or Wi-Fi.



Enterprise applications.

With support for custom-designed enterprise applications, iPhone becomes a must-have mobile device for businesses. Using the iPhone SDK, an enterprise can easily create applications customized to its business needs and even take advantage of key iPhone technologies such as Multi-Touch, the accelerometer, fast wireless connectivity, and GPS. To deploy their in-house applications, companies can securely sync the applications via iTunes to authorized iPhones. Once installed, enterprise applications live side by side with all the other applications that come with every iPhone.



Smarter phone features.

iPhone is a revolutionary phone that also helps manage daily work calls. Visual Voicemail allows users to prioritize which messages to listen to first and fast-track through a message



to get to key information. Swapping and merging calls and even initiating conference calls is easy. To add an attendee, just tap a name from a contact list or company GAL.



More for business.

iPhone has even more great features for business users. Find a customer's address and get directions with GPS-powered Maps. Send SMS messages to multiple recipients. Get a one-tap weather report before your next business trip. Check stocks at a glance. Write notes to save or email. Even perform complex calculations with the built-in scientific calculator.

Enterprise Rate Plans

Apple and AT&T pair the best phone for business with the largest digital wireless voice and data network in the nation. Enterprise Data Plans for iPhone include Visual Voicemail, unlimited data (within the U.S.), and your choice of SMS text message plans. Browse the Internet and send as many email messages as you want — without additional fees. [Learn more](#)



iPhone for your enterprise.

Corporate Phone Sales

Want to purchase iPhone for your employees? Contact an AT&T business representative or call 1-877-240-4318.

Some features, applications, and services are not available in all areas. See your carrier for details.

Some applications are not available in all areas. Application availability and pricing are subject to change.

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EXHIBIT H

INTERNET ARCHIVE
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We collect your personal information because it helps us deliver a superior level of customer service. It enables us to give you convenient access to our products and services and focus on categories of greatest interest to you. In addition, your personal information helps us keep you posted on the latest product announcements, software updates, special offers, and events that you might like to hear about.

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- We also collect information for market research purposes — such as your occupation and where you use your computer — to gain a better understanding of our customers and thus provide more valuable service.
- We collect information regarding customer activities on our websites, .Mac, and the iTunes Store. This helps us to determine how best to provide useful information to customers and to understand which parts of our websites, products, and Internet services are of most interest to them.
- We may use personal information to provide products that you have requested as well as for auditing, research, and analysis to improve Apple's products.

Your Apple ID and related information

The Apple website, as well as Apple services such as .Mac and the iTunes Store, allows you to create an "Apple ID" based on your

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Legal Information

End User Software License Agreements

Hardware Warranties

iPhone Warranty
Original iPhone
iPhone 3G

iTunes Store Terms

Sales Policies

Apple Online Store
Apple Online Store for K12 Schools
Apple Online Store for Higher Education
Retail Store
Apple Online Store for Education Individuals

Service Products

AppleCare Service Plan
AppleCare Protection Plan
AppleCare Protection Plan for iPhone
AppleCare Repair Agreement
AppleCare Parts Agreement
AppleCare Premium Service and Support Plan Terms and Conditions
AppleCare Technical Support Services Terms and Conditions

Terms of Service

Web Site Terms and Conditions of Use
Apple Print Services Terms of Use
Apple Print Services Sales Policies & Ordering Information
MobileMe Terms of Service
ProCare Terms and Conditions
iChat Account Terms of Service
iTunes Store Terms of Service
iTunes Store Gift Certificates and Allowances Terms and Conditions
iTunes Store Terms of Sale
Discussions Terms and Conditions
Repair Terms and Conditions
iPhone Service (PDF)
Online Repairs in North America
Online Repairs in France
Online Repairs in Germany
Online Repairs in United Kingdom
U.S. Retail Repairs
iPhone Rental Terms and Conditions
Rentals in North America
Rentals in Austria
Rentals in France
Rentals in Germany
Rentals in Ireland
Rentals in United Kingdom
Advance Replacement Service for iPhone
In Warranty Terms and Conditions
Out of Warranty Terms and Conditions
Training Service Terms and Conditions

Policies

Unsolicited Idea Submission Policy
Privacy Policy

Trademark, Copyright and Intellectual Property

Trademark List
Copyright
Apple Web Badges
Piracy Prevention
Guidelines for Trademarks and Copyrights
FileMaker Legal Information
NeXT Trademark List

Legal Contacts

Export Compliance
Supplier Provisions

personal information. This convenient service saves you time and allows for easier use of our web services. Here's how it works: You create a personal profile — providing your name, phone number, email address, and in some cases your mailing address or a credit card number — and choose a password and password hint (such as the month and day of your birth) for security. The system saves your information and assigns you a personal Apple ID — in many cases simply your email address, because it's unique and easy to remember. The next time you order from the Apple Store or register a new product, all you need to do is enter your Apple ID and password; the system looks up the information it needs to assist you. In addition, if you update the information associated with your Apple ID it will be available for all your transactions with Apple globally.

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Within the Apple Group

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With our service providers, vendors, and strategic partners

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At times we may be required by law or litigation to disclose your

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Apple takes precautions — including administrative, technical, and physical measures — to safeguard your personal information against loss, theft, and misuse, as well as unauthorized access, disclosure, alteration, and destruction.

The Apple Online Store and iTunes Store use Secure Sockets Layer (SSL) encryption on all web pages where personal information is required. To make purchases from the Apple Online Store or iTunes Store, you must use an SSL-enabled browser such as Safari, Netscape Navigator 3.0 or later, or Internet Explorer. Doing so protects the confidentiality of your personal and credit card information while it's transmitted over the Internet.

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Integrity of your personal information

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As is true of most websites, we gather certain information automatically and store it in log files. This information includes Internet Protocol (IP) addresses, browser type, Internet Service Provider (ISP), referring/exit pages, operating system, date/time stamp, and clickstream data.

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In some of our email messages we use a "click-through URL" linked to content on the Apple website. When customers click one of these URLs, they pass through our web server before arriving at the destination web page. We track this click-through data to help us determine interest in particular topics and measure the effectiveness of our customer communications. If you prefer not to be tracked simply avoid clicking text or graphic links in the email.

In addition we use pixel tags — tiny graphic images — to tell us what parts of our website customers have visited or to measure the effectiveness of searches customers perform on our site.

Pixel tags also enable us to send email messages in a format customers can read. And they tell us whether emails have been opened to ensure that we're sending only messages that are of interest to our customers. We may use this information to reduce or eliminate messages sent to a customer. We store all of this information in a secure database located in Cupertino, California, in the United States.

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As we said, Apple takes protecting your privacy very seriously. To make sure your personal information is secure, we communicate these guidelines to Apple employees and strictly enforce privacy safeguards within the company. In addition, Apple supports industry initiatives, such as TRUSTe, to preserve privacy rights on the Internet and in all aspects of electronic commerce.

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Apple abides by the safe harbor framework set forth by the U.S. Department of Commerce regarding the collection, use, and retention of personal information collected from the European Union. The following link provides more information about the U.S. Department of Commerce Safe Harbor Program. Note that personal information regarding individuals who reside in the EU is jointly controlled by Apple Sales International in Cork, Ireland, and by Apple UK Limited in Uxbridge, United Kingdom.

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Country or Region: Contact Information:

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Canada	privacy-ca@apple.com
Latin America	privacy-la@apple.com
Europe	privacyeuropa@apple.com
Japan	privacy-japan@apple.com
Australia	privacy@apple.com.au
Asia/Pacific	privacy@asia.apple.com

If you do not want Apple to keep you up to date with Apple news, software updates and the latest information on products and services click www.apple.com/contact/myinfo and update your personal contact information and preferences. Naturally, if you notify us that you do not want us to use your information for a particular purpose, we will not do so.

Apple may update its privacy policy from time to time. When we change the policy in a material way a notice will be posted on our website along with the updated privacy policy.

Apple Inc. 1 Infinite Loop, MS60-DR, Cupertino, California, USA, 95014

Last updated June 29, 2007
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EXHIBIT I



iPhone

User Guide

For iPhone OS 3.1 Software

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Getting Started

1




WARNING: To avoid injury, read all operating instructions in this guide and safety information in the *iPhone Important Product Information Guide* at www.apple.com/support/manuals/iphone before using iPhone.

Viewing the User Guide on iPhone

The *iPhone User Guide*, optimized for viewing on iPhone, is available at help.apple.com/iphone.

View the guide on iPhone: In Safari, tap , then tap the *iPhone User Guide* bookmark.

Add an icon for the guide to the Home screen: When viewing the guide, tap , then tap “Add to Home Screen.”

The *iPhone User Guide* is available in many languages.

View the guide in a different language: Tap “Change Language” at the bottom of the screen on the main contents page, then choose the language you want.

What You Need

To use iPhone, you need:

- A wireless service plan with a carrier that provides iPhone service in your area
- A Mac or a PC with a USB 2.0 port and one of the following operating systems:
 - Mac OS X version 10.4.11 or later; version 10.5.7 or later is required for syncing Notes and for using iPhone as a modem
 - Windows XP Home or Professional with Service Pack 3 or later
 - Windows Vista Home Premium, Business, Enterprise, or Ultimate edition
- Display resolution on your computer set to 1024 x 768 or higher
- iTunes 8.2 or later, available at www.itunes.com/download (iTunes 9 or later required for certain features)
- QuickTime 7.6.2 or later (for playing videos recorded by iPhone 3GS on your computer)

- An iTunes Store account (for purchases from the iTunes Store or App Store)
- An Internet connection for your computer (broadband recommended)

Activating iPhone

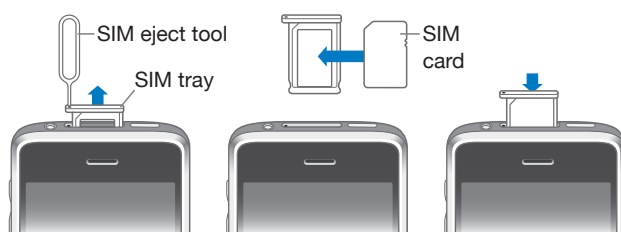
Before you can use any of iPhone's features, you must activate iPhone by signing up for a service plan with an iPhone service carrier in your area and registering iPhone with the network.

Your iPhone may have been activated at the time of purchase. If it isn't activated, contact your iPhone retailer or cellular service provider.

For more information about iPhone, go to www.apple.com/iphone.

Installing the SIM Card

If your SIM card was not preinstalled, you must install the SIM card before you can use iPhone.



Install the SIM card:

- 1 Insert the end of the SIM eject tool into the hole on the SIM tray.
Press firmly and push it straight in until the tray pops out. If you don't have a SIM eject tool, you can use the end of a paper clip.
- 2 Pull out the SIM tray and place the SIM card in the tray.
The angled corner of the SIM ensures that the card fits only the correct way in the tray.
- 3 With the tray aligned as shown, carefully replace the SIM tray containing the SIM card in iPhone.

Registering iPhone

Registering iPhone with iTunes enables iTunes to identify your iPhone when it's connected to your computer and help you manage its contents. You can then sync information with your computer and media from iTunes, and create backups of iPhone's contents and settings. You can create an iTunes Store account, or specify an existing account, to enable purchases with iPhone. iTunes also records iPhone's serial number in the event you need it for service or in case of loss.

Register iPhone:

- 1 Download and install the latest version of iTunes from www.itunes.com/download.
- 2 Connect iPhone to a USB 2.0 port on your Mac or PC using the cable that came with iPhone.



- 3 Follow the onscreen instructions in iTunes to register iPhone and sync iPhone with your contacts, calendars, and bookmarks on your computer, and with music, video, and other content from your iTunes library.

In the Set Up Your iPhone screen, select “Automatically sync contacts, calendars and bookmarks” to configure those items to sync automatically when you connect iPhone to your computer. You can also customize your sync settings in iTunes. See the following section.

Setting Up iPhone Using VoiceOver

If you’re visually impaired, VoiceOver (available only on iPhone 3GS) can help you set up iPhone without a sighted assistant. VoiceOver describes aloud what appears on the screen, so you can use iPhone without seeing it. When you connect iPhone to your computer, iTunes detects whether you’re using a compatible screen reader on your computer, such as VoiceOver on a Mac or GW Micro Window-Eyes on a PC, and automatically enables VoiceOver on iPhone. A sighted user can also enable VoiceOver on iPhone for you, using Accessibility settings. See “Using VoiceOver” on page 187.

Note: VoiceOver isn’t available in all languages.

Syncing

With iPhone, you can have easy access to important information on your computer, including your contacts, calendars, and even your browser bookmarks, as well as to music, video, and other content in your iTunes library.

About Syncing

Syncing copies information and content between iPhone and your computer, keeping it current and up-to-date, whether you make changes on iPhone or on your computer.

iTunes lets you specify the information and content on your computer that you want to sync with iPhone. By default, iTunes syncs automatically with iPhone whenever you connect iPhone to your computer.

You can also set up iPhone to sync your MobileMe and Microsoft Exchange accounts, over the air. See “Mail, Contacts, and Calendar Accounts” on page 16.

Syncing with iTunes

You can set iTunes to sync any or all of the following:

- Contacts—names, phone numbers, addresses, email addresses, and more
- Calendars—appointments and events
- Email account settings
- Webpage bookmarks
- Notes (requires Mac OS X version 10.5.7 or later on a Mac, or Microsoft Outlook 2003 or 2007 on a PC)
- Ringtones
- Music and audiobooks
- Photos and videos (in your computer’s photo application or folder)
- iTunes U collections
- Podcasts
- Movies, TV shows, and music videos
- Applications downloaded from the iTunes Store

You can adjust sync settings whenever iPhone is connected to your computer.

Ringtones, music, audiobooks, podcasts, iTunes U collections, videos, and applications can be synced from your iTunes library. If you don’t already have content in iTunes, the iTunes Store (available in some countries) makes it easy to preview and download content to iTunes. You can also add music to your iTunes library from your CDs. To learn about iTunes and the iTunes Store, open iTunes and choose Help > iTunes Help.

Contacts, calendars, notes, and webpage bookmarks are synced with applications on your computer, as described in the following section. Contacts and calendars are synced both ways between your computer and iPhone. New entries or changes you make on iPhone are synced to your computer, and vice versa. Notes and webpage bookmarks are also synced both ways. Photos and videos (Mac only) can be synced from an application or from a folder.

Email account settings are synced only from your computer’s email application to iPhone. This allows you to customize your email accounts on iPhone without affecting email account settings on your computer.

Note: You can also set up email accounts directly on iPhone. See “Mail, Contacts, and Calendar Accounts.”

Purchases you make on iPhone in the iTunes Store or the App Store are synced back to your iTunes library. You can also purchase or download content and applications directly from the iTunes Store on your computer, and then sync them to iPhone.

You can set iPhone to sync with only a portion of what’s on your computer. For example, you might want to sync only a group of contacts from your address book, or only unwatched video podcasts.

Important: You should be logged in to your own computer user account before connecting iPhone.

Set up iTunes syncing:

- 1 Connect iPhone to your computer, and open iTunes (if it doesn’t open automatically).
- 2 In iTunes, select iPhone in the sidebar.
- 3 Configure the sync settings in each of the settings panes.
See the following section for descriptions of the panes.
- 4 Click Apply in the lower-right corner of the screen.

By default, “Automatically sync when this iPhone is connected” is selected.

iPhone Settings Panes in iTunes

The following sections provide an overview of each of the iPhone settings panes. For more information, open iTunes and choose Help > iTunes Help.



Summary Pane

Select “Automatically sync when this iPhone is connected” to have iTunes sync iPhone automatically whenever you connect it to your computer. Deselect this option if you want to sync only by clicking the Sync button in iTunes. For more information about preventing automatic syncing, see “Preventing Automatic Syncing” on page 15.

Select “Sync only checked songs and videos” if you want iTunes to skip unchecked items in your iTunes library when syncing.

Select “Manually manage music and videos” to turn off automatic syncing in the Music and Video settings panes. See “Manually Managing Content” on page 72.

Select “Encrypt iPhone backup” if you want to encrypt the information stored on your computer when iTunes makes a backup. Encrypted backups are indicated by a padlock icon, and a password is required to restore the information to iPhone. See “Backing Up iPhone” on page 202.

Click Configure Universal Access to turn on Accessibility features (available only on iPhone 3GS). See Chapter 25, “Accessibility,” on page 182.

Info Pane

The Info pane lets you configure the sync settings for your contacts, calendars, email accounts, and web browser.

- **Contacts**

Sync contacts with applications such as Mac OS X Address Book, Yahoo! Address Book, and Google Contacts on a Mac, or with Yahoo! Address Book, Google Contacts, Windows Address Book (Outlook Express), Windows Vista Contacts, or Microsoft Outlook 2003 or 2007 on a PC. (On a Mac, you can sync contacts with multiple applications. On a PC, you can sync contacts with only one application at a time.)

If you sync with Yahoo! Address Book, you only need to click Configure to enter your new login information when you change your Yahoo! ID or password after you’ve set up syncing.

- **Calendars**

Sync calendars from applications such as iCal on a Mac, or from Microsoft Outlook 2003 or 2007 on a PC. (On a Mac, you can sync calendars with multiple applications. On a PC, you can sync calendars with only one application at a time.)

- **Mail Accounts**

Sync email account settings from Mail on a Mac, and from Microsoft Outlook 2003 or 2007 or Outlook Express on a PC. Account settings are transferred only from your computer to iPhone. Changes you make to an email account on iPhone don’t affect the account on your computer.

Note: The password for your Yahoo! email account isn’t saved on your computer, so it can’t be synced and must be entered on iPhone. In Settings, choose “Mail, Contacts, Calendars,” tap your Yahoo! account, and enter the password.

- **Web Browser**

You can sync bookmarks on iPhone with Safari on a Mac, or with Safari or Microsoft Internet Explorer on a PC.

- Notes

Sync notes in the Notes application on iPhone with notes in Mail on a Mac or with Microsoft Outlook 2003 or 2007 on a PC. (On a Mac, you must have Mac OS version 10.5.7 or later installed to sync notes.)

- Advanced

These options let you replace the information on iPhone with the information on your computer during the next sync.

Applications Pane

Use the Applications pane to specify which App Store applications to sync on iPhone, or to arrange your Home screen (requires iTunes 9 or later). Any applications downloaded directly to iPhone are automatically backed up to your iTunes library when you sync. If you manually delete an application on iPhone, you can reinstall it from this pane as long as it was previously synced.

Ringtones Pane

Use the Ringtones pane to select the ringtones you want to sync to iPhone.

Music, Movies, TV Shows, Podcasts, and iTunes U Panes

Use these panes to specify the media you want to sync. You can sync all music, movies, TV shows, podcasts, and iTunes U collections, or select the content you want on iPhone.

If you want to watch rented movies on iPhone, transfer them to iPhone using the Movies pane in iTunes.

If there's not enough room on iPhone for all the media you've specified, iTunes can create a special playlist and set it to sync with iPhone.

Note: The iTunes U pane appears only in iTunes 9 or later. In earlier versions of iTunes, iTunes U content appeared in the Podcasts pane.

Photos Pane

You can sync photos and videos (Mac only, iTunes 9 required) with iPhoto 4.0.3 or later, or Aperture on a Mac; or with Adobe Photoshop Elements 3.0 or later on a PC. You can also sync photos and videos in any folder on your computer that contains images.

Preventing Automatic Syncing

You can prevent iPhone from syncing automatically when you connect iPhone to a computer other than the one you usually sync with.

Turn off automatic syncing for iPhone: Connect iPhone to your computer. In iTunes, select iPhone in the sidebar, then click the Summary tab. Deselect "Automatically sync when this iPhone is connected." You can still sync by clicking the Sync button.

Prevent automatic syncing for all iPhones and iPods: In iTunes choose iTunes > Preferences (on a Mac) or Edit > Preferences (on a PC), click Devices, and select “Disable automatic syncing for all iPhones and iPods.”

If this checkbox is selected, iPhone won’t sync automatically, even if “Automatically sync when this iPhone is connected” is selected in the Summary pane.

Prevent automatic syncing one time, without changing settings: Open iTunes, connect iPhone to your computer, then press and hold Command-Option (on a Mac) or Shift-Control (on a PC) until you see iPhone appear in the sidebar.

Sync manually: In iTunes, select iPhone in the sidebar, then click Sync in the bottom-right corner of the window. Or, if you’ve changed any sync settings, click Apply.

Mail, Contacts, and Calendar Accounts

iPhone works with MobileMe, Microsoft Exchange, and many of the most popular email systems.

Setting Up Accounts

MobileMe and Microsoft Exchange provide not only email, but contact and calendar information that can be synced to iPhone automatically, over the air. MobileMe can also sync your bookmarks on iPhone with Safari on a Mac, or with Safari or Microsoft Internet Explorer on a PC. You set up MobileMe, Exchange, and other email accounts directly on iPhone.

iPhone uses the Exchange ActiveSync protocol to sync email, calendars, and contacts with the following versions of Microsoft Exchange:

- Exchange Server 2003 Service Pack 2
- Exchange Server 2007 Service Pack 1

For many popular email accounts, iPhone automatically enters most of the settings for you.

If you don’t already have an email account, you can get a free account online at www.yahoo.com, www.google.com, or www.aol.com. You can also try MobileMe, free for 60 days. Go to www.me.com.

Set up an account on iPhone:

- 1 From the iPhone Home screen, tap Settings.
- 2 Tap “Mail, Contacts, Calendars,” then tap Add Account.
- 3 Tap an account type:
 - Microsoft Exchange
 - MobileMe
 - Google email

- Yahoo! Mail
- AOL
- Other

4 Enter your account information and tap Save.

Your service provider or system administrator can provide the account settings you need.

Exchange accounts: Enter your complete email address, domain (optional), user name, password, and a description. The description can be whatever you like.

iPhone supports Microsoft's Autodiscovery service, which uses your user name and password to determine the address of the Exchange server. If the server's address can't be determined, you're asked to enter it. (Enter the complete address in the Server field.) Once you connect to the Exchange server, you may be prompted to change your passcode to match the policies set on the server.

5 If you're setting up a MobileMe or Microsoft Exchange account, tap the items you want to use on iPhone—mail, contacts, calendars, and bookmarks (MobileMe only).

MobileMe includes the Find My iPhone feature that helps you locate iPhone if it's been lost or stolen, and remotely lock, set a passcode, or erase the information on iPhone if necessary. See "Security Features" on page 45.

If you enable Find My iPhone for your MobileMe account, make sure that Push is turned on for Fetch New Data. In Settings, choose "Mail, Contacts, Calendars" > Fetch New Data, and if Push is off, tap to turn it on.

For Exchange accounts, you can set how many days of email you want to sync to iPhone.

If you already have contact or calendar information on iPhone when you enable the account, iPhone asks what you want to do with existing information on iPhone. You can choose to merge the existing data into your MobileMe or Exchange account. If you don't merge the data, you can choose to keep it in a separate account on iPhone (the account is labeled "On My iPhone"), or delete it. Existing bookmarks can only be merged or deleted.

Similarly, when you disable contacts or calendars in an MobileMe or Exchange account, or if you delete an account, iPhone asks if you want to keep information or delete it.

You can add contacts using an LDAP account if your company or organization supports it. See "Adding Contacts" on page 176.

You can subscribe to CalDAV or iCal (.ics) calendars. See "Subscribing to and Sharing Calendars" on page 93.

Push Accounts

MobileMe, Microsoft Exchange, and Yahoo! Mail are known as “push” accounts. When new information is available, such as the arrival of an email message, the information is automatically delivered (pushed) to iPhone. (In contrast, “fetch” services require your email software to periodically check with your service provider to see if new messages have arrived, and then request them to be delivered.) MobileMe and Exchange also use push to sync your contacts, calendars, and bookmarks (MobileMe only) if you have those items selected in the account settings.

Synced information is transferred automatically over your wireless connection; you don’t need to connect iPhone to your computer to sync. If you don’t have a cellular connection, iPhone can receive pushed data over a Wi-Fi connection when iPhone is awake (the screen is on, or iPhone is connected to your computer or a power adapter).

Installing Configuration Profiles

If you’re in an enterprise environment, you may be able to set up accounts and other items on iPhone by installing a configuration profile. Configuration profiles provide a way for system administrators to quickly set up your iPhone to work with the information systems at your company, school, or organization. For example, a configuration profile might set up your iPhone to access the Microsoft Exchange servers at work, enabling iPhone to access your Exchange email, calendars, and contacts.

Configuration profiles can configure multiple settings on iPhone all at once. For example, a configuration profile can set up your Microsoft Exchange account, VPN account, and certificates for secure access to your company’s network and information. A configuration profile may turn on the Passcode Lock, requiring you to create and enter a passcode for using iPhone.

Your system administrator may distribute configuration profiles by email or by putting them on a secure webpage. A system administrator may also install a configuration profile directly on iPhone for you.

Install a configuration profile:

- 1 Using iPhone, open the email message or download the configuration profile from the website provided by your system administrator.
- 2 When the configuration profile opens, tap Install.
- 3 Enter passwords and other information as requested.

Important: You may be asked to verify that the configuration profile is trusted. If in doubt, consult your system administrator before installing a configuration profile.

Settings provided by a configuration profile cannot be altered. If you want to change these settings, you must first remove the configuration profile or install an updated configuration profile.

Remove a profile: In Settings, choose General > Profile, then select the configuration profile and tap Remove.

Removing a configuration profile deletes the settings and all other information installed by the configuration profile from iPhone.

Disconnecting iPhone from Your Computer

Unless iPhone is syncing with your computer, you can disconnect it from your computer at any time.

When iPhone is syncing with your computer, iPhone shows “Sync in progress.” If you disconnect iPhone before it finishes syncing, some data may not get transferred. When iPhone finishes syncing, iTunes shows “iPhone sync is complete.”

Cancel a sync: Drag the slider on iPhone.

If you get a call during a sync, the sync is canceled automatically and you can unplug iPhone to answer the call. Connect iPhone after the call to finish syncing.

Basics

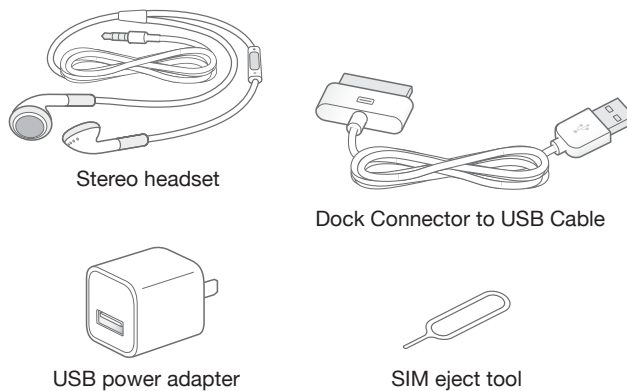
2

iPhone at a Glance



Your Home screen may look different, depending on the model of iPhone you have and whether you have rearranged its icons.



iPhone Included Accessories















Item	What you can do with it
Apple Earphones with Remote and Mic (iPhone 3GS) iPhone Stereo Headset (iPhone 3G)	Listen to music, videos, and phone calls. Use the built-in microphone to talk. Press the center button to answer or end a call. When listening to iPod, press the button once to play or pause a song, or press twice quickly to skip to the next track. Use the + and – buttons to adjust the volume (iPhone 3GS only). Press and hold the center button to use Voice Control (iPhone 3GS only).
Dock Connector to USB Cable	Use the cable to connect iPhone to your computer to sync and charge. The cable can be used with the optional dock or plugged directly into iPhone.
USB power adapter	Connect the power adapter to iPhone using the included cable, then plug it into a standard power outlet to charge iPhone.
SIM eject tool	Eject the SIM card.


Status Icons

The icons in the status bar at the top of the screen give information about iPhone:

Status icon	What it means
 Cell signal	Shows whether you're in range of the cellular network and can make and receive calls. The more bars, the stronger the signal. If there's no signal, the bars are replaced with "No service."
 Airplane mode	Shows that airplane mode is on—you cannot use the phone, access the Internet, or use Bluetooth® devices. Non-wireless features are available. See "Airplane Mode" on page 138.
3G 3G	Shows that your carrier's 3G network is available, and iPhone can connect to the Internet over 3G. Available on iPhone 3G or later. See "How iPhone Connects to the Internet" on page 40.

Status icon		What it means
	EDGE	Shows that your carrier's EDGE network is available, and iPhone can connect to the Internet over EDGE. See "How iPhone Connects to the Internet" on page 40.
	GPRS	Shows that your carrier's GPRS network is available, and iPhone can connect to the Internet over GPRS. See "How iPhone Connects to the Internet" on page 40.
	Wi-Fi	Shows that iPhone is connected to the Internet over a Wi-Fi network. The more bars, the stronger the connection. See "Joining a Wi-Fi Network" on page 41.
	Network activity	Shows over-the-air syncing or other network activity. Some third-party applications may also use this icon to indicate an active process.
	Call Forwarding	Shows that Call Forwarding is set up on iPhone. See "Call Forwarding" on page 154.
	VPN	Shows that you're connected to a network using VPN. See "Network" on page 143.
	Lock	Shows that iPhone is locked. See "Sleep/Wake Button" on page 26.
	TTY	Shows that iPhone is set to work with a TTY machine. See "Using iPhone with a Teletype (TTY) Machine" on page 154.
	Play	Shows that a song, audiobook, or podcast is playing. See "Playing Songs" on page 73.
	Alarm	Shows that an alarm is set. See "Alarms" on page 133.
	Bluetooth	<i>Blue or white icon:</i> Bluetooth is on and a device, such as a headset or car kit, is connected. <i>Gray icon:</i> Bluetooth is on, but no device is connected. <i>No icon:</i> Bluetooth is turned off. See "Bluetooth Devices" on page 55.
	Battery	Shows battery level or charging status. See "Battery" on page 43.

Home Screen

Press the Home  button at any time to go to the Home screen, which contains your iPhone applications. Tap any application icon to get started.

iPhone Applications

The following applications are included with iPhone:



Phone

Make calls, with quick access to recent callers, favorites, and all your contacts. Dial manually using the numeric keypad. Or just use voice dialing. Visual voicemail presents a list of your voicemail messages. Just tap to listen to any message you want, in any order you want.



Mail

iPhone works with MobileMe, Microsoft Exchange, and many of the most popular email systems—including Yahoo! Mail, Google email, and AOL—as well as most industry-standard POP3 and IMAP email systems. View PDFs and other attachments within Mail. Save attached photos and graphics to your Camera Roll album.



Safari

Browse websites over a cellular data network or over Wi-Fi. Rotate iPhone sideways for widescreen viewing. Double-tap to zoom in or out—Safari automatically fits the webpage column to the iPhone screen for easy reading. Open multiple pages. Sync bookmarks with Safari or Microsoft Internet Explorer on your computer. Add Safari web clips to the Home screen for fast access to favorite websites. Save images from websites to your Photo Library.



iPod

Listen to your songs, audiobooks, and podcasts. Create on-the-go playlists, or use Genius to create playlists for you. Listen to Genius Mixes of songs from your library. Watch movies and video podcasts in widescreen.



Messages

Send and receive SMS text messages. Conversations are saved in an iChat-like presentation, so you can see a history of messages you've sent and received. Send photos, video clips (iPhone 3GS only), contact information, and voice memos to MMS devices (iPhone 3G or later).



Calendar

View and search your MobileMe, iCal, Microsoft Entourage, Microsoft Outlook, or Microsoft Exchange calendars. Enter events on iPhone and they get synced back to the calendar on your computer. Subscribe to calendars. Set alerts to remind you of events, appointments, and deadlines.



Photos

View photos and videos (iPhone 3GS only) you've taken with iPhone, received in Mail or MMS (iPhone 3GS only) messages, or synced from your computer's photo application. (Video syncing on Macs only.) View them in portrait or landscape orientation. Zoom in on photos for a closer look. Watch a slideshow. Email photos and videos, send them in MMS messages (iPhone 3G or later), or publish them to MobileMe galleries. Assign images to contacts, and use them as wallpaper.



Camera

Take photos, and record videos (iPhone 3GS only). View them on iPhone, email them, send them in an MMS message (iPhone 3G or later), or upload them to your computer. Trim and save video clips. Upload videos directly to YouTube. Take a friend's picture and set iPhone to display it when that person calls you.



YouTube

Play videos from YouTube's online collection. Search for any video, or browse featured, most viewed, most recently updated, and top-rated videos. Set up and log in to your YouTube account—then rate videos, sync your favorites, show subscriptions, and more. Upload your own videos taken with iPhone.



Stocks

Watch your favorite stocks, updated automatically from the Internet. View company news and current trading information, such as opening or average price, trading volume, or market capitalization. Rotate iPhone to see detailed charts in landscape orientation. Drag your finger along the charts to track price points, or use two fingers to see a range between points.



Maps

See a street map, satellite view, or hybrid view of locations around the world. Zoom in for a closer look, or check out the Google Street View. Find and track your current (approximate) location. See which way you're facing (iPhone 3GS only, using its built-in compass). Get detailed driving, public transit, or walking directions and see current highway traffic conditions. Find businesses in the area and call with a single tap.



Weather

Get current weather conditions and a six-day forecast. Add your favorite cities for a quick weather report anytime.



Voice Memos

Record voice memos on iPhone. Play them back on iPhone or sync them with iTunes to listen to voice memos on your computer. Attach voice memos to email or MMS messages (iPhone 3G or later).



Notes

Jot notes on the go—reminders, grocery lists, brilliant ideas. Send them in email. Sync notes to Mail or Microsoft Outlook or Outlook Express.



Clock

View the time in cities around the world—create clocks for your favorites. Set one or more alarms. Use the stopwatch, or set a countdown timer.



Calculator

Add, subtract, multiply, and divide. Rotate iPhone sideways to use expanded scientific functions.



Settings

Set up accounts and adjust all iPhone settings in one convenient place. Set your own volume limit for listening comfort. Set your ringtone, wallpaper, screen brightness, and settings for network, phone, mail, web, music, video, photos, and more. Set auto-lock and a passcode for security. Restrict access to explicit iTunes content and certain applications. Reset iPhone.



iTunes

Search the iTunes Store for music, ringtones, audiobooks, TV shows, music videos, and movies. Browse, preview, purchase, and download new releases, top items, and more. Rent movies to view on iPhone. Stream and download podcasts. Read reviews or write your own reviews for your favorite store items.



App Store

Search the App Store for iPhone applications you can purchase or download using your Wi-Fi or cellular data network connection. Read reviews or write your own reviews for your favorite apps. Download and install the application on your Home screen.



Compass

Use the built-in digital compass (iPhone 3GS only) to determine your heading. Get your current coordinates. Choose between true north and magnetic north.



Contacts

Get contact information synced from MobileMe, Mac OS X Address Book, Yahoo! Address Book, Google Contacts, Windows Address Book (Outlook Express), Microsoft Outlook, or Microsoft Exchange. Search, add, change, or delete contacts, which get synced back to your computer.



Nike + iPod


Nike + iPod (which appears when you activate it in Settings) turns iPhone into a workout companion. Track your pace, time, and distance from one workout to the next and choose a song to power through your routine. (iPhone 3GS only. Requires select Nike shoes and a Nike + iPod Sensor, sold separately.)

Note: Application functionality and availability may vary depending on the country or region where you purchase and use iPhone. Contact your carrier for more information.

Customizing the Home Screen

You can customize the layout of icons on the Home screen—including the Dock icons along the bottom of the screen. If you want, arrange them over multiple Home screens.

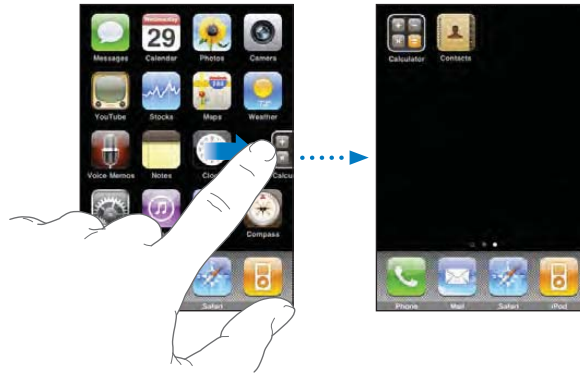
Rearrange icons:

- 1 Touch and hold any Home screen icon until the icons begin to wiggle.
- 2 Arrange the icons by dragging them.
- 3 Press the Home  button to save your arrangement.

You can also add links to your favorite webpages on the Home screen. See “Web Clips” on page 70.

You can also rearrange the Home screen icons and the order of the screens (in iTunes 9 or later) when iPhone is connected to your computer. Select iPhone in the iTunes sidebar, then click the Applications tab.

Create additional Home screens: While arranging icons, drag an icon to the right edge of the screen until a new screen appears. You can flick to return to the original screen and drag more icons to the new screen.



You can create up to 11 screens. The number of dots above the Dock shows the number of screens you have, and indicates which screen you're viewing.

Switch to another Home screen: Flick left or right, or tap to the left or right of the row of dots.

Go to the first Home screen: Press the Home  button.

Reset your Home screen to the default layout: Choose Settings > General > Reset and tap Reset Home Screen Layout.

Buttons

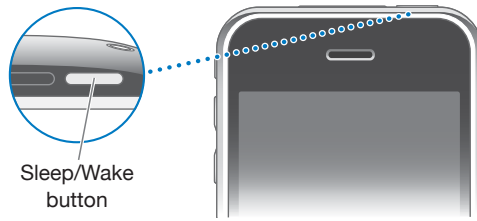
A few simple buttons make it easy to turn iPhone on and off, adjust the volume, and switch between ring and silent modes.


Sleep/Wake Button

When you're not using iPhone but you still want to receive calls and text messages, you can lock it.

When iPhone is locked, nothing happens if you touch the screen. You can still listen to music and adjust the volume, and use the center button on your iPhone headset (or the equivalent button on your Bluetooth headset) to play or pause a song, or answer or end a call.

By default, if you don't touch the screen for a minute, iPhone locks automatically.



Lock iPhone	Press the Sleep/Wake button.
Unlock iPhone	Press the Home  button or the Sleep/Wake button, then drag the slider.
Turn iPhone completely off	Press and hold the Sleep/Wake button for a few seconds until the red slider appears, then drag the slider. When iPhone is off, incoming calls go straight to voicemail.
Turn iPhone on	Press and hold the Sleep/Wake button until the Apple logo appears.

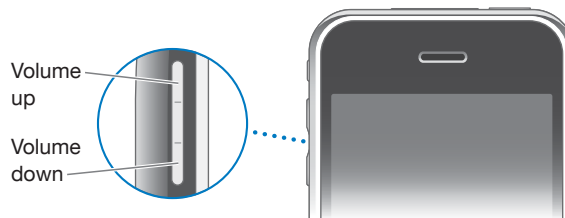
For information about changing how long before iPhone locks, see “Auto-Lock” on page 145. For information about setting iPhone to require a passcode to unlock it, see “Passcode Lock” on page 145.

Volume Buttons

When you're on the phone or listening to songs, movies, or other media, the buttons on the side of iPhone adjust the audio volume. Otherwise, the buttons control the volume for the ringer, alerts, and other sound effects.

WARNING: For important information about avoiding hearing loss, see the *Important Product Information Guide* at www.apple.com/support/manuals/iphone.

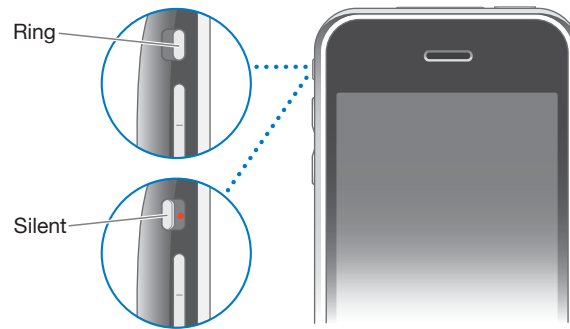
To adjust the volume, use the buttons on the side of iPhone.



To set a volume limit for music and videos on iPhone, see “Music” on page 158.

Ring/Silent Switch

Flip the Ring/Silent switch to change between ring 📞 and silent 🚫 modes.



When set to ring mode, iPhone plays all sounds. When set to silent mode, iPhone doesn't ring or play alerts and other sound effects.

Important: Clock alarms, audio-dependent applications such as iPod, and many games still play sounds through the built-in speaker when iPhone is set to silent mode.

By default, when you get a call, iPhone vibrates whether it's set to ring mode, or in silent mode. If iPhone is set to ring mode, you can silence a call by pressing the Sleep/Wake button or one of the volume buttons once. Press a second time to send the call to voicemail.

For information about changing sound and vibrate settings, see "Sounds and the Ring/Silent Switch" on page 141.


Touchscreen

The controls on the iPhone touchscreen change dynamically depending on the task you're performing.

Opening Applications

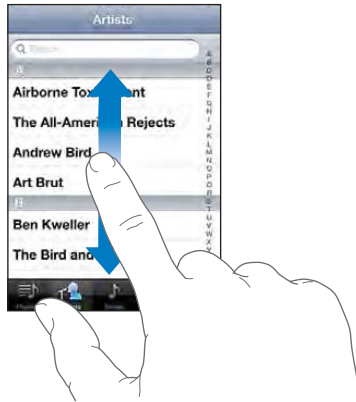
Open an application: Tap an icon.



Close an application and return to the Home screen: Press the Home  button below the display.

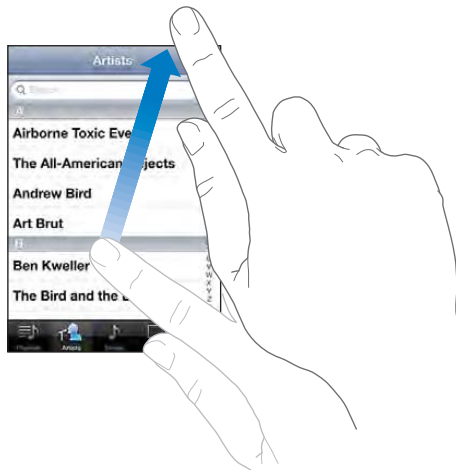
Scrolling

Drag up or down to scroll. On some screens such as webpages, you can also scroll side to side.



Dragging your finger to scroll won't choose or activate anything on the screen.

Flick to scroll quickly.



You can wait for the scrolling to come to a stop, or touch anywhere on the screen to stop it immediately. Touching the screen to stop scrolling won't choose or activate anything.

To quickly scroll to the top of a list, webpage, or email, just tap the status bar.

Lists

Some lists have an index along the right side, which helps you navigate quickly.

Find items in an indexed list: Tap a letter to jump to items starting with that letter. Drag your finger along the index to scroll quickly through the list.



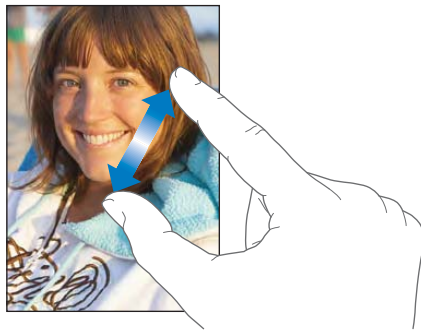
Choose an item: Tap an item in the list.

Depending on the list, tapping an item can do different things—for example, it may open a new list, play a song, open an email, or show someone's contact information so you can call that person.

Return to a previous list: Tap the back button in the upper-left corner.

Zooming In or Out

When viewing photos, webpages, email, or maps, you can zoom in and out. Pinch your fingers together or apart. For photos and webpages, you can double-tap (tap twice quickly) to zoom in, then double-tap again to zoom out. For maps, double-tap to zoom in and tap once with two fingers to zoom out.



Viewing in Landscape

Many iPhone applications let you view the screen in either portrait or landscape orientation. Rotate iPhone and the display rotates too, adjusting automatically to fit the new screen orientation.



You may prefer landscape for viewing webpages in Safari, or when entering text, for example. Webpages automatically scale to the wider screen in landscape, making the text and images larger. Similarly, the onscreen keyboard is larger in landscape, which may help increase your typing speed and accuracy.

The following applications support both portrait and landscape orientation:

- Mail
- Safari
- Messages
- Notes
- Contacts
- Stocks
- iPod
- Photos
- Camera
- Calculator

Movies viewed in iPod and YouTube appear only in landscape orientation. Street views in Maps also appear in landscape.

Onscreen Keyboard

Use the onscreen keyboard to enter text, such as contact information, text messages, and web addresses.

Typing

Depending on the application you're using, the intelligent keyboard may automatically suggest corrections as you type to help prevent mistyped words.

Enter text:

- 1 Tap a text field, such as in a note or new contact, to bring up the keyboard.
- 2 Tap keys on the keyboard.

Start by typing with just your index finger. As you get more proficient, you can type more quickly using two thumbs.

As you type, each letter appears above your thumb or finger. If you touch the wrong key, you can slide your finger to the correct key. The letter isn't entered until you release your finger from the key.



Type uppercase

Tap the Shift ⇧ key before tapping a letter. Or touch and hold the Shift key, then slide to a letter.

Quickly type a period and space

Double-tap the space bar. (You can turn this feature on or off in Settings > General > Keyboard.)

Turn caps lock on

Double-tap the Shift ⇧ key. The Shift key turns blue, and all letters you type are uppercase. Tap the Shift key again to turn caps lock off. (You can turn this feature on or off in Settings > General > Keyboard.)

Show numbers, punctuation, or symbols

Tap the Number 123 key. Tap the Symbol ↑ key to see additional punctuation and symbols.

Type letters or symbols that aren't on the keyboard

Touch and hold the related letter or symbol, then slide to choose a variation.

Dictionary

For many languages, iPhone has dictionaries to help you type. The appropriate dictionary is activated automatically when you select a supported keyboard.

For a list of supported languages, see www.apple.com/iphone/specs.html.

iPhone uses the active dictionary to suggest corrections or complete the word you're typing. You don't need to interrupt your typing to accept the suggested word.



Accept or reject dictionary suggestions:

- *To reject the suggested word*, finish typing the word as you want it, then tap the “x” to dismiss the suggestion before typing anything else. Each time you reject a suggestion for the same word, iPhone becomes more likely to accept your word.
- *To use the suggested word*, type a space, punctuation mark, or return character.

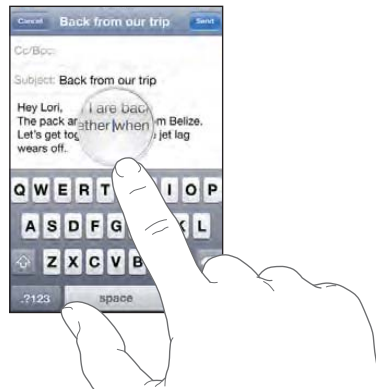
Turn Auto-Correction on or off: Choose General > Keyboard and turn Auto-Correction on or off. Auto-Correction is on by default.

Note: If you're entering Chinese or Japanese, tap one of the suggested alternatives.

Editing

An onscreen magnifying glass helps you position the insertion point for typing and editing text. You can select text to cut, copy, and paste.

Position the insertion point: Touch and hold to bring up the magnifying glass, then drag to position the insertion point.



Select text: Tap the insertion point to display the selection buttons. Tap Select to select the adjacent word or tap Select All to select all text. When you're typing, you can also double-tap to select a word. In read-only documents, such as webpages, or email or text messages you've received, touch and hold to select a word.

Drag the grab points to select more or less text.



Cut or copy text: Select text, then tap Cut or Copy.



Paste text: Tap the insertion point and tap Paste. The last text that you cut or copied is inserted. Or select text and tap Paste to replace the text.


Undo the last edit: Shake iPhone and tap Undo.

International Keyboards

iPhone provides keyboards that allow you to enter text in many different languages, including languages that read from right to left. For a complete list of supported keyboards, go to www.apple.com/iphone/specs.html.

Turn international keyboards on or off:

- 1 In Settings, choose General > International > Keyboards.
- 2 Turn on the keyboards you want. Languages with more than one keyboard, such as Japanese and Chinese, indicate the number of keyboards available. Tap to choose a keyboard for that language.

Switch keyboards if more than one keyboard is turned on	Tap  to switch keyboards. When you tap the symbol, the name of the newly activated keyboard appears briefly.
Type letters, numbers, or symbols that aren't on the keyboard	Touch and hold the related letter, number, or symbol, then slide to choose a variation. On the Hebrew and Thai keyboards, for example, you can choose native numbers by touching and holding the related Arabic number.
Enter Japanese Kana	Use the Kana keypad to select syllables. For more syllable options, tap the arrow key and select another syllable or word from the window.
Enter Japanese QWERTY	Use the QWERTY keyboard to input code for Japanese syllables. As you type, suggested syllables appear. Tap the syllable to choose it.
Enter Emoji picture characters	Use the Emoji keyboard. Available only on iPhones purchased and used in Japan.
Enter Korean	Use the 2-Set Korean keyboard to type Hangul letters. To type double consonants or compound vowels, touch and hold the letter, then slide to choose the double letter.
Enter Simplified or Traditional Chinese Pinyin	Use the QWERTY keyboard to enter Pinyin for Chinese characters. As you type, suggested Chinese characters appear. Tap a character to choose it, or continue entering Pinyin to see more character options.

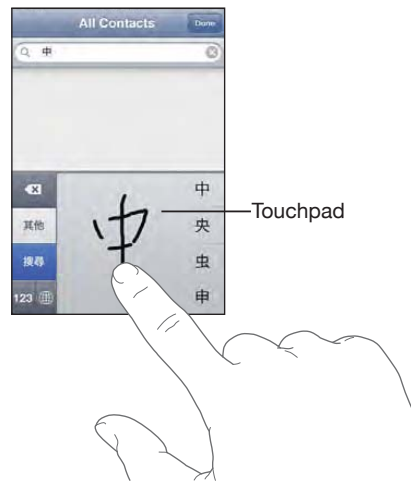
Enter Traditional Chinese Zhuyin

Use the keyboard to enter Zhuyin letters. As you type, suggested Chinese characters appear. Tap a character to choose it, or continue entering Zhuyin to see more character options. After you type an initial letter, the keyboard changes to show more letters.

Enter handwritten Simplified or Traditional Chinese

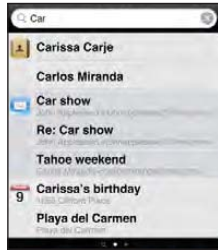
Use the touchpad to enter Chinese characters with your finger. As you write character strokes, iPhone recognizes them and shows matching characters in a list, with the closest match at the top. When you choose a character, its related characters appear in the list as additional choices. You can get some complex characters by entering two or more component characters. For example, enter 魚 (fish), then 鬚 (bristle), to get 鰻 (partial name of Hong Kong International Airport), which appears in the character list with an arrow next to it. Tap the character to replace the characters you entered.

When Simplified or Traditional Chinese handwriting formats are turned on, you can enter Chinese characters with your finger, as shown:



Searching

You can search many applications on iPhone, including Mail, Calendar, iPod, Notes, and Contacts. You can search an individual application, or search all the applications at once using Spotlight.



Go to Spotlight: From the main page of the Home screen, flick left to right.

If you're on the main Home screen page, you can press the Home button to go to Spotlight. From the Spotlight page, press the Home button to return to the main Home screen page. You can also set iPhone to go to Spotlight when you double-click the Home button. See "Home" on page 147.

Search iPhone: On the Spotlight page, enter text in the Search field. Search results appear automatically as you type. Tap Search to dismiss the keyboard and see more of the results.

Icons to the left of the search results let you know which application the results are from. Tap an item in the results list to open it.

Application	What's searched
Contacts	First, last, and company names
Mail	To, From, and Subject fields of all accounts (the text of messages isn't searched)
Calendar	Event titles, invitees, and locations (notes aren't searched)
iPod	Music (names of songs, artists, and albums) and the titles of podcasts, video, and audiobooks
Notes	Text of notes

Spotlight also searches the names of the native and installed applications on iPhone, so if you have a lot of applications you may want to use Spotlight as a way to locate and open applications.

Open applications from Spotlight: Enter the application name, then tap to open the application directly from the search results.

Use the Search Results settings to choose which applications are searched and the order in which they're searched. See "Home" on page 147.

Voice Control

Voice Control (available only on iPhone 3GS) lets you make phone calls and control iPod music playback using voice commands.

Note: Voice Control isn't available in all languages.



Use Voice Control: Press and hold the Home button until the Voice Control screen appears and you hear a beep. You can also press and hold the center button on the iPhone headset (or the equivalent button on your Bluetooth headset).

Use the following commands to make calls or play songs.

Call someone in contacts	Say "call" or "dial," then say the name of the person. If the person has more than one phone number, you can add "home" or "mobile," for example.
Dial a number	Say "call" or "dial," then say the number.
Control music playback	Say "play" or "play music." To pause, say "pause" or "pause music." You can also say "next song" or "previous song."
Play an album, artist, or playlist	Say "play," then say "album," "artist," or "playlist" and the name.
Shuffle the current playlist	Say "shuffle."
Find out more about the currently playing song	Say "what's playing," "what song is this," "who sings this song," or "who is this song by."
Use Genius to play similar songs	Say "Genius," "play more like this," or "play more songs like this."
Cancel Voice Control	Say "cancel" or "stop."

For best results:

- Speak into the iPhone microphone as if you were making a phone call. You can also use the microphone in your iPhone or Bluetooth headset.
- Speak clearly and naturally.

- Say only iPhone commands and names, and numbers. Pause slightly between commands.
- Use full names.

By default, Voice Control expects you to speak voice commands in the language that's set for iPhone (the General > International > Language setting). The Voice Control settings let you change the language for speaking voice commands. Some languages are available in different dialects or accents.

Change language or country: In Settings, choose General > International > Voice Control and tap the language or country.

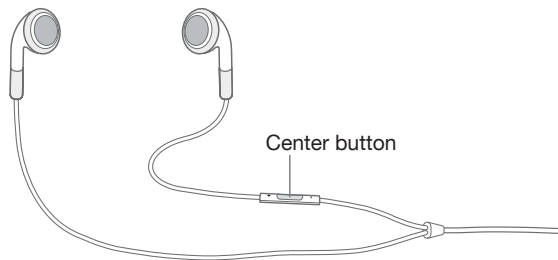
Voice Control for the iPod application is always on, but for security you can prevent voice dialing when iPhone is locked.

Prevent voice dialing when iPhone is locked: In Settings, choose General > Passcode Lock and turn Voice Dial off. Unlock iPhone to use voice dialing.

See "Voice Dialing" on page 48 and "Using Voice Control with iPod" on page 77.

Stereo Headset

The headset included with iPhone features a microphone and an integrated button that allows you to answer and end calls easily, and control audio and video playback. The headset included with iPhone 3GS (shown here) also has volume buttons.



Plug in the headset to listen to music or make a phone call. Callers hear you through the built-in microphone. Press the center button to control music playback and answer or end calls, even when iPhone is locked. (You can also use the equivalent button on your Bluetooth headset to control these functions.)

Pause a song or video	Press the center button once. Press again to resume playback.
Skip to the next song	Press the center button twice quickly.
Return to previous song	Press the center button three times quickly.
Fast-forward	Press the center button twice quickly and hold.

Rewind	Press the center button three-times quickly and hold.
Adjust the volume (iPhone 3GS only)	Press the + or – button.
Answer an incoming call	Press the center button once.
End the current call	Press the center button once.
Decline an incoming call	Press and hold the center button for about two seconds, then let go. Two low beeps confirm you declined the call.
Switch to an incoming or on-hold call and put the current call on hold	Press the center button once. Press again to switch back to the first call.
Switch to an incoming or on-hold call and end the current call	Press and hold the center button for about two seconds, then let go. Two low beeps confirm you ended the first call.
Use Voice Control (iPhone 3GS only)	Press and hold the center button. See “Voice Control” on page 38.




If you get a call while the headset is plugged in, you can hear the ringtone through both the iPhone speaker and the headset.

Connecting to the Internet

iPhone connects to the Internet automatically whenever you use Mail, Safari, YouTube, Stocks, Maps, Weather, the App Store, or the iTunes Store.

How iPhone Connects to the Internet

iPhone connects to the Internet using either a Wi-Fi network or a cellular data network. iPhone does the following, in order, until connected:

- Connects over the last Wi-Fi  network you used that’s available.
- If no previously used Wi-Fi networks are available, iPhone shows a list of Wi-Fi networks in range. Tap a network and, if necessary, enter the password to join. Networks that require a password show  next to them. You can prevent iPhone from automatically showing available networks. See “Wi-Fi” on page 139.
- If no Wi-Fi networks are available or you choose not to join any, iPhone connects to the Internet over a cellular data network (**3G**, **E**, or ).

If no Wi-Fi networks are available and a cellular data network isn’t available, iPhone cannot connect to the Internet.


Note: If you don’t have a 3G connection, you cannot use the Internet over a cellular data network when you’re on a call. You must have a Wi-Fi connection to use Internet applications while also talking on the phone.

Many Wi-Fi networks can be used free of charge including, in some regions, Wi-Fi hotspots provided by your iPhone carrier. Some Wi-Fi networks require a fee. To join a Wi-Fi network at a hotspot where charges apply, you can usually open Safari to see a webpage that allows you to sign up for service.


Joining a Wi-Fi Network

The Wi-Fi settings let you turn on Wi-Fi and join Wi-Fi networks.

Turn on Wi-Fi: Choose Settings > Wi-Fi and turn Wi-Fi on.

Join a Wi-Fi network: Choose Settings > Wi-Fi, wait a moment as iPhone detects networks in range, then select a network (fees may apply to join some Wi-Fi networks). If necessary, enter a password and tap Join (networks that require a password appear with a lock  icon).




Once you've joined a Wi-Fi network manually, iPhone automatically connects to it whenever the network is in range. If more than one previously used network is in range, iPhone joins the one last used.

When iPhone is connected to a Wi-Fi network, the Wi-Fi  icon in the status bar at the top of the screen shows the connection strength. The more bars you see, the stronger the connection.

For information about configuring Wi-Fi settings, see “Wi-Fi” on page 139.

Cellular Data Network Access

3G, EDGE, and GPRS allow Internet connectivity over the cellular network available through your iPhone carrier's wireless service. Check the carrier's network coverage in your area for availability.

You can tell iPhone is connected to the Internet via the cellular data network if you see the 3G () , EDGE () , or GPRS () icon in the status bar at the top of the screen.

Note: If you don't have a 3G connection, you may not be able to receive calls while iPhone is actively transferring data over a cellular network—downloading a webpage, for example. Incoming calls then go directly to voicemail.

Turn 3G on: In Settings, choose General > Network and tap Enable 3G.

If you're outside your carrier's network, you may be able to access the Internet through another carrier. To enable email, web browsing, and other data services whenever possible, turn Data Roaming on.

Turn Data Roaming on: In Settings, choose General > Network and turn Data Roaming on.

Important: Roaming charges may apply. To avoid data roaming charges, make sure Data Roaming is turned off.

Internet Access on an Airplane

Airplane mode turns off the iPhone radio transmitters to avoid interfering with aircraft operation. In some regions, where allowed by the aircraft operator and applicable laws and regulations, you can turn on Wi-Fi while airplane mode is on, to:

- Send and receive email
- Browse the Internet
- Sync your contacts and calendars over the air
- Stream YouTube videos
- Get stock quotes
- Get map locations
- Get weather reports
- Purchase music and applications

For more information, see “Airplane Mode” on page 138.

VPN Access

VPN (virtual private network) provides secure access over the Internet to private networks, such as the network at your company or school. Use Network settings to configure and turn on VPN. See “Network” on page 143.

VPN can also be automatically set up by a configuration profile. See “Installing Configuration Profiles” on page 18. When VPN is set up by a configuration profile, iPhone may turn on VPN automatically whenever it’s needed. Contact your system administrator for more information.

Using iPhone as a Modem

You can use iPhone 3G or later as a modem to connect, or *tether*, your computer to the Internet. You can connect iPhone to your computer using the Dock Connector to USB Cable, or via Bluetooth.

Note: Additional fees may apply. Contact your carrier for more information.

Tethering works over the cellular data network. You can’t share a Wi-Fi connection to the Internet. If you have a 3G connection, you can make and receive phone calls while tethering.

Note: To use iPhone as a modem with a Mac computer, it must be running Mac OS X version 10.5.7 or later.

Set up a tethering connection:

- 1 In Settings, choose General > Network > Internet Tethering.
- 2 Slide the Internet Tethering switch to On.
- 3 Connect iPhone to your computer:

- **USB:** Connect your computer to iPhone, using the Dock Connector to USB Cable. In your computer's Network services settings, choose iPhone.
On a Mac, a pop-up window appears the first time you connect, saying "A new network interface has been detected." Click Network Preferences, configure the network settings for iPhone, then click Apply. On a PC, use the Network Control Panel to configure the iPhone connection.
- **Bluetooth:** On iPhone, choose Settings > General > Bluetooth and turn on Bluetooth. Then refer to the documentation that came with your computer system software to pair and connect iPhone with your computer.

When you're connected, a blue band appears at the top of the screen. Tethering remains on when you connect with USB, even when you aren't actively using the Internet connection.

Monitor your cellular data network usage: In Settings, choose General > Usage.

Battery

iPhone has an internal rechargeable battery.

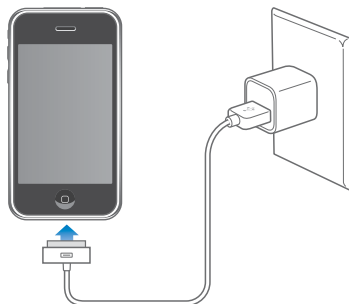
Charging the Battery

WARNING: For important safety information about charging iPhone, see the *Important Product Information Guide* at www.apple.com/support/manuals/iphone.

The battery icon in the upper-right corner shows the battery level or charging status. You can also display the percentage of the battery charge (iPhone 3GS only).

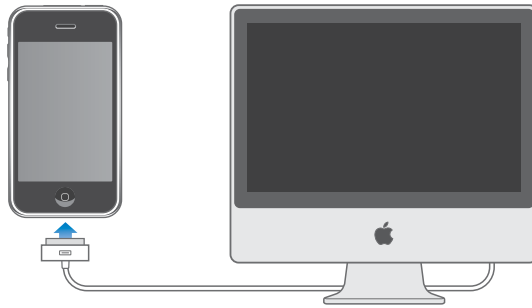


Charge the battery: Connect iPhone to a power outlet using the included Dock Connector to USB Cable and USB power adapter.



Charge the battery and sync iPhone: Connect iPhone to your computer using the included Dock Connector to USB Cable. Or connect iPhone to your computer using the included cable and the Dock, available separately.

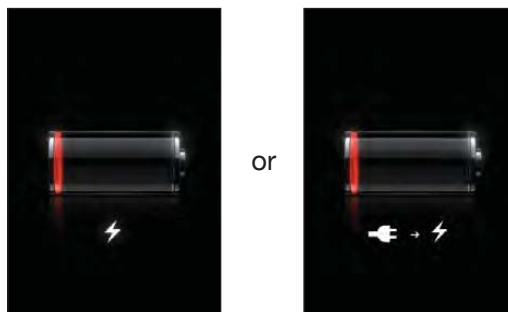
Unless your keyboard has a high-powered USB 2.0 port, you must connect iPhone to a USB 2.0 port on your computer.



Important: The iPhone battery may drain instead of charge if iPhone is connected to a computer that's turned off or is in sleep or standby mode.

If you charge the battery while syncing or using iPhone, it may take longer to charge.

Important: If iPhone is very low on power, it may display one of the following images, indicating that iPhone needs to charge for up to ten minutes before you can use it. If iPhone is extremely low on power, the display may be blank for up to two minutes before one of the low-battery images appears.



Maximizing Battery Life

iPhone uses lithium-ion batteries. To learn more about how to maximize the lifespan and battery life of your iPhone, go to www.apple.com/batteries.

Replacing the Battery

Rechargeable batteries have a limited number of charge cycles and may eventually need to be replaced. The iPhone battery isn't user replaceable; it can only be replaced by an authorized service provider. For more information, go to www.apple.com/support/iphone/service/battery.

Security Features

Security features help protect the information on iPhone from being accessed by others.

You can set up a passcode that you must enter each time you turn on or wake up iPhone.

Set a passcode: Choose General > Passcode Lock and enter a 4-digit passcode, then enter the passcode again to verify it. iPhone then requires you to enter the passcode to unlock it or to display the passcode lock settings.

For additional information about using a passcode lock, see “Passcode Lock” on page 145.

Prevent voice dialing when iPhone is locked: In Settings, choose General > Passcode Lock and turn Voice Dial off. Unlock iPhone to use voice dialing.

The Find My iPhone feature helps you locate iPhone if it’s been lost or misplaced, and display a message on your iPhone to help someone return it to you. It includes Remote Wipe, which lets you erase all your information on iPhone in case you don’t recover it. The Remote Passcode Lock feature lets you remotely lock your iPhone and create a new or replacement 4-digit passcode.

Find My iPhone requires a MobileMe account. MobileMe is an online service, available by subscription. Go to www.apple.com/mobileme for more information.

To enable this feature, turn on Find My iPhone in your MobileMe account settings. See “Setting Up Accounts” on page 16.

Find your iPhone: Log in to your MobileMe account at www.me.com and go to the Find My iPhone pane. Follow the onscreen instructions to locate your device on a map and display a message on its screen along with an optional sound to help you find it.

Remotely wipe information on your iPhone: Log in to your MobileMe account at www.me.com, then go to the Find My iPhone pane. Click “Remote Wipe...,” and follow the onscreen instructions.

A remote wipe is equivalent to the “Erase all content and settings” feature in Settings. It resets all settings to their defaults and erases all your information and media. See “Resetting iPhone” on page 149.

Remotely lock your iPhone: Log in to your MobileMe account at www.me.com, then go to the Find My iPhone pane. Click Remote Passcode Lock, and follow the onscreen instructions.

Cleaning iPhone

To clean iPhone, unplug all cables and turn off iPhone (press and hold the Sleep/ Wake button, then slide the onscreen slider). Then use a soft, slightly damp, lint-free cloth. Avoid getting moisture in openings. Don't use window cleaners, household cleaners, aerosol sprays, solvents, alcohol, ammonia, or abrasives to clean iPhone. If your iPhone has an oleophobic coating on the screen (iPhone 3GS only), simply wipe your iPhone's screen with a soft, lint-free cloth to remove oil left by your hands and face.

For additional information about handling iPhone, see the *iPhone Important Product Information Guide* at www.apple.com/support/manuals/iphone.

Restarting and Resetting iPhone

If something isn't working right, try restarting, force quitting an application, or resetting iPhone.

Restart iPhone: Press and hold the Sleep/Wake button until the red slider appears. Slide your finger across the slider to turn off iPhone. To turn iPhone back on, press and hold the Sleep/Wake until the Apple logo appears.

If you can't turn off iPhone or if the problem continues, you may need to reset. A reset should be done only if turning iPhone off and on doesn't resolve the problem.

Force quit an application: Press and hold the Sleep/Wake button on top of iPhone for a few seconds until a red slider appears, and then press and hold the Home button until the application quits.

Reset iPhone: Press and hold the Sleep/Wake button and the Home button at the same time for at least ten seconds, until the Apple logo appears.

For more troubleshooting suggestions, see Appendix A, "Troubleshooting," on page 193.

Phone

3



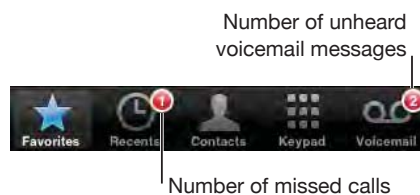
Phone Calls

Making a call on iPhone is as simple as tapping a name and number in your contacts, tapping one of your favorites, or tapping a recent call to return it.

Making Calls

Buttons at the bottom of the Phone screen give you quick access to your favorites, recent calls, your contacts, and a numeric keypad for dialing manually.


WARNING: For important information about driving safely, see the *Important Product Information Guide* at www.apple.com/support/manuals/iphone.



Use Contacts to call someone	Tap Contacts, choose a contact, then tap a phone number.
Call a favorite	Tap Favorites, then choose a contact.
Return a recent call	Tap Recents, then tap a name or number in the list.
Dial a number	Tap Keypad, enter the number, then tap Call.

If you copy a phone number to the clipboard, you can paste it to the keypad and dial it.

Paste a number to the keypad: Tap the screen above the keyboard, then tap Paste. If the phone number you copied included letters, iPhone automatically converts them to the appropriate digits.

Jump to favorites from anywhere: Double-click the Home  button. You can change this preference in Settings. See “Home” on page 147.

Bring up the last number you dialed: Tap Keypad, then tap Call. Tap Call again to dial the number.

Voice Dialing

You can use Voice Control (iPhone 3GS only) to call someone in your contacts or dial a specific number.

Note: Voice Control isn’t available in all languages.

Use Voice Control to make phone calls: Press and hold the Home button until the Voice Control screen appears and you hear a beep. Then use the commands described below to make calls.

You can also press and hold the center button on the iPhone headset (or the equivalent button on your Bluetooth headset) to use Voice Control.

Call someone in contacts	<p>Say “call” or “dial” then say the name of the person. If the person has more than one number, specify which one you want to call.</p> <p>Examples:</p> <ul style="list-style-type: none"> • Call John Appleseed • Call John Appleseed at home • Call John Appleseed, mobile
Dial a number	<p>Say “call” or “dial,” then say the number.</p>

For best results, speak the full name of the person you’re calling. If you give only the first name, and you have more than one contact with that same name, iPhone asks which of those contacts you want to call. If there’s more than one number for the person you’re calling, specify which number to use. If you don’t specify which number, iPhone asks you which one to use.

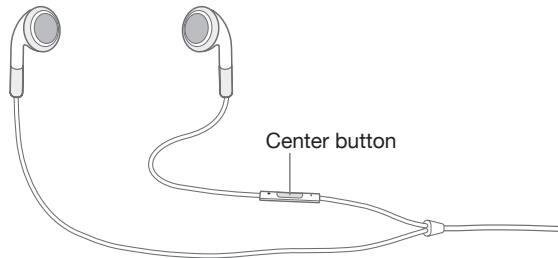
When voice dialing a number, speak each digit separately—for example, say “four one five, five five five, one two one two.”

Note: For the “800” area code in the U.S., you can say “eight hundred.”

Prevent voice dialing when iPhone is locked: In Settings, choose General > Passcode Lock and turn Voice Dial off. Unlock iPhone to use voice dialing.

Receiving Calls

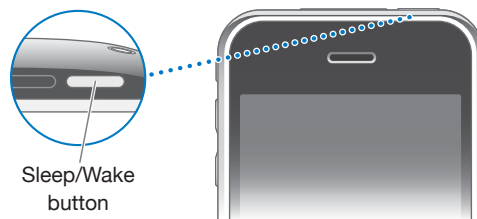
When you receive a call, tap Answer. If iPhone is locked, drag the slider. You can also press the center button on your iPhone headset or the equivalent button on your Bluetooth headset to answer a call.



Silence a call: Press the Sleep/Wake button or either volume button. You can still answer the call after silencing it, until it goes to voicemail.

Decline a call: Do one of the following to send a call directly to voicemail.

- Press the Sleep/Wake button twice quickly.



- Press and hold the center button on the iPhone headset (or the equivalent button on your Bluetooth headset) for about two seconds. Two low beeps confirm that the call was declined.
- Tap Decline (if iPhone is awake when a call comes in).


Block calls and maintain Wi-Fi access to the Internet: In Settings, turn on Airplane Mode, then tap Wi-Fi to turn it on.

While On a Call

When you're on a call, the screen shows call options.



Mute your line	Tap Mute. You can still hear the caller, but the caller can't hear you.
Use the keypad to enter information	Tap Keypad.
Use the speakerphone or a Bluetooth device	Tap Speaker. The Button is labeled Audio Source when a Bluetooth device is available, which lets you select the Bluetooth device, iPhone, or Speaker Phone.
See contact information	Tap Contacts.
Put a call on hold	Tap Hold. Neither party can hear the other.
Make another call	Tap Add Call.

Use other applications during a call: Press the Home  button, then tap an application icon.

End a call: Tap End Call. Or press the center button on your iPhone headset (or the equivalent button on your Bluetooth headset).

Second Calls

During a call, you can make or receive another call. If you receive a second call, iPhone beeps and shows the caller's information and a list of options.

Note: Making and receiving a second call may be an optional service in some countries. Contact your carrier for more information.

Respond to a second call:

- To ignore the call and send it to voicemail, tap Ignore.
- To hold the first call and answer the new one, tap Hold Call + Answer.
- To end the first call and answer the new one, tap End Call + Answer.

Make a second call: Tap Add Call. The first call is put on hold.

Switch between calls: Tap Swap. The active call is put on hold.

Create a conference call: Tap Merge Calls. See "Conference Calls" below.

Conference Calls


You can talk to more than one person at a time, and merge up to five calls, depending on your carrier.

Note: Conference calling may be an optional service in some countries. Contact your carrier for more information.

Create a conference call:

- 1 Make a call.
- 2 Tap Add Call and make another call. The first call is put on hold.
- 3 Tap Merge Calls. The calls are merged on one line and everyone can hear each other.

- 4 Repeat steps two and three to add up to five calls.

Drop one call	Tap Conference and tap  next to a call. Then tap End Call.
Talk privately with a call	Tap Conference, then tap Private next to a call. Tap Merge Calls to resume the conference.
Add an incoming call	Tap Hold Call + Answer, then tap Merge Calls.

If your service includes conference calling, iPhone always has a second line available in addition to the conference call.

Emergency Calls

If iPhone is locked with a passcode, you may still be able to make an emergency call.

Make an emergency call when iPhone is locked: On the Enter Passcode screen, tap Emergency Call, then dial the number using the keypad.

Important: Only emergency numbers valid in the region where you're making the call will work. In some countries, you can't make emergency calls unless your SIM card is installed and activated, and the SIM PIN has been correctly entered or turned off.

In the U.S., location information (if available) is provided to emergency service providers when you dial 911.

Important: You should not rely on wireless devices for essential communications, such as medical emergencies. Use of any cellular phone to call emergency services may not work in all locations. Emergency numbers and services vary by region, and sometimes an emergency call cannot be placed due to network availability or environmental interference. Some cellular networks may not accept an emergency call from iPhone if it doesn't have a SIM, if you locked your SIM, or if you haven't activated your iPhone.

Visual Voicemail

On iPhone, visual voicemail lets you see a list of your messages and choose which ones to listen to or delete, without having to listen to instructions or prior messages.

Note: Visual voicemail may not be available in all regions, or may be an optional service. Contact your carrier for more information. If visual voicemail isn't available, tap Voicemail and follow the voice prompts to retrieve your messages.



Number of missed calls and unheard voicemail messages appears on the Home screen Phone icon.

Setting Up Voicemail

The first time you tap Voicemail, iPhone prompts you to create a voicemail password and record your voicemail greeting.

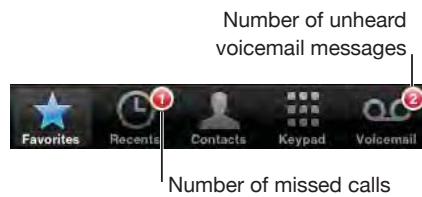
Change your greeting:

- 1 Tap Voicemail, tap Greeting, then tap Custom.
- 2 Tap Record when you're ready to start.
- 3 When you finish, tap Stop. To review, tap Play.
To rerecord, repeat steps 2 and 3.
- 4 Tap Save.

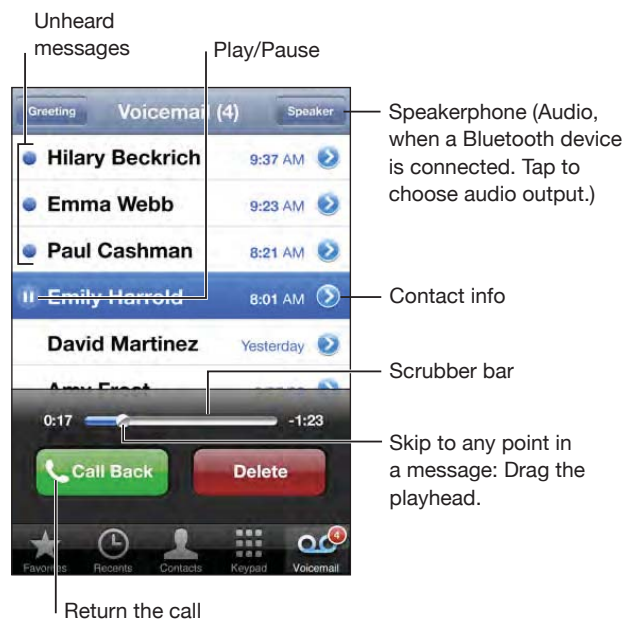
Use your carrier's default greeting	Tap Voicemail, tap Greeting, then tap Default.
Set an alert sound for new voicemail	In Settings, choose Sounds and turn New Voicemail on. The alert sounds once for each new voicemail. If the Ring/Silent switch is off, iPhone won't sound alerts.
Change the voicemail password	In Settings, choose Phone > Change Voicemail Password.

Checking Voicemail

When you tap Phone, iPhone shows the number of missed calls and unheard voicemail messages.



Tap Voicemail to see a list of your messages.



Listen to a message: Tap the message. (If you've already heard the message, tap the message again to replay it.) Use **||** and **▶** to pause and resume playback.

Once you listen to a message, it's saved until your carrier automatically erases it.

Check voicemail from another phone: Dial your own number or your carrier's remote access number.

Deleting Messages

Select a message, then tap Delete. Deleted visual voicemail messages are saved on iPhone until your carrier permanently erases them.

Listen to a deleted message

Tap Deleted Messages (at the end of the list), then tap the message.

Undelete a message

Tap Deleted Messages (at the end of the list), then tap the message and tap Undelete.

Getting Contact Information

Visual voicemail saves the date and time of the call, the length of the message, and any available contact information.

See a caller's contact information: Tap **▶** next to a message.

You can use the information to email or text the caller, or update contact info.


Contacts


From a contact's Info screen, a quick tap lets you make a phone call, create a new email message, find the location of their address, and more. See "Searching Contacts" on page 177.



Favorites

Favorites gives you quick access to your most-used phone numbers.

Add a contact's number to your favorites list: Tap Contacts and choose a contact. Then tap "Add to Favorites" and choose the number you want to add.

Add a recent caller's number to your favorites list: Tap Recents and tap  next to a caller, then tap "Add to Favorites."

Go to favorites: Double-click the Home  button. See "Home" on page 147.

Call a contact from your favorites	Tap Favorites and choose a contact.
Delete a contact from your favorites	Tap Favorites and tap Edit. Then tap  next to a contact or number and tap Remove.
Reorder your favorites list	Tap Favorites and tap Edit. Then drag  next to a contact to a new place in the list.

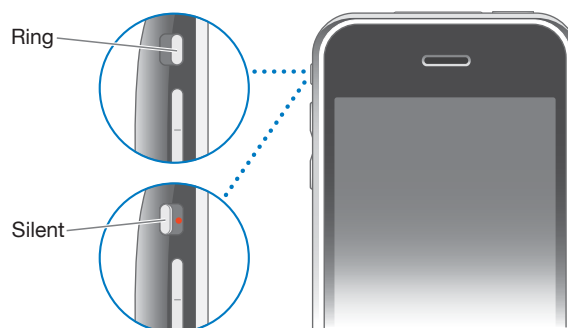
Ringtones and the Ring/Silent Switch

iPhone comes with ringtones you can use for incoming calls, Clock alarms, and the Clock timer. You can also create and purchase ringtones from songs in iTunes.

Ring/Silent Switch and Vibrate Modes

A switch on the side of iPhone makes it easy to turn the ringer on or off.

Turn the ringer on or off: Flip the switch on the side of iPhone.



Important: Clock alarms still sound even if you set the Ring/Silent switch to silent.

Set iPhone to vibrate: In Settings, choose Sounds. Separate controls let you set vibrate for both ring mode and silent mode.

For more information, see Chapter 19, “Settings,” on page 138.

Setting Ringtones

You can set the default ringtone for calls and Clock alarms and timers. You can also assign individual ringtones to contacts so you know who’s calling.

Set the default ringtone: In Settings, choose Sounds > Ringtone, then choose a ringtone.

Assign a ringtone to a contact: From Phone, tap Contacts and choose a contact. Then tap Ringtone and choose a ringtone.

Purchasing Ringtones

You can purchase ringtones from the iTunes Store on your iPhone. See “Purchasing Ringtones” on page 162.

Bluetooth Devices

You can use iPhone with hands-free Bluetooth headsets and Bluetooth car kits. iPhone also supports Bluetooth stereo headphone devices when using iPod.

Pairing a Device with iPhone

You must first pair a Bluetooth device with iPhone before you can use it.

Pair with iPhone:

- 1 Follow the instructions that came with the device to make it discoverable or to set it to search for other Bluetooth devices.
- 2 In Settings, choose General > Bluetooth and turn Bluetooth on.
- 3 Choose the device on iPhone and enter its passkey or PIN number. See the instructions about the passkey or PIN that came with the device.

After you pair a Bluetooth device to work with iPhone, you must make a connection to have iPhone use the device for your calls.




Connect with iPhone: See the documentation that came with the headset or car kit.

When iPhone is connected to a Bluetooth device, outgoing calls are routed through the device. Incoming calls are routed through the device if you answer using the device, and through iPhone if you answer using iPhone.

WARNING: For important information about avoiding hearing loss and about driving safely, see the *Important Product Information Guide* at www.apple.com/support/manuals/iphone.

Bluetooth Status

The Bluetooth icon appears in the iPhone status bar at the top of the screen:

-  (blue) or  (white): Bluetooth is on and a device is connected to iPhone. (The color depends on the current color of the status bar.)
-  (gray): Bluetooth is on but no device is connected. If you've paired a device with iPhone, it may be out of range or turned off.
- *No Bluetooth icon*: Bluetooth is turned off.

Routing Calls Back Through iPhone

When iPhone is connected to a Bluetooth device, you listen to calls through iPhone by doing one of the following:

- Answer a call by tapping the iPhone screen.
- During a call, tap Audio on iPhone. Choose iPhone to hear calls through iPhone or Speaker Phone to use the speakerphone.
- Turn off Bluetooth. In Settings, choose General > Bluetooth and drag the switch to Off.
- Turn off the Bluetooth device, or move out of range. You must be within about 30 feet of a Bluetooth device for it to be connected to iPhone.

Unpairing a Device from iPhone

If you've paired iPhone with a device and want to use another device instead, you must unpair the first device.

Unpair a device:

- 1 In Settings, choose General > Bluetooth and turn Bluetooth on.
- 2 Choose the device and tap Unpair.

International Calls

iPhone 3G and iPhone 3GS are multi-band phones, supporting UMTS/HSDPA (850, 1900, 2100 MHz) and GSM (850, 900, 1800, 1900 MHz), ensuring broad international coverage.

Making International Calls from Your Home Area

For information about making international calls from your home area, including rates and other charges that may apply, contact your carrier or go to your carrier's website.

Using iPhone Abroad

You can use iPhone to make calls in many countries around the world.

Enable international roaming: Contact your carrier for information about availability and fees.

Set iPhone to add the correct prefix when dialing from another country: In Settings, tap Phone, then turn International Assist on. This lets you make calls to your home country using the numbers in your contacts and favorites, without having to add a prefix or your country code. International Assist works for U.S. telephone numbers only. When you make a call using International Assist, “International Assist” appears on the iPhone screen, alternating with the “calling ...” message, until your call is connected.

Note: International Assist is not available in all areas.

Set the carrier to use: In Settings, tap Carrier, then select the carrier you prefer. This option is available only when you’re traveling outside your carrier’s network. You can make calls only on carriers that have roaming agreements with your iPhone service provider. For more information, see “Carrier” on page 141.

Important: Voice and data roaming charges may apply. To avoid data roaming charges, turn Data Roaming off.

Turn Data Roaming on or off: In Settings, choose General > Network and turn Data Roaming on or off. Data Roaming is turned off by default.

Turning Data Roaming off helps to avoid data roaming charges when traveling outside your carrier’s network by disabling data transmission over the cellular network. You can still access the Internet if you have a Wi-Fi connection. If Wi-Fi network access isn’t available, however, you cannot:

- Send or receive email
- Browse the Internet
- Sync your contacts, calendars, or bookmarks with MobileMe or Exchange
- Stream YouTube videos
- Get stock quotes
- Get map locations
- Get weather reports
- Purchase music or applications

Other third-party applications that use data roaming may also be disabled.

If Data Roaming is turned off, you can still make and receive phone calls, and send and receive text messages. Voice roaming charges may apply. Visual voicemail is delivered if there’s no charge; if your carrier charges for delivery of visual voicemail when roaming, turning Data Roaming off prevents the delivery of visual voicemail.

To enable email, web browsing, and other data services, turn Data Roaming on.

Important: If Data Roaming is turned on, you may incur charges when roaming outside your carrier's network for the use of any of the features listed above, as well as for delivery of visual voicemail. Check with your carrier for information about roaming charges.

Get voicemail when visual voicemail isn't available: Dial your own number, or touch and hold "1" on the keypad.

You can use Airplane Mode to turn off cellular services and then turn Wi-Fi on to get access to the Internet, while preventing voice roaming charges.

Use Airplane Mode to turn off cellular services: In Settings, tap Airplane Mode to turn it on, then tap Wi-Fi and turn Wi-Fi on. See "Airplane Mode" on page 138.

Incoming phone calls are sent to voicemail. To make and receive calls again and get your voicemail messages, turn Airplane Mode off.

Mail

4



Mail works with MobileMe, Microsoft Exchange, and many of the most popular email systems—including Yahoo! Mail, Google email, and AOL—as well as other industry-standard POP3 and IMAP email systems. You can send and receive embedded photos and graphics, and view PDFs and other attachments.

Setting Up Email Accounts

You can set up email accounts on iPhone in either of the following ways:

- Set up an account directly on iPhone. See “Setting Up Accounts” on page 16.
- In iTunes, use the iPhone preference panes to sync email accounts settings from your computer. See “Syncing” on page 11.

Sending Email

You can send an email message to anyone who has an email address.

Compose and send a message:

- 1 Tap
- 2 Type a name or email address in the To field, or tap to add a name from your contacts.

As you type an email address, matching email addresses from your contacts list appear below. Tap an address to add it. To add more names, tap Return or .

Note: If you’re composing a message from your Microsoft Exchange account and have access to your enterprise Global Address List (GAL), matching addresses from the contacts on iPhone appear first, followed by matching GAL addresses.


- 3 Tap Cc/Bcc/From if you want to copy or blind copy the message to others, or change the account you send the message from. If you have more than one email account, you can tap the From field to change the account you’re sending from.

4 Enter a subject, then your message.

You can tap Return to move from one field to another.

5 Tap Send.

Send a photo or video (iPhone 3GS only) in an email message

In Photos, choose a photo or video, tap , then tap Email Photo or Email Video. You can also copy and paste photos and videos. The photo or video is sent using your default email account (see "Mail" on page 152).


Send a video in an email message (iPhone and iPhone 3G)

In Photos, choose a video, then touch and hold the video until the Copy command appears. Tap Copy. Go to Mail and create a new message. Tap to place an insertion point where you want the video, then tap the insertion point to display the edit commands and tap Paste. The video is sent using your default email account (see "Mail" on page 152).

Save a draft of a message to complete later

Tap Cancel, then tap Save. The message is saved in the Drafts mailbox.

Reply to a message

Tap . Tap Reply to reply only to the sender or tap Reply All to reply to the sender and all recipients. Type your return message, then tap Send.

Files or images attached to the initial message aren't sent back.

Forward a message

Open a message and tap , then tap Forward. Add one or more email addresses, type your message, then tap Send.

When you forward a message, you can include the files or images attached to the original message.

Share contact information

In Contacts, choose a contact, tap Share Contact at the bottom of the Info screen, then tap Email.

Checking and Reading Email

The Mail icon shows the total number of unread messages in all your inboxes. You may have other unread messages in other mailboxes.



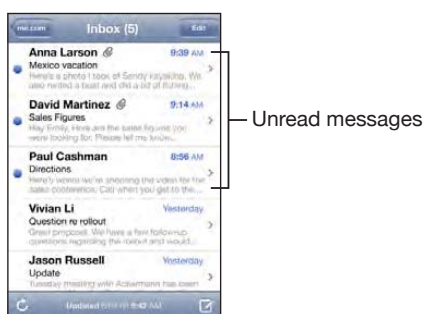
Number of unread emails in your inboxes

Check for new messages: Choose a mailbox or tap  at any time.

On each account screen, you can see the number of unread messages in each mailbox.



Tap a mailbox to see its messages. Unread messages have a blue dot next to them.



When you open a mailbox, Mail loads the number of most recent messages specified in your Mail settings, if the messages haven't already been loaded automatically. (See "Mail" on page 152.)

Load additional messages: Scroll to the bottom of the list of messages and tap Load More Messages.

Read a message: Tap a mailbox, then tap a message. Within a message, tap ▲ or ▼ to see the next or previous message.

Zoom in on part of a message	Double-tap an area of the message to zoom in. Double-tap again to zoom out.
Resize any column of text to fit the screen	Double-tap the text.
Resize a message manually	Pinch to zoom in or out.

Follow a link

Tap the link.

Text links are typically underlined and blue. Many images are also links. A link can take you to a webpage, open a map, dial a phone number, or open a new preaddressed email message.

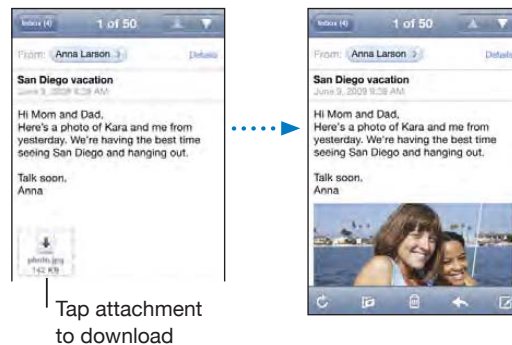
Web, phone, and map links open Safari, Phone, or Maps on iPhone. To return to your email, press the Home button and tap Mail.

See a link's destination address

Touch and hold the link. The address is displayed, and you can choose to open the link in Safari or copy the link address to the clipboard.

iPhone displays picture attachments in many commonly used formats (JPEG, GIF, and TIFF) inline with the text in email messages. iPhone can play many audio attachments (such as MP3, AAC, WAV, and AIFF). You can download and view files (such as PDF, webpage, text, Pages, Keynote, Numbers, and Microsoft Word, Excel, and PowerPoint documents) attached to messages you receive.

Open an attached file: Tap the attachment. It downloads to iPhone and then opens.




You can view attachments in portrait or landscape orientation. If the format of an attached file isn't supported by iPhone, you can see the name of the file but you can't open it. iPhone supports the following document types:

.doc	Microsoft Word
.docx	Microsoft Word (XML)
.htm	webpage
.html	webpage
.key	Keynote
.numbers	Numbers
.pages	Pages

.pdf	Preview, Adobe Acrobat
.ppt	Microsoft PowerPoint
.pptx	Microsoft PowerPoint (XML)
.rtf	Rich Text Format
.txt	text
.vcf	contact information
.xls	Microsoft Excel
.xlsx	Microsoft Excel (XML)

Save an attached photo to your Camera Roll album: Tap the photo, then tap Save Image. If the photo hasn't been downloaded yet, tap the download notice first.

Save an attached video to your Camera Roll album: Touch and hold the attachment, then tap Save Video. If the video hasn't been downloaded yet, tap the download notice first.

See all the recipients of a message	Tap Details. Tap a name or email address to see the recipient's contact information. Then tap a phone number, email address, or text message to contact the person. Tap Hide to hide the recipients.
Add an email recipient to your contacts list	Tap the message and, if necessary, tap Details to see the recipients. Then tap a name or email address and tap Create New Contact or "Add to Existing Contact."
Mark a message as unread	Open the message and tap "Mark as Unread." A blue dot  appears next to the message in the mailbox list until you open it again.

Open a meeting invitation: Tap the invitation.

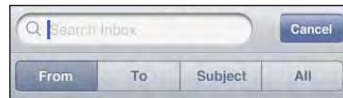


You can get contact information for the organizer and other attendees, set an alert, add notes to the event, and add comments that are included in your response emailed to the organizer. You can accept, tentatively accept, or decline the invitation. See "Responding to Meeting Invitations" on page 95.

Turn Push on or off: In Settings, choose "Mail, Contacts, Calendars" > Fetch New Data, then turn Push on or off. See "Fetch New Data" on page 151.

Searching Email

You can search the To, From, and Subject fields of email messages. Mail searches the downloaded messages in the currently open mailbox. For MobileMe, Exchange, and some IMAP mail accounts, you can also search messages on the server.



Search email messages: Open a mailbox, scroll to the top, and enter text in the Search field. Tap From, To, Subject, or All (From, To, and Subject) to choose which fields you want to search. (Tap the status bar to scroll quickly to the top of the list and reveal the search field.)

Search results for the messages already downloaded to iPhone appear automatically as you type. Tap Search to dismiss the keyboard and see more of the results.

Search messages on the server: Tap "Continue Search on Server" at the end of the search results.

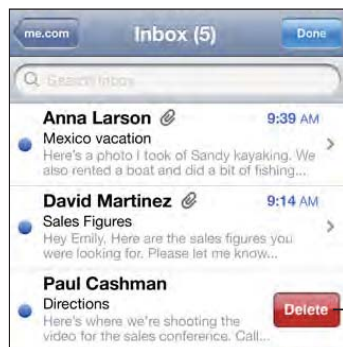
Note: Search results of messages on servers may vary depending on the type of account. Some servers may search only whole words.

Organizing Email

You can delete messages one at a time, or select a group to delete all at once. You can also move messages from one mailbox or folder to another.

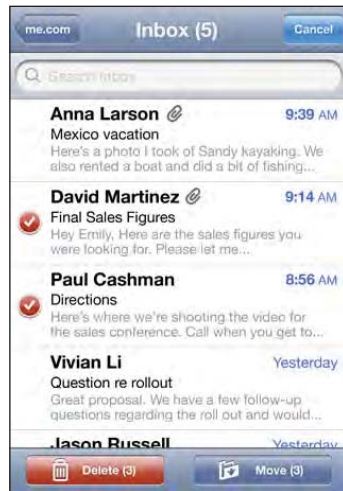
Delete a message: Open the message and tap .


You can also delete a message directly from the mailbox message list by swiping left or right over the message title, then tapping Delete.



To show the Delete button, swipe left or right over the message.

Delete multiple messages: When viewing a list of messages, tap Edit, select the messages you want to delete, then tap Delete.



Move a message to another mailbox or folder: When viewing a message, tap , then choose a mailbox or folder.

Move multiple messages: When viewing a list of messages, tap Edit, select the messages you want to move, then tap Move and select a mailbox or folder.

Safari

5



Viewing Webpages

Safari lets you surf the web and view webpages on iPhone in the same way as if you were on your computer. You can create bookmarks on iPhone and sync bookmarks with your computer. Add web clips for quick access to your favorite sites directly from the Home screen.

You can view webpages in either portrait or landscape orientation. Rotate iPhone and the webpage rotates too, automatically adjusting to fit the page.



Opening Webpages

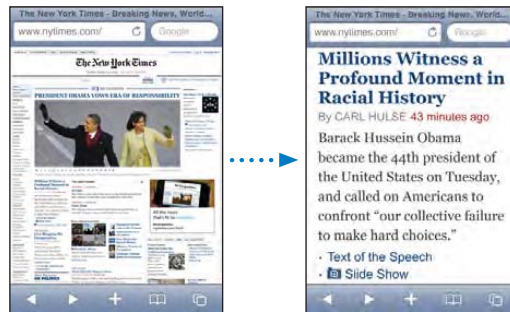
Open a webpage: Tap the address field (on the left side of the title bar), then type the web address and tap Go. If the address field isn't visible, tap the status bar at the top of the screen to quickly scroll to the address field at the top of the webpage.

As you type, web addresses that start with those letters appear. These are bookmarked pages or recent pages you've opened. Tap an address to go to that page. Keep typing if you want to enter a web address that's not in the list.

Erase the text in the address field: Tap the address field, then tap

Zooming and Scrolling

Zoom in or out: Double-tap a column on a webpage to expand the column. Double-tap again to zoom out.




You can also pinch to zoom in or out manually.







Scroll around a webpage	Drag up, down, or sideways. When scrolling, you can touch and drag anywhere on the page without activating any links.
Scroll within a frame on a webpage	Use two fingers to scroll within a frame on a webpage. Use one finger to scroll the entire webpage.
Scroll quickly to the top of a webpage	Tap the status bar at the top of the iPhone screen.

Navigating Webpages

Links on webpages typically take you to another place on the web.


Follow a link on a webpage: Tap the link.


Links on iPhone can also initiate a phone call, display a location in Maps, or create a preaddressed Mail message. To return to Safari after a link opens another application, press the Home  button and tap Safari.

See a link's destination address	Touch and hold the link. The address pops up next to your finger. You can touch and hold an image to see if it has a link.
Stop a webpage from loading	Tap  .
Reload a webpage	Tap  .
Return to the previous or next page	Tap  or  at the bottom of the screen.
Return to a recently viewed page	Tap  and tap History. To clear the history list, tap Clear.
Send a webpage address via email	Tap  and tap "Mail Link to this Page."
Save an image or photo to your Camera Roll album	Touch and hold the image, then tap Save Image.

Opening Multiple Pages

You can have up to eight pages open at a time. Some links automatically open a new page instead of replacing the current one.

The number inside the pages  icon at the bottom of the screen shows how many pages are open. If there's no number inside, just one page is open. For example:



 = one page is open

 = three pages are open

Open a new page: Tap  and tap New Page.

Go to another page: Tap  and flick left or right. Tap the page you want to view.



Close a page: Tap  and tap . You can't close a page if it's the only one open.

Entering Text and Filling Out Forms

Some webpages have text fields and forms to fill out. You can set Safari to remember names and passwords of websites you visit and fill out text fields automatically with information from Contacts. See "Safari" on page 156.

Bring up the keyboard	Tap inside a text field.
Move to another text field	Tap another text field, or tap the Next or Previous button.
Submit a form	Once you finish filling out a form, tap Go or Search. Most pages also have a link you can tap to submit the form.
Close the keyboard without submitting the form	Tap Done.

Enable AutoFill to help you fill out web forms: In Settings, choose Safari > AutoFill, then do one of the following:

- *To use information from contacts*, turn Use Contact Info on, then choose My Info and select the contact you want to use.

Safari uses information from Contacts to fill in contact fields on web forms.

- *To use information from names and passwords*, turn Names & Passwords on.

When this feature is on, Safari remembers names and passwords of websites you visit and automatically fills in the information when you revisit the website.

- *To remove all AutoFill information*, tap Clear All.

Searching the Web

By default, Safari searches using Google. You can search using Yahoo!, instead.

Search the web:

- 1 Tap the search field (on the right side of the title bar).
- 2 Type a word or phrase that describes what you're looking for, then tap Google.
- 3 Tap a link in the list of search results to open a webpage.

Set Safari to search using Yahoo!: From the Home screen choose Settings > Safari > Search Engine, then choose Yahoo!.

Bookmarks

You can bookmark webpages you want to return to later.

Bookmark a webpage: Open the page and tap **+**. Then tap Add Bookmark.

When you save a bookmark you can edit its title. By default, bookmarks are saved at the top level of Bookmarks. Tap Bookmarks to choose another folder.


If you use Safari on a Mac, or Safari or Microsoft Internet Explorer on a PC, you can sync bookmarks with the web browser on your computer.


Sync bookmarks with your computer:



- 1 Connect iPhone to your computer.
- 2 In iTunes, select iPhone in the sidebar.
- 3 Click the Info tab, select "Sync ... bookmarks" under Web Browser, then click Apply.

See "Syncing" on page 11.

Sync bookmarks with MobileMe: In Settings on iPhone, select Bookmarks in your MobileMe account. See "Setting Up Accounts" on page 16.

Open a bookmarked webpage: Tap , then choose a bookmark or tap a folder to see the bookmarks inside.


Edit a bookmark or bookmark folder: Tap , choose the folder that has the bookmark or folder you want to edit, then tap Edit. Then do one of the following:

- *To make a new folder, tap New Folder.*
- *To delete a bookmark or folder, tap , then tap Delete.*
- *To reposition a bookmark or folder, drag .*
- *To edit the name or address, or to put it in a different folder, tap the bookmark or folder.*

When you're finished, tap Done.

Web Clips

Add web clips to the Home screen for fast access to your favorite webpages. Web clips appear as icons on the Home screen, and you can arrange your web clips along with the other icons. See "iPhone Applications" on page 23.



Add a web clip: Open the webpage and tap . Then tap "Add to Home Screen."

When you open a web clip, Safari automatically zooms and scrolls to the area of the webpage that was displayed when you saved the web clip. The displayed area is also used to create the icon for the web clip on your Home screen, unless the webpage comes with its own custom icon.

When you add a web clip, you can edit its name. If the name is too long (more than about 10 characters), it may appear abbreviated on the Home screen.

Web clips aren't bookmarks, and aren't synced by MobileMe or iTunes.

Delete a web clip:

- 1 Touch and hold any icon on the Home screen until the icons start to wiggle.
- 2 Tap  in the corner of the web clip you want to delete.
- 3 Tap Delete, then press the Home  button to save your arrangement.

iPod

6



iPhone syncs with iTunes on your computer to get songs, videos, and other content you've collected in your iTunes library. For information about adding music and other media to your iTunes library, open iTunes and choose Help > iTunes Help.

Getting Music, Video, and More

To get music, video, and other content onto iPhone, you can set up iTunes on your computer to automatically sync content in your library, or you can manually manage the media you put on iPhone.

Syncing Content from iTunes

You can transfer music, video, and more onto iPhone by syncing content from iTunes. You can sync all of your media, or you can select specific songs, videos, podcasts, and iTunes U collections.

Set iTunes to sync iPod content:

- 1 Connect iPhone to your computer.
- 2 In iTunes, select iPhone in the sidebar.
- 3 On the Music, Movies, TV Shows, Podcasts, and iTunes U tabs, select the content you want to sync to iPhone. For example, you could set iTunes to sync selected music playlists and the three most recent episodes of your favorite video podcast.
- 4 Click Apply.

To set iTunes to sync iPod content and other info automatically, click the Summary tab and select "Automatically sync when this iPhone is connected."

Important: If you delete an item from iTunes, it will also be deleted from iPhone the next time you sync.

Only songs and videos encoded in formats that iPhone supports are transferred to iPhone. For information about which formats iPhone supports, see “Song, Video, or Other Items Won’t Play” on page 200.

If there are more songs in your iTunes library than can fit on your iPhone, iTunes offers to create a special playlist to sync with iPhone. iTunes fills the playlist with random selections from your library. You can add or delete songs from the playlist and sync again.

If you listen to part of a podcast or audiobook, your place in the story is included if you sync the content with iTunes. If you started listening to the story on iPhone, you can pick up where you left off using iTunes on your computer—or vice versa.

For more information about using iTunes to get music and other media onto your computer, see “What You Need” on page 9.

Manually Managing Content

The manually managing feature lets you choose just the music, video, and podcasts you want to have on iPhone.

Set up iPhone for manually managing content:

- 1 Connect iPhone to your computer.
- 2 In iTunes, select iPhone in the sidebar.
- 3 Click the Summary tab and select “Manually manage music and videos.”
- 4 Click Apply.

Add items to iPhone: Drag a song, video, podcast, or playlist in your iTunes library to iPhone (in the sidebar). Shift-click or Command-click (Mac) or Control-click (Windows) to select multiple items to add at the same time.

iTunes syncs the content immediately. If you deselect “Manually manage music and videos,” the content you added manually is removed from iPhone the next time iTunes syncs content.

Remove items from iPhone: With iPhone connected to your computer, select the iPhone icon in the iTunes sidebar. Click the disclosure triangle to the left of the icon to show the contents. Select a content area, such as Music or Movies, then select the items you want to delete and press the Delete key on the keyboard.

Removing an item from iPhone doesn’t delete it from your iTunes library.

Purchasing and Downloading Content from the iTunes Store

You can use the iTunes Store on iPhone to purchase and download songs, albums, TV shows, movies, music videos, ringtones, and audiobooks directly to iPhone. You can also stream and download audio and video podcasts, as well as iTunes U content. See “About the iTunes Store” on page 160.

Transferring Purchased Content to Another Computer

You can transfer content on iPhone that was purchased using iTunes on one computer to an iTunes library on another authorized computer. The computer must be authorized to play content from your iTunes Store account. To authorize the computer, open iTunes on the computer and choose Store > Authorize Computer.

Transfer purchased content: Connect iPhone to the other computer. iTunes asks if you want to transfer purchased content.

Converting Videos for iPhone

You can add videos other than those purchased from the iTunes Store to iPhone, such as videos you create in iMovie on a Mac, or videos you download from the Internet and then add to iTunes.

If you try to add a video from iTunes to iPhone and a message says the video can't play on iPhone, you can convert the video.

Convert a video to work with iPhone: Select the video in your iTunes library and choose Advanced > "Create iPod or iPhone Version." Then add the converted video to iPhone.

Music and Other Audio

The high-resolution Multi-Touch display makes listening to songs on iPhone as much a visual experience as a musical one. You can scroll through your playlists, or use Cover Flow to browse through your album art.

WARNING: For important information about avoiding hearing loss, see the *Important Product Information Guide* at www.apple.com/support/manuals/iphone.

Playing Songs

Browse your collection: Tap Playlists, Artists, or Songs. Tap More to browse Albums, Audiobooks, Compilations, Composers, Genres, iTunes U, or Podcasts.

Browse Genius Mixes: Tap Genius. If Genius doesn't appear, you need to turn on Genius in iTunes 9 or later, and then sync iPhone with iTunes. See "Using Genius on iPhone" on page 79.

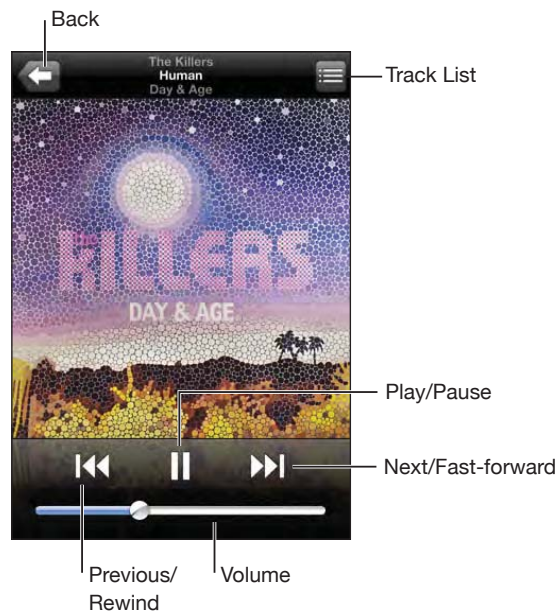
Play a song: Tap the song.

Shake to shuffle: Shake iPhone to turn shuffle on and immediately change songs. Shake anytime to change to another song.


You can turn the "Shake to Shuffle" feature on or off in Settings > iPod (it's on by default). See "Music" on page 158.


Controlling Song Playback

When you play a song, the Now Playing screen appears.



Pause a song	Tap , or press the center button on the iPhone headset (or the equivalent button on your Bluetooth headset).
Resume playback	Tap ▶ , or press the center button on the iPhone headset (or the equivalent button on your Bluetooth headset).
Raise or lower the volume	Drag the volume slider or use the buttons on the side of iPhone. You can also use the volume buttons on the iPhone headset (iPhone 3GS only).
Restart a song or a chapter in an audiobook or podcast	Tap ◀◀ .
Skip to the next song or chapter in an audiobook or podcast	Tap ▶▶ , or press the center button on the iPhone headset (or the equivalent button on your Bluetooth headset) twice quickly.
Go to the previous song or chapter in an audiobook or podcast	Tap ◀◀ twice, or press the center button on the iPhone headset (or the equivalent button on your Bluetooth headset) three times quickly.
Rewind or fast-forward	Touch and hold ◀◀ or ▶▶ . The longer you hold the control, the faster the song rewinds or fast-forwards. On the iPhone headset, press the center button (or the equivalent button on your Bluetooth headset) twice quickly and hold to fast forward, or three times quickly and hold to rewind.

Return to the iPod browse lists	Tap  , or swipe to the right over the album cover.
Return to the Now Playing screen	Tap Now Playing.
Display a song's lyrics	Tap the album cover when playing a song. (Lyrics appear if you've added them to the song using the song's Info window in iTunes.)

You can display playback controls at any time when you're listening to music and using another application—or even when iPhone is locked—by double-clicking the Home  button. See “Home” on page 147.

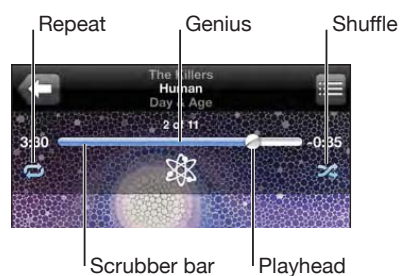
If you're using an application, the playback controls appear on top of the application. After using the controls, you can close them or tap Music to go to the Now Playing screen. If iPhone is locked, the controls appear onscreen, then disappear automatically after you finish using them.











Additional Song Controls

From the Now Playing screen, tap the album cover.

The repeat, Genius, and shuffle controls appear along with the scrubber bar. You can see elapsed time, remaining time, and the song number. The song's lyrics also appear, if you've added them to the song in iTunes.

The scrubber bar lets you skip to any point along the timeline. You can adjust the scrub rate from high-speed to fine by sliding your finger down as you drag the playhead along the scrubber bar.



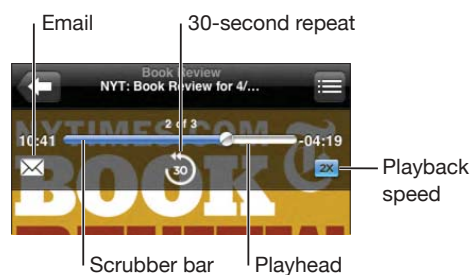
Set iPhone to repeat songs	<p>Tap . Tap  again to set iPhone to repeat only the current song.</p> <p> = iPhone is set to repeat all songs in the current album or list.</p> <p> = iPhone is set to repeat the current song over and over.</p> <p> = iPhone isn't set to repeat songs.</p>
Skip to any point in a song	<p>Drag the playhead along the scrubber bar. Slide your finger down to adjust the scrub rate. The scrub rate becomes slower the farther down you slide your finger.</p>
Make a Genius playlist	<p>Tap , and the Genius playlist appears. See "Using Genius on iPhone" on page 79.</p>
Set iPhone to shuffle songs	<p>Tap . Tap  again to set iPhone to play songs in order.</p> <p> = iPhone is set to shuffle songs.</p> <p> = iPhone is set to play songs in order.</p>
Shuffle the tracks in any playlist, album, or other list of songs	<p>Tap Shuffle at the top of the list. For example, to shuffle all the songs on iPhone, choose Songs > Shuffle.</p> <p>Whether or not iPhone is set to shuffle, if you tap Shuffle at the top of a list of songs, iPhone plays the songs from that list in random order.</p>







Podcast and Audiobook Controls

From the Now Playing screen, tap the cover.

The email, 30-second repeat, and playback speed controls appear along with the scrubber bar. You can see elapsed time, remaining time, and the episode or chapter number.

The scrubber bar lets you skip to any point along the timeline. You can adjust the scrub rate from high-speed to fine by sliding your finger down as you drag the playhead along the scrubber bar.




Send an email link to this podcast	Tap  .
Skip to any point	Drag the playhead along the scrubber bar. Slide your finger down to adjust the scrub rate. The scrub rate becomes slower the farther down you slide your finger.
Play back the last 30 seconds	Tap  .
Set the playback speed	Tap  . Tap again to change the speed.  = Play at double speed.  = Play at half speed.  = Play at normal speed.

Using Voice Control with iPod

You can use Voice Control (available only on iPhone 3GS) to control music playback on iPhone.

Note: Voice Control isn't available in all languages.

Use Voice Control: Press and hold the Home  button until the Voice Control screen appears and you hear a beep. Then use the commands described below to play songs.

You can also press and hold the center button on the iPhone headset (or the equivalent button on your Bluetooth headset) to bring up Voice Control.

Control music playback	Say "play" or "play music." To pause, say "pause" or "pause music." You can also say "next song" or "previous song."
Play an album, artist, or playlist	Say "play," then say "album," "artist," or "playlist" and the name.
Shuffle the current playlist	Say "shuffle."
Find out more about the currently playing song	Say "what's playing," "what song is this," "who sings this song," or "who is this song by."
Use Genius to play similar songs	Say "Genius," "play more like this," or "play more songs like this."
Cancel Voice Control	Say "cancel" or "stop."

Browsing Album Covers in Cover Flow

When you're browsing music, you can rotate iPhone sideways to see your iTunes content in Cover Flow and browse your music by album artwork.

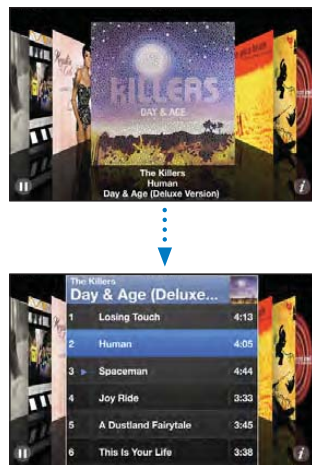


Browse album covers

Drag or flick left or right.

See the tracks on an album

Tap a cover or ⓘ.



Play any track

Tap the track. Drag up or down to scroll through the tracks.


Return to the cover

Tap the title bar. Or tap ⓘ again.

Play or pause the current song

Tap ▶ or ||. You can also press the center button on the iPhone headset (or the equivalent button on your Bluetooth headset).

Viewing All Tracks on an Album

See all the tracks on the album that contains the current song: From the Now Playing screen tap . Tap a track to play it. Tap the album cover thumbnail to return to the Now Playing screen.



In track list view, you can assign ratings to songs. You can use ratings to create smart playlists in iTunes that dynamically update to include, for example, your highest rated songs.

Rate a song: Drag your thumb across the rating bar to give the song zero to five stars.

Searching Music

You can search the titles, artists, albums, and composers of songs, podcasts, and other content you've synced to iPhone.



Search music: Enter text in the search field at the top of a song list, playlist, artist list, or other view of your iPod content. (Tap the status bar to scroll quickly to the top of a list and reveal the search field.)

Search results appear automatically as you type. Tap Search to dismiss the keyboard and see more of the results.

You can also use Spotlight to search for music. See "Searching" on page 37.

Using Genius on iPhone

Genius finds songs in your iTunes library that go great together. A Genius playlist is a collection of songs that are picked for you to go with a song you choose from your library. A Genius Mix is a selection of songs of the same kind of music. Genius Mixes are recreated each time you listen to them, so they're always new and fresh.

You can create Genius playlists in iTunes and sync them to iPhone. You can also create and save Genius playlists directly on iPhone.

Genius Mixes are created in iTunes. iTunes creates different mixes depending on the variety of music you have in your iTunes library. For example, you may have Genius Mixes that highlight R&B songs, or Alternative Rock songs.

To use Genius on iPhone, first turn on Genius in iTunes, then sync iPhone with iTunes. Genius Mixes are synced automatically, unless you manually manage your music and choose which mixes you want to sync in iTunes. Genius is a free service, but requires an iTunes Store account.

Genius Mixes require iTunes 9 or later. When you sync a Genius Mix, iTunes may select and sync songs from your library that you haven't otherwise chosen to sync.

Browse Genius Mixes: Tap Genius. The number of dots at the bottom of the screen shows the number of mixes you've synced from iTunes, and indicates which mix you're viewing. Flick left or right to access your other mixes.



Play a Genius Mix: Tap the mix or tap ►.

Make a Genius playlist on iPhone:

- 1 Tap Playlists and tap Genius.
- 2 Tap a song in the list. Genius creates a playlist with additional songs that go great with that song.

You can also make a Genius playlist of songs that go great with the song you're playing. From the Now Playing screen, tap the album cover to display additional controls, then tap ⌘.

Save a Genius playlist: In the playlist, tap Save. The playlist is saved in Playlists with the title of the song you picked.

You can make and save as many Genius playlists as you want. If you save a Genius playlist created on iPhone, it syncs back to iTunes the next time you connect.

Refresh a Genius playlist: In the playlist, tap Refresh.

Refreshing a playlist creates a playlist of different songs that go great with the song you picked. You can refresh any Genius playlist, whether it was created in iTunes and synced to iPhone, or created directly on iPhone.

Create a Genius playlist from a new song: In the playlist, tap New, then pick a new song.

Delete a saved Genius playlist: In a playlist that you saved directly on iPhone, tap Edit, then tap Delete Playlist.

Once a Genius playlist is synced back to iTunes, you won't be able to delete it directly from iPhone. You can use iTunes to edit the playlist name, stop syncing, or delete the playlist.




Making On-The-Go Playlists

Make an on-the-go playlist:

- 1 Tap Playlists and tap On-The-Go.
- 2 Browse for songs using the buttons at the bottom of the screen. Tap any song or video to add it to the playlist. Tap Add All Songs at the top of any list of songs to add all the songs in the list.
- 3 When you finish, tap Done.

When you make an on-the-go playlist and then sync iPhone to your computer, the playlist is saved on iPhone and in your iTunes library, then deleted from iPhone. The first is saved as "On-The-Go 1," the second as "On-The-Go 2," and so on. To put a playlist back on iPhone, select iPhone in the iTunes sidebar, click the Music tab, and set the playlist to sync.

Edit an on-the-go playlist: Tap Playlists, tap On-The-Go, tap Edit, then do one of the following:

- To move a song higher or lower in the list, drag  next to the song.
- To delete a song from the playlist, tap  next to a song, then tap Delete. Deleting a song from the on-the-go playlist doesn't delete it from iPhone.
- To clear the entire playlist, tap Clear Playlist.
- To add more songs, tap .

Videos

With iPhone, you can view video content such as movies, music videos, and video podcasts. If a video contains chapters, you can skip to the next or previous chapter, or bring up a list and start playing at any chapter that you choose. If a video provides alternate language features, you can choose an audio language or display subtitles.

Playing Videos

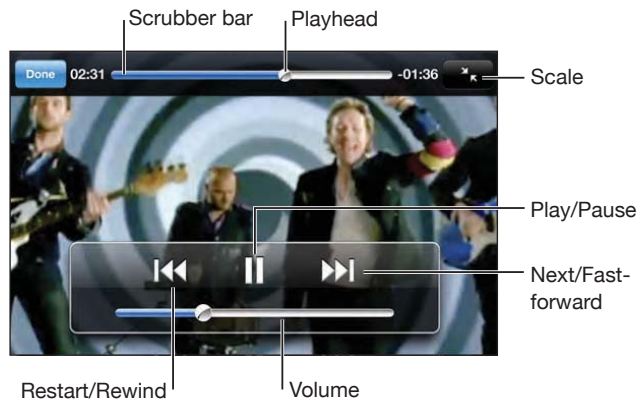
Play a video: Tap Videos and tap the video.

Display playback controls: Tap the screen to show the controls. Tap again to hide them.

Controlling Video Playback






Videos play in widescreen to take full advantage of the display.

The scrubber bar lets you skip to any point along the timeline. You can adjust the scrub rate by sliding your finger down as you drag the playhead along the scrubber bar.



Lovers in Japan by Coldplay is available in the iTunes Store

Pause a video	Tap , or press the center button on the iPhone headset (or the equivalent button on your Bluetooth headset).
Resume playback	Tap ▶ , or press the center button on the iPhone headset (or the equivalent button on your Bluetooth headset).
Raise or lower the volume	Drag the volume slider. You can also use the volume buttons on the iPhone headset (iPhone 3GS only).
Start a video over	Drag the playhead on the scrubber bar all the way to the left, or tap ◀◀ if the video doesn't contain chapters.
Skip to the next chapter (if available)	Tap ▶▶ , or press the center button on the iPhone headset (or the equivalent button on your Bluetooth headset) twice quickly.
Go to the previous chapter (if available)	Tap ◀◀ , or press the center button on the iPhone headset (or the equivalent button on your Bluetooth headset) three times quickly.
Start playing at a specific chapter (if available)	Tap ⌵ , then choose a chapter from the list.

Rewind or fast-forward	Touch and hold ⏮ or ⏭.
Skip to any point in a video	Drag the playhead along the scrubber bar. Slide your finger down to adjust the scrub rate. The scrub rate becomes slower the farther down you slide your finger.
Stop watching a video before it finishes playing	Tap Done. Or press the Home  button.
Scale a video to fill the screen or fit to the screen	<p>Tap  to make the video fill the screen. Tap  to make it fit the screen. You can also double-tap the video to toggle between fitting and filling the screen.</p> <p>When you scale a video to fill the screen, the sides or top may be cropped from view. When you scale it to fit the screen, you may see black bars on the sides or above and below the video.</p>
Select an alternate audio language (if available)	Tap  , then choose a language from the Audio list.
Show or hide subtitles (if available)	Tap  , then choose a language, or Off, from the Subtitles list.

Searching Video

You can search the titles of movies, TV shows, and video podcasts you've synced to iPhone.



Search video: Enter text in the search field at the top of the list of videos.

Search results appear automatically as you type. Tap Search to dismiss the keyboard and see more of the results.

Watching Rented Movies

You can rent movies in standard (480p) definition from the iTunes Store and watch them on iPhone. You can download rented movies directly to iPhone, or transfer them from iTunes on your computer to iPhone. You can also transfer rented movies back to iTunes from iPhone. (Rented movies aren't available in all regions.)

The movie must be fully downloaded before you can start watching. You can pause a download and resume it later. Rented movies expire after a certain number of days, and once you start a movie you have a limited amount of time to finish watching it. The time remaining appears near a movie's title. Movies are automatically deleted when they expire. Check the iTunes Store for the expiration time before renting a movie.

Transfer rented movies to iPhone: Connect iPhone to your computer. Then select iPhone in the iTunes sidebar, click Movies, and select the rented movies you want to transfer. Your computer must be connected to the Internet.

View a rented movie: On iPhone, choose iPod > Videos and select a movie.

Watching Videos on a TV

You can connect iPhone to your TV and watch your videos on the large screen. Use the Apple Component AV Cable, Apple Composite AV Cable, or other authorized iPhone compatible cable. You can also use these cables with the Apple Universal Dock to connect iPhone to your TV. (The Apple Universal Dock includes a remote that lets you control playback from a distance.) Apple cables and docks are available for purchase separately in many countries. Go to www.apple.com/ipodstore (not available in all countries).

Deleting Videos from iPhone

You can delete videos from iPhone to save space.

Delete a video: In the videos list, swipe left or right over the video, then tap Delete.

When you delete a video (other than rented movies) from iPhone, it isn't deleted from your iTunes library and you can sync the video back to iPhone later. If you don't want to sync the video back to iPhone, set iTunes to not sync the video. See "What You Need" on page 9.

Important: If you delete a rented movie from iPhone, it's deleted permanently and cannot be transferred back to your computer.

Setting a Sleep Timer

You can set iPhone to stop playing music or videos after a period of time.

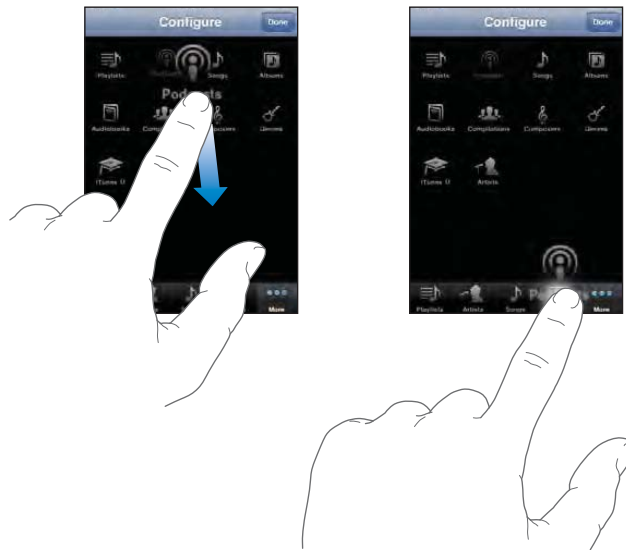
Set a sleep timer: From the Home screen choose Clock > Timer, then flick to set the number of hours and minutes. Tap When Timer Ends and choose Sleep iPod, tap Set, then tap Start to start the timer.

When the timer ends, iPhone stops playing music or video, closes any other open application, and then locks itself.

Changing the Browse Buttons

You can replace the browse buttons at the bottom of the screen with buttons you use more frequently. For example, if you often listen to podcasts, you can replace the Songs button with Podcasts.

Change the browse buttons: Tap More and tap Edit, then drag a button to the bottom of the screen, over the button you want to replace.



You can drag the buttons at the bottom of the screen left or right to rearrange them. Tap Done when you finish. Tap More at any time to access the buttons you replaced.

Messages

7





Sending and Receiving Messages

WARNING: For important information about driving safely, see the *Important Product Information Guide* at www.apple.com/support/manuals/iphone.

Messages lets you exchange text messages with anyone using an SMS-capable phone. Messages also supports MMS, so you can send photos, video clips (iPhone 3GS only), contact information, and voice memos to other MMS-capable devices. You can enter multiple addresses and send a message to several people at the same time.

Note: MMS is available only on iPhone 3G or later. SMS or MMS support may not be available in all regions. Additional fees may apply for use of Messages. Contact your carrier for complete information.


You can use Messages whenever you're in range of the cellular network. If you can make a call, you can send a message. Depending on your phone plan, you may be charged for the messages you send or receive.

Send a message: Tap , then enter a phone number or name, or tap  and choose a contact from your contacts list. Tap the text field above the keyboard, type a message, and tap Send.

The Messages icon on the Home screen shows the total number of unread messages you have.




Number of
unread messages

Your conversations are saved in the Messages list. Conversations that contain unread messages have a blue dot  next to them. Tap a conversation in the list to see that conversation or add to it.




iPhone displays the 50 most recent messages in the conversation. To see earlier messages, scroll to the top and tap Load Earlier Messages.

Send a message to more than one person: Tap , then add recipients. If you enter a phone number manually (instead of selecting it from Contacts), tap Return before entering another entry.

Replies from any of the recipients are sent only to you, not to the other people you texted.

Reply or send a message to a person (or group) you've texted before: Tap an entry in the Messages list, then type a new message in the conversation and tap Send.

Send a message to a favorite or to a recent call:

- 1 From the Home screen tap Phone, then tap Favorites or Recents.
- 2 Tap  next to a name or number, then tap Text Message.
- 3 If multiple phone numbers appear, tap the one you want to text.

When MMS is available, Messages allows you to include a subject in your text messages. You can turn this feature on or off in Messages settings. It is turned on by default.

Include or remove the subject field: In Settings, tap Messages, then tap Show Subject Field to turn it on or off.


Note: The subject field and the Show Subject Field setting don't appear if MMS isn't supported by your carrier.


Turn MMS messaging on or off: In Settings, tap Messages, then tap MMS Messaging to turn it on or off. You may want to turn MMS Messaging off, for example, to prevent sending or receiving attachments when fees apply.

Note: The MMS Messaging setting doesn't appear if MMS isn't supported by your carrier.


Sharing Photos and Videos

You can take a photo or make a video (iPhone 3GS only) from within Messages and include it in your conversation with another MMS-capable device. You can save photos or videos you receive in Messages to your Camera Roll album.

If MMS isn't supported by your carrier, the  button doesn't appear and you can't send photos or videos.

Send a photo or video: Tap  and tap "Take Photo or Video" (iPhone 3GS only; on earlier models, tap "Take Photo") or "Choose Existing" and select an item from a photo album and tap Choose.


The limit to the size of attachments is determined by your carrier. If necessary, iPhone may compress the photo or video. To learn about taking photos and videos, see Chapter 10, "Camera," on page 103.

Save a photo or video attachment to your Camera Roll album: Tap the photo or video in the conversation, tap , then tap Save Image or Save Video.

Copy a photo or video: Touch and hold the attachment, then tap Copy. You can paste the photo or video to an Mail message or another MMS message.

Sending Voice Memos

You can send voice memos in a message to another MMS-capable device.

Send a voice memo: In Voice Memos, tap , tap the voice memo you want to send, then tap Share and tap MMS. Address the message and tap Send.

Editing Conversations

If you want to keep a conversation but not the entire thread, you can delete the parts you don't want. You can also delete entire conversations from the Messages list.

Edit a conversation: Tap Edit. Tap the circles along the left side to select the parts of the conversation you want to delete, then tap Delete. When you're finished, tap Done.

Clear all text and files, without deleting the conversation: Tap Edit, then tap Clear All. Tap Clear Conversation to confirm.

Forward a conversation: Select a conversation, then tap Edit. Tap the circles on the left side of the screen to select the parts of the conversation you want to include, then tap Forward, enter one or more recipients, and tap Send.

Delete a conversation: Tap Edit, then tap  next to the conversation and tap Delete. You can also swipe left or right over the conversation and tap Delete.



To show the Delete button, swipe left or right over the message.

Using Contact Information and Links

Call or email someone you've texted: Tap a message in the Text Messages list and scroll to the top of the conversation. (Tap the status bar to scroll quickly to the top of the screen.)

- To call the person, tap Call.
- To email the person, tap Contact Info, then tap an email address.

Follow a link in a message: Tap the link.

A link may open a webpage in Safari, initiate a phone call in Phone, open a preaddressed message in Mail, or display a location in Maps. To return to your text messages, press the Home button and tap Messages.

Add someone you've texted to your contacts list: Tap a phone number in the Messages list, then tap "Add to Contacts."

Send contact information: In Contacts, tap the person whose information you want to share. Tap Share Contact at the bottom of the screen, then tap MMS. Address the message and tap Send.

Save contact information received: Tap the contact bubble in the conversation and tap Create New Contact or "Add to Existing Contact."

Managing Previews and Alerts

By default, iPhone displays a preview of new messages when iPhone is locked or you are using another application. You can turn this preview on or off in Settings. You can also enable alerts for text messages.

Turn previews on or off: In Settings, choose Messages and tap Show Preview.

Repeat previews: In Settings, choose Messages and tap Repeat Alert. If you don't respond to the first preview of a new message, the preview will be displayed twice more.

Set whether an alert sounds when you get a text message or preview: In Settings, choose Sounds, then tap New Text Message. Tap the alert sound you want, or None if you don't want an audible alert.

Important: If the Ring/Silent switch is off, text alerts won't sound.

Calendar

8



About Calendar

Calendar lets you view individual calendars for your different accounts or a combined calendar for all accounts. You can view your events in a continuous list, by day, or by month, and search events by title, invitee, or location.

You can sync iPhone with the calendars on your computer. You can also make, edit, or cancel appointments on iPhone, and have them synced back to your computer. You can subscribe to Google, Yahoo!, or Mac OS X iCal calendars using a CalDAV or iCalendar (.ics) account. If you have a Microsoft Exchange account, you can receive and respond to meeting invitations.

Syncing Calendars

You can sync Calendar in either of the following ways:

- In iTunes, use the iPhone preference panes to sync with iCal or Microsoft Entourage on a Mac, or Microsoft Outlook 2003 or 2007 on a PC when you connect iPhone to your computer. See “Syncing” on page 11.
- In Settings on iPhone, select Calendar in your MobileMe or Microsoft Exchange accounts to sync your calendar information over the air. See “Setting Up Accounts” on page 16.

Viewing Your Calendar

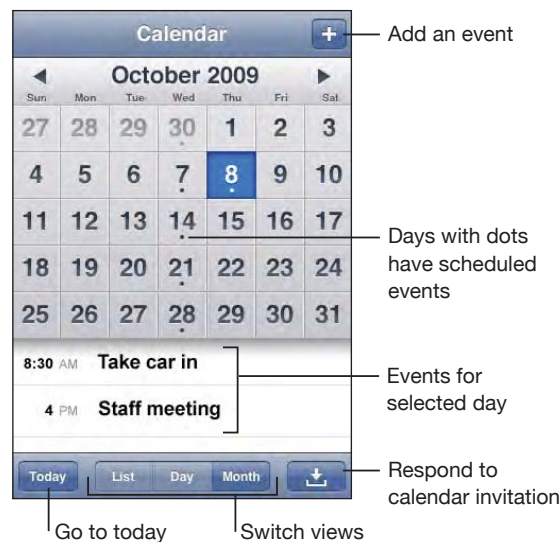
You can view individual calendars for your different accounts or a combined calendar for all accounts.

View a different calendar: Tap Calendars, then select a calendar. Tap All Calendars to view combined events from all calendars.

You can view your calendar events in a list, by day, or by month. The events for all of your synced calendars appear in the same calendar on iPhone.

Switch views: Tap List, Day, or Month.

- *List view:* All your appointments and events appear in a scrollable list.
- *Day view:* Scroll up or down to see the events in a day. Tap ◀ or ▶ to see the previous or next day's events.
- *Month view:* Tap a day to see its events. Tap ◀ or ▶ to see the previous or next month.



See the details of an event: Tap the event.

Set iPhone to adjust event times for a selected time zone:

- 1 In Settings, choose “Mail, Contacts, Calendars.”
- 2 Under Calendars, tap Time Zone Support, then turn Time Zone Support on.
- 3 Tap Time Zone and search for a major city in the time zone you want.

When Time Zone Support is on, Calendar displays event dates and times in the time zone of the city you selected. When Time Zone Support is off, Calendar displays events in the time zone of your current location as determined by the network time.

Searching Calendars

You can search the titles, invitees, and locations of the events in your calendars. Calendar searches the calendar you're currently viewing, or all calendars if you're viewing them all.



Search events: In list view, enter text in the search field.

Search results appear automatically as you type. Tap Search to dismiss the keyboard and see more results.

Subscribing to and Sharing Calendars

You can subscribe to calendars that use the CalDAV or iCalendar (.ics) formats. Many calendar-based services, including Yahoo!, Google, and the Mac OS X iCal application, support either format.

Subscribed calendars are read only. You can read events from subscribed calendars on iPhone, but can't edit them or create new events. You also can't accept invitations from CalDAV accounts.

Subscribe to a CalDAV or .ics calendar:

- 1 In Settings, choose "Mail, Contacts, Calendars," then tap Add Account.
- 2 Choose Other, then choose either Add CalDAV Account or Add Subscribed Calendar.
- 3 Enter your account information, then tap Next to verify the account.
- 4 Tap Save.

Apple provides links to a number of free iCal calendars—for national holidays or sports events, for example—that you may want to subscribe to. The calendars are automatically added to iCal on your desktop when you download them. You can then sync them to iPhone as described in "Subscribing to and Sharing Calendars" on page 93. Go to [/www.apple.com/downloads/macosx/calendars](http://www.apple.com/downloads/macosx/calendars).

You can also subscribe to an iCal (or other .ics) calendar published on the web by tapping a link to the calendar you receive in an email or text message on iPhone.

Adding Calendar Events to iPhone

You can also enter and edit calendar events directly on iPhone.

Add an event: Tap **+** and enter event information, then tap Done.

You can enter any of the following:

- Title
- Location
- Starting and ending times (or turn on All-day if it's an all-day event)
- Repeat times—none, or every day, week, two weeks, month, or year
- Alert time—from five minutes to two days before the event

When you set an alert, the option to set a second alert appears. When an alert goes off, iPhone displays a message. You can also set iPhone to play a sound (see “Alerts” on page 96).


Important: Some carriers don't support network time in all locations. If you're traveling, iPhone may not alert you at the correct local time. To manually set the correct time, see “Date and Time” on page 147.

- Notes

To select which calendar to add the event to, tap Calendar. Read-only calendars don't appear in the list.

Edit an event	Tap the event, then tap Edit.
Delete an event	Tap the event, tap Edit, then scroll down and tap Delete Event.


Responding to Meeting Invitations

If you have a Microsoft Exchange account set up on iPhone with Calendars enabled, you can receive and respond to meeting invitations from people in your organization. When you receive an invitation, the meeting appears in your calendar with a dotted line around it. The  icon in the lower-right corner of the screen indicates the total number of new invitations you have, as does the Calendar icon on the Home screen.



Number of meeting invitations

Respond to an invitation in Calendar:

- 1 Tap a meeting invitation in the calendar, or tap  to display the Event screen and tap an invitation.



- Tap "Invitation from" to get contact information for the meeting organizer. Tap the email address to send a message to the organizer. If the organizer is in your contacts, you can also tap to call or send a text message.

- Tap Attendees to see the other people invited to the meeting. Tap a name to see an attendee's contact information. Tap the email address to send a message to the attendee. If the attendee is in your contacts, you can also tap to call or send a text message.
- Tap Alert to set iPhone to sound an alert before the meeting.
- Tap Add Comments to add comments in the email response to the meeting organizer. Your comments will also appear in your Info screen for the meeting.

Notes are made by the meeting organizer.

2 Tap Accept, Maybe, or Decline.

When you accept, tentatively accept, or decline the invitation, a response email that includes any comments you added is sent to the organizer.

If you accept or tentatively accept the meeting, you can change your response later. Tap Add Comments if you want to change your comments.

Exchange meeting invitations are also sent in an email message, which lets you open the meeting's Info screen from Mail.

Open a meeting invitation in an email message: Tap the invitation.



Alerts

Set calendar alerts: In Settings, choose Sounds, then turn Calendar Alerts on.

If Calendar Alerts is off when an event is about to occur, iPhone displays a message but makes no sound.

Important: If the Ring/Silent switch is off, calendar alerts won't sound.

Sound alerts for invitations: In Settings, choose "Mail, Contacts, Calendar." Under Calendars, tap New Invitation Alert to turn it on.

Photos

9



About Photos

iPhone lets you carry photos and videos with you, so you can share them with your family, friends, and associates. You can sync photos and videos (Mac only) from your computer, view photos and videos (iPhone 3GS only) taken with the built-in camera, use photos as wallpaper, and assign photos to identify contacts when they call. You can also send photos and videos in email messages, send photos and videos (iPhone 3GS only) in MMS messages, and upload photos and videos to MobileMe galleries.

Note: MMS is available only on iPhone 3G or later and if supported by your carrier.

Syncing Photos and Videos with Your Computer

iTunes can sync your photos and videos (Mac only) with the following applications:

- *Mac:* iPhoto 4.0.3 or later, or Aperture
- *PC:* Adobe Photoshop Elements 3.0 or later

See “Syncing with iTunes” on page 12.

iPhone supports H.264 and MPEG-4 video formats, with AAC audio. If you are having trouble syncing a video to iPhone, you might be able to use iTunes to create an iPhone version of the video.

Create an iPhone version of a video:

- 1 Copy the video to your iTunes library.
- 2 In iTunes, select Movies in the Library list and select the video you want to sync.
- 3 Choose Advanced > “Create iPod or iPhone Version.”

For additional information, go to support.apple.com/kb/HT1211.

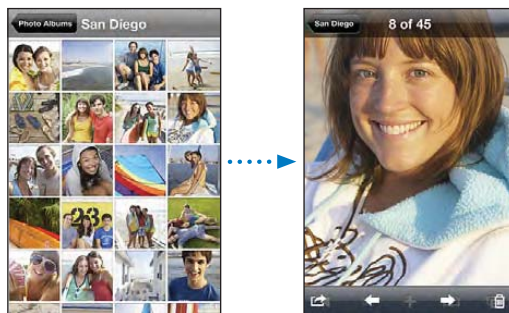
Viewing Photos and Videos

Photos and videos (Mac only) synced from your computer's photo application can be viewed in Photos. You can also view the photos and videos (iPhone 3GS only) you've taken with iPhone's built-in camera or saved from an email or MMS message (iPhone 3GS only).

View photos and videos:

- 1 In Photos, tap a photo album.
- 2 Tap a thumbnail to see the photo or video in full screen.

Show or hide the controls: Tap the full-screen photo or video to show the controls. Tap again to hide the controls.



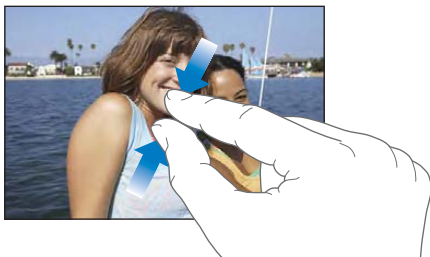
Play a video: Tap ► in the center of the screen.

To replay a video, tap ► at the bottom of the screen. If you don't see ►, tap the screen to show the controls.

View a photo or video in landscape orientation: Rotate iPhone sideways. The photo or video reorients automatically and, if it's in landscape format, expands to fit the screen.



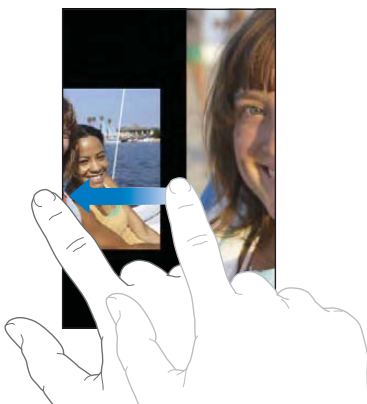
Zoom in on part of a photo: Double-tap where you want to zoom in. Double-tap again to zoom out. You can also pinch to zoom in or out.



View video in full screen, or fit video to screen: Double tap the screen to scale the video to fill the screen. Double-tap again to fit the video to the screen.

Pan around a photo: Drag the photo.

See the next or previous photo or video: Flick left or right. Or tap the screen to show the controls, then tap ➡ or ⬅.



Slideshows

You can view photo albums as slideshows, complete with background music.

View a photo album as a slideshow: Tap an album, then tap ►.

Videos play automatically when they appear during the slideshow.

Stop a slideshow: Tap the screen.

Set slideshow settings: In Settings, choose Photos and set the following options:

- *To set the length of time each slide is shown, tap Play Each Slide For and choose a time.*
- *To set transition effects when moving from photo to photo, tap Transition and choose a transition type.*
- *To set whether slideshows repeat, turn Repeat on or off.*
- *To set whether photos and videos are shown in random order, turn Shuffle on or off.*


Play music during a slideshow: In iPod, play a song, then choose Photos from the Home screen and start a slideshow.

Sharing Photos and Videos

You can send photos and videos in email and MMS messages, add photos and videos to MobileMe galleries, and publish videos to YouTube. You can also copy and paste photos and videos, save photos and videos from email messages to Photos, and save images from webpages to Photos.

Note: MMS is available only on iPhone 3G or later and if supported by your carrier. MMS video attachments are supported only on iPhone 3GS.

Sending a Photo or Video in an Email or MMS Message

Send a photo or video: Choose a photo or video and tap , then tap Email Photo/Video or MMS.

If you don't see , tap the screen to show the controls.

The limit to the size of attachments is determined by your carrier. If necessary, iPhone may compress the photo or video. To learn about taking photos and videos, see Chapter 10, "Camera," on page 103.

Copying and Pasting Photos and Videos

You can copy a photo or video from Photos and paste it to an email or MMS message. Some third-party applications may also support copying and pasting photos and videos.

Copy a photo or video: Hold your finger on the screen until the Copy button appears, then tap Copy.

Paste a photo or video: Tap to place an insertion point where you want to place the photo or video, then tap the insertion point and tap Paste.


Adding a Photo or Video to a MobileMe Gallery

If you have a MobileMe account, you can add photos and videos (iPhone 3GS only) directly from iPhone to a gallery you've created. You can also add photos and videos to someone else's MobileMe gallery if that person has enabled email contributions.

Before you can add photos or videos to a gallery in your MobileMe account, you must:


- Set up your MobileMe account on iPhone
- Publish a MobileMe gallery, and allow adding photos via email or iPhone

For more information about creating a gallery and adding photos and videos to it, see MobileMe Help.

Add a photo or video to your gallery: Choose a photo or video and tap , then tap “Send to MobileMe.” Enter a title and description, if you like, then select the album to add the photo or video to and tap Publish.

If you don’t see , tap the screen to show the controls.


iPhone tells you when the photo or video has been published, and gives you options to view it on MobileMe or email a link to a friend.

Adding a photo or video to someone else’s gallery: Choose a photo or video and tap , then tap “Email Photo/Video.” Enter the album’s email address, then click Send.

Publishing Videos to YouTube

If you have a YouTube account, you can publish videos directly from iPhone to YouTube (iPhone 3GS only). You can’t publish videos longer than ten minutes.

Publish a video to You Tube:


- 1 While viewing a video, tap , then tap “Send to YouTube.”
- 2 Sign in to your YouTube account.
- 3 Enter publishing information such as Title, Description, and Tags.
- 4 Tap Category to choose a category.
- 5 Tap Publish.

Saving Photos and Videos from Email Messages, MMS Messages, and Webpages

Save a photo in an email message to your Camera Roll album: Tap the photo, then tap Save Image. If the photo hasn’t been downloaded yet, tap the download notice first.

Save a video in an email message to your Camera Roll album: Touch and hold the attachment, then tap Save Video. If the video hasn’t been downloaded yet, tap the download notice first.

Save a photo on a webpage to your Camera Roll album: Touch and hold the photo, then tap Save Image.

Save a photo or video in an MMS message to your Camera Roll album: Tap the image in the conversation, tap , and tap Save Image or Save Video.


If you don’t see , tap the screen to show the controls.

You can download the photos and videos in your Camera Roll album to your computer’s photo application by connecting iPhone to your computer.

Assigning a Photo to a Contact

You can assign a photo to a contact. When that person calls, iPhone displays the photo.

Assign a photo to a contact:


- 1 Choose Camera from the Home screen and take someone's picture. Or choose any photo already on iPhone and tap .
- 2 Tap "Assign to Contact" and choose a contact.
- 3 Position and size the photo until it looks the way you want.
Drag the photo to pan, and pinch to zoom in or out.
- 4 Tap Set Photo.

You can also assign a photo to a contact in Contacts by tapping Edit and then tapping the picture icon.

Wallpaper

You see a wallpaper background picture as you unlock iPhone or when you're on a call with someone you don't have a high-resolution photo for.

Set a photo as wallpaper:

- 1 Choose any photo and tap , then tap Use As Wallpaper.
- 2 Drag the photo to pan, or pinch the photo to zoom in or out, until it looks the way you want.
- 3 Tap Set Wallpaper.

You can also choose from several wallpaper pictures included with iPhone by choosing Settings > Wallpaper > Wallpaper from the Home screen.

Camera

10



About Camera

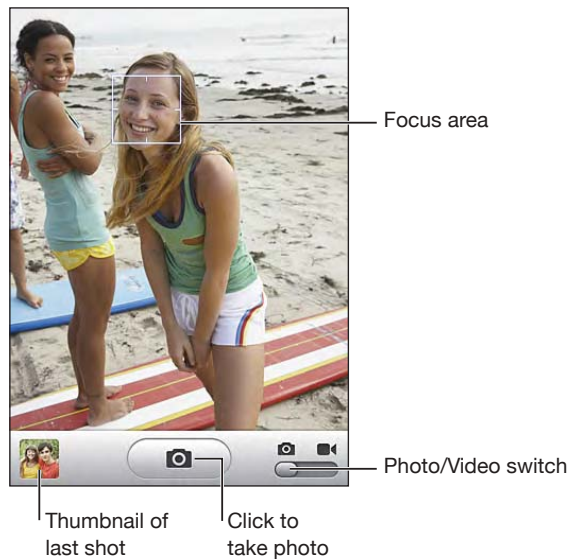
With the built-in camera, it's easy to take photos and record videos with iPhone. The lens is on the back of iPhone, so you can use the screen to see the photo or video you're taking. "Tap to focus" (iPhone 3GS only) lets you focus on a specific area of your shot and automatically adjust the exposure. You can quickly review—and keep or delete—photos and videos you've taken.

Note: Video features are available only on iPhone 3GS.

Camera photos are tagged with location data, including your current geographical coordinates provided by the built-in compass (iPhone 3GS only), if Location Services is turned on. You can use location data with some applications and photo-sharing websites to track and post where you took your pictures. If Location Services is turned off, you'll be prompted to turn it on. If you don't want to include location data with your photos and videos, you can still use Camera without having Location Services turned on. See "Location Services" on page 144.

Taking Photos and Recording Videos

Taking photos and recording videos with iPhone is as easy as point and tap.






Take a photo: Aim iPhone and tap .

Make sure the Camera/Video switch is set to .

When you take a photo or start a video recording, iPhone makes a shutter sound. The sound isn't played if you've set the Ring/Silent switch to silent. See "Sounds and the Ring/Silent Switch" on page 141.

Note: In some regions, the sound effects for Camera are played even if the Ring/Silent switch is set to silent.



Record a video: Slide the Camera/Video switch to . Tap  to start recording. The record button blinks while Camera is recording. Tap  again to stop recording. You can also press the center button on the iPhone headset (or the equivalent button on your Bluetooth headset) to start and stop recording.

If you take a picture or record a video with iPhone rotated sideways, the picture is saved in landscape orientation.

A rectangle on the screen shows the area where Camera is focusing the shot.

Change the focus area and set exposure: Tap where you want to focus. Camera automatically adjusts the exposure for the selected area of the image.

Review a photo or video you've just taken: Tap the thumbnail of your last shot, in the lower-left corner of the screen.

Delete a photo or video: Tap . If you don't see , tap the screen to display the controls.

Take a screenshot of the iPhone display: Quickly press and release the Sleep/Wake and Home buttons at the same time. A flash of the screen lets you know the screenshot was taken. The screenshot is added to the Camera Roll album.

Viewing and Sharing Photos and Videos

The photos and videos you take with Camera are saved in the Camera Roll album on iPhone. You can view the Camera Roll album from either Camera or Photos.

View photos and videos in the Camera Roll album: In Camera, tap the thumbnail image in the lower-left corner of the screen. In Photos, tap the Camera Roll album. Tap the left or right button, or flick left or right to flip through the photos and videos.

When viewing a photo or video in the Camera Roll album, tap the screen to display the controls.

For more information about viewing and sharing photos and videos, see:

- “Viewing Photos and Videos” on page 98
- “Sharing Photos and Videos” on page 100

Trimming Videos

You can trim the frames from the beginning and end of videos that you record. You can trim the original video or save the trim as a new clip.



Trim a video:

- 1 While viewing a video, tap the screen to display the controls.
- 2 Drag either end of the frame viewer at the top of the video, then tap Trim.
- 3 Tap Trim Original or tap Save as New Clip.

Important: Trimming the original video permanently deletes the frames you edit from the video.

New clips are saved in the Camera Roll album along with the original video.

Uploading Photos and Videos to Your Computer

You can upload the photos and videos you take with Camera to photo applications on your computer, such as iPhoto on a Mac.

Upload images to your computer: Connect iPhone to your computer.

- *Mac:* Select the photos you want and click the Import or Download button in iPhoto or other supported photo application on your computer.
- *PC:* Follow the instructions that came with your camera or photo application.

If you delete the photos and videos from iPhone when you upload them to your computer, they're removed from the Camera Roll album. You can use the iTunes Photos setup pane to sync photos and videos (Mac only, iTunes 9 or later required) back to the Photos application on iPhone. See "iPhone Settings Panes in iTunes" on page 13.

YouTube

11



Finding and Viewing Videos

YouTube features short videos submitted by people from around the world. To use some features on iPhone, you need to sign in to a YouTube account when prompted. For information about requirements and how to get a YouTube account, go to www.youtube.com.

Note: YouTube isn't available in all languages and locations.

Browse videos: Tap Featured, Most Viewed, or Favorites. Or tap More to browse by Most Recent, Top Rated, History, Subscriptions, or Playlists.

- *Featured:* Videos reviewed and featured by YouTube staff.
- *Most Viewed:* Videos most seen by YouTube viewers. Tap All for all-time most viewed videos, or Today or This Week for most-viewed videos of the day or week.
- *Favorites:* Videos you've added to Favorites. When you sign in to a YouTube account, account favorites appear and any existing favorites can be synced to your account.
- *Most Recent:* Videos most recently submitted to YouTube.
- *Top Rated:* Videos most highly rated by YouTube viewers. To rate videos, go to www.youtube.com.
- *History:* Videos you've viewed most recently.
- *Subscriptions:* Videos from YouTube accounts to which you've subscribed. You must be signed in to a YouTube account to use this feature.
- *Playlists:* Videos you've added to playlists. You must be signed in to a YouTube account to use this feature.

Search for a video:

- 1 Tap Search, then tap the YouTube search field.
- 2 Type a word or phrase that describes what you're looking for, then tap Search.

YouTube shows results based on video titles, descriptions, tags, and user names. Listed videos show title, rating, number of views, length, and the account name that posted the video.

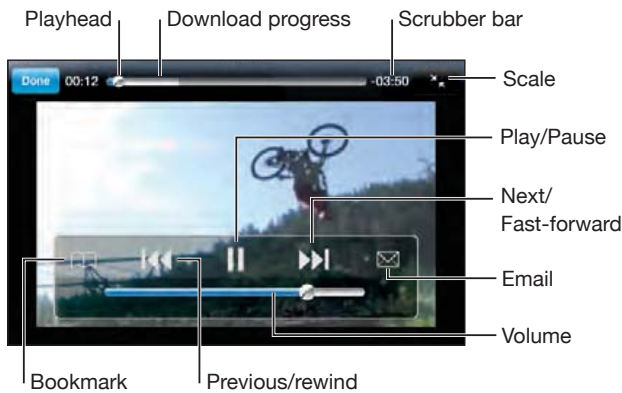
Play a video: Tap the video.

The video begins to download to iPhone and a progress bar appears. When enough of the video has downloaded, it begins to play. You can also tap ► to start the video.

Controlling Video Playback

When a video starts playing, the controls disappear so they don't obscure the video.

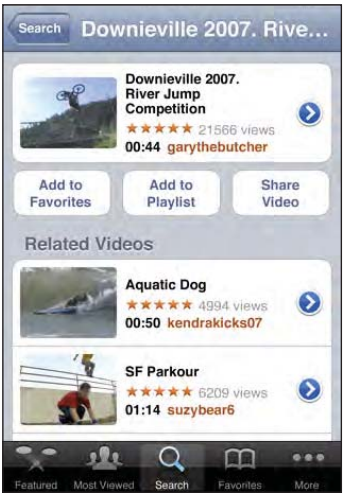
Show or hide the video controls: Tap the screen.



Play or pause a video	Tap ► or . You can also press the center button on the iPhone headset (or the equivalent button on your Bluetooth headset).
Adjust the volume	Drag the volume slider, or use the volume buttons on the side of iPhone. You can also use the volume buttons on the iPhone headset (iPhone 3GS only).
Start a video over	Tap ◀◀.
Skip to the next or previous video in a list	Tap ◀◀ twice to skip to the previous video. Tap ▶▶ to skip to the next video.
Rewind or fast-forward	Touch and hold ◀◀ or ▶▶ .
Skip to any point in a video	Drag the playhead along the scrubber bar.
Stop watching a video before it finishes playing	Tap Done, or press the Home □ button.
Toggle between scaling a video to fill the screen or fit to the screen	Double-tap the video. You can also tap [Full Screen] to make the video fill the screen, or tap [Fit Screen] to make it fit the screen.
Add a video to Favorites using video controls	Start playing a video and tap [Favorites].
Email a link to the video using video controls	Start playing a video and tap [Email].

Managing Videos


Tap  next to a video to see related videos and more controls for managing videos.



Add the video to Favorites

Tap "Add to Favorites."


Add the video to a playlist

Tap "Add to Playlist," then select an existing playlist or tap  to create a new playlist.


Email a link to the video

Tap Share Video.

Browse and view related videos

Tap a video in the list of related videos to view, or tap  next to a video for more information.

Getting More Information

Tap  next to the video to show the video's comments, description, date added, and other information.




Rate the video or add a comment	On the More Info screen, tap “Rate, Comment, or Flag,” then choose “Rate or Comment.” You must be signed in to a YouTube account to use this feature.
See more videos from this account	On the More Info screen, tap More Videos.
Subscribe to this YouTube account	On the More Info screen, tap More Videos, then tap “Subscribe to <account>” at the bottom of the video list. You must be signed in to a YouTube account to use this feature.

Using YouTube Account Features

If you have a YouTube account, you can access account features such as subscriptions, comments and ratings, and playlists. To create a YouTube account, go to www.youtube.com.

Show favorites you’ve added to your account: In Favorites, tap Sign In, then enter your username and password to see your account favorites. Any existing favorites you’ve added to iPhone can be merged with your account favorites when you sign in.



Delete a favorite: In Favorites, tap Edit, tap  next to a video, then tap Delete.


Show subscriptions you’ve added to your account: In Subscriptions, tap Sign In, then enter your username and password to see your account subscriptions. Tap an account in the list to see all videos for that account.

Unsubscribe from a YouTube account: In Subscriptions, tap an account in the list, then tap Unsubscribe.


View playlists: In Playlists, tap a playlist to see the list of videos you’ve added. Tap any video in the playlist to begin playing videos from that point in the playlist.

Edit a playlist: In Playlists, tap Edit, then do one of the following:

- *To delete the entire playlist,* tap  next to a playlist, then tap Delete.
- *To create a new playlist,* tap , then enter a name for the playlist.

Add a video to a playlist: Tap  next to a video, then tap “Add to Playlist” and choose a playlist.

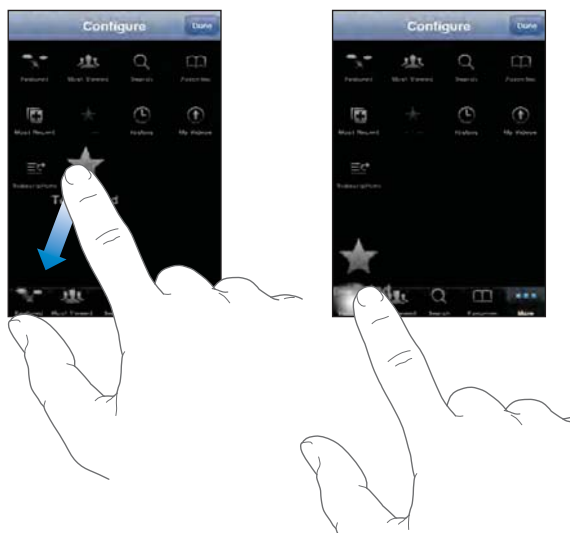
Delete a video from a playlist:

- 1 In Playlists, tap a playlist, then tap Edit.
- 2 Tap  next to a playlist, then tap Delete.

Changing the Browse Buttons

You can replace the Featured, Most Viewed, Bookmarks, and Search buttons at the bottom of the screen with ones you use more frequently. For example, if you watch top rated videos often but don't watch many featured videos, you could replace the Featured button with Top Rated.

Change the browse buttons: Tap More and tap Edit, then drag a button to the bottom of the screen, over the button you want to replace.



You can drag the buttons at the bottom of the screen left or right to rearrange them. When you finish, tap Done.

When you're browsing for videos, tap More to access the browse buttons that aren't visible.

Sending Videos to YouTube

If you have a YouTube account, you can send videos directly from iPhone 3GS to YouTube. See "Publishing Videos to YouTube" on page 101.

Stocks

12



Viewing Stock Quotes

Stocks lets you see the latest available quotes for your selected stocks, funds, and indexes.

Quotes are updated every time you open Stocks when connected to the Internet. Quotes may be delayed by up to 20 minutes or more depending upon the reporting service.

Add a stock, fund, or index to the stock reader:

- 1 Tap ⓘ, then tap +.
- 2 Enter a symbol, company name, fund name, or index, then tap Search.
- 3 Select an item from the search results and tap Done.

View charts in landscape orientation: Rotate iPhone sideways. Flick left or right to view the other charts in your stock reader.

Show the progress of a stock, fund, or index over time: Tap the stock, fund, or index in your list, then tap 1d, 1w, 1m, 3m, 6m, 1y, or 2y. The chart adjusts to show progress over one day, one week, one month, three months, six months, one year, or two years.

When you're viewing a chart in landscape orientation, you can touch the chart to display the value for a specific point in time.



Use two fingers to see the change in value over a specific period of time.



Delete a stock: Tap ⓘ and tap ⓧ next to a stock, then tap Delete.

Change the order of the list: Tap ⓘ. Then drag ≡ next to a stock or index to a new place in the list.

Switch the display to percentage change, price change, or market capitalization: Tap any of the values along the right side of the screen. Tap again to switch to another view. Or tap ⓘ and tap %, Price, or Mkt Cap, then tap Done.

Getting More Information

See the summary, chart, or news page about a stock, fund, or index: Select the stock, fund, or index in your list, then flick the pages underneath the stock reader to view the summary, chart, or recent news page.

On the news page, you can scroll up and down to read headlines, or tap a headline to view the article in Safari.

See more information at Yahoo.com: Select the stock, fund, or index in your list, then tap 📄!.

Maps

13



Finding and Viewing Locations

WARNING: For important information about driving and navigating safely, see the *Important Product Information Guide* at www.apple.com/support/manuals/iphone.

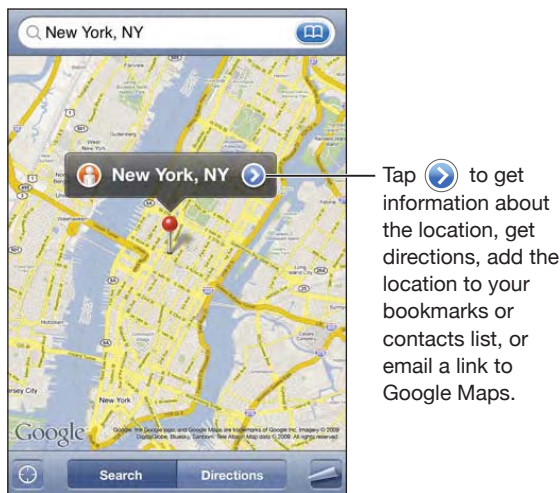
Maps provides street maps, satellite photos, a hybrid view, and street views of locations in many of the world's countries. You can get detailed driving, public transit, or walking directions and traffic information. Find and track your current (approximate) location, and use your current location to get driving directions to or from another place. The built-in digital compass lets you see which way you're facing. (iPhone 3GS only).


Important: Maps, digital compass (iPhone 3GS only), directions, and location-based applications provided by Apple depend on data collected and services provided by third parties. These data services are subject to change and may not be available in all geographic areas, resulting in maps, compass headings, directions, or location-based information that may be unavailable, inaccurate, or incomplete. Compare the information provided on iPhone to your surroundings and defer to posted signs to resolve any discrepancies. In order to provide your location, data is collected in a form that doesn't personally identify you. If you don't want such data collected, don't use the feature. Not using this feature won't impact the non-location-based functionality of your iPhone.

Find a location and see a map:

- 1 Tap the search field to bring up the keyboard.
- 2 Type an address, intersection, area, landmark, bookmark, contact, or zip code.
- 3 Tap Search.

A pin marks the location. Tap the pin to see the name or description of the location.



Locations can include places of interest added by Google My Maps users (“User-created content”), and sponsored links that appear as special icons (for example, ).

Zoom in to a part of a map


Pinch the map with two fingers. Or double-tap the part you want to zoom in on. Double-tap again to zoom in even closer.

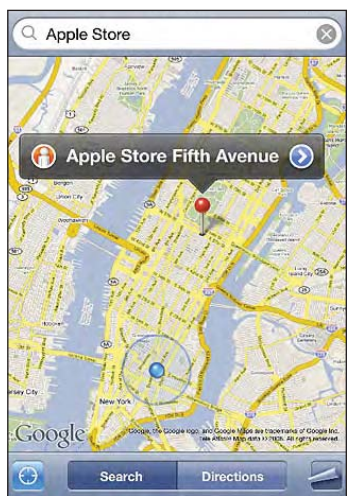
Zoom out

Pinch the map. Or tap the map with two fingers. Tap with two fingers again to zoom out further.


Pan or scroll to another part of the map

Drag up, down, left, or right.

Find your current location and turn tracking mode on: Tap .




Your current (approximate) location is indicated by a blue marker. If your location can't be determined precisely, a blue circle also appears around the marker. The size of the circle depends on how precisely your location can be determined—the smaller the circle, the greater the precision.

As you move around, iPhone updates your location, adjusting the map so that the location indicator remains in the center of the screen. If you tap  again or drag the map, iPhone continues to update your location but stops centering it, so the location information may move off the screen.



iPhone uses Location Services to determine your location. Location Services uses available information from cellular network data, local Wi-Fi networks (if you have Wi-Fi turned on), and GPS (iPhone 3G or later; GPS not available in all locations). This feature isn't available in all areas.

If Location Services is turned off, you'll be prompted to turn it on. You can't find and track your current location if Location Services is turned off. See "Location Services" on page 144.

To conserve battery life, turn Location Services off when you're not using it. In Settings, choose General > Location Services.

Get information about your current location: Tap the blue marker, then tap . iPhone displays the address of your current location, if available. You can use this information to:

- Get directions
- Add the location to contacts
- Send the address via email or MMS (iPhone 3G or later)
- Bookmark the location

Show which way you're facing (iPhone 3GS only): Tap  again. (The icon changes to ) Maps uses the built-in compass to determine which way you're facing. The angle shows the accuracy of the compass reading—the smaller the angle, the greater the accuracy.




Maps uses true north to determine your heading, even if you have magnetic north set in Compass. If the compass needs calibrating, iPhone asks you to wave the phone in a figure eight. If there's interference, you may be asked to move from the source of interference. See Chapter 22, "Compass," on page 173.

Use the dropped pin: Tap , then tap Drop Pin.

A pin drops down on the map, which you can then drag to any location you choose.




Replace the pin: Tap , then tap Replace Pin. iPhone drops the pin in the area you're currently viewing.

See a satellite or hybrid view: Tap , then tap Satellite or Hybrid to see just a satellite view or a combined street map and satellite view.



To return to map view, tap Map.


See the Google Street View of a location: Tap . Flick left or right to pan through the 360° panoramic view. (The inset shows your current view.) Tap an arrow to move down the street.



Tap to return to map view


To return to map view, tap the map inset in the lower-right corner. Street View isn't available in all areas.

See the location of someone's address in your contacts list


Tap  in the search field, then tap Contacts and choose a contact.

To locate an address in this way, the contact must include at least one address. If the contact has more than one address, choose the one you want to locate. You can also find the location of an address by tapping the address directly in Contacts.


Add a location to your contacts list

Find a location, tap the pin that points to it, tap  next to the name or description, tap "Add to Contacts," then tap "Create New Contact" or "Add to Existing Contact."

Email a link to a Google Maps location


Find a location, tap the pin that points to it, tap  next to the name or description, then tap Share Location and tap Email.


Send a link via MMS to a Google Maps location

Find a location, tap the pin that points to it, tap  next to the name or description, then tap Share Location and tap MMS (iPhone 3G or later).

Bookmarking Locations

You can bookmark locations that you want to find again later.


Bookmark a location: Find a location, tap the pin that points to it, tap  next to the name or description, then tap "Add to Bookmarks" at the bottom of the Info screen.

See a bookmarked location or recently viewed location: Tap  in the search field, then tap Bookmarks or Recents.

Getting Directions

You can get step-by-step directions for driving, taking public transit, or walking to a destination.

Get directions:

- 1 Tap Directions.
- 2 Enter starting and ending locations in the Start and End fields. By default, iPhone starts with your current approximate location (if available). Tap  in either field to choose a location in Bookmarks (including your current approximate location and the dropped pin, if available), Recents, or Contacts.

For example, if a friend's address is in your contacts list, you can tap Contacts and tap your friend's name instead of having to type the address.

To reverse the directions, tap .

- 3 Tap Route (if you entered locations manually), then select driving (🚗), public transit (🚆), or walking (🚶) directions.

The travel options available depend on the route.

- 4 Do one of the following:

- To view directions one step at a time, tap Start, then tap ➡ to see the next leg of the trip. Tap ⬅ to go back.
- To view all the directions in a list, tap 📄, then tap List. Tap any item in the list to see a map showing that leg of the trip. Tap Route Overview to return to the overview screen.



If you're driving or walking, the approximate distance and travel time appear at the top of the screen. If traffic data is available, the driving time is adjusted accordingly.

If you're taking public transit, the overview screen shows each leg of the trip and the mode of transportation, including where you need to walk. The top of the screen shows the time of the bus or train at the first stop, the estimated arrival time, and the total fare. Tap ⌚ to set your departure or arrival time, and to choose a schedule for the trip. Tap the icon at a stop to see the departure time for that bus or train, and to get a link to the transit provider's website or contact info. When you tap Start and step through the route, detailed information about each leg of the trip appears at the top of the screen.

You can also get directions by finding a location on the map, tapping the pin that points to it, tapping ➡, then tapping Directions To Here or Directions From Here.

Switch start and end points, for reverse directions: Tap ↺.

If you don't see ↺, tap List, then tap Edit.

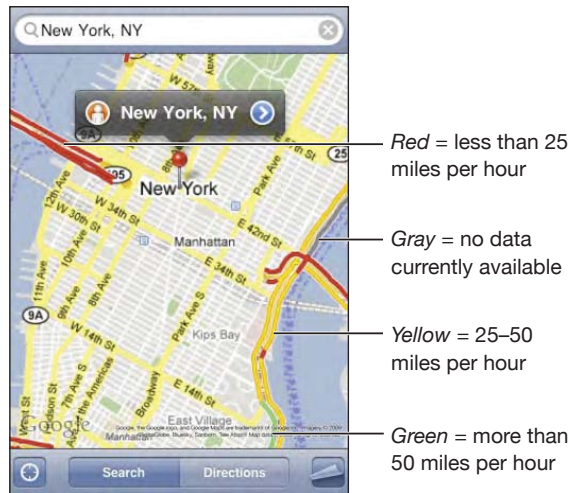
See recently viewed directions: Tap 📖 in the search field, then tap Recents.

Showing Traffic Conditions

When available, you can show highway traffic conditions on the map.

Show or hide traffic conditions: Tap , then tap Show Traffic or Hide Traffic.

Highways are color-coded according to the flow of traffic:



If you don't see color-coded highways, you may need to zoom out to a level where you can see major roads, or traffic conditions may not be available for that area.

Finding and Contacting Businesses

Find businesses in an area:


- 1 Find a location—for example, a city and state or country, or a street address—or scroll to a location on a map.
- 2 Type the kind of business in the text field and tap Search.

Pins appear for matching locations. For example, if you locate your city and then type “movies” and tap Search, pins mark movie theatres in your city.

Tap the pin that marks a business to see its name or description.

Find businesses without finding the location first: Type things like:

- restaurants san francisco ca
- apple inc new york

Contact a business or get directions: Tap the pin that marks a business, then tap  next to the name.

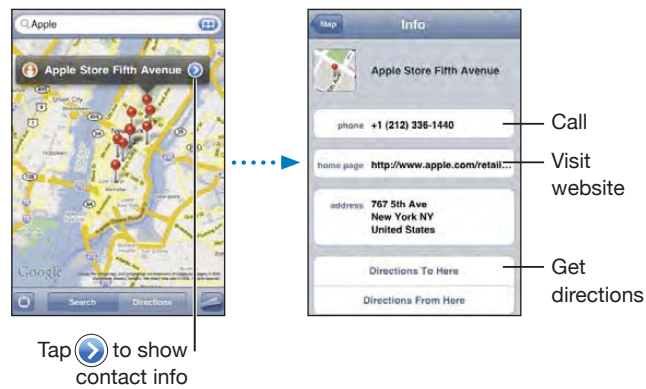
From there, you can do the following:

- Tap a phone number to call, an email address to send email to, or a web address to visit.
- For directions, tap Directions To Here or Directions From Here.

- To add the business to your contacts list, scroll down and tap “Create New Contact” or “Add to Existing Contact.”
- Share the location of the business by email or text message

See a list of the businesses found in the search: From the Map screen, tap List.

Tap a business to see its location. Or tap  next to a business to see its information.



Weather

14



Viewing Weather Summaries

Tap Weather from the Home screen to get the current temperature and six-day forecast for one or more cities around the world.



If the weather board is light blue, it's daytime in that city—between 6:00 a.m. and 6:00 p.m. If the board is dark purple, it's nighttime—between 6:00 p.m. and 6:00 a.m.

Add a city:

- 1 Tap ⓘ, then tap +.
- 2 Enter a city name or zip code, then tap Search.
- 3 Choose a city in the search list.

Switch to another city: Flick left or right, or tap to the left or right of the row of dots. The number of dots below the weather board shows how many cities are stored.

Reorder cities: Tap ⓘ, then drag ≡ next to a city to a new place in the list.

Delete a city: Tap ⓘ and tap  next to a city, then tap Delete.

Display temperature in Fahrenheit or Celsius: Tap ⓘ, then tap °F or °C.

Getting More Weather Information

You can see a more detailed weather report, news and websites related to the city, and more.

See information about a city at Yahoo.com: Tap !

Voice Memos

15



Recording Voice Memos




Voice Memos lets you use iPhone as a portable recording device using the built-in microphone, iPhone or Bluetooth headset mic, or supported external microphone.

Note: External microphones must be designed to work with the iPhone headset jack or Dock Connector, such as Apple-branded earbuds or authorized third-party accessories marked with the Apple “Works with iPhone” logo.

You can adjust the recording level by moving the microphone closer to or further away from what you’re recording. For better recording quality, the loudest level on the level meter should be between -3dB and 0 dB .




Record a voice memo:


- 1 Tap  to start recording. You can also press the center button on the iPhone headset (or the equivalent button on your Bluetooth headset).
- 2 Tap  to pause or  to stop recording. You can also press the center button on the iPhone headset (or the equivalent button on your Bluetooth headset).

Recordings using the built-in microphone are mono, but you can record stereo using an external stereo microphone.

When you start a voice recording, iPhone makes a shutter sound. The sound isn't played if you've set the Ring/Silent switch to silent. See "Sounds and the Ring/Silent Switch" on page 141.





Note: In some regions, the sound effects for Voice Memos are played even if the Ring/Silent switch is set to silent.

To use other applications while recording your voice memo, you can lock iPhone or press the Home  button.

Play back a voice memo you just recorded: Tap .

Listening to Voice Memos

**Play a voice memo you've previously recorded:**

- 1 Tap .
- Memos are listed in chronological order, with the most recent memo first.
- 2 Tap a memo, then tap .
- Tap  to pause, then tap  again to resume playback.
- Skip to any point in a memo:** Drag the playhead along the scrubber bar.

Listen through the built-in speaker: Tap Speaker.

Managing Voice Memos

Delete a voice memo: Tap a memo in the list, then tap Delete.

See more information: Tap ⓘ next to the memo. The Info screen displays information about the length, recording time and date, and provides additional editing and sharing functions.




Add a label to a memo: On the Info screen tap ➤, then select a label in the list on the Label screen. To create a custom label, choose Custom at the bottom of the list, then type a name for the label.

Trimming Voice Memos

You can trim the beginning or ending of a voice memo to eliminate unwanted pauses or noise.

Trim a voice memo:

- 1 On the Voice Memos screen, tap  next to the memo you want to trim.
- 2 Tap Trim Memo.
- 3 Using the time markers as a guide, drag the edges of the audio region to adjust the beginning and end of the voice memo. To preview your edit, tap ►.



- 4 Tap Trim Voice Memo.

Important: Edits you make to voice memos can't be undone.

Sharing Voice Memos

You can share your voice memos as attachments in email or MMS messages (iPhone 3G or later).

Share a voice memo:

- 1 On the Voice Memos screen or Info screen, tap Share.
- 2 Choose Email Voice Memo to open a new message in Mail with the memo attached, or choose MMS to open a new message in Messages.

A message appears if the file you're trying to send is too large.

Syncing Voice Memos

iTunes automatically syncs voice memos to your iTunes library when you connect iPhone to your computer. This lets you listen to voice memos on your computer and provides a backup if you delete them from iPhone.

Voice memos are synced to the Voice Memos playlist. iTunes creates the playlist if it doesn't exist. When you sync voice memos to iTunes, they remain in the Voice Memos application until you delete them. If you delete a voice memo on iPhone, it isn't deleted from the Voice Memos playlist in iTunes. However, if you delete a voice memo from iTunes, it *is* deleted from iPhone the next time you sync with iTunes.

You can sync the iTunes Voice Memos playlist to the iPod application on iPhone using the Music pane in iTunes.

Sync the Voice Memos playlist to iPhone:

- 1 Connect iPhone to your computer.
- 2 In iTunes, select iPhone in the sidebar.
- 3 Select the Music tab.
- 4 Select the "Include voice memos" checkbox and click Apply.

Notes

16



Writing and Reading Notes

Notes are listed in the order of the last modified date, with the most recently modified note at the top. You can see the first few words of each note in the list. Rotate iPhone to view notes in landscape orientation and type using a larger keyboard.

Add a note: Tap **+**, then type your note and tap Done.

Read a note: Tap the note. Tap **➡** or **⬅** to see the next or previous note.

Edit a note: Tap anywhere on the note to bring up the keyboard.

Delete a note: Tap the note, then tap **🗑**.

Searching Notes

You can search the text of notes.



Search for notes:

- 1 Drag the note list down or tap the status bar to expose the search window.
- 2 Enter text in the search field.

Search results appear automatically as you type. Tap Search to dismiss the keyboard and see more of the results.

Emailing Notes

Email a note: Tap the note, then tap .

To email a note, iPhone must be set up for email. See “Setting Up Email Accounts” on page 59.

Syncing Notes

You can set up iTunes to automatically sync your notes with email applications such as Mac OS X Mail (requires Mac OS X version 10.5.7 or later) or Microsoft Outlook 2003 or 2007 on a PC. See “Syncing with iTunes” on page 12.

Clock

17



World Clocks

You can add clocks to show the time in other major cities and time zones around the world.


View clocks: Tap World Clock.


If the clock face is white, it's daytime in that city. If the clock face is black, it's nighttime. If you have more than four clocks, flick to scroll through them.

Add a clock:

- 1 Tap World Clock.
- 2 Tap **+**, then type the name of a city.
Cities matching what you've typed appear below.
- 3 Tap a city to add a clock for that city.

If you don't see the city you're looking for, try a major city in the same time zone.


Delete a clock: Tap World Clock and tap Edit. Then tap  next to a clock and tap Delete.


Rearrange clocks: Tap World Clock and tap Edit. Then drag  next to a clock to a new place in the list.

Alarms

You can set multiple alarms. Set each alarm to repeat on days you specify, or to sound only once.

Set an alarm:


- 1 Tap Alarm and tap .
- 2 Adjust any of the following settings:
 - *To set the alarm to repeat on certain days*, tap Repeat and choose the days.
 - *To choose the ringtone that sounds when the alarm goes off*, tap Sound.
 - *To set whether the alarm gives you the option to hit snooze*, turn Snooze on or off. If Snooze is on and you tap Snooze when the alarm sounds, the alarm stops and then sounds again in ten minutes.
 - *To give the alarm a description*, tap Label. iPhone displays the label when the alarm sounds.


If at least one alarm is set and turned on,  appears in the iPhone status bar at the top of the screen.

Important: Some carriers don't support network time in all locations. If you're traveling, iPhone alerts may not sound at the correct local time. See "Date and Time" on page 147.

Turn an alarm on or off: Tap Alarm and turn any alarm on or off. If an alarm is turned off, it won't sound again unless you turn it back on.

If an alarm is set to sound only once, it turns off automatically after it sounds. You can turn it on again to reenable it.

Change settings for an alarm: Tap Alarm and tap Edit, then tap  next to the alarm you want to change.

Delete an alarm: Tap Alarm and tap Edit, then tap  next to the alarm and tap Delete.

Stopwatch

Use the stopwatch to time an event:

- 1 Tap Stopwatch.
- 2 Tap Start to start the stopwatch.
 - *To record lap times*, tap Lap after each lap.
 - *To pause the stopwatch*, tap Stop. Tap Start to resume.
 - *To reset the stopwatch*, tap Reset when the stopwatch is pause.

If you start the stopwatch and go to another iPhone application, the stopwatch continues running in the background.

Timer

Set the timer: Tap Timer, then flick to set the number of hours and minutes. Tap Start to start the timer.

Choose the sound: Tap When Timer Ends.

Set a sleep timer: Set the timer, then tap When Timer Ends and choose Sleep iPod. When you set a sleep timer, iPhone stops playing music or video when the timer ends.

If you start the timer and then switch to another iPhone application, the timer continues running.

Calculator

18



Using the Calculator

Tap numbers and functions in Calculator just as you would with a standard calculator. When you tap the add, subtract, multiply, or divide button, a white ring appears around the button to let you know the operation to be carried out. Rotate iPhone to get an expanded scientific calculator.

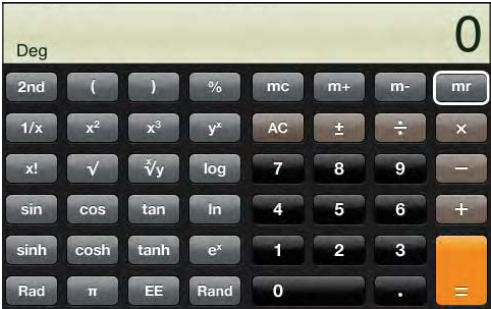
Standard Memory Functions

- *C*: Tap to clear the displayed number.
- *MC*: Tap to clear the memory.
- *M+*: Tap to add the displayed number to the number in memory. If no number is in memory, tap to store the displayed number in memory.
- *M-*: Tap to subtract the displayed number from the number in memory.
- *MR*: Tap to replace the displayed number with the number in memory. If the button has a white ring around it, there is a number stored in memory.

The stored number remains in memory when you switch between the standard and scientific calculators.

Scientific Calculator Keys

Rotate iPhone to landscape orientation to display the scientific calculator.



2nd	Changes the trigonometric buttons (sin, cos, tan, sinh, cosh, and tanh) to their inverse functions (\sin^{-1} , \cos^{-1} , \tan^{-1} , \sinh^{-1} , \cosh^{-1} , and \tanh^{-1}). It also changes \ln to \log_2 , and e^x to 2^x . Tap 2nd again to return the buttons to their original functions.
(Opens a parenthetical expression. Expressions can be nested.
)	Closes a parenthetical expression.
%	Calculates percentages, adds markups, and subtracts discounts. To calculate a percentage, use it with the multiplication (x) key. For example, to calculate 8% of 500, enter $500 \times 8 \% =$ which returns 40. To add a markup or subtract a discount, use it with the plus (+) or minus (–) key. For example, to compute the total cost of a \$500 item with an 8% sales tax, enter $500 + 8 \% =$ which returns 540.
1/x	Returns the reciprocal of a value in decimal format.
x^2	Squares a value.
x^3	Cubes a value.
y^x	Tap between values to raise the first value to the power of the second value. For example, to compute 3^4 , enter $3 y^x 4 =$ which returns 81.
x!	Calculates the factorial of a value.
$\sqrt{}$	Calculates the square root of a value.
$\sqrt[x]{}$	Use between values to calculate the x root of y. For example to compute $\sqrt[4]{81}$, enter $81 \sqrt[x]{} 4 =$ which returns 3.

log	Returns the log base 10 of a value.
sin	Calculates the sine of a value.
sin⁻¹	Calculates the arc sine of a value. (Available when the 2nd button is tapped.)
cos	Calculates the cosine of a value.
cos⁻¹	Calculates the arc cosine of a value. (Available when the 2nd button is tapped.)
tan	Calculates the tangent of a value.
tan⁻¹	Calculates the arc tangent of a value. (Available when the 2nd button is tapped.)
ln	Calculates the natural log of a value.
log2	Calculates the log base 2. (Available when the 2nd button is tapped.)
sinh	Calculates the hyperbolic sine of a value.
sinh⁻¹	Calculates the inverse hyperbolic sine of a value. (Available when the 2nd button is tapped.)
cosh	Calculates the hyperbolic cosine of a value.
cosh⁻¹	Calculates the inverse hyperbolic cosine of a value. (Available when the 2nd button is tapped.)
tanh	Calculates the hyperbolic tangent of a value.
tanh⁻¹	Calculates the inverse hyperbolic tangent of a value. (Available when the 2nd button is tapped.)
e^x	Tap after entering a value to raise the constant "e" (2.718281828459045...) to the power of that value.
2^x	Calculates 2 to the power of the displayed value. For example, $10 \cdot 2^x = 1024$. (Available when the 2nd button is tapped.)
Rad	Changes the mode to express trigonometric functions in radians.
Deg	Changes the mode to express trigonometric functions in degrees.
π	Enters the value of π (3.141592653589793...).
EE	An operator that multiplies the currently displayed value by 10 to the power of the next value you enter.
Rand	Returns a random number between 0 and 1.

Settings

19



Settings allows you to customize iPhone applications, set the date and time, configure your network connection, and enter other preferences for iPhone.

Airplane Mode

Airplane mode disables the wireless features of iPhone to avoid interfering with aircraft operation and other electrical equipment.

Turn on airplane mode: Tap Settings and turn airplane mode on.

When airplane mode is on, ✈ appears in the status bar at the top of the screen. No phone, radio, Wi-Fi, or Bluetooth signals are emitted from iPhone and GPS reception is turned off, disabling many of iPhone's features. You won't be able to:

- Make or receive phone calls
- Get visual voicemail
- Send or receive email
- Browse the Internet
- Sync your contacts, calendars, or bookmarks (MobileMe only) with MobileMe or Microsoft Exchange
- Send or receive text messages
- Stream YouTube videos
- Get stock quotes
- Get map locations
- Get weather reports
- Use the iTunes Store or the App Store

If allowed by the aircraft operator and applicable laws and regulations, you can continue to use iPhone to:

- Listen to music and watch video

- Listen to visual voicemail previously received
- Check your calendar
- Take or view pictures
- Hear alarms
- Use the stopwatch or timer
- Use the calculator
- Take notes
- Record voice memos
- Use Compass
- Read text messages and email messages stored on iPhone


Where allowed by the aircraft operator and applicable laws and regulations, you can turn Wi-Fi back on, enabling you to:

- Send and receive email
- Browse the Internet
- Sync your contacts, calendars, and bookmarks (MobileMe only) with MobileMe and Microsoft Exchange
- Stream YouTube videos
- Get stock quotes
- Get map locations
- Get weather reports
- Use the iTunes Store or the App Store


Wi-Fi

Wi-Fi settings determine whether iPhone uses local Wi-Fi networks to connect to the Internet. If no Wi-Fi networks are available, or you've turned Wi-Fi off, then iPhone connects to the Internet via your cellular data network, when available. You can use Mail, Safari, YouTube, Stocks, Maps, Weather, the iTunes Store, and the App Store over a cellular data network connection.


Turn Wi-Fi on or off: Choose Wi-Fi and turn Wi-Fi on or off.


Join a Wi-Fi network: Choose Wi-Fi, wait a moment as iPhone detects networks in range, then select a network. If necessary, enter a password and tap Join. (Networks that require a password appear with a lock  icon.)

Once you've joined a Wi-Fi network manually, iPhone automatically joins it whenever the network is in range. If more than one previously used network is in range, iPhone joins the one last used.

When iPhone is joined to a Wi-Fi network, the Wi-Fi  icon in the status bar at the top of the screen shows signal strength. The more bars you see, the stronger the signal.

Set iPhone to ask if you want to join a new network: Choose Wi-Fi and turn “Ask to Join Networks” on or off.


When you’re trying to access the Internet, by using Safari or Mail for example, and you aren’t in range of a Wi-Fi network you’ve previously used, this option tells iPhone to look for another network. iPhone displays a list of all available Wi-Fi networks that you can choose from. (Networks that require a password appear with a lock  icon.) If “Ask to Join Networks” is turned off, you must manually join a network to connect to the Internet when a previously used network or a cellular data network isn’t available.

Forget a network, so iPhone doesn’t join it automatically: Choose Wi-Fi and tap  next to a network you’ve joined before. Then tap “Forget this Network.”

Join a closed Wi-Fi network: To join a Wi-Fi network that isn’t shown in the list of scanned networks, choose Wi-Fi > Other, then enter the network name. If the network requires a password, tap Security, tap the type of security the network uses, and enter the password.

You must already know the network name, password, and security type to connect to a closed network.

Some Wi-Fi networks may require you to enter or adjust additional settings, such as a client ID or static IP address. Ask the network administrator which settings to use.

Adjust settings to connect to a Wi-Fi network: Choose Wi-Fi, then tap  next to a network.

VPN

This setting appears when you have VPN configured on iPhone, allowing you to turn VPN on or off. See “Network” on page 143.

Notifications

This setting appears when you’ve installed an application from the App Store that uses the Apple Push Notification service.

Push notifications are used by applications to alert you of new information, even when the application isn’t running. Notifications differ depending upon the application, but may include text or sound alerts, and a numbered badge on the application’s icon on the Home screen.

You can turn notifications off if you don’t want to be notified or want to conserve battery life.

Turn all notifications on or off: Tap Notifications and turn notifications on or off.

Turn sounds, alerts, or badges on or off for an application: Tap Notifications, then choose an application from the list and choose the types of notification you want to turn on or off.

Carrier

This setting appears when you're outside of your carrier's network and other local carrier data networks are available to use for your phone calls, visual voicemail, and cellular network Internet connections. You can make calls only on carriers that have roaming agreements with your carrier. Additional fees may apply. Roaming charges may be billed to you by the carrier of the selected network, through your carrier.

For information about out-of-network coverage and how to enable roaming, contact your carrier or go to your carrier's website.

Select a carrier: Choose Carrier and select the network you want to use.



Once you select a network, iPhone uses only that network. If the network is unavailable, "No service" appears on the iPhone screen and you can't make or receive calls or visual voicemail, or connect to the Internet via cellular data network. Set Network Settings to Automatic to have iPhone select a network for you.

Sounds and the Ring/Silent Switch

Switch between ring and silent mode: Flip the Ring/Silent switch on the side of iPhone.


When set to silent, iPhone doesn't play any ring, alert, or effects sounds. It does, however, play alarms set using Clock.

Note: In some regions, the sound effects for Camera and Voice Memos are played even if the Ring/Silent switch is set to silent.

Set whether iPhone vibrates when you get a call: Choose Sounds. To set whether iPhone vibrates in silent mode, turn Vibrate under Silent  on or off. To set whether iPhone vibrates in ring mode, turn Vibrate under Ring  on or off.

Adjust the ringer and alerts volume: Choose Sounds and drag the slider. Or, if no song or video is playing and you aren't on a call, use the volume buttons on the side of iPhone.

Set the ringtone: Choose Sounds > Ringtone.

Set alert and effects sounds: Choose Sounds and turn items on or off under Ring . When the Ring/Silent switch is set to ring, iPhone plays sounds for alerts and effects that are turned on.

You can set iPhone to play a sound whenever you:

- Get a call

- Get a text message
- Get a voicemail message
- Get an email message
- Send an email message
- Have an appointment that you've set up to alert you
- Lock iPhone
- Type using the keyboard

Brightness

Screen brightness affects battery life. Dim the screen to extend the time before you need to recharge iPhone, or use Auto-Brightness.

Adjust the screen brightness: Choose Brightness and drag the slider.

Set whether iPhone adjusts screen brightness automatically: Choose Brightness and turn Auto-Brightness on or off. If Auto-Brightness is on, iPhone adjusts the screen brightness for current light conditions using the built-in ambient light sensor.

Wallpaper

You see a wallpaper background picture when you unlock iPhone. You can select one of the images that came with iPhone, or use a photo you've synced to iPhone from your computer.

Set wallpaper: Choose Wallpaper and choose a picture.

General

The General settings include date and time, security, network, and other settings that affect more than one application. This is also where you can find information about your iPhone, and reset iPhone to its original state.

About

Choose General > About to get information about iPhone, including:

- Name of your phone network
- Number of songs, videos, and photos
- Total storage capacity
- Space available
- Software version
- Serial and model numbers
- Wi-Fi and Bluetooth addresses

- IMEI (International Mobile Equipment Identity) and ICCID (Integrated Circuit Card Identifier, or Smart Card) numbers
- Modem firmware version of the cellular transmitter
- Legal information
- Regulatory information

Usage

Show battery percentage: Tap Usage and turn Battery Percentage on to display the percentage of battery charge next to the battery icon in the upper-right corner of iPhone (iPhone 3GS only).

See your usage statistics: Choose Usage. There, you can see:

- Usage—Amount of time iPhone has been awake and in use since the last full charge. iPhone is awake whenever you're using it—including making or receiving phone calls, using email, sending or receiving text messages, listening to music, browsing the web, or using any other iPhone features. iPhone is also awake while performing background tasks such as automatically checking for and retrieving email messages.
- Standby—Amount of time iPhone has been powered on since its last full charge, including the time iPhone has been asleep.
- Current period call time and lifetime call time.
- Amount of data sent and received over the cellular data network.

Reset your usage statistics: Tap Usage and tap Reset Statistics to clear the data and cumulative time statistics. The statistics for the amount of time iPhone has been unlocked and in standby mode aren't reset.

Network

Use the Network settings to configure a VPN (virtual private network) connection, access Wi-Fi settings, or turn Data Roaming on or off.

Enable or disable 3G: Tap to turn 3G on or off.

Using 3G loads Internet data faster in some cases, but may decrease battery performance. If you're making a lot of phone calls, you may want to turn 3G off to extend battery performance.

Turn Data Roaming on or off: Choose General > Network, then turn Data Roaming on or off.

Data Roaming turns on Internet and visual voicemail access over a cellular data network when you're in an area not covered by your carrier's network. For example, when you're traveling, you can turn off Data Roaming to avoid potential roaming charges. By default, Data Roaming is turned off.

Turn Internet Tethering on or off: Choose General > Network > Internet Tethering, then turn Internet Tethering on or off.

Internet Tethering lets you share iPhone's Internet connection with a computer connected via USB or Bluetooth (not available in all regions). Follow the onscreen instructions to complete the setup. Additional fees may apply. See "Using iPhone as a Modem" on page 42.

Add a new VPN configuration: Choose General > Network > VPN > Add VPN Configuration.

VPNs used within organizations allow you to communicate private information securely over a non-private network. You may need to configure VPN, for example, to access your work email on iPhone.

iPhone can connect to VPNs that use the L2TP, PPTP, or Cisco IPSec protocols. VPN works over both Wi-Fi and cellular data network connections.

Ask your network administrator which settings to use. In most cases, if you've set up VPN on your computer, you can use the same VPN settings for iPhone.

Once you've entered VPN settings, a VPN switch appears in the Settings menu that you can use to turn VPN on or off.

VPN may also be automatically set up by a configuration profile. See "Installing Configuration Profiles" on page 18.

Change a VPN configuration: Choose General > Network > VPN and tap the configuration you want to update.

Turn VPN on or off: Tap Settings and turn VPN on or off.

Delete a VPN configuration: Choose General > Network > VPN, tap the blue arrow to the right of the configuration name, and tap Delete VPN at the bottom of the configuration screen.

Bluetooth

iPhone can connect wirelessly to Bluetooth devices such as headsets, headphones, and car kits for music listening and hands-free talking. See "Bluetooth Devices" on page 55.

Turn Bluetooth on or off: Choose General > Bluetooth and turn Bluetooth on or off.

Location Services

Location Services allows applications such as Maps Camera, and Compass to gather and use data indicating your location. Location Services doesn't correlate the data it collects with your personally identifiable information. Your approximate location is determined using available information from cellular network data, local Wi-Fi networks (if you have Wi-Fi turned on), and GPS (iPhone 3G or later; GPS may not be available in all locations).

You can turn Location Services off if you don't want to use this feature. If you turn Location Services off, you'll be prompted to turn it on again the next time an application tries to use this feature.

Turn Location Services on or off: Choose General > Location Services and turn location services on or off.

To conserve battery life, turn Location Services off when you're not using it.

Auto-Lock

Locking iPhone turns off the display to save your battery and to prevent unintended operation of iPhone. You can still receive calls and text messages, and you can adjust the volume and use the mic button on the iPhone stereo headset when listening to music or on a call.

Set the amount of time before iPhone locks: Choose General > Auto-Lock and choose a time.

Passcode Lock

By default, iPhone doesn't require you to enter a passcode to unlock it.

Set a passcode: Choose General > Passcode Lock and enter a 4-digit passcode, then enter the passcode again to verify it. iPhone then requires you to enter the passcode to unlock it or to display the passcode lock settings.

Turn passcode lock off: Choose General > Passcode Lock, enter your passcode, and tap Turn Passcode Off, then enter your passcode again.

Change the passcode: Choose General > Passcode Lock, enter your passcode, and tap Change Passcode. Enter your passcode again, then enter and reenter your new passcode.

If you forget your passcode, you must restore the iPhone software. See "Updating and Restoring iPhone Software" on page 204.

Set how long before your passcode is required: Choose General > Passcode Lock and enter your passcode. Tap Require Passcode, then select how long iPhone can be idle before you need to enter a passcode to unlock it.

Turn Voice Dial on or off: Choose General > Passcode Lock and turn Voice Dial on or off.

Erase data after ten failed passcode attempts: Choose General > Passcode Lock, enter your passcode, and tap Erase Data to turn it on.

After ten failed passcode attempts, your settings are reset to their defaults and all your information and media is erased:

- *On iPhone 3GS:* by removing the encryption key to the data (which is encrypted using 256-bit AES encryption)
- *On iPhone and iPhone 3G:* by overwriting the data

Important: You can't use iPhone while data is being overwritten. This can take up to two hours or more, depending on the model and storage capacity of your iPhone. (On iPhone 3GS, the removal of the encryption key is immediate.)

Restrictions

You can set restrictions for the use of some applications and for iPod content on iPhone. For example, parents can restrict explicit music from being seen on playlists, or turn off YouTube access entirely.

Turn on restrictions:

- 1 Choose General > Restrictions, then tap Enable Restrictions.
- 2 Enter a four-digit passcode.
- 3 Reenter the passcode.

Turn off restrictions: Choose General > Restrictions, then enter the passcode. Tap Disable Restrictions, then reenter the passcode.

If you forget your passcode, you must restore your iPhone software from iTunes. See "Updating and Restoring iPhone Software" on page 204.

Set application restrictions: Set the restrictions you want by tapping individual controls on or off. By default, all controls are on (not restricted). Tap an item to turn it off and restrict its use.



Safari is disabled and its icon is removed from the Home screen. You cannot use Safari to browse the web or access web clips. Other third-party applications may allow web browsing even if Safari is disabled.



YouTube is disabled and its icon is removed from the Home screen.



The iTunes Store is disabled and its icon is removed from the Home screen. You cannot preview, purchase, or download content.



The App Store is disabled and its icon is removed from the Home screen. You cannot install applications on iPhone.



Camera is disabled and its icon is removed from the Home screen. You cannot take pictures.



Location data isn't provided to applications.

Restrict purchases within applications: Turn In-App Purchases off. When enabled, this feature allows you to purchase additional content or features within applications downloaded from the App Store.

Set content restrictions: Tap Ratings For, then select a country from the list. You can then set restrictions using that country's ratings system for the following categories of content:

- Music & Podcasts
- Movies
- TV Shows
- Apps

In the United States for example, to allow only movies rated PG or below, tap Movies, then select PG from the list.


Note: Not all countries have rating systems.

Home

Choose General > Home to set preferences for double-clicking the Home button and searching categories on the Spotlight page. You can set iPhone so that double-clicking the Home button goes to the Home screen, Search, Phone Favorites, Camera, or iPod.

Set whether double-clicking the Home button shows iPod controls: Turn on iPod Controls to display iPod controls when you're playing music and double-click the Home button. This feature works even when the display is turned off or iPhone is locked.

Set what categories appear in search results: Tap Search Results. All search categories in the list are selected by default. Tap an item to deselect it.

Set the order of search result categories: Tap Search Results, then drag  next to a search category to a new place in the list.

Date and Time

These settings apply to the time shown in the status bar at the top of the screen, and in world clocks and calendars.

Set whether iPhone shows 24-hour time or 12-hour time: Choose General > Date & Time and turn 24-Hour Time on or off. (Not available in all countries.)

Set whether iPhone updates the date and time automatically: Choose General > Date & Time and turn Set Automatically on or off.

If iPhone is set to update the time automatically, it gets the correct time over the cellular network, and updates it for the time zone you're in.

Some carriers don't support network time in all locations. If you're traveling, iPhone may not be able to automatically set the local time.

Set the date and time manually: Choose General > Date & Time and turn Set Automatically off. Tap Time Zone and enter the name of a major city in your time zone. Tap the "Date & Time" return button, then tap "Set Date & Time" and enter the date and time.

Keyboard

Turn Auto-Correction on or off: Choose General > Keyboard and turn Auto-Correction on or off.

By default, if the default keyboard for the language you select has a dictionary, iPhone automatically suggests corrections or completed words as you type.

Turn Auto-Capitalization on or off: Choose General > Keyboard and turn Auto-Capitalization on or off.

By default, iPhone automatically capitalizes words after you type sentence-ending punctuation or a return character.


Set whether caps lock is enabled: Choose General > Keyboard and turn Enable Caps Lock on or off.

If caps lock is enabled and you double-tap the Shift ⇧ key on the keyboard, all letters you type are uppercase. The Shift key turns blue when caps lock is on.

Turn the “.” shortcut on or off: Choose General > Keyboard and turn “.” Shortcut on or off.

The “.” shortcut lets you double-tap the space bar to enter a period followed by a space when you’re typing. It’s on by default.

Turn international keyboards on or off: Choose General > Keyboards > International Keyboards and turn on the keyboards you want.

If more than one keyboard is turned on, tap  to switch keyboards when you’re typing. When you tap the symbol, the name of the newly active keyboard appears briefly. See “International Keyboards” on page 35.


International

Use International settings to set the language for iPhone, turn keyboards for different languages on or off, and set the date, time, and telephone number formats for your region.

Set the language for iPhone: Choose General > International > Language, choose the language you want to use, then tap Done.

Set the Voice Control language for iPhone: Choose General > International > Voice Control, then choose the language you want to use (available only on iPhone 3GS).

Turn international keyboards on or off: Choose General > International > Keyboards, and turn on the keyboards you want.

If more than one keyboard is turned on, tap  to switch keyboards when you’re typing. When you tap the symbol, the name of the newly active keyboard appears briefly. See “International Keyboards” on page 35.

Set date, time, and telephone number formats: Choose General > International > Region Format, and choose your region.

The Region Format also determines the language used for the days and months that appear in native iPhone applications.

Accessibility

To turn on accessibility features (available only on iPhone 3GS), choose Accessibility and choose the features you want. See Chapter 25, “Accessibility,” on page 182.

Resetting iPhone

Reset all settings: Choose General > Reset and tap Reset All Settings.

All your preferences and settings are reset. Information, such as your contacts and calendars, and media, such as your songs and videos, aren’t deleted.

Erase all content and settings: Connect iPhone to your computer or a power adapter. Choose General > Reset and tap “Erase All Content and Settings.”

This resets all settings to their defaults and erases all your information and media:

- *On iPhone 3GS:* by removing the encryption key to the data (which is encrypted using 256-bit AES encryption)
- *On iPhone and iPhone 3G:* by overwriting the data

Important: You can’t use iPhone while data is being overwritten. This can take up to two hours or more, depending on the model and storage capacity of your iPhone. (On iPhone 3GS, the removal of the encryption key is immediate.)

Reset network settings: Choose General > Reset and tap Reset Network Settings.

When you reset network settings, your list of previously used networks and VPN settings not installed by a configuration profile are removed. Wi-Fi is turned off and then back on, disconnecting you from any network you’re on. The Wi-Fi and “Ask to Join Networks” settings are left turned on.

To remove VPN settings installed by a configuration profile, choose Settings > General > Profile, then select the profile and tap Remove.

Reset the keyboard dictionary: Choose General > Reset and tap Reset Keyboard Dictionary.

You add words to the keyboard dictionary by rejecting words iPhone suggests as you type. Tap a word to reject the correction and add the word to the keyboard dictionary. Resetting the keyboard dictionary erases all words you’ve added.

Reset the Home screen layout: Choose General > Reset and tap Reset Home Screen Layout.

Reset the location warnings: Choose General > Reset and tap Reset Location Warnings.

Location warnings are the requests made by applications (such as Camera, Compass, and Maps) to use Location Services with those applications. iPhone stops presenting the warning for an application the second time you tap OK. Tap Reset Location Warnings to resume the warnings.

Mail, Contacts, Calendars

Use Mail, Contacts, Calendars settings to set up and customize accounts for iPhone:

- Microsoft Exchange
- MobileMe
- Google email
- Yahoo! Mail
- AOL
- Other POP and IMAP mail systems
- LDAP accounts for Contacts
- CalDAV or iCalendar (.ics) accounts for Calendars

Accounts

The Accounts section lets you set up accounts on iPhone. The specific settings that appear depend on the type of account you're setting up. Your service provider or system administrator should be able to provide the information you need to enter.

For more information, see:

- "Setting Up Accounts" on page 16
- "Adding Contacts" on page 176
- "Subscribing to and Sharing Calendars" on page 93

Change an account's settings: Choose "Mail, Contacts, Calendars," choose an account, then make the changes you want.

Changes you make to an account's settings on iPhone are *not* synced to your computer, so you can configure your accounts to work with iPhone without affecting the account settings on your computer.

Stop using an account: Choose "Mail, Contacts, Calendars," choose an account, then turn Account off.

If an account is off, iPhone doesn't display the account and doesn't send or check email from or sync other information with that account, until you turn it back on.

Adjust advanced settings: Choose "Mail, Contacts, Calendars," choose an account, then do one of the following:

- *To set whether drafts, sent messages, and deleted messages are stored on iPhone or remotely on your email server (IMAP accounts only),* tap Advanced and choose Drafts Mailbox, Sent Mailbox, or Deleted Mailbox.
If you store messages on iPhone, you can see them even when iPhone isn't connected to the Internet.
- *To set how long before messages are removed permanently from Mail on iPhone,* tap Advanced and tap Remove, then choose a time: Never, or after one day, one week, or one month.
- *To adjust email server settings,* tap Host Name, User Name, or Password under Incoming Mail Server or Outgoing Mail Server. Ask your network administrator or Internet service provider for the correct settings.
- *To adjust SSL and password settings,* tap Advanced. Ask your network administrator or Internet service provider for the correct settings.

Delete an account from iPhone: Choose "Mail, Contacts, Calendars," choose an account, then scroll down and tap Delete Account.

Deleting an account means you can no longer access the account with your iPhone. All email and the contacts, calendar, and bookmark information synced with the account are removed from iPhone. However, deleting an account doesn't remove the account or its associated information from your computer.

Fetch New Data

This setting lets you turn Push on or off for MobileMe, Microsoft Exchange, Yahoo! Mail, and any other push accounts you've configured on iPhone. Push accounts automatically deliver new information to iPhone when new information appears on the server (some delays may occur). You might want to turn Push off to suspend delivery of email and other information, or to conserve battery life.

When Push is off, and with accounts that don't support push, data can still be fetched—that is, iPhone can check with the server and see if new information is available. Use the Fetch New Data setting to determine how often data is requested. For optimal battery life, don't fetch too frequently.

Turn Push on: Choose "Mail, Contacts, Calendars" > Fetch New Data, then tap to turn Push on.

Set the interval to fetch data: Choose "Mail, Contacts, Calendars" > Fetch New Data, then choose how often you want to fetch data for all accounts.

To conserve battery life, fetch less frequently.

Setting Push to OFF or setting Fetch to Manually in the Fetch New Data screen overrides individual account settings.

Mail

The Mail settings, except where noted, apply to all accounts you've set up on iPhone.

To turn alerts sounds for new or sent mail on or off, use the Sounds settings.

Set the number of messages shown on iPhone: Choose "Mail, Contacts, Calendars" > Show, then choose a setting.

Choose to see the most recent 25, 50, 75, 100, or 200 messages. To download additional messages when you're in Mail, scroll to the bottom of your inbox and tap Load More Messages.

Note: For Microsoft Exchange accounts, choose "Mail, Contacts, Calendars" and choose the Exchange account. Tap "Mail days to sync" and choose the number of days of mail you want to sync with the server.

Set how many lines of each message are previewed in the message list: Choose "Mail, Contacts, Calendars" > Preview, then choose a setting.


You can choose to see up to five lines of each message. That way, you can scan a list of messages in a mailbox and get an idea of what each message is about.

Set a minimum font size for messages: Choose "Mail, Contacts, Calendars" > Minimum Font Size, then choose Small, Medium, Large, Extra Large, or Giant.

Set whether iPhone shows To and Cc labels in message lists: Choose "Mail, Contacts, Calendars," then turn Show To/Cc Label on or off.

If Show To/Cc Label is on, **To** or **Cc** next to each message in a list indicates whether the message was sent directly to you or you received a copy.

Set whether iPhone confirms that you want to delete a message: Choose "Mail, Contacts, Calendars" and turn Ask Before Deleting on or off.

If Ask Before Deleting is on, to delete a message you must tap , then confirm by tapping Delete.

Set whether iPhone automatically loads remote images: Choose "Mail, Contacts, Calendars" and turn Load Remote Images on or off. If Load Remote Images is off, you can load images manually when reading a message.

Set whether iPhone sends you a copy of every message you send: Choose "Mail, Contacts, Calendars," then turn Always Bcc Myself on or off.

Set the default email account: Choose "Mail, Contacts, Calendars" > Default Account, then choose an account.

This setting determines which of your accounts a message is sent from when you create a message from another iPhone application, such as sending a photo from Photos or tapping the email address of a business in Maps. To send the message from a different account, tap the From field in the message and choose another account.

Add a signature to your messages: Choose "Mail, Contacts, Calendars" > Signature, then type a signature.

You can set iPhone to add a signature—your favorite quote, or your name, title, and phone number, for example—to the bottom of every message you send.

Contacts

Set how contacts are sorted: Choose “Mail Contacts, Calendars,” then under Contacts tap Sort Order and do one of the following:

- *To sort by first name first*, tap First, Last.
- *To sort by last name first*, tap Last, First.

Set how contacts are displayed: Choose “Mail Contacts, Calendars,” then under Contacts tap Display Order and do one of the following:

- *To show first name first*, tap First, Last.
- *To show last name first*, tap Last, First.

Import contacts from a SIM: Choose “Mail, Contacts, Calendars,” then tap Import SIM Contacts.

The contact information on the SIM is imported to iPhone. If you have Contacts enabled for both MobileMe and Microsoft Exchange, you’re prompted to choose which account you want to add the SIM contacts to.

Calendar

Set alerts to sound when you receive meeting invitation: Choose “Mail, Contacts, Calendars,” and under Calendar tap “New Invitation Alerts” to turn it on.

Set how far back in the past to show your calendar events on iPhone: Choose “Mail, Contacts, Calendars” > Sync, then choose a period of time.

Turn on Calendar time zone support: Choose “Mail, Contacts, Calendars” > Time Zone Support, then turn Time Zone Support on. Select a time zone for calendars by tapping Time Zone and entering the name of a major city.

When Time Zone Support is on, Calendar displays event dates and times in the time zone of the city you selected. When Time Zone Support is off, Calendar displays events in the time zone of your current location as determined by the network time.

Important: Some carriers don’t support network time in all locations. If you’re traveling, iPhone may not display events or sound alerts at the correct local time. To manually set the correct time, see “Date and Time” on page 147.

Phone

Use Phone settings to forward incoming calls, turn call waiting on or off, change your password, and other things. Additional fees may apply. Contact your carrier for pricing and availability.

Calling from Abroad


Set iPhone to add the correct prefix when dialing from another country: In Settings, tap Phone, then turn International Assist on. This lets you make calls to your home country using the numbers in your contacts and favorites, without having to add a prefix or your country code. International Assist works for U.S. telephone numbers only. For more information, see “Using iPhone Abroad” on page 56.

Call Forwarding

You can set iPhone to forward incoming calls to another number. For example, you may be on vacation and want all calls to go somewhere else. If you’re going to an area with no cellular coverage, you may want to forward calls to a place where you can be reached.

Set iPhone to forward your calls:

- 1 Choose Phone > Call Forwarding and turn Call Forwarding on.
- 2 Tap Forwarding To and enter the phone number you want calls forwarded to.

When Call Forwarding is on, an icon  appears in the status bar the top of the screen. You must be in range of the cellular network when you set iPhone to forward calls, or calls won’t be forwarded.

Call Waiting

Activate or deactivate call waiting: Choose Phone > Call Waiting, then turn Call Waiting on or off. If you turn call waiting off and someone calls you when you’re already on the phone, the call goes to voicemail.

Show My Caller ID

Show or hide your caller ID: Choose Phone > Show My Caller ID, then turn Show My Caller ID on or off.

If Show My Caller ID is off, people you call can’t see your name or phone number on their phone.

Using iPhone with a Teletype (TTY) Machine

In some regions, Teletype (TTY) machines are used by deaf or hearing-impaired people to communicate by typing and reading text. You can use iPhone with a TTY machine if you have the iPhone TTY Adapter cable, available for purchase separately in many countries. Go to www.apple.com/store (not available in all countries).

Connect iPhone to a TTY machine: Choose Phone, then turn TTY on. Then connect iPhone to your TTY machine using the iPhone TTY Adapter.

For information about using a TTY machine, see the documentation that came with the machine.

For more information about other accessibility features of iPhone, go to Chapter 25, “Accessibility,” on page 182.

Changing Your Voicemail Password

A voicemail password helps prevent others from access your voicemail. You need to enter the password only when you’re calling in to get your messages from another phone. You won’t need to enter the password when using voicemail on iPhone.

Change your voicemail password: Choose Phone > Change Voicemail Password.

Locking Your SIM Card

You can lock your SIM card, so it can’t be used without a Personal Identification Number (PIN). You must enter the PIN each time you turn iPhone off and turn it back on again. Some carriers require a SIM PIN in order to use iPhone.

Important: If you enter the PIN incorrectly three times, you may need to enter a Personal Unlocking Key (PUK) to enable your SIM card again. Refer to the SIM card documentation or contact your carrier. Some cellular networks may not accept an emergency call from iPhone if the SIM is locked.

Turn the SIM PIN on or off:

- 1 Choose Phone > SIM PIN, then turn SIM PIN on or off.
- 2 Enter your PIN to confirm. Use the PIN assigned by your carrier, or your carrier’s default PIN.

Change the PIN for your SIM card:

- 1 Choose Phone > SIM PIN.
- 2 Turn SIM PIN on, then tap Change PIN.
- 3 Enter your current PIN, then enter your new PIN.
- 4 Enter your new PIN again to confirm, then tap Done.

Accessing Your Carrier’s Services

Depending on your carrier, you may be able to access some of your carrier’s services directly from iPhone. For example, you may be able to check your bill balance, call directory assistance, and view how many minutes you have left.

Access your carrier’s services: Choose Phone. Then scroll down and tap the button for your carrier’s services.

When you request information such as your bill balance, your carrier may provide the information in a text message. Contact your carrier to find out if there are any charges for these services.

Safari

Safari settings let you select your Internet search engine, set security options, and for developers, turn on debugging.

General

You can use Google or Yahoo! to perform Internet searches.

Select a search engine: Choose Safari > Search Engine and select the search engine you want to use.

You can set Safari to automatically fill out web forms using contact information, names and passwords you previously entered, or both.

Enable AutoFill: Choose Safari > AutoFill, then do one of the following:

- *To use information from contacts*, turn Use Contact Info on, then choose My Info and select the contact you want to use.
Safari uses information from Contacts to fill in contact fields on web forms.
- *To use information from names and passwords*, turn Names & Passwords on.
When this feature is on, Safari remembers names and passwords of websites you visit and automatically fills in the information when you revisit the website.
- *To remove all AutoFill information*, tap Clear All.

Security

By default, Safari is set to show features of the web, such as some movies, animation, and web applications. You may wish to change security settings to help protect iPhone from possible security risks on the Internet.

Change security settings: Choose Safari, then do one of the following:

- *To set whether you're warned when visiting potentially fraudulent websites*, turn Fraud Warning on or off.
Fraud warning protects you from potentially fraudulent Internet sites. When you visit a suspicious site, Safari warns you about its suspect nature and doesn't load the page.
- *To enable or disable JavaScript*, turn JavaScript on or off.
JavaScript lets web programmers control elements of the page—for example, a page that uses JavaScript might display the current date and time or cause a linked page to appear in a new pop-up page.
- *To enable or disable plug-ins*, turn Plug-ins on or off. Plug-ins allow Safari to play some types of audio and video files and to display Microsoft Word files and Microsoft Excel documents.
- *To block or allow pop-ups*, turn Block Pop-ups on or off. Blocking pop-ups stops only pop-ups that appear when you close a page or open a page by typing its address. It doesn't block pop-ups that open when you tap a link.

- *To set whether Safari accepts cookies*, tap Accept Cookies and choose Never, “From visited,” or Always.

A cookie is a piece of information that a website puts on iPhone so the website can remember you when you visit again. That way, webpages can be customized for you based on information you may have provided.

Some pages won’t work correctly unless iPhone is set to accept cookies.

- *To clear the history of webpages you’ve visited*, tap Clear History.
- *To clear all cookies from Safari*, tap Clear Cookies.
- *To clear the browser cache*, tap Clear Cache.

The browser cache stores the content of pages so the pages open faster the next time you visit them. If a page you open doesn’t show new content, clearing the cache may help.

Developer

The debug console can help you resolve webpage errors. If it’s turned on, the console appears automatically when a webpage error occurs.

Turn the debug console on or off: Choose Safari > Developer, and turn Debug Console on or off.

Messages

Use Messages settings to adjust settings for SMS and MMS messages.

Note: MMS is available only on iPhone 3G or later. The MMS Messaging and Show Subject Field settings doesn’t appear if MMS isn’t supported by your carrier.

Choose whether or not to see a preview of messages on the Home screen: Choose Messages and turn Show Preview on or off.

Choose whether or not to repeat message alerts: Choose Messages and turn Repeat Alert on or off. If you ignore a message alert, you’ll be alerted two more times.

Turn MMS messaging on or off: Choose Messages and turn MMS Messaging on or off. If MMS messaging is turned off, you won’t be able to receive MMS file attachments such as images or audio.

Show a subject line for messages you send or receive: Choose Messages and turn Show Subject Field on.

iPod

Use iPod Settings to adjust settings for music and video playback on your iPod.

Music

The Music settings apply to songs, podcasts, and audiobooks.

Turn Shake to Shuffle on or off: Choose iPod, then turn Shake to Shuffle on or off. When Shake to Shuffle is on, you can shake iPhone to turn shuffle on and immediately change the currently playing song.

Set iTunes to play songs at the same sound level: In iTunes, choose iTunes > Preferences if you're using a Mac, or Edit > Preferences if you're using a PC, then click Playback and select Sound Check.

Set iPhone to use the iTunes volume settings (Sound Check): Choose iPod and turn Sound Check on.

Use the equalizer to customize the sound on iPhone: Choose iPod > EQ and choose a setting.

Set a volume limit for music and videos: Choose iPod > Volume Limit and drag the slider to adjust the maximum volume.

Tap Lock Volume Limit to assign a code to prevent the setting from being changed.

Setting a volume limit only limits the volume of music (including podcasts and audiobooks) and videos (including rented movies), and only when headphones, earphones, or speakers are connected to the headset jack on iPhone.

WARNING: For important information about avoiding hearing loss, see the *Important Product Information Guide* at www.apple.com/support/manuals/iphone.

Video

Video settings apply to video content, including rented movies. You can set where to resume playing videos that you previously started, turn closed captioning on or off, and set up iPhone to play videos on your TV.

Set where to resume playing: Choose iPod > Start Playing, then select whether you want videos that you previously started watching to resume playing from the beginning or where you left off.

Turn closed captioning on or off: Choose iPod and turn Closed Captioning on or off.

TV Out

Use these settings to set up how iPhone plays videos on your TV. For more information about using iPhone to play videos on your TV, see “Watching Videos on a TV” on page 84.

Turn widescreen on or off: Choose iPod and turn Widescreen on or off.

Set TV signal to NTSC or PAL: Choose iPod > TV Signal and select NTSC or PAL.

NTSC and PAL are TV broadcast standards. NTSC displays 480i and PAL displays 576i. Your TV might use either of these, depending on where you bought it. If you’re not sure which to use, check the documentation that came with your TV.

Photos

Use Photos settings to specify how slideshows display your photos.

Set the length of time each slide is shown: Choose Photos > Play Each Slide For and select the length of time.

Set a transition effect: Choose Photos > Transition and select a transition effect.

Set whether to repeat slideshows: Choose Photos and turn Repeat on or off.

Set photos to appear randomly or in order: Choose Photos and turn Shuffle on or off.

Store

Use Store settings to change or create an iTunes Store account. By default, the iTunes account you’re signed in to when you sync iPhone with your computer appears in Store settings. You can change accounts on iPhone to purchase music or applications from another account. If you don’t have an iTunes account, you can create one in Store settings.

Sign in to an account: Choose Store and tap Sign in, then enter your user name and password.

View your iTunes Store account information: Choose Store and tap View Account, then type your password and follow the onscreen instructions.

Sign in to a different account: Choose Store and tap Sign out, then tap Sign in and enter your username and password.

Create a new account: Choose Store and tap Create New Account, then follow the onscreen instructions.

Nike + iPod

Use Nike + iPod settings to activate and adjust settings for the Nike + iPod application (iPhone 3GS only). See Chapter 24, “Nike + iPod,” on page 180.

iTunes Store

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About the iTunes Store

You can search for, browse, preview, purchase, and download music, ringtones, audiobooks, TV shows, movies, and music videos from the iTunes Store directly to iPhone. You can listen to audio or watch video podcasts from the iTunes Store, either by streaming them from the Internet or by downloading them directly to iPhone.

Note: The iTunes Store is not available in all regions, and iTunes Store content may vary across regions.

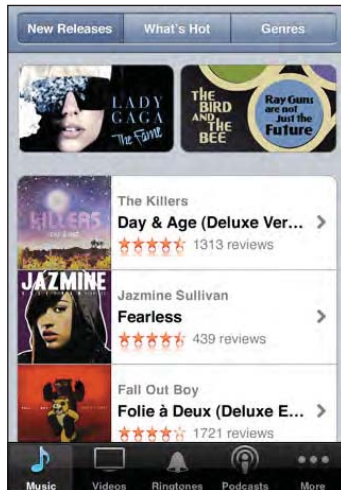
To access the iTunes Store, iPhone must be connected to the Internet. See “Connecting to the Internet” on page 40.

To purchase songs or write reviews, you need an iTunes Store account. By default, iPhone gets your iTunes Store account settings from iTunes. If you don’t have an iTunes Store account, or if you want to make purchases from another iTunes Store account, go to Settings > Store. See “Store” on page 159.

You don’t need an iTunes Store account to play or download podcasts.

Finding Music, Videos, and More

Browse content: Tap Music, Videos, Ringtones, or Podcasts. Or tap More to browse by Audiobooks, iTunes U, or Downloads. Choose a sorting method at the top of the screen to browse by lists such as Featured, Top Tens, or Genres.



Search for content: Tap Search, tap the search field and enter one or more words, then tap Search. Search results are grouped by category, such as Movies, Albums, or Podcasts.



Tap an item in a list to see more details on its Info screen. You can read reviews, write your own review, or email a link about the item to a friend. Depending on the item, you can also buy, download, or rent it.

Note: If you join a Starbucks Wi-Fi network in a select Starbucks location (available in the U.S. only), the Starbucks icon appears at the bottom of the screen. You can preview and purchase the currently playing and other songs from featured Starbucks Collections.

Purchasing Ringtones

You can preview and purchase ringtones from the iTunes Store and download them to iPhone.

Note: Ringtones may not be available in all countries.

Browse for ringtones: Tap Ringtones or use Search to find a specific song in the iTunes Store.

Preview a ringtone: Tap the item to preview. Double-tap the item for more information.

Purchase and download ringtones:

- 1 Tap the price, then tap Buy Now.
- 2 Sign in to your account as requested, then tap OK.

When you purchase a ringtone, you can set it as your default ringtone, or assign it to a contact.

If you don't have an iTunes Store account, tap Create New Account to set one up.

Your purchase is charged to your iTunes Store account. For additional purchases made within the next fifteen minutes, you don't have to enter your password again.

You can change your default ringtone or assign individual ringtones to contacts in Settings > Sounds. See "Sounds and the Ring/Silent Switch" on page 141.

Ringtones you purchase on iPhone are synced to your iTunes library when you connect iPhone to your computer. You can sync purchased ringtones to more than one iPhone, if they're all synced to the same account you used to purchase the ringtones. You can't edit ringtones you purchase from the iTunes Store.

You can create custom ringtones in Garage Band. For information, see Garage Band Help.

Purchasing Music or Audiobooks

When you find a song, album, or audiobook you like in the iTunes Store, you can purchase and download it to iPhone. You can preview an item before you purchase it to make sure it's what you want.

Preview a song or audiobook: Tap the item.

Purchase and download a song, album, or audiobook:

- 1 Tap the price, then tap Buy Now.
- 2 Sign in to your account as requested, then tap OK.

If you don't have an iTunes Store account, tap Create New Account to set one up.

Your purchase is charged to your iTunes Store account. For additional purchases made within the next fifteen minutes, you don't have to enter your password again.

An alert appears if you've previously purchased one or more songs from an album. Tap Buy if you want to purchase the entire album including the songs you've already purchased, or tap Cancel if you want to purchase any remaining songs individually.

Some albums include bonus content, which is downloaded to your iTunes library on your computer. Not all bonus content is downloaded directly to iPhone.

Once you purchase an item it begins downloading and appears in the Downloads screen. See "Checking Download Status" on page 165.

Purchased songs are added to a Purchased playlist on iPhone. If you delete the Purchased playlist, iTunes creates a new one when you buy an item from the iTunes Store.

You can redeem iTunes Store gift cards, gift certificates, or other promotional codes to make purchases. When you're signed in to your account, your remaining store credit appears with your account information at the bottom of most iTunes Store screens.

Enter a redemption code: Tap Music, then tap Redeem at the bottom of the screen and follow the onscreen instructions.

Purchasing or Renting Videos

When you find a movie, TV show, or music video you like in the iTunes Store, you can purchase and download it to iPhone. You can purchase movies and TV shows in standard (480p) or high definition (720p) format.

When you purchase a high-definition video on iPhone, a standard definition version compatible with iPod and iPhone immediately downloads for viewing. The high definition version appears in iTunes on your computer in the Downloads queue. You must be signed in to your iTunes Store account on your computer to view and download items from the Downloads queue.

Rented movies are available in standard definition only (not available in all regions). See "Watching Rented Movies" on page 83.

Preview a video: Tap Preview.

Purchase or rent a video:

- 1 Tap Buy or Rent.
- 2 Sign in to your account as requested, then tap OK.

If you don't have an iTunes Store account, tap Create New Account to set one up.

Your purchase is charged to your iTunes Store account. For additional purchases made within the next fifteen minutes, you don't have to enter your password again.

Once you purchase an item it begins downloading and appears in the Downloads screen. Rented movies won't begin playing until the download completes. See "Checking Download Status" on page 165.


Purchased videos are added to a Purchased playlist on iPhone. If you delete the Purchased playlist, iTunes creates a new one the next time you buy an item from the iTunes Store.

You can redeem iTunes Store gift cards, gift certificates, or other promotional codes to make purchases. When you're signed in to your account, your remaining store credit appears with your account information at the bottom of most iTunes Store screens.

Enter a redemption code: Tap Music, then tap Redeem at the bottom of the screen and follow the onscreen instructions.

Streaming or Downloading Podcasts

You can listen to audio podcasts or watch video podcasts streamed over the Internet from the iTunes Store. You can also download audio and video podcasts to iPhone. Podcasts you download to iPhone are synced to your iTunes library when you connect iPhone to your computer.

Tap Podcasts to browse podcasts in the iTunes Store. To see a list of episodes, tap a podcast. Video podcasts are indicated by the  icon.

Stream a podcast: Tap the podcast title.

Download a podcast: Tap the Free button, then tap Download. Downloaded podcasts appear in the Podcasts list in iPod.

Listen to or watch a podcast you've downloaded: In iPod, tap Podcasts at the bottom of the screen (you may need to tap More first), then tap the podcast. Video podcasts also appear in your list of videos.

Get more episodes of the podcast you've downloaded: In the Podcasts list in iPod, tap the podcast, then tap Get More Episodes.

Delete a podcast: In the Podcasts list in iPod, swipe left or right over the podcast, then tap Delete.

Checking Download Status


You can check the Downloads screen to see the status of in-progress and scheduled downloads, including purchases you've pre-ordered.

See the status of items being downloaded: Tap Downloads.

To pause a download, tap **II**.

If a download is interrupted, iPhone starts the download again the next time it has an Internet connection. Or, if you open iTunes on your computer, iTunes completes the download to your iTunes library (if your computer is connected to the Internet and signed in to the same iTunes account).

See the status of pre-ordered items: Tap Downloads.

Pre-ordered items appear in a list until the date the item is released. Tap the item for release date information. Once the item is available for download, a download  icon appears next to the download.

Download a pre-ordered item: Tap the item, then tap .

Pre-ordered items don't download automatically when they're released. Return to the Downloads screen to begin the download.

Syncing Purchased Content

iTunes automatically syncs everything you've downloaded or purchased on iPhone to your iTunes library when you connect iPhone to your computer. This lets you access the downloads on your computer and provides a backup if you delete purchased content from iPhone.

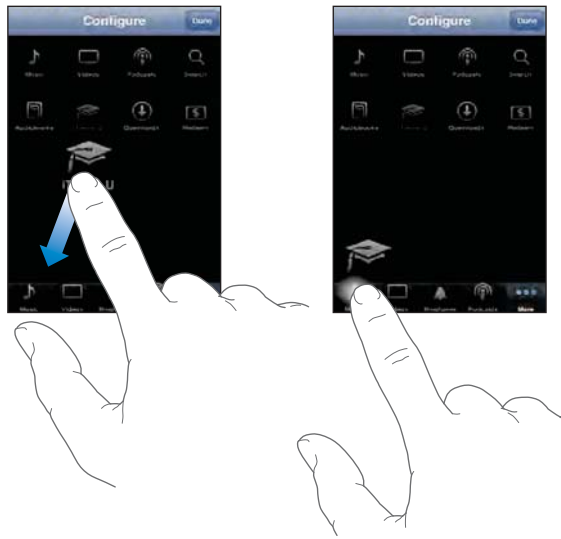
Purchased content is synced to the "Purchased on <name of your iPhone>" playlist. iTunes creates the playlist if it doesn't exist. iTunes also copies your purchases to the Purchased playlist that iTunes uses for purchases you make on your computer, if that playlist exists and is set to sync with iPhone.

Downloaded podcasts are synced to the Podcast list in your iTunes library.

Changing the Browse Buttons

You can replace the Music, Podcasts, Videos, and Search buttons at the bottom of the screen with ones you use more frequently. For example, if you download audiobooks often but don't watch many videos, you could replace the Videos button with Audiobooks.

Change the browse buttons: Tap More and tap Edit, then drag a button to the bottom of the screen, over the button you want to replace.



You can drag the buttons at the bottom of the screen left or right to rearrange them. When you finish, tap Done.

When you're browsing, tap More to access the browse buttons that aren't visible.

Viewing Account Information

To view your iTunes Store account information on iPhone, tap your account (at the bottom of most iTunes Store screens). Or go to Settings > Store and tap View Account. You must be signed in to view your account information. See "Store" on page 159.

Verifying Purchases

You can use iTunes on your computer to verify that all the music, videos, applications, and other items you bought from the iTunes Store or App Store are in your iTunes library. You might want to do this if a download was interrupted.

Verify your purchases:

- 1 Make sure your computer is connected to the Internet.
- 2 In iTunes, choose Store > Check for Available Downloads.
- 3 Enter your iTunes Store account ID and password, then click Check.

Purchases not yet on your computer are downloaded.

The Purchased playlist displays your purchases. However, because you can add or remove items in this list, it might not be accurate. To see all of your purchases, sign in to your account, choose Store > View My Account, and click Purchase History.

App Store

21



About the App Store

You can search for, browse, review, purchase, and download applications from the App Store directly to iPhone. Applications you download and install from the App Store on iPhone are backed up to your iTunes library the next time you sync iPhone with your computer. You can also install applications you've purchased or downloaded through iTunes on your computer when you sync with iPhone.

Note: The App Store is not available in all regions.

To use the App Store, iPhone must be connected to the Internet. See "Connecting to the Internet" on page 40. You also need an iTunes Store account (not available in some countries) to download applications. By default, iPhone gets your iTunes Store account settings from iTunes. If you don't have an iTunes Store account, or if you want to make purchases from another iTunes Store account, go to Settings > Store. See "Store" on page 159.

Browsing and Searching

Browse the featured selections to see new, notable, or recommended applications, or browse Top 25 to see the most popular applications. If you're looking for a specific application, use Search.

Browse applications: Tap Featured, Categories, or Top 25. Choose a category, or choose a sorting method at the top of the screen to browse by lists such as New, What's Hot, Genius, Top Paid, or Top Free.



Browse using Genius: Tap Genius to see a list of recommended apps based on what's already in your app collection. To turn Genius on, follow the onscreen instructions. Genius is a free service, but it requires an iTunes Store account.

Search for applications: Tap Search, tap the search field and enter one or more words, then tap Search.



Info Screen

Tap any application in a list to see more information, such as the application's price, screenshots, ratings, and other information.



If you've already installed the application, "Installed" appears instead of the price on the Info screen.

Email a link to the application's Info page in iTunes: Tap "Tell a Friend" near the bottom of the Info screen.



View screenshots: Swipe left or right over a screenshot to view additional screenshot pages. Double-tap to zoom in.

Get ratings and read reviews: Tap Ratings near the bottom of the Info screen.

Report a problem: Tap "Report a Problem" near the bottom of the Info screen. Select a problem from the list or type optional comments, then tap Report.

Downloading Applications

When you find an application you want in the App Store, you can purchase and download it to iPhone. If the application is free, you can download it without charge after providing your iTunes account information.

Once you download an application, it's immediately installed on iPhone.

Purchase and download an application:

- 1 Tap the price (or tap Free), then tap Buy Now.
- 2 Sign in to your account as requested, then tap OK.

If you don't have an iTunes Store account, tap Create New Account to set one up.

Downloads for purchase are charged to your iTunes Store account. For additional downloads made within the next fifteen minutes, you don't have to enter your password again.

Some applications allow you to make purchases within the application. You can restrict in-app purchases in Settings. See "Restrictions" on page 146.

Some applications use push notifications to alert you of new information, even when the application isn't running. Notifications differ depending upon the application, but may include text or sound alerts, and a numbered badge on the application's icon on the Home screen. See "Notifications" on page 140.

You can redeem iTunes Store gift cards, gift certificates, or other promotional codes to make purchases. When you're signed in to your account, your remaining store credit appears with your account information at the bottom of most App Store screens.

Enter a redemption code: Tap Redeem near the bottom of the Featured screen, then follow the onscreen instructions.

See the status of downloading applications: After you begin downloading an application, its icon appears on the Home screen and shows a progress indicator.





If a download is interrupted, iPhone starts the download again the next time it has an Internet connection. Or, if you open iTunes on your computer, iTunes completes the download to your iTunes library (if your computer is connected to the Internet and signed in to the same iTunes account).

Deleting Applications

You can delete applications you've installed from the App Store. If you delete an application, data associated with the application will no longer be available to iPhone, unless you reinstall the application and restore its data from a backup.

You can reinstall an application and restore its data as long as you backed up iPhone with iTunes on your computer. (If you try to delete an application that hasn't been backed up to your computer, an alert appears.) To retrieve the application data, you must restore iPhone from a backup containing the data. See "Restoring from a Backup" on page 203.

Delete an App Store application:

- 1 Touch and hold any application icon on the Home screen until the icons start to wiggle.
- 2 Tap  in the corner of the application you want to delete.
- 3 Tap Delete, then press the Home  button to save your arrangement.

When you delete an application, its data is no longer accessible via the iPhone user interface, but it isn't erased from your iPhone. For information about erasing all content and settings, see "Erase All Content and Settings" in iPhone settings. See "Resetting iPhone" on page 149.

Writing Reviews

You can write and submit your own application reviews directly on iPhone.

Write a review:

- 1 Tap Ratings near the bottom of the Info screen.
- 2 On the Reviews screen, tap "Write a Review."
- 3 Select the number of stars (1–5) for your rating of the application, and enter your nickname, a title for the review, and optional review comments. If you've written reviews before, the nickname field is already filled in. Otherwise, you're asked to create a reviewer nickname.
- 4 Tap Send.

You must be signed in to your iTunes Store account and have purchased or downloaded the item in order to submit reviews.

Updating Applications

Whenever you access the App Store, it checks for updates to applications you've installed. The App Store also automatically checks for updates every week. The App Store icon shows the total number of application updates available.



If an update is available and you access the App Store, the Updates screen appears immediately. Application updates are downloaded and automatically installed when you choose to update them. Application upgrades are new releases that can be purchased or downloaded through the App Store on iPhone or the iTunes Store on your computer.

Update an application:

- 1 At the bottom of the screen, tap Updates.
- 2 Tap an application to see more information about the update.
- 3 Tap Update.

Update all applications: At the bottom of the screen, tap Updates, then tap Update All.

If you try to update an application purchased from a different iTunes Store account, you're prompted for that account's ID and password in order to download the update.

Syncing Purchased Applications

iTunes automatically syncs applications you've downloaded or purchased on iPhone to your iTunes library when you connect iPhone to your computer. This lets you access the downloads on your computer and provides a backup if you delete applications from iPhone.

Downloaded applications are backed up the next time you sync with iTunes. Afterwards, only application data is backed up when you sync with iTunes.

Applications are synced to the Applications list in your iTunes library. iTunes creates the list if it doesn't exist.

Compass

22



Getting Compass Readings

The built-in compass (iPhone 3GS only) shows which direction you're facing, along with the geographical coordinates of your current location. You can choose magnetic north, or have Compass adjust the declination to show true north.

Important: The accuracy of digital compass headings may be negatively affected by magnetic or other environmental interference, including interference caused by the close proximity of the magnets contained in the iPhone earbuds. The digital compass should only be used for basic navigation assistance and should not be solely relied on to determine precise locations, proximity, distance, or direction.

The compass needs to be calibrated the first time you use it, and may need to be calibrated occasionally after that. iPhone alerts you whenever calibration is needed.

Calibrate iPhone: Wave iPhone in a figure eight. You may be asked to move away from a source of interference.



See which way you're facing: Hold iPhone level to the ground. The compass needle rotates to point north. Your current direction appears at the top of the screen. The coordinates of your current location are displayed at the bottom of the screen.



Switch between true north and magnetic north: Tap ⓘ and tap the setting you want.

Compass and Maps

The Ⓜ icon at the bottom of the Compass screen lets you find your current location in Maps. Maps also takes advantage of the built-in compass to show which way you're facing.

See your current location in Maps: Tap Ⓜ. Maps opens and indicates your current location with a blue marker.



Show which way you're facing: In Maps, tap  again. (The icon changes to .) The angle shows the accuracy of the compass reading—the smaller the angle, the greater the accuracy.



See “Finding and Viewing Locations” on page 114.

Contacts

23



About Contacts

Contact makes it easy to call, email, and text your friends and associates with iPhone. You can add contacts directly on iPhone, or sync contacts from applications on your computer, or with your MobileMe, Microsoft Exchange, Google, or Yahoo! accounts.

You can open Contacts directly from the Home screen, or from within the Phone application.

Adding Contacts

You can add contacts to iPhone in the following ways:

- In iTunes, sync contacts from Google or Yahoo!, or sync with applications on your computer (see “Syncing” on page 11)
- Set up MobileMe or Microsoft Exchange accounts on iPhone, with Contacts enabled (see “Setting Up Accounts” on page 16)
- Install a profile that sets up an Exchange account, with Contacts enabled (see “Installing Configuration Profiles” on page 18)
- Set up an LDAP account on iPhone
- Enter contacts directly on iPhone
- Import contacts from a SIM

The number of contacts you can add is limited only by the amount of memory on iPhone.

Set up an LDAP account:

- 1 In Settings, tap “Mail Contacts, Calendars,” then tap Add Account.
- 2 Tap Other, then tap Add LDAP Account.
- 3 Enter your LDAP account information and tap Next to verify the account.
- 4 Tap Save.

When you set up an LDAP account, you can view and search for contacts on your company or organization’s LDAP server. The server appears as a new group in Contacts. Since LDAP contacts aren’t downloaded to iPhone, you must have an Internet connection to view them. Check with your system administrator for specific account settings and other requirements (such as VPN).

Import contacts from another phone’s SIM: In Settings, tap “Mail, Contacts, Calendars,” then tap Import SIM Contacts.

The contact information on the SIM is imported to iPhone. If you have Contacts enabled for both MobileMe and Microsoft Exchange, you’re prompted to choose which account you want to add the SIM contacts to.

Important: iPhone doesn’t store contacts on its SIM.

Searching Contacts

You can search first, last, and company names in your contacts on iPhone. If you have a Microsoft Exchange account set up on iPhone, you may also be able to search your enterprise Global Address List (GAL) for contacts in your organization. If you have an LDAP account set up on iPhone, you can search contacts on your organization’s LDAP server.

When you enter search information, contacts with matching information appear immediately as you start to type.

Search contacts: In Contacts, tap the search field at the top of any list of contacts and enter a first, last, or company name. (To scroll quickly to the top of the list, tap the status bar.)

Search a GAL: Tap Groups, tap Directories at the bottom of the list, then enter a first, last, or company name.

You can’t edit GAL contacts or save them to iPhone.

Search an LDAP server: Tap Groups, tap the LDAP server name, then enter a first, last, or company name.

You can’t edit LDAP contacts or save them to iPhone.

Managing Contacts on iPhone

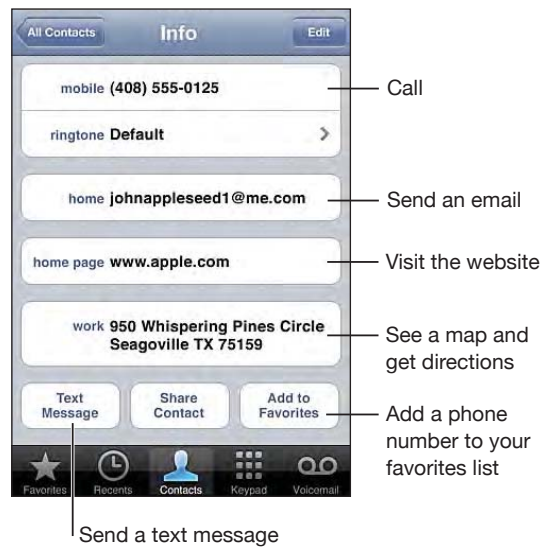
Add a contact on iPhone: Tap Contacts and tap **+**.

Delete a contact	In Contacts, choose a contact, then tap Edit. Scroll down and tap Delete Contact.
Add a contact from the keypad	Tap Keypad, enter a number, then tap +👤 . Tap Create New Contact and enter the caller's information, or tap "Add to Existing Contact" and choose a contact.
Edit contact information	In Contacts, choose a contact, then tap Edit. To add an item, tap + . To delete an item, tap - .
Enter a pause in a number	Tap +**# , then tap Pause. One or more pauses may be required by a phone system before dialing an extension, for example. Pauses appear as commas when the number is saved.
Add a recent caller's phone number to your contacts	Tap Recents and tap 📍 next to the number. Then tap Create New Contact, or tap "Add to Existing Contact" and choose a contact.

Assign a photo to a contact:

- 1 Tap Contacts and choose a contact.
- 2 Tap Edit and tap Add Photo, or tap the existing photo.
- 3 Tap Take Photo to use the camera. Or tap Choose Existing Photo and choose a photo.
- 4 Drag and scale the photo as desired.
- 5 Tap Set Photo.

Use a contact's info screen: Tap Contacts and choose a contact. Then tap an item.



Note: The Contacts screen shown here includes the buttons across the bottom that are available when you view Contacts from within the Phone application. These buttons don't appear if you open Contacts directly from the Home screen.

A star next to a phone number means the number is in your favorites list.

See your own phone number: Tap Contacts and scroll to the top of the list. (Not available in all regions.)

Nike + iPod

24



Activating Nike + iPod

When activated in Settings, the Nike + iPod application appears on the Home screen (iPhone 3GS only). With a Nike + iPod Sensor (sold separately), the Nike + iPod application provides audible feedback on your speed, distance, time elapsed, and calories burned during a running or walking workout. When iPhone is connected to iTunes on your computer, you can send your workout information to Nikeplus.com, where you can track your progress, set goals, and participate in challenges.



See the Nike + iPod documentation for information about activating and using Nike + iPod.

Turn Nike + iPod on or off: In Settings, choose Nike + iPod and turn Nike + iPod on or off. When Nike + iPod is turned on, its icon appears on the Home screen.

Additional Nike + iPod Settings

In Settings, choose Nike + iPod to activate and adjust settings for the Nike + iPod application.

Choose a PowerSong: Choose PowerSong and select a song from your music library.

Turn spoken feedback on or off: Choose Spoken Feedback and select a male or female voice to accompany your workout, or Off to turn off spoken feedback.

Set a distance preference: Choose Distance, then select Miles or Kilometers to measure your workout distance.

Set your weight: Choose Weight, then flick to enter your weight.

Set the screen orientation: Choose Lock Screen, then select a screen orientation preference.

Set up the Nike + iPod Sensor: Choose Sensor, then follow the onscreen instructions to set up your sensor (sold separately).

You can use a Nike+ compatible remote (sold separately) to control Nike + iPod wirelessly. Before using a remote for the first time, you must set it up on iPhone.

Set up the Nike + iPod remote: Choose Remote, then follow the onscreen instructions to set up your remote (third-party product sold separately).

Accessibility

25

Accessibility Features

In addition to the many features that make iPhone easy to use for everyone, accessibility features (available only on iPhone 3GS) are designed to make it easier for users with visual, auditory, or other physical disabilities to use iPhone. These accessibility features include:

- VoiceOver
- Zoom
- White on Black
- Mono Audio
- Speak Auto-text

With the exception of VoiceOver, these accessibility features work with all iPhone applications, including third-party applications you download from the App Store. VoiceOver works with all applications that come preinstalled on iPhone. In addition, third-party developers can use the iPhone Accessibility API to make their applications accessible for VoiceOver users.

For more information about the accessibility features of iPhone, go to www.apple.com/accessibility.

Each accessibility feature can be turned on or off in the Accessibility settings on iPhone. You can also turn accessibility features on or off in iTunes when iPhone is connected to your computer.

Turn accessibility features on or off in iTunes:

- 1 Connect iPhone to your computer.
- 2 In iTunes, select iPhone in the sidebar.
- 3 In the Summary pane, click Configure Universal Access in the Options section.

- 4 Select the accessibility features that you want to use and click OK.



VoiceOver

VoiceOver describes aloud what appears onscreen, so that you can use iPhone without seeing it. VoiceOver speaks in the language specified in International settings, which may be influenced by the Region Locale setting.

Note: VoiceOver isn't available in all languages.

VoiceOver tells you about each element on the screen as it's selected. When an element is selected, it's enclosed by a black rectangle (for the benefit of those who can see the screen) and VoiceOver speaks the name or describes the item. The enclosing rectangle is referred to as the VoiceOver cursor. If text is selected, VoiceOver reads the text. If a control (such as a button or switch) is selected and Speak Hints is turned on, VoiceOver may tell you the action of the item or provide instructions for you—for example, "double-tap to open."

When you go to a new screen, VoiceOver plays a sound and automatically selects and speaks the first element of the screen (typically, the item in the upper-left corner). VoiceOver also lets you know when the display changes to landscape or portrait, and when the screen is locked or unlocked.

Setting Up VoiceOver

Important: VoiceOver changes the gestures used to control iPhone. Once VoiceOver is turned on, you have to use VoiceOver gestures to operate iPhone—even to turn VoiceOver off again to resume standard operation.

Turn VoiceOver on or off: In Settings, choose General > Accessibility > VoiceOver and tap the VoiceOver On/Off switch.

You can also set Triple-click Home to turn VoiceOver on or off. See "Triple-click Home" on page 191.

Note: You cannot use VoiceOver and Zoom at the same time.

Turn spoken hints on or off: In Settings, choose General > Accessibility > VoiceOver, and tap the Speak Hints On/Off switch. Spoken hints are turned on by default.

Set the VoiceOver speaking rate: In Settings, choose General > Accessibility > VoiceOver, and adjust the Speaking Rate slider.

You can choose what kind of feedback you get when you type. You can set VoiceOver to speak characters, words, both, or nothing. If you choose to hear both characters and words, VoiceOver speaks each character as you type it, then speaks the whole word when you finish it by entering a space or punctuation.

Choose typing feedback: In Settings, choose General > Accessibility > VoiceOver > Typing Feedback, then choose Characters, Words, Characters and Words, or Nothing.

Change the language spoken by VoiceOver: In Settings, choose General > International > Language, then select a language and tap OK. Some languages may be influenced by the Region Local setting. In Settings, choose General > International > Region Format and select the format.

Note: VoiceOver isn't available in all languages.

Practice gestures: In Settings, choose General > Accessibility > VoiceOver > Practice Gestures, then tap Practice VoiceOver Gestures. Practice the gestures described in "VoiceOver Gestures," below. When you're finished practicing, tap Done.

VoiceOver Gestures

When VoiceOver is turned on, the standard touchscreen gestures have different effects. These and some additional gestures allow you to move around the screen and to control the individual elements when they're selected. VoiceOver gestures include using two and three fingers to tap or flick. For best results when using two- and three-finger gestures, relax and let your fingers touch the screen with some space between your fingers.

You can use standard gestures when VoiceOver is turned on, by double-tapping and holding your finger on the screen. A series of tones indicates that normal gestures are in force. They remain in effect until you lift your finger. Then VoiceOver gestures resume.

You can use many different techniques to enter VoiceOver gestures. For example, you can enter a two-finger tap using two fingers from one hand, or one finger from each hand. You can also use your thumbs. Try different techniques to discover which works best for you.

If your gestures don't work, try quicker movements, especially for double-tap and flicking gestures. To flick, try quickly brushing the screen with your finger or fingers. You can practice VoiceOver gestures in Settings: choose General > Accessibility > VoiceOver > Practice Gestures and tap the Practice VoiceOver Gestures button.

Here's a summary of key VoiceOver gestures:

Navigate and Read

- *Tap*: Speak item.
- *Flick right or left*: Select the next or previous item.
- *Flick up or down*: Depends on the Rotor Control setting. See “Rotor Control” on page 185.
- *Two-finger tap*: Stop speaking the current item.
- *Two-finger flick up*: Read all from top of screen.
- *Two-finger flick down*: Read all from current position.
- *Three-finger flick up or down*: Scroll one page at a time.
- *Three-finger flick right or left*: Go to the next or previous page (such as the Home screen, Stocks, or Safari).
- *Three-finger tap*: Speak the scroll status (which page or rows are visible).

Select and Activate

- *Double-tap*: Activate selected item.
- *Touch an item with one finger, tap the screen with another finger (“split-tapping”)*: Activate item.
- *Double-tap and hold (1 second) + standard gesture*: Use a standard gesture.
The double-tap and hold gesture tells iPhone to interpret the subsequent gesture as standard. For example, you can double-tap and hold, then without lifting your finger, drag your finger to slide a switch.
- *Two-finger double tap*: Answer or end a call. Play or pause in iPod, YouTube, Voice Memos, or Photos. Take a picture (Camera). Start or pause recording in Camera or Voice Memos. Start or stop the stopwatch.
- *Three-finger double tap*: Mute or unmute VoiceOver.
- *Three-finger triple tap*: Turn the display on or off.

Do single-finger flicking gestures quickly, to distinguish them from dragging gestures.

Rotor Control

The rotor control is an invisible dial that you can use to change the results of up and down flick gestures when VoiceOver is turned on.

Operate the rotor: Rotate two fingers on the iPhone screen to “turn” the dial to choose between options.

The effect of the rotor depends on what you're doing. For example, if you're reading text in an email you received, you can use the rotor to switch between hearing text spoken word-by-word or character-by-character when you flick up or down. If you're browsing a webpage, use the rotor to choose whether you hear text word-by-word or character-by-character, hear just the headers, hear just the links (all of them, visited links, or links not yet visited), hear form elements, or hear descriptions of images. In other words, you can use the rotor setting to hear all the text, or to jump from one element to another of a certain type, such as headers or links.

Rotor options depend on the context of what you're doing.

Reading text

- Select and hear text character-by-character
- Select and hear text word-by-word

Browsing a webpage

- Select and hear text character-by-character
- Select and hear text word-by-word
- Select and hear headers
- Select and hear links
- Select and hear form controls
- Select and hear visited links
- Select and hear links not visited
- Select and hear images
- Select and hear static text
- Zoom in or out

Entering text

- Move insertion point and hear text character-by-character
- Move insertion point and text word-by-word
- Text editing functions
- Auto-text

Using a control (such as the spinner for setting the time in Clock)

- Select and hear value character-by-character
- Select and hear value word-by-word
- Adjust the value of the control object

Using VoiceOver

Select items on the screen: Drag your finger over the screen. VoiceOver identifies each element as you touch it. You can also move systematically from one element to the next by flicking left or right with a single finger. Elements are selected from left-to-right, top-to-bottom. Flick right to go to the next element, or flick left to go to the previous element.

“Tap” a selected item when VoiceOver is turned on: Double-tap anywhere on the screen.

Speak the text of an element, character by character or word by word: With the element selected, flick up or down with one finger. Flick down to read the next character, or flick up to read the previous character. Twist the rotor control to read word by word.


Adjust a slider: With a single finger, flick up to increase the setting or down to decrease the setting. VoiceOver announces the setting as you adjust it.

Scroll a list or area of the screen: Flick up or down with three fingers. Flick down to page down through the list, or flick up to page up through the list. When paging through a list, VoiceOver speaks the range of items displayed (for example, “showing rows 5 through 10”).

You can also scroll continuously through a list, instead of paging through it. Double-tap and hold. When you hear a series of tones, you can move your finger up or down to scroll the list. Continuous scrolling stops when you lift your finger.

Use a list index: Some lists have an alphabetical index along the right side. The index cannot be selected by flicking between elements; you must touch the index directly to select it. With the index selected, flick up or down to move along the index. You can also double-tap, then slide your finger up or down.

Unlock iPhone: Select the Unlock switch, then double-tap the screen.

Rearrange the Home screen: On the Home screen select the icon you want to move. Double-tap and hold, then drag the icon. VoiceOver speaks the row and column position as you drag the icon. Release the icon when it’s in the location you want. You can drag additional icons. Drag an item to the left or right edge of the screen to move it to another page of the Home screen. When you’re finished rearranging the icons, press the Home  button.

Mute VoiceOver	Double-tap with three fingers. Double-tap again with three fingers to turn speaking back on. To turn off only VoiceOver sounds, set the Ring/Silent switch to Silent.
Stop speaking an item	Tap once with two fingers. Tap again with two fingers to resume speaking. Speaking automatically resumes when you select another item.
Turn off the display while you use VoiceOver	Triple-tap with three fingers. Triple-tap again with three fingers to turn on the display again.
Speak entire screen from the top	Flick up with two fingers.
Speak from current item to bottom of screen	Flick down with two fingers.

Status information about iPhone can be heard by touching the top of the screen. This can include the time, battery life, Wi-Fi signal strength, and more.

Entering and Editing Text

When you select a text field with VoiceOver, you can use the onscreen keyboard to enter text. You can use the editing features of iPhone to cut, copy, or paste in the text field.

Note: Safari doesn't support copying webpage content. The editing features work only in editable text fields.

Enter text:

- 1 Use VoiceOver to select an editable text field, then double tap to display the insertion point and bring up the onscreen keyboard. If the field already contains text, the insertion point is placed at the beginning or at the end of the text. Double-tap again to place the insertion point at the opposite end. VoiceOver tells you the position of the insertion point.

The insertion point and onscreen keyboard may appear automatically when you select a text field. VoiceOver announces when you're in editing mode.

- 2 To type, select a key on the keyboard by flicking left or right, then double-tap to enter the character. Or drag your finger around the keyboard to select a key, and, while holding the key with one finger, tap the screen with another finger to enter the character. VoiceOver speaks the key when it's selected, and again when it's entered.

To enter an accented character, double-tap and hold until you hear a sound that indicates the alternate characters have appeared, then drag left or right to select and hear the choices. Release your finger to enter the current selection.

Move the insertion point: Flick up or down to move the insertion point forward or backward in the text. VoiceOver makes a sound when the insertion point moves, and speaks the character that the insertion point moved across. Use the rotor to choose whether you want to move the insertion point by character or by word.

Select text: Use the rotor to choose edit. Flick up or down to choose between the Select and Select All functions, then double tap. If you chose Select, the word closest to the insertion point is selected when you double-tap. If you chose Select All, the entire text is selected.

Pinch to increase or decrease the selection.

Cut, Copy, or Paste: Make sure the rotor is set to edit. With text selected, flick up or down to choose Cut, Copy, or Paste, then double-tap.

Undo: Shake iPhone, flick left or right to choose the action to undo, then double-tap.

Using Maps

With VoiceOver, you can zoom in or out, select pins, and get information about locations.

Zoom in or out: Use the rotor to choose zoom mode, then flick up or down to zoom in or out.

Select a pin: Touch a pin, or flick left or right to move from one item to another.

Get information about a location: With a pin selected, double-tap to display the information flag. Flick left or right to select the flag, then double-tap to display the information page.

Editing Videos and Voice Memos

You can use VoiceOver gestures to trim Camera videos and Voice Memo recordings.

Trim a voice memo: On the Voice Memos screen, select the button to the right of the memo you want to trim, then double-tap. Then select Trim Memo and double-tap. Select the beginning or end of the trim tool. Flick up to drag to the right, or flick down to drag to the left. VoiceOver announces the amount of time the current position will trim from the recording. To execute the trim, select Trim Voice Memo and double-tap.

Trim a video: While viewing a video, double-tap the screen to display the video controls. Select the beginning or end of the trim tool. Then flick up to drag to the right, or flick down to drag to the left. VoiceOver announces the amount of time the current position will trim from the recording. To execute the trim, select Trim and double-tap.

Zoom

Many iPhone applications let you zoom in and out specific elements. For example, you can double-tap or use the pinch gesture to expand webpage columns in Safari. Zoom is a special accessibility feature that lets you magnify the entire screen of any application you're using to help you see what's on the display.

Turn Zoom on or off: In Settings, choose General > Accessibility > Zoom and tap the Zoom On/Off switch.

Note: You cannot use VoiceOver and Zoom at the same time.

Zoom in or out: Double-tap the screen with three fingers. By default, the screen is magnified by 200 percent. If you manually change the magnification (by using the tap-and-drag gesture, described below), iPhone automatically returns to that magnification when you zoom in by double-tapping with three fingers.

Increase magnification: With three fingers, tap and drag toward the top of the screen (to increase magnification) or toward the bottom of the screen (to decrease magnification). The tap-and-drag gesture is similar to a double-tap, except you don't lift your fingers on the second tap—instead, drag your fingers on the screen. Once you start dragging, you can drag with a single finger.

Move around the screen: When zoomed in, drag or flick the screen with three fingers. Once you start dragging, you can drag with a single finger so that you can see more of the screen. Hold a single finger near the edge of the display to pan to that side of the screen image. Move your finger closer to the edge to pan more quickly. When you open a new screen, Zoom always goes to the top-middle of the screen.

White on Black

Use White on Black to invert the colors on the iPhone display, which may make it easier to read the screen. The screen looks like a photographic negative when White on Black is turned on.

Invert the screen's colors: In Settings, choose General > Accessibility and tap the "White on Black" switch.

Mono Audio

Mono Audio combines the sound of the left and right channels into a mono signal played on both sides. This enables users with hearing impairment in one ear to hear the entire sound signal with the other ear.

Turn Mono Audio on or off: In Settings, choose General > Accessibility and tap the Mono Audio switch.


Speak Auto-text

Speak Auto-text speaks the text corrections and suggestions iPhone makes when you're typing.

Turn Speak Auto-text on or off: In Settings, choose General > Accessibility and tap the Speak Auto-text switch.

Speak Auto-text also works with VoiceOver or Zoom.

Triple-click Home

Triple-click Home provides an easy way to turn some of the Accessibility features on or off when you press the Home  button quickly three times. You can set Triple-click Home to turn VoiceOver on or off, turn White on Black on or off, or present the options to:

- Turn VoiceOver on or off
- Turn Zoom on or off
- Turn White on Black on or off

Triple-click Home is turned off by default.

Set the Triple-click Home function: In Settings, choose General > Accessibility > Triple-click Home and choose the function you want.

Closed Captioning and Other Helpful Features

Many features available on all models of iPhone help make iPhone accessible to all users, including those with visual or auditory impairments.

Closed Captioning

You can turn on closed captioning for videos in iPod settings. See “Video” on page 158.

Voice Control

Voice Control (available only on iPhone 3GS) lets you make phone calls and control iPod music playback by using voice commands. See “Voice Dialing” on page 48, and “Using Voice Control with iPod” on page 77.

Large Phone Keypad

Make phone calls simply by tapping entries in your contacts and favorites lists. When you need to dial a number, iPhone’s large numeric keypad makes it easy. See “Phone Calls” on page 47.

Widescreen Keyboards

Several applications let you rotate iPhone when you’re typing so that you can use a larger keyboard:

- Mail
- Safari
- Messages
- Notes
- Contacts

Visual Voicemail

The play and pause controls in visual voicemail let you control the playback of messages. Drag the playhead on the scrubber bar to repeat a portion of the message that's hard to understand. See "Checking Voicemail" on page 52.

Assignable Ringtones

You can assign distinctive ringtones to individuals in your contacts list for audible caller ID. You can purchase ringtones from the iTunes Store on iPhone. See "Purchasing Ringtones" on page 162.

Instant Messaging (IM) Chat

The App Store features many Internet Messaging (IM) applications such as AIM, BeejiveIM, ICQ, and Yahoo! Messenger that are optimized for iPhone.

Minimum Font Size for Mail Messages

To increase readability, set a minimum font size for Mail message text to Large, Extra Large, or Giant. See "Mail" on page 152.

TTY Support (Available in Some Areas)

Use iPhone in TTY mode with the iPhone TTY Adapter (available separately) to use a Teletype (TTY) machine. See "Using iPhone with a Teletype (TTY) Machine" on page 154.

Universal Access in Mac OS X

Take advantage of the Universal Access features in Mac OS X when you use iTunes to sync information and content from your iTunes library to iPhone. In the Finder, choose Help > Mac Help, then search for "universal access."

For more information about iPhone and Mac OS X accessibility features, go to www.apple.com/accessibility.

Troubleshooting

A

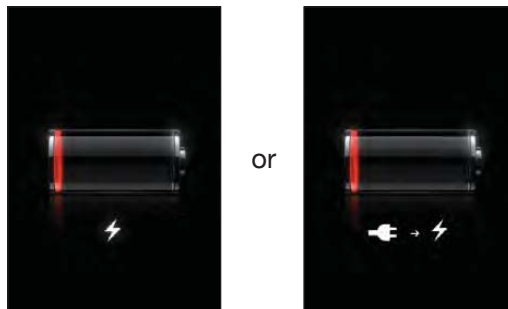
Apple iPhone Support Site

Comprehensive support information is available online at www.apple.com/support/iphone.


General

Low-Battery Image Appears

iPhone is low on power and needs to charge for up to ten minutes before you can use it. For information about charging iPhone, see “Charging the Battery” on page 43.



iPhone Doesn't Respond

- iPhone may be low on power. Connect iPhone to your computer or to its power adapter to charge. See “Charging the Battery” on page 43.
- Press and hold the Sleep/Wake button on top of iPhone for a few seconds until a red slider appears, and then press and hold the Home button until the application you were using quits.
- If that doesn't work, turn iPhone off, then turn it on again. Press and hold the Sleep/Wake button on top of iPhone for a few seconds until a red slider appears, and then drag the slider. Then press and hold the Sleep/Wake button until the Apple logo appears.
- If that doesn't work, reset iPhone. Press and hold both the Sleep/Wake button and the Home  button for at least ten seconds, until the Apple logo appears.

iPhone Still Doesn't Respond After Reset

- Reset iPhone settings. From the Home screen choose Settings > General > Reset > Reset All Settings. All your preferences are reset, but your data and media aren't deleted.
- If that doesn't work, erase all content on iPhone. See "Resetting iPhone" on page 149.
- If that doesn't work, restore the iPhone software. See "Updating and Restoring iPhone Software" on page 204.

"This accessory is not made to work with iPhone" Appears

Make sure the dock connector is free of debris.

If you connect iPhone to an accessory not specifically made for it, iPhone may ask if you want to turn on airplane mode. This is to eliminate radio interference from cellular signals coming from iPhone. You may be able to use iPhone with the accessory whether or not you turn on airplane mode. However, the accessory may not charge iPhone.

If you turn on airplane mode, you won't be able to make calls, send or receive text messages, access the Internet, or use Bluetooth devices with iPhone until you disconnect iPhone from the accessory or turn off airplane mode.

"This accessory is not supported by iPhone" Appears

The accessory you attached may not work with iPhone. Make sure the dock connector is free of debris.

Connect-to-iTunes Screen Appears

iPhone needs to be activated. Connect iPhone to your computer and open iTunes if it doesn't open automatically.

iPhone Is Too Warm

If the interior temperature of iPhone 3G or later exceeds normal operating temperatures, you may experience the following as it attempts to regulate its temperature:

- iPhone stops charging
- the display dims
- the cellular signal is weak
- a temperature warning screen appears

Important: You cannot use iPhone while the temperature warning screen is displayed except to make an emergency call. If none of the above measures succeeds in lowering the internal temperature, iPhone automatically goes into a deep sleep mode until it cools. You cannot make an emergency call when iPhone is in this mode. Move iPhone to a cooler location and wait a few minutes before trying to use iPhone again.

iTunes and Syncing

iPhone Doesn't Appear in iTunes

- The iPhone battery might need to be recharged. For information about charging iPhone, see “Charging the Battery” on page 43.
- Disconnect other USB devices from your computer and connect iPhone to a different USB 2.0 port on your computer (not on your keyboard).
- Turn iPhone off and back on again. Press and hold the Sleep/Wake button on top of iPhone for a few seconds until a red slider appears, then drag the slider. Then press and hold the Sleep/Wake button until the Apple logo appears. Tap Unlock and enter your SIM's PIN if the SIM is locked.

Important: If you enter the PIN incorrectly three times, you may need to enter a Personal Unlocking Key (PUK) to enable your SIM card again. Refer to the SIM card documentation or contact your carrier.

- Restart your computer and reconnect iPhone to your computer.
- Download and install (or reinstall) the latest version of iTunes from www.apple.com/itunes.

Syncing Doesn't Work

- The iPhone battery might need to be recharged. For information about charging iPhone, see “Charging the Battery” on page 43.
- Disconnect other USB devices from your computer and connect iPhone to a different USB 2.0 port on your computer (not on your keyboard).
- Turn iPhone off and back on again. Press and hold the Sleep/Wake button on top of iPhone for a few seconds until a red slider appears, then drag the slider. Then press and hold the Sleep/Wake button until the Apple logo appears. Tap Unlock and enter your SIM's PIN if the SIM is locked.

Important: If you enter the PIN incorrectly three times, you may need to enter a Personal Unlocking Key (PUK) to enable your SIM card again. Refer to the SIM card documentation or contact your carrier.

- Restart your computer and reconnect iPhone to your computer.
- Download and install (or reinstall) the latest version of iTunes from www.apple.com/itunes.

Contacts, Calendars, or Bookmarks Don't Sync

- Download and install (or reinstall) the latest version of iTunes from www.apple.com/itunes.

Yahoo! or Google Contacts Doesn't Sync


iTunes may not be able to connect with Yahoo! or Google. Make sure your computer is connected to the Internet, and that you've entered the correct ID and password in iTunes. Connect iPhone to your computer, click the Info tab in iTunes, click Configure in the Contacts section, then enter your current ID and password.

Yahoo! Address Book Still Has Contacts Deleted From iPhone

Yahoo! Address Book doesn't allow contacts containing a Messenger ID to be deleted through syncing. To delete a contact containing a Messenger ID, log in to your Yahoo! account online and delete the contact using Yahoo! Address Book.

Phone and Voicemail

Can't Make or Receive Calls

- Check the cell signal  icon in the status bar at the top of the screen. If there are no bars, or if it says "No service," try moving to a different location. If you're indoors, try going outdoors or moving closer to a window.
- Check to make sure you're in an area with network coverage. Go to your carrier's website to see network coverage areas.
- Make sure airplane mode isn't on. From the Home screen choose Settings, then turn airplane mode off. If that doesn't work, turn airplane mode on, wait 15 seconds, then turn airplane mode off again.
- Turn iPhone off and back on again. Press and hold the Sleep/Wake button on top of iPhone for a few seconds until a red slider appears, then drag the slider. Then press and hold the Sleep/Wake button until the Apple logo appears. Tap Unlock and enter your SIM's PIN if the SIM is locked.

Important: If you enter the PIN incorrectly three times, you may need to enter a Personal Unlocking Key (PUK) to enable your SIM card again. Refer to the SIM card documentation or contact your carrier.

- There may be a problem with your wireless service. Call your carrier or go to your carrier's website.
- Restore the iPhone software. See "Updating and Restoring iPhone Software" on page 204.


Visual Voicemail Isn't Available

Visual Voicemail is delivered over the cellular data network. Because Data Roaming is turned off by default, you may not have access to the Internet when traveling abroad unless you turn Data Roaming on. In Settings choose General > Network, then tap Data Roaming.

Important: Data roaming charges may apply when Data Roaming is on.

Visual Voicemail may be an optional service in some countries. Contact your carrier for more information.

You Can't Remember Your Voicemail Password

If iPhone prompts you for your password when you tap Voicemail and you don't remember your password, tap  for instructions on resetting it.


Voicemail Service Is Called When You Tap Voicemail

If the voice instructions prompt you, enter your voicemail password. Otherwise, wait until you hear any voice instruction, then end the call. After a time, Voicemail should become available again.

This may occur if you removed the SIM card from iPhone and replace it with another SIM card.

Safari, Text, Mail, and Contacts

Websites, Text, or Email Aren't Available

- Check the cell signal  icon in the status bar at the top of the screen. If there are no bars, or if it says "No service," try moving to a different location. If you're indoors, try going outdoors or moving closer to a window.
 - Check to make sure you're in an area with network coverage. Go to your carrier's website to see network coverage areas.
 - If the cellular network isn't available, connect to a Wi-Fi network if possible.
 - Make sure airplane mode isn't on. From the Home screen choose Settings, then turn airplane mode off. If that doesn't work, turn airplane mode on, wait 15 seconds, then turn airplane mode off again.
 - Make sure to include an area code for every phone number in your contacts list that you use to send or receive text messages.
 - Turn iPhone off and back on again. Press and hold the Sleep/Wake button on top of iPhone for a few seconds until a red slider appears, then drag the slider. Then press and hold the Sleep/Wake button until the Apple logo appears. Tap Unlock and enter your SIM's PIN if the SIM is locked.
- Important:** If you enter the PIN incorrectly three times, you may need to enter a Personal Unlocking Key (PUK) to enable your SIM card again. Refer to the SIM card documentation or contact your carrier.
- There may be a problem with your wireless service. Call your carrier or go to your carrier's website.

- If you're traveling abroad, you may not have Internet access because Data Roaming is turned off (the default). Turn Data Roaming on or connect to a Wi-Fi network. To turn Data Roaming on, in Settings choose General > Network and tap Data Roaming. Data roaming charges may apply.

Important: Data roaming charges may apply. To avoid data roaming charges, turn Data Roaming off.

- Restore the iPhone software. See "Updating and Restoring iPhone Software" on page 204.

Can't Send Email

If iPhone is unable to send email, try the following:

- In Settings, choose "Mail, Contacts, Calendars" and select the account you're trying to use. Tap Account Info, then tap SMTP under Outgoing Mail Server. Under Other SMTP Server, tap the SMTP server for your carrier, then tap to turn the server on. The Under Other SMTP settings also allow you to set up additional SMTP servers. Contact your carrier or Internet service provider for configuration information.
- Set up your email account directly on iPhone instead of syncing it from iTunes. In Settings, choose "Mail, Contacts, Calendars," tap Add Account and enter your account information. If iPhone is unable to locate your service provider's settings when you enter your email address, go to www.apple.com/support and search for HT1277 to get additional help in setting up your account.
- Turn iPhone off, then turn it on again. Press and hold the Sleep/Wake button on top of iPhone for a few seconds until a red slider appears, and then drag the slider. Then press and hold the Sleep/Wake button until the Apple logo appears.
- Turn off Wi-Fi so iPhone is connecting to the Internet via the cellular data network. In Settings, choose Wi-Fi and turn off Wi-Fi.

For additional troubleshooting information, go to www.apple.com/support and search for TS1426. If you still can't send email, you can call an Apple Expert (not available in all countries). Go to www.apple.com/support/expert for information. If Apple Expert is not available in your country, get a free GMail, Yahoo!, or AOL account and try forwarding your mail to that account.

Can't Receive Email

If iPhone is unable to receive email, try the following:

- If you're using one or more computers to check the same email account, that may be creating a lock-out issue. For more information, go to www.apple.com/support and search for TS2621.

- Set up your email account directly on iPhone instead of syncing it from iTunes. In Settings, choose “Mail, Contacts, Calendars,” tap Add Account and enter your account information. If iPhone is unable to locate your service provider’s settings when you enter your email address, go to www.apple.com/support and search for HT1277 to get additional help in setting up your account.
- Turn iPhone off, then turn it on again. Press and hold the Sleep/Wake button on top of iPhone for a few seconds until a red slider appears, and then drag the slider. Then press and hold the Sleep/Wake button until the Apple logo appears.
- Turn off Wi-Fi so iPhone is connecting to the Internet via the cellular data network. In Settings, choose Wi-Fi and turn off Wi-Fi.

For additional troubleshooting information, go to www.apple.com/support and search for TS1426. If you still can’t receive email, you can call an Apple Expert (not available in all countries). Go to www.apple.com/support/expert for information. If Apple Expert is not available in your country, get a free GMail, Yahoo!, or AOL account and try forwarding your mail to that account.

Email Attachment Won’t Open

The file type may not be supported. iPhone supports the following email attachment file formats:

.doc	Microsoft Word
.docx	Microsoft Word (XML)
.htm	webpage
.html	webpage
.key	Keynote
.numbers	Numbers
.pages	Pages
.pdf	Preview, Adobe Acrobat
.ppt	Microsoft PowerPoint
.pptx	Microsoft PowerPoint (XML)
.rtf	Rich Text Format
.txt	text
.vcf	contact information
.xls	Microsoft Excel
.xlsx	Microsoft Excel (XML)

GAL Contacts Don't Appear

Check your Microsoft Exchange settings to make sure you're on the right server. In Settings, tap "Mail, Contacts, Calendars" and choose an account to display its settings.

If you're trying to search for GAL contacts in Contacts, tap Groups and tap Directories at the bottom of the list.

Sound, Music, and Video

No Sound

- Unplug and reconnect the headset. Make sure the connector is pushed in all the way.
- Make sure the volume isn't turned down all the way.
- Music on iPhone might be paused. Try pressing the center button on the iPhone headset (or the equivalent button on your Bluetooth headset) to resume playback. Or from the Home screen, tap iPod, tap Now Playing, then tap ►.
- Check to see if a volume limit is set. From the Home screen choose Settings > iPod > Volume Limit. For more information, see "Music" on page 158.
- Make sure you're using the latest version of iTunes (go to www.apple.com/itunes).
- If you're using the optional dock's line out port, make sure your external speakers or stereo are turned on and working properly.

Pressing Mic Button Doesn't Resume Music Playback

iPhone goes to sleep after music has been paused for five minutes. Press the Home ☐ or Sleep/Wake button to wake up iPhone.

Song, Video, or Other Items Won't Play

The song may have been encoded in a format that iPhone doesn't support. The following audio file formats are supported by iPhone. These include formats for audiobooks and podcasting:

- AAC (M4A, M4B, M4P, up to 320 Kbps)
- Apple Lossless (a high-quality compressed format)
- MP3 (up to 320 Kbps)
- MP3 Variable Bit Rate (VBR)
- WAV
- AA (audible.com spoken word, formats 2, 3, and 4)
- AAX (audible.com spoken word, AudibleEnhanced format)
- AIFF

The following video file formats are supported by iPhone:

- H.264 (Baseline Profile Level 3.0)
- MPEG-4 (Simple Profile)

A song encoded using Apple Lossless format has full CD-quality sound, but takes up only about half as much space as a song encoded using AIFF or WAV format. The same song encoded in AAC or MP3 format takes up even less space. When you import music from a CD using iTunes, it's converted to AAC format by default.

Using iTunes for Windows, you can convert nonprotected WMA files to AAC or MP3 format. This can be useful if you have a library of music encoded in WMA format.

iPhone doesn't support WMA, MPEG Layer 1, MPEG Layer 2 audio files, or audible.com format 1.

If you have a song or video in your iTunes library that isn't supported by iPhone, you may be able to convert it to a format iPhone supports. See iTunes Help for more information.

iTunes Stores

iTunes Store Isn't Available

To use the iTunes Store, iPhone must be connected to the Internet. See "Connecting to the Internet" on page 40. The iTunes Store isn't available in all countries.

Can't Purchase Content

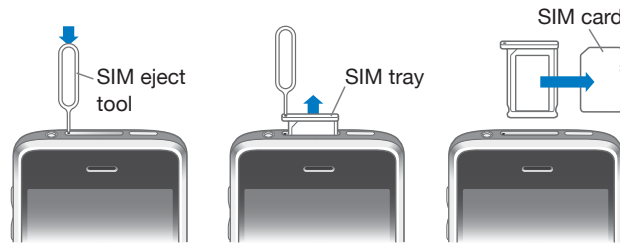
To purchase content from the iTunes Store or App Store, you must have an iTunes Store account. Open iTunes on your computer and choose Store > Create Account. You can also set up an account on iPhone. See "Viewing Account Information" on page 166.

Note: The iTunes Store is available only in some countries.

Removing the SIM Card

If you need to send your iPhone in for service, or if you want to loan your iPhone to someone and you still want to be able to make calls, you may be able to use the SIM card inside iPhone with another phone.

Remove the SIM card: Insert the end of the SIM eject tool (or a small paper clip) into the hole on the SIM tray. Press firmly and push it straight in until the tray pops out.



Backing Up iPhone

iTunes creates backups of settings, downloaded applications and data, and other information on iPhone. You can use a backup to restore these items to your iPhone after a software restore or to transfer the information to another iPhone.

Backing up iPhone or restoring from a backup is not the same as syncing content and other items (such as music, podcasts, ringtones, photos, videos, and applications that you download via iTunes) with your iTunes library. Backups include settings, downloaded applications and data, and other information that resides on iPhone. You can restore these items from a backup using iTunes, but you may also have to sync your iTunes library content again.

Applications downloaded from the App Store are backed up the next time you sync with iTunes. Afterwards, only application data is backed up when you sync with iTunes.

Creating Backups

Backups can be created in the following ways:

- Once iPhone has been configured to sync with a particular computer, iTunes automatically makes a backup of iPhone on that computer when you sync. iTunes won't automatically back up an iPhone that isn't configured to sync with that computer. If you've configured iPhone to automatically sync with iTunes on a specific computer, iTunes will back up iPhone every time you connect it to that computer. Automatic syncing is turned on by default. iTunes only makes one backup each time you connect, even if you sync multiple times before disconnecting.
- If you choose to update the software on iPhone, iTunes will back up iPhone automatically, even if it isn't configured to sync with iTunes on that computer.
- If you choose to restore the software on iPhone, iTunes asks if you want to back up iPhone before restoring.

If you use a Bluetooth headset or car kit with iPhone and you restore settings, you must pair the Bluetooth device with iPhone again to use it.

For more information about backups, including the settings and information stored in a backup, go to www.apple.com/support and search for HT1766.

Restoring from a Backup

You can restore the settings, application data, and other information from a backup, or use this feature to transfer these items to another iPhone.

Restore iPhone from a backup:

- 1 Connect iPhone to the computer you normally sync with.
 - 2 In iTunes, Control-click iPhone in the sidebar and choose “Restore from Backup” from the menu that appears.
 - 3 Choose the backup that you want to restore from the pop-up menu, then click Restore.
- If your backup is encrypted, you’ll need to enter your password.

After restoring from a backup, previous data is no longer accessible via the iPhone user interface, but it isn’t erased from your iPhone. For information about erasing all content and settings, see “Resetting iPhone” on page 149.

Important: Restoring iPhone from a backup restores all data in the backup, including data for other applications. If you choose an old backup, restoring from it could replace the data for applications with data that is not current.

Removing a Backup

You can remove a backup of iPhone from the list of backups in iTunes. You may want to do this, for example, if a backup was created on someone else’s computer.

Remove a backup:

- 1 In iTunes, open iTunes Preferences.
 - *Windows:* Choose Edit > Preferences.
 - *Mac:* Choose iTunes > Preferences.
- 2 Click Devices (iPhone does not need to be connected).
- 3 Select the backup you want to remove, then click Delete Backup.
- 4 Confirm you wish to remove the selected backup by clicking Delete Backup.
- 5 Click OK to close the iTunes Preferences Window.

Updating and Restoring iPhone Software

You can use iTunes to update or reinstall iPhone software, restore default settings, and delete all data on iPhone.

- *If you update*, the iPhone software is updated. Your downloaded applications, settings, and data aren't affected.

Note: In some cases, an update may also include restoring iPhone.

- *If you restore*, the latest version of iPhone software is reinstalled, settings are restored to their defaults, and data stored on iPhone is deleted, including downloaded applications, songs, videos, contacts, photos, calendar information, and any other data. If you've backed up iPhone with iTunes on your computer, you can restore data from the backup at the end of the restore process.

Deleted data is no longer accessible via the iPhone user interface, but isn't erased from your iPhone. For information about erasing all content and settings, see "Resetting iPhone" on page 149.

Update or restore iPhone:

- 1 Make sure you have an Internet connection and have installed the latest version of iTunes from www.apple.com/itunes.
- 2 Connect iPhone to your computer.
- 3 Select iPhone in the iTunes sidebar and click the Summary tab.
- 4 Click "Check for Update." iTunes tells you if there's a newer version of the iPhone software available.
- 5 Click Update to install the latest version of the software. Or click Restore to restore. Follow the onscreen instructions to complete the restore process.

For more information about updating and restoring iPhone software, go to www.apple.com/support and search for HT1414.

Other Resources

B

Safety, Software, and Service Information

The following table describes where to get more iPhone-related safety, software, and service information.


To learn about	Do this
Using iPhone safely	See the <i>Important Product Information Guide</i> at www.apple.com/support/manuals/iphone for the latest safety and regulatory information.
iPhone service and support, tips, forums, and Apple software downloads	Go to www.apple.com/support/iphone .
Service and support from your carrier	Contact your carrier or go to your carrier's website.
The latest information about iPhone	Go to www.apple.com/iphone .
Using iTunes	Open iTunes and choose Help > iTunes Help. For an online iTunes tutorial (available in some areas only), go to www.apple.com/support/itunes .
MobileMe	Go to www.me.com .
Using iPhoto on Mac OS X	Open iPhoto and choose Help > iPhoto Help.
Using Address Book on Mac OS X	Open Address Book and choose Help > Address Book Help.
Using iCal on Mac OS X	Open iCal and choose Help > iCal Help.

To learn about	Do this
Microsoft Outlook, Windows Address Book, Adobe Photoshop Album, and Adobe Photoshop Elements	See the documentation that came with those applications.
Finding your iPhone serial number or International Mobile Equipment Identity (IMEI) number	You can find your iPhone serial and IMEI numbers on the iPhone packaging. Or, on iPhone, choose Settings > General > About from the Home screen. In iTunes on your computer, hold down the Control key and choose Help > About iTunes (Windows) or iTunes > About iTunes (Mac), then release the Control key. (Press the Space bar to pause the scrolling.)
Obtaining warranty service	First follow the advice in this guide and online resources. Then go to www.apple.com/support or see the <i>Important Product Information Guide</i> at www.apple.com/support/manuals/iphone .
Battery replacement service	Go to www.apple.com/support/iphone/service/battery .
Using iPhone in an enterprise environment	Go to www.apple.com/iphone/enterprise .

Viewing the User Guide on iPhone

The *iPhone User Guide*, optimized for viewing on iPhone, is available at help.apple.com/iphone.

View the guide on iPhone: In Safari, tap , then tap the *iPhone User Guide* bookmark.

Add an icon for the guide to the Home screen: When viewing the guide, tap , then tap “Add to Home Screen.”

The *iPhone User Guide* is available in many languages.

View guide in a different language: Tap “Change Language” at the bottom of the screen on the main contents page, then choose the language you want.

Disposal and Recycling Information

Apple Used Mobile Phone Recycling Program (available in some areas): For free recycling of your old mobile phone, a prepaid shipping label, and instructions, see: www.apple.com/environment/recycling

iPhone Disposal and Recycling: You must dispose of iPhone properly according to local laws and regulations. Because iPhone contains electronic components and a battery, iPhone must be disposed of separately from household waste. When iPhone reaches its end of life, contact local authorities to learn about disposal and recycling options, or simply drop it off at your local Apple retail store or return it to Apple. The battery will be removed and recycled in an environmentally friendly manner. For more information, see: www.apple.com/environment/recycling



European Union—Electronics and Battery Disposal Information: This symbol means that according to local laws and regulations your product and its battery should be recycled separately from household waste. When this product reaches its end of life, take it to a collection point designated by local authorities for the recycling of electronic equipment. The improper disposal of waste electronic equipment from the consumer may be subject to fines. The separate collection and recycling of your product and its battery at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment.

For collection and recycling schemes for iPhone, go to:
www.apple.com/environment/recycling/nationalservices/europe.html

Battery Replacement for iPhone: The rechargeable battery in iPhone should be replaced only by an authorized service provider. For battery replacement services go to: www.apple.com/support/iphone/service/battery

Deutschland: Dieses Gerät enthält Batterien. Bitte nicht in den Hausmüll werfen. Entsorgen Sie dieses Gerätes am Ende seines Lebenszyklus entsprechend der maßgeblichen gesetzlichen Regelungen.



Nederlands: Gebruikte batterijen kunnen worden ingeleverd bij de chemokar of in een speciale batterijcontainer voor klein chemisch afval (kca) worden gedeponneerd.

Türkiye: EEE yönetmeliğine (Elektrikli ve Elektronik Eşyalarda Bazı Zararlı Maddelerin Kullanımının Sınırlandırılmasına Dair Yönetmelik) uygundur.

Apple and the Environment

At Apple, we recognize our responsibility to minimize the environmental impacts of our operations and products. For more information go to:
www.apple.com/environment

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The Nike + iPod Sport Kit is covered by one or more of U.S. patent numbers 6,018,705, 6,052,654, 6,493,652, 6,298,314, 6,611,789, 6,876,947, and 6,882,955, either alone or when used in combination with a Nike + iPod enabled iPod media player or iPhone 3GS.

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EXHIBIT J

PLEASE READ THE FOLLOWING LICENSE AGREEMENT TERMS AND CONDITIONS CAREFULLY BEFORE DOWNLOADING OR USING THE APPLE SOFTWARE. THESE TERMS AND CONDITIONS CONSTITUTE A LEGAL AGREEMENT BETWEEN YOU AND APPLE.

iPhone Developer Program License Agreement

Purpose

You would like to use the Apple Software (as defined below) to develop one or more Applications (as defined below) for the iPhone and iPod touch. Apple is willing to grant You a limited license to use the Apple Software to develop and test Your Applications on the terms and conditions set forth in this Agreement.

Applications developed under this Agreement can be distributed in two ways: (1) through the App Store, if selected by Apple, and (2) on a limited basis for use on Registered Devices (as defined below).

Applications that meet Apple's Documentation and Program Requirements may be submitted for consideration by Apple for distribution via the App Store. If submitted by You and selected by Apple, Your Applications will be digitally signed by Apple and distributed through the App Store. Distribution of free (no charge) Applications will be subject to the distribution terms contained in Schedule 1 to this Agreement. If You would like to distribute Applications for which You will charge a fee, You must enter into a separate agreement with Apple ("Schedule 2").

1. Accepting this Agreement; Definitions

1.1 Acceptance

In order to use the Apple Software and related services, You must first agree to this License Agreement. If You do not or cannot agree to this License Agreement, You are not permitted to use the Apple Software or related services. Do not download or use the Apple Software or any related services in that case.

You accept and agree to the terms of this License Agreement on Your own behalf and/or on behalf of Your company, organization or educational institution as its authorized legal representative, by doing either of the following:

- (a) checking the box displayed at the end of this Agreement if You are reading this on an Apple website; or
- (b) clicking an "Agree" or similar button, where this option is provided by Apple.

1.2 Definitions

Whenever capitalized in this Agreement:

"Agreement" means this iPhone Developer Program License Agreement, including any attachments, Schedule 1 and any exhibits thereto which are hereby incorporated by this reference.

"App Store" means an electronic store and its storefronts branded, and owned and/or controlled by Apple or an affiliate of Apple.

"Apple" means Apple Inc., a California corporation with its principal place of business at One Infinite Loop, Cupertino, California 95014, U.S.A.

"Apple OS" means the iPhone operating system software provided by Apple for use by You in connection with Your Application development and testing, which, from time to time during the Term, may consist of an Apple confidential, pre-release version of the iPhone operating system

software or a gold master "GM" production, non-Apple confidential, commercially-available version of the iPhone operating system software.

"Apple Push Notification" or "APN" means the Apple Push Notification service that Apple may provide to You to enable You to transmit Push Notifications to Your Application.

"APN API" means the Documented API that enables You to use the APN to deliver a Push Notification to Your Application.

"Apple Software" collectively means: (a) the SDK, (b) the Apple OS, and (c) the Provisioning Profiles, and includes any Updates to any of the foregoing that may be provided to You by Apple.

"Apple Subsidiary" means a corporation at least fifty percent (50%) of whose outstanding shares or securities (representing the right to vote for the election of directors or other managing authority) are owned or controlled, directly or indirectly, by Apple, and that is involved in the operation of or otherwise affiliated with the App Store, including without limitation Apple Pty Limited, iTunes S.à.r.l., and iTunes K.K.

"Application" means one or more software programs developed by You in compliance with the Documentation and the Program Requirements, under Your own trademark or brand, and for specific use with the Apple iPhone and/or the Apple iPod touch, including bug fixes, updates, upgrades, modifications, enhancements, supplements to, revisions, new releases and new versions of such software programs.

"Authorized Test Devices" means iPhone or iPod touch devices owned or controlled by You that have been designated by You for testing and development purposes and specifically registered with Apple under this Program.

"Authorized Developers" means Your employees and contractors, members of Your organization or, if You are an educational institution, Your faculty and staff who (a) each have an active and valid Registered iPhone Developer account with Apple, (b) have a demonstrable need to know or use the Apple Software in order to develop and test Applications, and (c) to the extent such individuals will have access to Apple Confidential Information, each have written and binding agreements with You to protect the unauthorized use and disclosure of such Apple and third party confidential information.

"Currency" means any form of currency, points, credits, resources, content or other items or units recognized by a group of individuals or entities as representing a particular value and that can be transferred or circulated as a medium of exchange.

"Documentation" means any technical or other specifications or documentation that Apple may provide to You for use in connection with the Apple Software.

"Documented API(s)" means the Application Programming Interface(s) documented by Apple in published Apple Documentation and which are contained in the Apple Software.

"FOSS" (Free and Open Source Software) means any software that is subject to terms that, as a condition of use, copying, modification or redistribution, require such software and/or derivative works thereof to be disclosed or distributed in source code form, to be licensed for the purpose of making derivative works, or to be redistributed free of charge, including without limitation software distributed under the GNU General Public License or GNU Lesser/Library GPL.

"In App Purchase API" means the Documented API that enables additional functionality or content to be paid for by an end user from within a Paid Application.

"iPod Accessory Protocol" or "iAP" means Apple's proprietary protocol for communicating with iPhone and/or iPod touch devices and which is licensed under Apple's Made for iPod and Works with iPhone Program.

"iPhone Accessory" means a non-Apple branded hardware device that interfaces, communicates, or otherwise interoperates with or controls an iPhone and/or iPod touch device through the iPod Accessory Protocol.

"iTunes Connect" means Apple's proprietary online content management tool for Applications.

"Licensed Application" means an Application that (a) meets and complies with all of the Documentation and Program Requirements, and (b) has been selected and digitally signed by Apple for production distribution.

"Licensed Application Information" means screen shots, images, artwork, icons and/or any other copyrighted text, descriptions, representations or information relating to a Licensed Application that You provide to Apple for use in accordance with Schedule 1.

"Made for iPod and Works with iPhone Licensing Program" or "MFi Program" means a separate Apple program that offers iPhone Accessory developers, among other things, a license to incorporate certain Apple technology into a hardware device to interface, communicate or otherwise interoperate with or control Apple iPhone and/or iPod touch devices.

"Maps API" means the Documented API that enables You to add mapping functionality to Applications.

"Paid Application" means a Licensed Application that is distributed to end users for a fee. Paid Applications are subject to the terms of a separate agreement with Apple (Schedule 2).

"Program" means the overall iPhone and iPod touch application development, testing, digital signing, and distribution program contemplated in this Agreement.

"Program Requirements" mean the technical, human interface, design, product category, security, performance, and other criteria and requirements specified by Apple, including but not limited to the current set of requirements set forth in Section 3.3, as they may be modified from time to time by Apple in accordance with this Agreement.

"Provisioning Profiles" means the provisioning profiles provided by Apple for use by You in connection with Your Application development and testing, and limited distribution of Your Applications for use on Registered Devices.

"Push Application ID" means the unique identification number or other identifier that Apple assigns to an Application in order to permit it to access and use the APN.

"Push Notification" means a message, including any content or data therein, that You transmit to end users and that is delivered in Your Application.

"Registered Devices" means iPhone or iPod touch devices owned or controlled by You, or owned by individuals who are affiliated with You, that You have specifically registered with Apple under this Program.

"Security Solution" means the proprietary Apple content protection system marketed as Fairplay, to be applied to Licensed Applications distributed on the App Store to administer Apple's standard usage rules for Licensed Applications, as such system and rules may be modified by Apple from time to time.

"SDK" (Software Development Kit) means the Documentation, software (source code and object code), applications, sample code, simulator, tools, libraries, APIs, data, files, and materials provided by Apple for use by You in connection with Your Application development, and includes any Updates that may be provided by Apple to You pursuant to this Agreement.

"Term" means the period described in Section 12.

"Updates" means bug fixes, updates, upgrades, modifications, enhancements, supplements, and new releases or versions of the Apple Software, or to any part of the Apple Software.

"You", "Your" and "Licensee" means and refers to the person(s) or legal entity using the Apple Software or otherwise exercising rights under this Agreement. If You are entering into this Agreement on behalf of Your company, organization or educational institution, "You" or "Your" refers to your company, organization or educational institution as well.

2. Internal Use License and Restrictions

2.1 Permitted Uses and Restrictions

Subject to the terms and conditions of this Agreement, Apple hereby grants You during the Term, a limited, non-exclusive, personal, revocable, non-sublicensable and non-transferable license to:

(a) Install a reasonable number of copies of the SDK portion of the Apple Software on Apple-branded computers owned or controlled by You, to be used internally by You or Your Authorized Developers for the sole purpose of developing or testing Applications;

(b) Make and distribute a reasonable number of copies of the Documentation to Authorized Developers for their internal use only and for the sole purpose of developing or testing Applications;

(c) Install one (1) copy of the Apple OS and a Provisioning Profile on each of Your Authorized Test Devices, up to the number of Authorized Test Devices that You have registered and acquired licenses for, to be used internally by You or Your Authorized Developers for the sole purpose of developing and testing Your Applications; and

(d) Install a Provisioning Profile on each of Your Registered Devices, up to the limited number of Registered Devices that You have registered and acquired licenses for, for the sole purpose of enabling the distribution and use of Your Applications on such Registered Devices.

Apple reserves the right to set the limited number of iPhone and iPod touch devices that each Licensee may register with Apple and obtain licenses for under this Program (a "Block of Registered Device Licenses"), as specified on the Program web portal. For the purposes of limited distribution on Registered Devices under Section 7.2, each company, organization, educational institution or affiliated group may only acquire one (1) Block of Registered Device Licenses per company, organization, educational institution or group, unless otherwise agreed in writing by Apple. You therefore agree not to knowingly acquire, or to cause others to acquire, more than one Block of Registered Device Licenses for the same company, organization, educational institution or group.

2.2 Authorized Test Devices

As long as an Authorized Test Device contains any pre-release versions of the Apple Software or uses pre-release versions of services, You agree to restrict access to such Authorized Test Device to Your Authorized Developers and to not disclose, show, rent, lease, lend, sell or otherwise transfer such Authorized Test Device to any third party. You further agree to take reasonable precautions to safeguard, and to instruct Your Authorized Developers to safeguard, all Authorized Test Devices from loss or theft.

You acknowledge that by installing any pre-release Apple Software or using any pre-release services on Your Authorized Test Devices, these Devices may be "locked" into testing mode and may not be capable of being restored to their original condition. Any use of any pre-release Apple Software or pre-release services are for evaluation and development purposes only, and You should not use any pre-release Apple Software or pre-release services in a commercial operating environment or with important data. You should back up any data prior to using the pre-release Apple Software or pre-release services. Apple shall not be responsible for any costs, expenses or other liabilities You may incur as a result of provisioning Your Authorized Test Devices and Registered Devices, Your Application development or the installation or use of this Apple Software, including but not limited to any damage to any equipment, software or data.

2.3 Confidential Nature of Pre-Release Apple Software

From time to time during the Term, Apple may provide You with pre-release versions of the Apple Software or related services that constitute Apple Confidential Information and are subject to the confidentiality obligations of this Agreement. Such pre-release Apple Software and related services should not be relied upon to perform in the same manner as a final-release commercial-grade product, nor should it be used with data that is not sufficiently and regularly backed up, and may include features, functionality or APIs for services that are not yet available.

2.4 Copies

You agree to retain and reproduce in full the Apple copyright, disclaimers and other proprietary notices (as they appear in the Apple Software and related services and Documentation provided) in all copies of the Apple Software and Documentation that You are permitted to make under this Agreement.

2.5 Ownership

Apple retains all rights, title, and interest in and to the Apple Software and any Updates it may make available to You under this Agreement. You agree to cooperate with Apple to maintain Apple's ownership of the Apple Software, and, to the extent that You become aware of any claims relating to the Apple Software, You agree to use reasonable efforts to promptly provide notice of any such claims to Apple. The parties acknowledge that this Agreement does not give Apple any ownership interest in Your Applications.

2.6 No Other Permitted Uses

Except as otherwise set forth in this Agreement, You agree not to rent, lease, lend, upload to or host on any website or server, sell, redistribute, or sublicense the Apple Software or any services, in whole or in part, or to enable others to do so. You may not use the Apple Software or any services provided hereunder for any purpose not expressly permitted by this Agreement. You agree not to install, use or run the SDK on any non-Apple-branded computer, not to install, use or run the Apple OS and Provisioning Profiles on or in connection with devices other than Apple-branded iPhone and iPod touch devices, or to enable others to do so. You may not and You agree not to, or to enable others to, copy (except as expressly permitted under this Agreement), decompile, reverse engineer, disassemble, attempt to derive the source code of, modify, decrypt, or create derivative works of the Apple Software or any services provided by the Apple Software or otherwise provided hereunder, or any part thereof (except as and only to the extent any foregoing restriction is prohibited by applicable law or to the extent as may be permitted by licensing terms governing use of open-sourced components or sample code included with the Apple Software). You agree not to exploit any services provided hereunder in any unauthorized way whatsoever, including but not limited to, by trespass or burdening network capacity. Any attempt to do so is a violation of the rights of Apple and its licensors of the Apple Software or services. If You breach any of the foregoing restrictions, You may be subject to prosecution and damages. All licenses not expressly granted in this Agreement are reserved and no other licenses, immunity or rights, express or implied are granted by Apple, by implication, estoppel, or otherwise. This Agreement does not grant You any rights to use any trademarks, logos or service marks belonging to Apple, including but not limited to the iPhone or iPod word marks. If You

make reference to any Apple products or technology or use Apple's trademarks, You agree to comply with the published guidelines at <http://www.apple.com/legal/trademark/guidelinesfor3rdparties.html>, as modified by Apple from time to time.

2.7 Updates; No Support or Maintenance

Apple may extend, enhance, or otherwise modify the Apple Software or services provided hereunder at any time without notice, but Apple shall not be obligated to provide You with any Updates to the Apple Software. If Updates are made available by Apple, the terms of this Agreement will govern such Updates, unless the Update is accompanied by a separate license in which case the terms of that license will govern. Apple is not obligated to provide any maintenance, technical or other support for the Apple Software or services. You acknowledge that Apple has no express or implied obligation to announce or make available any Updates to the Apple Software or to any services to anyone in the future. Should an Update be made available, it may have APIs, features, services or functionality that are different from those found in the Apple Software licensed hereunder or the services provided hereunder.

3. Your Obligations

3.1 General

You certify to Apple and agree that:

- (a) You are of the legal age of majority in the jurisdiction in which You reside (at least 18 years of age in many countries) and have the right and authority to enter into this Agreement on Your own behalf, or if You are entering into this Agreement on behalf of Your company, organization or educational institution, that You have the right and authority to legally bind Your company, organization or educational institution to the terms and obligations of this Agreement;
- (b) All information provided to Apple by You, including without limitation Licensed Application Information, will be current, true, accurate and complete and You will promptly notify Apple of any changes to such information;
- (c) You will comply with the terms of and fulfill Your obligations under this Agreement and You agree to monitor and be responsible for Your Authorized Developers' use of the Apple Software and services and Authorized Test Devices and their compliance with the terms of this Agreement;
- (d) You will be solely responsible for all costs, expenses, losses and liabilities incurred, and activities undertaken by You and Authorized Developers in connection with the Apple Software and services, the Registered Devices, Your Applications and Your related development and distribution efforts, including, but not limited to, any related development efforts, network and server equipment, Internet service(s), or any other hardware, software or services used by You in connection with Your use of any services;
- (e) For the purposes of Schedule 1(if applicable), You represent and warrant that You own or control the necessary rights in order to appoint Apple and Apple Subsidiaries as Your worldwide agent for the delivery of Your Licensed Applications, and that the fulfillment of such appointment by Apple and Apple Subsidiaries shall not violate or infringe the rights of any third party; and
- (f) You will not act in any manner which conflicts or interferes with any existing commitment or obligation You may have and no agreement previously entered into by You will interfere with Your performance of Your obligations under this Agreement.

3.2 Use of the Apple Software

As a condition to using the Apple Software and any services, You agree that:

- (a) You will only use the Apple Software and any services for the purposes and in the manner expressly permitted by this Agreement and in accordance with all applicable laws and regulations;
- (b) You will not use the Apple Software or any services for any unlawful or illegal activity, nor to develop any Application which would commit or facilitate the commission of a crime, or other tortious, unlawful or illegal act;
- (c) Your Application will be developed in compliance with the Documentation and the Program Requirements, the current set of which is set forth in Section 3.3 below;

(d) To the best of Your knowledge and belief, Your Application and Licensed Application Information do not and will not violate, misappropriate, or infringe any Apple or third party copyrights, trademarks, rights of privacy and publicity, trade secrets, patents, or other proprietary or legal rights (e.g. musical composition or performance rights, video rights, photography or image rights, logo rights, third party data rights, etc. for content and materials that may be included in Your Application);

(e) You will not, through use of the Apple Software, services or otherwise, create any Application or other program that would disable, hack or otherwise interfere with the Security Solution, or any security, digital signing, digital rights management, verification or authentication mechanisms implemented in or by the iPhone operating system software, iPod touch operating system software, this Apple Software, any services or other Apple software or technology, or enable others to do so; and

(f) Applications developed using the Apple Software may only be distributed if selected by Apple (in its sole discretion) for distribution via the App Store or for limited distribution on Registered Devices (ad hoc distribution) as contemplated in this Agreement.

3.3 Program Requirements for Applications

Any Application developed using this Apple Software must meet all of the following criteria and requirements, as they may be modified by Apple from time to time:

APIs and Functionality:

3.3.1 Applications may only use Documented APIs in the manner prescribed by Apple and must not use or call any private APIs.

3.3.2 An Application may not itself install or launch other executable code by any means, including without limitation through the use of a plug-in architecture, calling other frameworks, other APIs or otherwise. No interpreted code may be downloaded or used in an Application except for code that is interpreted and run by Apple's Documented APIs and built-in interpreter(s).

3.3.3 Without Apple's prior written approval or as permitted under Section 3.3.17, an Application may not provide, unlock or enable additional features or functionality through distribution mechanisms other than the App Store.

3.3.4 An Application may only read data from or write data to an Application's designated container area on the device, except as otherwise specified by Apple.

User Interface and Data:

3.3.5 Applications must comply with the Human Interface Guidelines and other Documentation provided by Apple.

3.3.6 Any form of user or device data collection, or image, picture or voice capture or recording performed by the Application (collectively "Recordings"), and any form of user data, content or information processing, maintenance, uploading, syncing, or transmission performed by the Application (collectively "Transmissions") must comply with all applicable privacy laws and regulations as well as any Apple program requirements related to such aspects, including but not limited to any notice or consent requirements. In particular, a reasonably conspicuous audio, visual or other indicator must be displayed to the user as part of the Application to indicate that a Recording is taking place.

Local Laws, User Privacy, Location Services and Mapping:

3.3.7 Applications must comply with all applicable criminal, civil and statutory laws and regulations, including those in any jurisdictions in which Your Applications may be delivered.

In addition, for Applications that use location-based APIs or that collect, transmit, maintain, process, share, disclose or otherwise use a user's personal information or data:

- You and the Application must comply with all applicable privacy and data collection laws and regulations with respect to any collection, transmission, maintenance, processing, use, etc. of the user's location data or personal information by the Application.
- Applications may not be designed or marketed for the purpose of harassing, abusing, stalking, threatening or otherwise violating the legal rights (such as the rights of privacy and publicity) of others.
- Applications may not perform any functions or link to any content or use any robot, spider, site search or other retrieval application or device to scrape, retrieve or index services provided by Apple or its licensors, or to collect, disseminate or use information about users for any unauthorized purpose.

3.3.8 For Applications that use location-based APIs, such Applications may not be designed or marketed for automatic or autonomous control of vehicles, aircraft, or other mechanical devices; dispatch or fleet management; or emergency or life-saving purposes. In addition:

- Applications that offer location-based services or functionality must notify and obtain consent from an individual before his or her location data is being collected, transmitted or otherwise used by the Application.

3.3.9 For Applications that use location-based APIs for real-time route guidance (including, but not limited to, turn-by-turn route guidance and other routing that is enabled through the use of a sensor), You must place the following notice in Your end user license agreement: YOUR USE OF THIS REAL TIME ROUTE GUIDANCE APPLICATION IS AT YOUR SOLE RISK. LOCATION DATA MAY NOT BE ACCURATE.

3.3.10 Applications must not disable, override or otherwise interfere with any Apple-implemented system alerts, warnings, display panels, consent panels and the like, including, but not limited to, those that are intended to notify the user that the user's location data is being collected, transmitted, maintained, processed or used, or intended to obtain consent for such use. If consent is denied or withdrawn, Applications may not collect, transmit, maintain, process or utilize the user's location data or perform any other actions for which the user's consent has been denied or withdrawn.

3.3.11 If Your Application accesses the Google Mobile Maps (GMM) service through the Maps API, use of the GMM Service is subject to Google's Terms of Service which will be set forth at: <http://code.google.com/apis/maps/terms/iPhone.html>. If You do not accept such Google Terms of Service, including, but not limited to all limitations and restrictions therein, You may not use the GMM service in Your Application. You acknowledge and agree that use of the GMM Service in Your Application will constitute Your acceptance of such Terms of Service. (If the terms are not yet available when You first access the url, they will be coming soon, and Your Application may not access the GMM service through the Maps API unless the Google Terms of Service are available at such url and accepted by You.)

Content and Materials:

3.3.12 Any master recordings and musical compositions embodied in Your Application must be wholly-owned by You or licensed to You on a fully paid-up basis and in a manner that will not require the payment of any fees, royalties and/or sums by Apple to You or any third party. In addition, if Your Application will be distributed outside of the United States, any master recordings and musical compositions embodied in Your Application (a) must not fall

within the repertoire of any mechanical or performing/communication rights collecting or licensing organization now or in the future and (b) if licensed, must be exclusively licensed to You for Your Application by each applicable copyright owner.

3.3.13 If Your Application includes or will include any other content, You must either own all such content or have permission from the content owner to use it in Your Application.

3.3.14 Applications must not contain any obscene, pornographic, offensive or defamatory content or materials of any kind (text, graphics, images, photographs, etc.), or other content or materials that in Apple's reasonable judgment may be found objectionable by iPhone or iPod touch users.

3.3.15 Applications must not contain any malware, malicious or harmful code, program, or other internal component (e.g. computer viruses, trojan horses, "backdoors") which could damage, destroy, or adversely affect other software, firmware, hardware, data, systems, services, or networks.

3.3.16 If Your Application includes any FOSS, You agree to comply with all applicable FOSS licensing terms. You also agree not to use any FOSS in the development of Your Application in such a way that would cause the non-FOSS portions of the Apple Software to be subject to any FOSS licensing terms or obligations.

In App Purchase API:

3.3.17 Only Paid Applications (which require You to enter into a separate agreement with Apple (Schedule 2)) may use the In App Purchase API. In addition:

- Your Application may only use the In App Purchase API for adding functionality that has been reviewed and approved by Apple and/or content that has been approved by Apple in accordance with the processes set forth in Section 6.
- You may not enable end users to purchase Currency of any kind through the In App Purchase API, including but not limited to any Currency for exchange, gifting, redemption, transfer, trading or use in purchasing or obtaining anything within or outside of Your Application. For the avoidance of doubt, nothing herein is intended to prohibit You from offering for sale goods or services (other than Currency) to be delivered outside of Your Application.
- You may not enable the end user to set up a pre-paid account to be used for subsequent purchases of content or functionality, or otherwise create balances or credits that end users can redeem or use to make purchases at a later time.

iPhone Accessories:

3.3.18 If Your Application interfaces, communicates, or otherwise interoperates with or controls an iPhone Accessory (as defined above) through Bluetooth or Apple's 30-pin dock connector, then the accessory must be licensed under Apple's MFi Program.

Cellular Network:

3.3.19 If an Application requires or will have access to the cellular network, then additionally such Application:

- Must comply with Apple's best practices and other guidelines on how Applications should access and use the cellular network;

- Must not in Apple's reasonable judgment excessively use or unduly burden network capacity or bandwidth;
- May not have Voice over Internet Protocol (VoIP) functionality using the cellular network.

APN (Apple Push Notification service):

3.3.20 All use of the APN must be in accordance with the terms of this Agreement (including the Program Requirements) and Attachment 1 (Additional Terms for Apple Push Notification service).

Additional Services:

3.3.21 From time to time, Apple may provide access to additional services for You to use in connection with Your Applications. Some of these additional services may be subject to separate terms and conditions in addition to this Agreement. If You elect to use such services, Your usage will also be subject to those separate terms and conditions. In addition, such services may not be available in all languages or in all countries. Apple makes no representation that such services are appropriate or available for use in any particular location. To the extent You choose to access such services, You do so at Your own initiative and are responsible for compliance with any applicable laws, including but not limited to applicable local laws. Certain services made accessible to You through the Apple Software may be provided by third parties. You acknowledge that Apple will not have any liability or responsibility to You or any other person (including to any end user) for any third-party services or for any Apple services. Apple and its licensors reserve the right to change, suspend, remove, or disable access to any services at any time. In no event will Apple be liable for the removal of or disabling of access to any such services.

4. Changes to Program Requirements or Terms

Apple may change the Program Requirements or the terms of this Agreement at any time. New or modified Program Requirements will not retroactively apply to Applications already in distribution. In order to continue using the Apple Software or any services, You must accept and agree to the new Program Requirements or new terms of this Agreement. If You do not agree to new Program Requirements or new terms, Your use of the Apple Software and any services will be suspended or terminated by Apple. You agree that Your acceptance of such new Agreement terms or Program Requirements may be signified electronically, including without limitation, by Your checking a box or clicking on an "agree" or similar button. Nothing in this Section shall affect Apple's rights under Section 8 below.

5. Digital Signing of Applications; Restrictions on Certificates

All Applications must be signed with an Apple-issued certificate in order to be installed on Registered Devices. During the Term of this Agreement, You may obtain development-related digital certificates from Apple, subject to a maximum number as reasonably determined by Apple, that will allow Your Application to be installed and tested on Authorized Test Devices. You may also obtain, during the Term, one or more production digital certificates from Apple, subject to a maximum number as reasonably determined by Apple, to be used for the sole purpose of signing Your Application(s) prior to submission of Your Application to Apple or limited distribution of Your Application for use on Registered Devices.

In relation to this, You represent and warrant to Apple that: (a) You will not take any action to interfere with the normal operation of any Apple-issued digital certificates or Provisioning Profiles; (b) You are solely responsible for preventing any unauthorized person from having access to Your digital certificates and corresponding private keys and You will use best efforts to safeguard Your digital certificates and corresponding private keys from compromise; (c) You agree to immediately notify Apple in writing if You have any reason to believe there has been a

compromise of any of Your digital certificates or corresponding private keys; (d) You will not provide or transfer Apple-issued digital certificates provided under this Program to any third party, nor use Your digital certificate to sign a third party's application; and (e) You will use Apple-issued certificates provided under this Program exclusively for the purpose of signing Your Applications for testing, submission to Apple and/or limited distribution for use on Registered Devices as contemplated under this Program, and only in accordance with this Agreement.

You further represent and warrant to Apple that the licensing terms governing Your Application, or governing any third party code or FOSS included in Your Application, will be consistent with and not conflict with the digital signing or content protection aspects of the Program or any of the terms, conditions or requirements of the Program or this Agreement. In particular, such licensing terms will not purport to require Apple (or its agents) to disclose or make available any of the keys, authorization codes, methods, procedures, data or other information related to the Security Solution, digital signing or digital rights management mechanisms utilized as part of the Program. If You discover any such inconsistency or conflict, You agree to immediately notify Apple of it and will cooperate with Apple to resolve such matter. Apple may immediately cease distribution of any affected Licensed Applications and refuse to accept any subsequent Application submissions from You until such matter is resolved to Apple's reasonable satisfaction.

6. Application Submission and Selection

6.1 Submission to Apple

You may submit Your Application for consideration by Apple for distribution via the App Store once You decide that Your Application has been adequately tested and is complete. By submitting Your Application, You represent and warrant that Your Application complies with the Documentation and Program Requirements then in effect. You further agree that You will not attempt to hide or obscure any features, content or functionality in Your submitted Applications from Apple's review or otherwise hinder Apple from being able to fully review such Applications. In addition, You agree to inform Apple in writing through iTunes Connect if Your Application connects to a physical device, including an iPhone Accessory, and, if so, to disclose the means of such connection (whether iAP or any other communication protocol and standard) and identify at least one physical device with which Your Application is designed to communicate. You agree to cooperate with Apple in this submission process and to answer questions and provide information and materials in connection with Your submitted Application, as reasonably requested by Apple, including, without limitation, to provide Apple with access to or with samples of physical devices that connect to Your Application.

If You are submitting functionality that You would like to make available through the use of the In App Purchase API, then the functionality must be submitted to and approved by Apple in the same manner as the Application in accordance with this Section 6. For both functionality and content submissions, You must provide the name, text description, price, unique identifier number, and other information that Apple reasonably requests (collectively, the "Submission Description") to Apple. For content submissions, the actual content will not have to be submitted to Apple, unless requested by Apple. Apple reserves the right to review the actual content that has been described in the Submission Descriptions at any time, including, but not limited to, in the submission process and after approval of the Submission Description by Apple. If You would like to provide additional content through the In App Purchase API that is not described in Your Submission Description, then You must first submit a new or updated Submission Description for review and approval by Apple prior to using the In App Purchase API for the delivery of any such content. Apple reserves the right to withdraw its approval of content previously approved, and You agree to stop making such content available for use within Your Application. For avoidance of doubt, all content and functionality delivered through the In App Purchase API is subject to the Program Requirements for Applications.

If You make any changes to an Application (including to any functionality made available through use of the In App Purchase API) after submission to Apple, You must resubmit the Application to Apple. Similarly all bug fixes, updates, upgrades, modifications, enhancements, supplements to,

revisions, new releases and new versions of Your Application must be submitted to Apple for review in order for them to be considered for distribution via the App Store. Further, if Your Application is accepted for distribution via the App Store, You agree that Apple may use Your Application for the limited purpose of compatibility testing of Your Application with the Apple OS, for finding and fixing bugs in the Apple OS and for purposes of providing other information to You (e.g. crash logs).

6.2 Selection by Apple for Distribution

You understand and agree that Apple may, in its sole discretion:

- (a) determine that Your Application does not meet all or any part of the Documentation or Program Requirements then in effect;
- (b) reject Your Application for distribution for any reason, even if Your Application meets the Documentation and Program Requirements; or
- (c) select and digitally sign Your Application for distribution via the App Store.

Apple shall not be responsible for any costs, expenses, damages, losses (including without limitation lost business opportunities or lost profits) or other liabilities You may incur as a result of Your Application development, use of this Apple Software, use of any services, or participation in the Program, including without limitation the fact that Your Application may not be selected for distribution via the App Store. You will be solely responsible for developing Applications that are safe, free of defects in design and operation, and comply with applicable laws and regulations. You will also be solely responsible for any documentation and end user customer support and warranty of Your Applications. The fact that Apple may have reviewed, tested, approved or selected an Application will not relieve You of any of these responsibilities.

7. Distribution

Applications developed under this Agreement may be distributed in two ways: (1) through the App Store, if selected by Apple, and (2) distribution for use on a limited number of Registered Devices.

7.1 Delivery of Freely Available Licensed Applications via the App Store

If Your Application qualifies as a Licensed Application, it is eligible for delivery to end users via the App Store by Apple and/or an Apple Subsidiary. If You would like Apple and/or an Apple Subsidiary to deliver Your Licensed Application to end users for free (no charge), then You appoint Apple and Apple Subsidiaries as Your legal agent pursuant to the terms of Schedule 1, for Licensed Applications designated by You as free of charge applications.

If Your Application qualifies as a Licensed Application and You intend to charge end users a fee of any kind for Your Licensed Application, You must enter into a separate agreement (Schedule 2) with, and provided by, Apple and/or an Apple Subsidiary before any such commercial distribution of Your Licensed Application may take place via the App Store. To the extent that You enter (or have previously entered) into Schedule 2 with Apple and/or an Apple Subsidiary, the terms of Schedule 2 will be deemed incorporated into this Agreement by this reference.

7.2 Distribution on Registered Devices (Ad Hoc Distribution)

Subject to the terms and conditions of this Agreement, You may also distribute Your Applications to individuals within Your company, organization, educational institution, group, or who are otherwise affiliated with You for use solely on a limited number of Registered Devices (as specified on the Program web portal), if Your Application has been digitally signed using Your Apple-issued digital certificate as described in this Agreement. By distributing Your Application in this manner, You represent and warrant to Apple that Your Application complies with the Documentation and Program Requirements then in effect and You agree to cooperate with Apple and to answer questions and provide information about Your Application, as reasonably requested by Apple.

You also agree to be solely responsible for determining which individuals within Your company, organization, educational institution or affiliated group should have access to and use of Your Applications and Registered Devices, and for managing such Registered Devices. Apple shall not be responsible for any costs, expenses, damages, losses (including without limitation lost business opportunities or lost profits) or other liabilities You may incur as a result of distributing Your Applications in this manner, or for Your failure to adequately manage, limit or otherwise control the access to and use of Your Applications and Registered Devices.

You will be responsible for attaching or otherwise including, at Your discretion, any relevant usage terms with Your Applications. Apple will not be responsible for any violations of Your usage terms. You will be solely responsible for all user assistance, warranty and support of Your Applications.

7.3 No Other Distribution Authorized Under this Agreement

Except for the distribution of freely available Licensed Applications and the distribution of Applications for use on Registered Devices as set forth in Sections 7.1 and 7.2 above, no other distribution of programs or applications developed using the Apple Software is authorized or permitted hereunder. In the absence of a separate agreement with Apple, You agree not to distribute Your Application to third parties via other distribution methods or to enable or permit others to do so.

8. Revocation

You understand and agree that Apple may cease distribution of Your Licensed Application(s) and/or Licensed Application Information or revoke the digital certificate of any of Your Applications at any time. By way of example only, Apple might choose to do this if at any time:

- (a) Any of Your Provisioning Profiles, digital certificates or corresponding private keys has been compromised or Apple has reason to believe that either has been compromised;
- (b) Apple has been notified or otherwise has reason to believe that Your Application violates, misappropriates, or infringes the rights of a third party or of Apple;
- (c) Apple has reason to believe that Your Application contains malicious or harmful code, malware, programs or other internal components (e.g. software virus);
- (d) Apple has reason to believe that Your Application damages, corrupts, degrades, destroys or otherwise adversely affects the devices it operates on, or any other software, firmware, hardware, data, systems, or networks accessed or used by the Application;
- (e) You breach any term or condition of this Agreement or the Registered iPhone Developer terms and conditions;
- (f) Any information or documents provided by You to Apple for the purpose of verifying Your identity or obtaining Provisioning Profiles or Apple-issued digital certificates is false or inaccurate;
- (g) Any representation, warranty or certification provided by You to Apple in this Agreement is untrue or inaccurate;
- (h) Apple is required by law, regulation or other governmental or court order to take such action;
- (i) You request that Apple take such action in accordance with Schedule 1;
- (j) You misuse or overburden any services provided hereunder;
- (k) You fail to renew this Agreement and pay the applicable renewal fee; or
- (l) Apple has reason to believe that such action is prudent or necessary.

9. Program Fees

As consideration for the rights and licenses granted to You under this Agreement and Your participation in the Program, You agree to pay Apple the requisite annual program fees as set forth on the Program website. The fees are non-refundable. Any taxes that may be levied on the Apple Software or Your use of it shall be Your responsibility. Your program fees must be paid up and not in arrears at the time You submit (or resubmit) Applications to Apple under this Agreement, and Your continued use of the Program web portal is subject to Your payment of such fees.

10. Confidentiality

10.1 Information Deemed Apple Confidential

You agree that all pre-release versions of the Apple Software (including pre-release Documentation) and services, any terms and conditions contained herein that disclose pre-release features of the Apple Software or services, and the terms and conditions of Schedule 2 (available separately to cover distribution of paid-for Licensed Applications via the App Store) will be deemed "Apple Confidential Information"; provided however that upon the commercial release of the Apple Software the terms and conditions that disclose pre-release features of the Apple Software or services will no longer be confidential. Notwithstanding the foregoing, Apple Confidential Information will not include: (i) information that is generally and legitimately available to the public through no fault or breach of Yours, (ii) information that is generally made available to the public by Apple, (iii) information that is independently developed by You without the use of any Apple Confidential Information, (iv) information that was rightfully obtained from a third party who had the right to transfer or disclose it to You without limitation, or (v) any FOSS included in the Apple Software and accompanied by licensing terms that do not impose confidentiality obligations on the use or disclosure of such FOSS.

10.2 Obligations Regarding Apple Confidential Information

You agree to protect Apple Confidential Information using at least the same degree of care that You use to protect Your own confidential information of similar importance, but no less than a reasonable degree of care. You agree to use Apple Confidential Information solely for the purpose of exercising Your rights and performing Your obligations under this Agreement and agree not to use Apple Confidential Information for any other purpose, for Your own or any third party's benefit, without Apple's prior written consent. You further agree not to disclose or disseminate Apple Confidential Information to anyone other than: (i) those of Your employees and contractors, or those of Your faculty and staff if You are an educational institution, who have a need to know and who are bound by a written agreement that prohibits unauthorized use or disclosure of the Apple Confidential Information; or (ii) except as otherwise agreed or permitted in writing by Apple. You may disclose Apple Confidential Information to the extent required by law, provided that You take reasonable steps to notify Apple of such requirement before disclosing the Apple Confidential Information and to obtain protective treatment of the Apple Confidential Information. You acknowledge that damages for improper disclosure of Apple Confidential Information may be irreparable; therefore, Apple is entitled to seek equitable relief, including injunction and preliminary injunction, in addition to all other remedies.

10.3 Information Submitted to Apple Not Deemed Confidential

Apple works with many application and software developers and some of their products may be similar to or compete with Your Applications. Apple may also be developing its own similar or competing applications and products or may decide to do so in the future. To avoid potential misunderstandings, Apple cannot agree, and expressly disclaims, any confidentiality obligations or use restrictions, express or implied, with respect to any information that You may provide in connection with this Agreement or the Program, including information about Your Application, Licensed Application Information and metadata (such disclosures will be referred to as "Licensee Disclosures"). You agree that any such Licensee Disclosures will be **non-confidential**. Apple will be free to use and disclose any Licensee Disclosures on an unrestricted basis without notifying or compensating You. You release Apple from all liability and obligations that may arise from the receipt, review, use, or disclosure of any portion of any Licensee Disclosures. Any physical materials You submit to Apple will become Apple property and Apple will have no obligation to return those materials to You or to certify their destruction.

10.4 Press Releases and Other Publicity

You may not issue any press releases or make any other public statements regarding this Agreement, its terms and conditions, or the relationship of the parties without Apple's express prior written approval, which may be withheld at Apple's discretion.

11. Indemnification

To the extent permitted by law, You agree to indemnify, defend and hold harmless Apple, its directors, officers, employees, independent contractors and agents (each an "Apple Indemnified Party") from any and all claims, losses, liabilities, damages, expenses and costs (including without limitation attorneys fees and court costs) (collectively "Losses") incurred by an Apple Indemnified Party as a result of: Your breach of this Agreement; a breach of any certification, covenant, representation or warranty made by You in this Agreement; any claims that Your Applications or the distribution, sale, offer for sale, use or importation of Your Applications (whether alone or as an essential part of a combination), Licensed Application Information or metadata violate or infringe any third party intellectual property or proprietary rights; any claims arising out of Apple's permitted use, promotion or distribution of Your Licensed Application(s), Licensed Application Information, related trademarks and logos, or images and other materials that You provide to Apple at Apple's request; and/or otherwise related to or arising from Your use of the Apple Software or services, Your Application(s), Licensed Application Information, metadata, Registered Devices, or Your development and distribution of Applications.

You acknowledge that neither the Apple Software nor any services are intended for use in the development of Applications in which errors or inaccuracies in the content, data or information provided by the Application or the failure of the Application, could lead to death, personal injury, or severe physical or environmental damage, and, to the extent permitted by law, You hereby agree to indemnify, defend and hold harmless each Apple Indemnified Party from any Losses incurred by such Apple Indemnified Party by reason of any such use.

In no event may You enter into any settlement or like agreement with a third party that affects Apple's rights or binds Apple in any way, without the prior written consent of Apple.

12. Term and Termination**12.1 Term**

The Term of this Agreement shall extend until the one (1) year anniversary of the original activation date of Your Program account ("Effective Date"). Thereafter, subject to Your payment of annual renewal fees and compliance with the terms of this Agreement, the Term will automatically renew for successive one (1) year terms, unless sooner terminated in accordance with this Agreement.

12.2 Termination

This Agreement and all rights and licenses granted by Apple hereunder and any services provided hereunder will terminate, effective immediately upon notice from Apple:

- (a) if You or any of Your Authorized Developers fail to comply with any term of this Agreement other than those contained in Section 10 (Confidentiality) and fail to cure such breach within 30 days after becoming aware of or receiving notice of such breach;
- (b) if You or any of Your Authorized Developers fail to comply with the terms of Section 10;
- (c) in the event of the circumstances described in the subsection entitled "Severability" below;
- (d) if You, at any time during the Term, commence an action for patent infringement against Apple;
- (e) if You become insolvent, fail to pay Your debts when due, dissolve or cease to do business, file for bankruptcy, or have filed against You a petition in bankruptcy; or
- (f) if You engage, or encourage others to engage, in any fraudulent, improper, unlawful or dishonest act relating to this Agreement, including, but not limited to, embezzlement, alteration or falsification of documents, theft, inappropriate use of computer systems, bribery, or other misrepresentation of facts.

Apple may also terminate this Agreement, or suspend Your rights to use the Apple Software or services, if You fail to accept any new Program Requirements or Agreement terms as described in Section 4.

Either party may terminate this Agreement for its convenience, for any reason or no reason, effective 30 days after providing the other party with written notice of its intent to terminate.

12.3 Effect of Termination

Upon the termination of this Agreement for any reason, You agree to immediately cease all use of the Apple Software and services and erase and destroy all copies, full or partial, of the Apple Software and any information pertaining to the services (including Your Push Application ID) and all copies of Apple Confidential Information in Your and Your Authorized Developers' possession or control. At Apple's request, You agree to provide written certification of such destruction to Apple. Upon the expiration of the Delivery Period defined and set forth in Schedule 1, all Licensed Applications and Licensed Application Information in Apple's possession or control shall be deleted or destroyed within a reasonable time thereafter, excluding any archival copies maintained in accordance with Apple's standard business practices or required to be maintained by applicable law, rule or regulation. The provisions of Sections 1, 2.5, 2.6, 3.1(d), 3.1(e), 3.1(f), 3.2(d), 3.2(e), 3.2(f), 3.3, 5 (second and third paragraphs), 6.1, 6.2, 7.1 (Schedule 1 for the Delivery Period), 7.3, 8, and 10 through 15 inclusive, and the second sentence of Paragraph 2.3, Paragraph 2.5, the last sentence of Paragraph 4.1, the second sentence of Paragraph 4.3, and Paragraph 7 of Attachment 1 will survive any termination of this Agreement. Apple will not be liable for compensation, indemnity, or damages of any sort as a result of terminating this Agreement in accordance with its terms, and termination of this Agreement will be without prejudice to any other right or remedy Apple may have, now or in the future.

13. NO WARRANTY

The Apple Software may contain inaccuracies or errors that could cause failures or loss of data and it may be incomplete. Apple or its licensors may provide or make available through the Apple Software or as part of the Program, certain web-based applications, certificate-issuance services, App Store services or other services for Your use (collectively the "Services" for purposes of this Section 13 and 14). Apple and its licensors reserve the right to change, suspend, remove, or disable access to any Services at any time without notice. In no event will Apple or its licensors be liable for the removal of or disabling of access to any such Services. Apple or its licensors may also impose limits on the use of or access to certain Services, in any case and without notice or liability. YOU EXPRESSLY ACKNOWLEDGE AND AGREE THAT USE OF THE APPLE SOFTWARE, SECURITY SOLUTION, SERVICE-RELATED SOFTWARE AND ANY SERVICES IS AT YOUR SOLE RISK AND THAT THE ENTIRE RISK AS TO SATISFACTORY QUALITY, PERFORMANCE, ACCURACY AND EFFORT IS WITH YOU. THE APPLE SOFTWARE, SECURITY SOLUTION, SERVICE-RELATED SOFTWARE AND ANY SERVICES ARE PROVIDED "AS IS" AND "AS AVAILABLE", WITH ALL FAULTS AND WITHOUT WARRANTY OF ANY KIND, AND APPLE, APPLE'S AGENTS AND APPLE'S LICENSORS (COLLECTIVELY REFERRED TO AS "APPLE" FOR THE PURPOSES OF SECTIONS 13 AND 14) HEREBY DISCLAIM ALL WARRANTIES AND CONDITIONS WITH RESPECT TO THE APPLE SOFTWARE, SECURITY SOLUTION, SERVICE-RELATED SOFTWARE AND SERVICES, EITHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION THE IMPLIED WARRANTIES AND CONDITIONS OF MERCHANTABILITY, SATISFACTORY QUALITY, FITNESS FOR A PARTICULAR PURPOSE, ACCURACY, TIMELINESS, AND NON-INFRINGEMENT OF THIRD PARTY RIGHTS. APPLE DOES NOT WARRANT AGAINST INTERFERENCE WITH YOUR ENJOYMENT OF THE APPLE SOFTWARE, SERVICE-RELATED SOFTWARE OR SERVICES, THAT THE APPLE SOFTWARE, SECURITY SOLUTION, SERVICE-RELATED SOFTWARE OR SERVICES WILL MEET YOUR REQUIREMENTS, THAT THE OPERATION OF THE APPLE SOFTWARE, SECURITY SOLUTION, SERVICE-RELATED SOFTWARE OR THE PROVISION OF SERVICES WILL BE UNINTERRUPTED, TIMELY, SECURE OR ERROR-FREE, THAT DEFECTS OR ERRORS IN THE APPLE SOFTWARE, SECURITY SOLUTION, SERVICE-RELATED SOFTWARE OR

SERVICES WILL BE CORRECTED, OR THAT THE APPLE SOFTWARE, SECURITY SOLUTION, SERVICE-RELATED SOFTWARE OR SERVICES WILL BE COMPATIBLE WITH FUTURE APPLE PRODUCTS, SERVICES OR SOFTWARE, OR THAT ANY INFORMATION STORED OR TRANSMITTED THROUGH ANY APPLE SOFTWARE, SERVICE-RELATED SOFTWARE OR SERVICES WILL NOT BE LOST, CORRUPTED OR DAMAGED. NO ORAL OR WRITTEN INFORMATION OR ADVICE GIVEN BY APPLE OR AN APPLE AUTHORIZED REPRESENTATIVE WILL CREATE A WARRANTY NOT EXPRESSLY STATED IN THIS AGREEMENT. SHOULD THE APPLE SOFTWARE, SECURITY SOLUTION, SERVICE-RELATED SOFTWARE OR SERVICES PROVE DEFECTIVE, YOU ASSUME THE ENTIRE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION. Location data provided by any Services is for basic navigational purposes only and is not intended to be relied upon in situations where precise location information is needed or where erroneous, inaccurate or incomplete location data may lead to death, personal injury, property or environmental damage. Neither Apple nor any of its licensors guarantees the availability, accuracy, completeness, reliability, or timeliness of location data or any other data or information displayed by any Services.

14. LIMITATION OF LIABILITY

TO THE EXTENT NOT PROHIBITED BY LAW, IN NO EVENT WILL APPLE BE LIABLE FOR PERSONAL INJURY, OR ANY INCIDENTAL, SPECIAL, INDIRECT, CONSEQUENTIAL OR PUNITIVE DAMAGES WHATSOEVER, INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF PROFITS, LOSS OF DATA, BUSINESS INTERRUPTION OR ANY OTHER COMMERCIAL DAMAGES OR LOSSES, ARISING OUT OF OR RELATED TO THIS AGREEMENT, YOUR USE OR INABILITY TO USE THE APPLE SOFTWARE, SECURITY SOLUTION OR SERVICES, OR YOUR DEVELOPMENT EFFORTS OR PARTICIPATION IN THE PROGRAM, HOWEVER CAUSED, WHETHER UNDER A THEORY OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE), PRODUCTS LIABILITY, OR OTHERWISE, EVEN IF APPLE HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, AND NOTWITHSTANDING THE FAILURE OF ESSENTIAL PURPOSE OF ANY REMEDY. IN NO EVENT SHALL APPLE'S TOTAL LIABILITY TO YOU UNDER THIS AGREEMENT FOR ALL DAMAGES (OTHER THAN AS MAY BE REQUIRED BY APPLICABLE LAW IN CASES INVOLVING PERSONAL INJURY) EXCEED THE AMOUNT OF FIFTY DOLLARS (\$50.00).

15. General Legal Terms

15.1 Third Party Notices. Portions of the Apple Software or services may utilize or include third party software and other copyrighted material. Acknowledgements, licensing terms and disclaimers for such material are contained in the electronic documentation for the Apple Software and services, and Your use of such material is governed by their respective terms.

15.2 Consent to Collection and Use of Non-Personal Data. You agree that Apple and its subsidiaries may collect and use technical and related information, including but not limited to information about Your Applications, computer, system software, other software and peripherals, that is gathered periodically to facilitate the provision of software updates and other services to You (if any) related to the Apple Software, and to verify compliance with the terms of this Agreement. Apple may use this information, as long as it is in a form that does not personally identify You, to improve the Apple Software, our products or to provide services or technologies to You and our customers.

15.3 Assignment. This Agreement may not be assigned, nor may any of Your obligations under this Agreement be delegated, in whole or in part, by You by operation of law, merger, or any other means without Apple's express prior written consent and any attempted assignment without such consent will be null and void.

15.4 Relationship of Parties. Except for the agency appointment as specifically set forth in Schedule 1 (if applicable), this Agreement will not be construed as creating any other agency

relationship, or a partnership, joint venture, fiduciary duty, or any other form of legal association between You and Apple, and You will not represent to the contrary, whether expressly, by implication, appearance or otherwise. This Agreement is not for the benefit of any third parties.

15.5 Independent Development. Nothing in this Agreement will impair Apple's right to develop, acquire, license, market, promote, or distribute products or technologies that perform the same or similar functions as, or otherwise compete with, Applications, Licensed Applications or any other products or technologies that You may develop, produce, market, or distribute.

15.6 Notices. Any notices relating to this Agreement shall be in writing. Notices will be deemed given by Apple when sent to You at the email address or mailing address You provided during the sign-up process. All notices to Apple relating to this Agreement will be deemed given (a) when delivered personally, (b) three business days after having been sent by commercial overnight carrier with written proof of delivery, and (c) five business days after having been sent by first class or certified mail, postage prepaid, to this Apple address: iPhone Developer Program Licensing, Apple Inc., 12545 Riata Vista Circle, MS 198-3SW, Austin, TX 78727, U.S.A. You consent to receive notices by email and agree that any such notices that Apple sends You electronically will satisfy any legal communication requirements. A party may change its email or mailing address by giving the other written notice as described above.

15.7 Severability. If a court of competent jurisdiction finds any clause of this Agreement to be unenforceable for any reason, that clause of this Agreement shall be enforced to the maximum extent permissible so as to effect the intent of the parties, and the remainder of this Agreement shall continue in full force and effect. However, if applicable law prohibits or restricts You from fully and specifically complying with, or appointing Apple and Apple Subsidiaries as Your agent under, Schedule 1 or the Sections of this Agreement entitled "Internal Use License and Restrictions", "Your Obligations" or "Digital Signing of Applications; Restrictions on Certificates", or prevents the enforceability of any of those Sections or Schedule 1, this Agreement will immediately terminate and You must immediately discontinue any use of the Apple Software as described in the Section entitled "Term and Termination."

15.8 Waiver and Construction. Failure by Apple to enforce any provision of this Agreement shall not be deemed a waiver of future enforcement of that or any other provision. Any laws or regulations that provide that the language of a contract will be construed against the drafter will not apply to this Agreement. Section headings are for convenience only and are not to be considered in construing or interpreting this Agreement.

15.9 Export Control. You may not use, export, re-export, import, sell or transfer the Apple Software except as authorized by United States law, the laws of the jurisdiction in which You obtained the Apple Software, and any other applicable laws and regulations. In particular, but without limitation, the Apple Software may not be exported or re-exported (a) into any U.S. embargoed countries or (b) to anyone on the U.S. Treasury Department's list of Specially Designated Nationals or the U.S. Department of Commerce Denied Person's List or Entity List. By using the Apple Software, You represent and warrant that You are not located in any such country or on any such list. You also agree that You will not use the Apple Software for any purposes prohibited by United States law, including, without limitation, the development, design, manufacture or production of nuclear, missiles, or chemical or biological weapons. You certify that pre-release versions of the Apple Software will only be used for development and testing purposes, and will not be rented, sold, leased, sublicensed, assigned, or otherwise transferred. Further, You certify that You will not transfer or export any product, process or service that is a direct product of such pre-release Apple Software.

15.10 Government End Users. The Apple Software and Documentation are "Commercial Items", as that term is defined at 48 C.F.R. §2.101, consisting of "Commercial Computer Software" and "Commercial Computer Software Documentation", as such terms are used in 48 C.F.R. §12.212 or 48 C.F.R. §227.7202, as applicable. Consistent with 48 C.F.R. §12.212 or 48

C.F.R. §227.7202-1 through 227.7202-4, as applicable, the Commercial Computer Software and Commercial Computer Software Documentation are being licensed to U.S. Government end users (a) only as Commercial Items and (b) with only those rights as are granted to all other end users pursuant to the terms and conditions herein. Unpublished-rights reserved under the copyright laws of the United States.

15.11 Dispute Resolution; Governing Law. Any litigation or other dispute resolution between You and Apple arising out of or relating to this Agreement, the Apple Software, or Your relationship with Apple will take place in the Northern District of California, and You and Apple hereby consent to the personal jurisdiction of and exclusive venue in the state and federal courts within that District with respect any such litigation or dispute resolution. This Agreement will be governed by and construed in accordance with the laws of the United States and the State of California, except that body of California law concerning conflicts of law. Notwithstanding the foregoing sentence, if You (as an entity entering into this Agreement) are a U.S. public and accredited educational institution, then this Agreement will be governed and construed in accordance with the laws of the state (within the U.S.) in which Your educational institution is domiciled, except that body of state law concerning conflicts of law. This Agreement shall not be governed by the United Nations Convention on Contracts for the International Sale of Goods, the application of which is expressly excluded.

15.12 Entire Agreement; Governing Language. This Agreement constitutes the entire agreement between the parties with respect to the use of the Apple Software licensed hereunder and supersedes all prior understandings and agreements regarding its subject matter, including the iPhone SDK Agreement (clickwrap) accompanying the SDK. This Agreement may be modified only: (a) by a written amendment signed by both parties, or (b) to the extent expressly permitted by this Agreement (for example, by Apple by written or email notice to You). Any translation of this Agreement is done for local requirements and in the event of a dispute between the English and any non-English version, the English version of this Agreement shall govern.

If You are located in the province of Quebec, Canada, the following clause applies: The parties hereby confirm that they have requested that this Agreement and all related documents be drafted in English. Les parties ont exigé que le présent contrat et tous les documents connexes soient rédigés en anglais.

Attachment 1
(to the Agreement)
Additional Terms for Apple Push Notification service

The following terms are in addition to the terms of the Agreement and apply to any use of the APN (Apple Push Notification service) in Your Application:

1. Use of the APN

1.1 Your Application may only access the APN via the APN API and only if You have been assigned a Push Application ID by Apple. You agree not to share your Push Application ID with any third party. You understand that Your Application will not be permitted to access or use the APN after expiration or termination of Your Agreement.

1.2 You are only permitted to use the APN and the APN APIs for the purpose of sending Push Notifications to Your Application on an iPhone or iPod touch device as expressly permitted by the Agreement (including but not limited to this Attachment 1) and the APN Documentation, and You must only do so in accordance with all applicable laws and regulations (including all intellectual property laws). You further agree that You must disclose to Apple any use of the APN as part of the submission process for Your Application.

1.3 You understand that before You send an end user any Push Notifications through the APN, the end user must provide consent to receive such Push Notifications. You agree not to disable, override or otherwise interfere with any Apple-implemented consent panels or any Apple system preferences for enabling or disabling Notifications functionality. If the end user's consent to receive Push Notifications is denied or later withdrawn, You may not send the end user Push Notifications.

2. Additional Requirements

2.1 You may not use the APN for the purpose of sending unsolicited messages to end users or for the purpose of phishing or spamming, including, but not limited to, engaging in any types of activities that violate anti-spamming laws and regulations, or that are otherwise improper, inappropriate or illegal.

2.2 You may not use the APN for the purposes of advertising, product promotion, or direct marketing of any kind (e.g. up-selling, cross-selling, etc.), including, but not limited to, sending any messages to promote the use of Your Application or advertise the availability of new features or versions.

2.3 You may not excessively use the overall network capacity or bandwidth of the APN, or unduly burden an iPhone or iPod touch device with excessive Push Notifications, as may be determined by Apple in its reasonable discretion. In addition, You agree not to harm or interfere with Apple's networks or servers, or any third party servers or networks connected to the APN, or otherwise disrupt other developers' use of the APN.

2.4 You may not use the APN to send material that contains any obscene, pornographic, offensive or defamatory content or materials of any kind (text, graphics, images, photographs, sounds, etc.), or other content or materials that in Apple's reasonable judgment may be found objectionable by the end user of Your Application.

2.5 You may not transmit, store or otherwise make available any material that contains viruses or any other computer code, files or programs that may harm, disrupt or limit the normal operation of the APN or an iPhone or iPod touch device, and You agree not to disable, spoof, hack or otherwise interfere with any security, digital signing, verification or authentication mechanisms that are incorporated in or used by the APN, or enable others to do so.

3. Delivery by the APN

You understand and agree that in order to provide the APN and make Your Push Notifications available on iPhone or iPod touch devices, Apple may transmit Your Push Notifications across

various public networks, in various media, and modify or change Your Push Notifications to comply with the technical and other requirements for connecting to networks or devices. You acknowledge and agree that the APN is not, and is not intended to be, a guaranteed or secure delivery service, and You shall not use or rely upon it as such. Further, as a condition to using the APN, You agree not to transmit sensitive personal or confidential information belonging to an individual (e.g. a social security number, financial account or transactional information, or any information where the individual may have a reasonable expectation of secure transmission) as part of any Push Notification, and You agree to comply with any applicable notice or consent requirements with respect to any collection, transmission, maintenance, processing or use of an end user's personal information.

4. Your Acknowledgements

You acknowledge and agree that:

4.1 Apple may at any time, and from time to time, with or without prior notice to You (a) modify the APN, including changing or removing any feature or functionality, or (b) modify, deprecate, reissue or republish the APN APIs. You understand that any such modifications may require You to change or update Your Applications at Your own cost. Apple has no express or implied obligation to provide, or continue to provide, the APN and may suspend or discontinue all or any portion of the APN at any time. Apple shall not be liable for any losses, damages or costs of any kind incurred by You or any other party arising out of or related to any such service suspension or discontinuation or any such modification of the APN or APN APIs.

4.2 The APN is not available in all languages or in all countries and Apple makes no representation that the APN is appropriate or available for use in any particular location. To the extent You choose to access and use the APN, You do so at Your own initiative and are responsible for compliance with any applicable laws, including but not limited to any local laws.

4.3 Apple provides the APN to You for Your use with Your Application, and does not provide the APN directly to any end user. You acknowledge and agree that any Push Notifications are sent by You, not Apple, to the end user of Your Application, and You are solely liable and responsible for any data or content transmitted therein and for any use of the APN in Your Application.

4.4 Apple makes no guarantees to You in relation to the availability or uptime of the APN and is not obligated to provide any maintenance, technical or other support for the APN.

4.5 Apple may monitor and collect information (including but not limited to technical and diagnostic information) about Your usage of the APN to aid Apple in improving the APN and other Apple products or services and to verify Your compliance with this Agreement; provided however that Apple will not access or disclose the content of any Push Notification unless Apple has a good faith belief that such access or disclosure is reasonably necessary to: (a) comply with legal process or request; (b) enforce the terms of this Agreement, including investigation of any potential violation hereof; (c) detect, prevent or otherwise address security, fraud or technical issues; or (d) protect the rights, property or safety of Apple, its developers, customers or the public as required or permitted by law.

5. Third Party Service Providers

You are permitted to employ or retain a third party ("Service Provider") to assist You in accessing and using the APN in Your Applications including, but not limited to, engaging any such Service Provider to maintain and administer Your Applications' servers on Your behalf, provided any such Service Provider's access to and use of the APN is only done on Your behalf in providing such services to You for Your Application and in accordance with these terms, and is subject to a binding written agreement between You and the Service Provider with terms at least as restrictive as those set forth herein, including, but not limited to, confidentiality for pre-release versions of the APN. Any actions undertaken by any such Service Provider in relation to Your Push Application and/or arising out of this Agreement shall be deemed to have been taken by You.

6. Changes to Attachment 1

Apple may change the terms of this Attachment 1 at any time by providing notice to You. In order to continue using the APN, You must accept and agree to the new terms of this Agreement or, if presented separately to You by Apple, to the new terms for this Attachment 1. You agree that any new terms for Attachment 1 (whether agreed to separately by You or as part of the Program Agreement) will be automatically incorporated into the Program Agreement. If You do not agree to new terms of this Agreement or Attachment 1, Your use of the APN will be suspended or terminated by Apple. You agree that Your acceptance of such new Agreement terms or revised Attachment 1 may be signified electronically, including without limitation, by Your checking a box or clicking on an "agree" or similar button which may be presented to You in a dialog box that is separate from this Agreement.

7. Additional Liability Disclaimer

APPLE SHALL NOT BE LIABLE FOR ANY DAMAGES OR LOSSES ARISING FROM ANY INTERRUPTIONS TO THE APN, INCLUDING, BUT NOT LIMITED TO, ANY POWER OUTAGES, SYSTEM FAILURES, NETWORK ATTACKS, SCHEDULED OR UNSCHEDULED MAINTENANCE, OR OTHER INTERRUPTIONS. YOU ACKNOWLEDGE THAT THE SERVICE IS NOT INTENDED OR SUITABLE FOR USE IN SITUATIONS OR ENVIRONMENTS WHERE ERRORS, DELAYS, FAILURES OR INACCURACIES IN THE TRANSMISSION OF DATA OR INFORMATION THROUGH THE SERVICE COULD LEAD TO DAMAGE OF ANY KIND INCLUDING BUT NOT LIMITED TO, DEATH, PERSONAL INJURY, OR FINANCIAL, PHYSICAL, PROPERTY OR ENVIRONMENTAL DAMAGE.

Schedule 1

1. Appointment of Agent

1.1 You hereby appoint Apple and Apple Subsidiaries (collectively "Apple") as Your worldwide agent for the delivery of the Licensed Applications to end-users, during the Delivery Period. You hereby acknowledge that Apple will deliver the Licensed Applications to end users in Apple's own name, through one or more App Stores, but for You and on Your behalf.

1.2 In furtherance of Apple's appointment under Section 1.1 of this Schedule 1, You hereby authorize and instruct Apple to:

(a) solicit and obtain orders on Your behalf for Licensed Applications from end-users located in the countries You designate under Section 2.1 hereof;

(b) provide hosting services to You, in order to allow for the storage of, and end-user access to, the Licensed Applications;

(c) make copies of, format, and otherwise prepare Licensed Applications for acquisition and download by end-users, including adding the Security Solution;

(d) allow end-users to access copies of the Licensed Applications, so that end-users may acquire from You and electronically download those Licensed Applications, Licensed Application Information, and associated metadata to end-users through one or more App Stores;

(e) use (i) screen shots and/or up to 30 second excerpts of the Licensed Applications; (ii) trademarks and logos associated with the Licensed Applications; and (iii) Licensed Application Information, for promotional purposes in marketing materials and gift cards, excluding those portions of the Licensed Applications, trademarks or logos, or Licensed Application Information which You do not have the right to use for promotional purposes, and which You identify in writing at the time that the Licensed Applications are delivered by You to Apple under Section 2.1 of this Schedule 1, and use images and other materials that You may provide to Apple, at Apple's reasonable request, for promotional purposes in marketing materials and gift cards; and

(f) otherwise use Licensed Applications, Licensed Application Information and associated metadata as may be reasonably necessary in the delivery of the Licensed Applications in accordance with this Schedule 1.

1.3 The parties acknowledge and agree that their relationship under this Schedule 1 is, and shall be, that of principal and agent, and that You, as principal, are, and shall be, solely responsible for any and all claims and liabilities involving or relating to, the Licensed Applications, as provided in this Schedule 1. The parties acknowledge and agree that Your appointment of Apple as its agent under this Schedule 1 is non-exclusive.

1.4 For purposes of this Schedule 1, the "Delivery Period" shall mean the period beginning on the Effective Date of the Agreement, and expiring on the last day of the Agreement or any renewal thereof; provided, however, that Apple's appointment as Your agent shall survive expiration of the Agreement for a reasonable phase-out period not to exceed thirty (30) days.

1.5 All of the Licensed Applications delivered by You to Apple under Section 2.1 of this Schedule 1 shall be made available by Apple for download by end-users at no charge. Apple shall have no duty to collect any fees for the Licensed Applications for any end-user and shall

have no payment obligation to You with respect to any of those Licensed Applications under this Schedule 1. In the event that You intend to charge end-users a fee for any Licensed Application, You must enter (or have previously entered) into a separate agreement (Schedule 2) with Apple with respect to that Licensed Application.

2. Delivery of the Licensed Applications to Apple

2.1 You will deliver to Apple, at Your sole expense, using the iTunes Connect site, the Licensed Applications, Licensed Application Information and associated metadata, in a format and manner prescribed by Apple, as required for the delivery of the Licensed Applications to end-users in accordance with this Schedule 1. Metadata You deliver to Apple under this Schedule 1 will include: (i) the title and version number of each of the Licensed Applications; (ii) the countries You designate, in which You wish Apple to allow end-users to download those Licensed Applications; (iii) any copyright or other intellectual property rights notices; and (iv) Your end-user license agreement ("EULA"), if any, in accordance with Section 3.2 of this Schedule 1.

2.2 All Licensed Applications will be delivered by You to Apple using software tools, a secure FTP site address and/or such other delivery methods as prescribed by Apple.

2.3 You hereby certify that all of the Licensed Applications You deliver to Apple under this Schedule 1 are authorized for export from the United States to each of the countries designated by You under Section 2.1 hereof, in accordance with the requirements of the United States Export Administration Regulations, 15 C.F.R. Parts 730-774. Without limiting the generality of this Section 2.3, You certify that (i) none of the Licensed Applications contains, uses or supports any data encryption or cryptographic functions; or (ii) in the event that any Licensed Application contains, uses or supports any such data encryption or cryptographic functionality, You have qualified that Licensed Application for export as a "mass market encryption item" in accordance with section 742.15(b)(2) of the Export Administration Regulations, and You will provide Apple with a PDF copy of the mass market export classification ruling (CCATS) issued by the United States Commerce Department, Bureau of Industry and Security for that Licensed Application. For purposes of determining the proper export classification and export control status of each Licensed Application, You should consult the export compliance decision tree in the iTunes Connect tool. You acknowledge that Apple is relying upon Your certification in this Section 2.3 in allowing end-users to access and download the Licensed Applications under this Schedule 1. Except as provided in this Section 2.3, Apple will be responsible for compliance with the requirements of the Export Administration Regulations in allowing end-users to access and download the Licensed Applications under this Schedule 1.

3. Ownership and End-User Licensing

3.1 The parties acknowledge and agree that Apple shall not acquire any ownership interest in or to any of the Licensed Applications or Licensed Applications Information, and title, risk of loss, responsibility for, and control over the Licensed Applications shall, at all times, remain with You. Apple may not use any of the Licensed Applications or Licensed Application Information for any purpose, or in any manner, except as specifically authorized in this Schedule 1.

3.2 You may deliver to Apple Your own EULA for any Licensed Application at the time that You deliver that Licensed Application to Apple, in accordance with Section 2.1 of this Schedule 1; provided, however, that Your EULA must include and may not be inconsistent with the minimum terms and conditions specified on Exhibit A to this Schedule 1 and must comply with all applicable laws in all countries where You wish Apple to allow end-users to download that Licensed Application. Apple shall allow each end-user to which Apple allows access to any such Licensed Application to review Your EULA (if any) at the time that Apple delivers that Licensed Application to that end-user, and Apple shall notify each end-user that the end-user's use of that Licensed Application is subject to the terms and conditions of Your EULA (if any). In the event that You do not furnish Your own EULA for any Licensed Application to Apple, You acknowledge

and agree that each end-user's use of that Licensed Application shall be subject to Apple's standard EULA (which is part of the App Store Terms of Service).

3.3 You hereby acknowledge that the EULA for each of the Licensed Applications is solely between You and the end-user and conforms to applicable law, and Apple shall not be responsible for, and shall not have any liability whatsoever under, any EULA or any breach by You or any end-user of any of the terms and conditions of any EULA.

4. Content Restrictions and Software Rating

4.1 You represent and warrant that: (a) You have the right to enter into this Agreement, to reproduce and distribute each of the Licensed Applications, and to authorize Apple to permit end-users to download and use each of the Licensed Applications through one or more App Stores; (b) none of the Licensed Applications, or Apple's or end-users' permitted uses of those Licensed Applications, violate or infringe any patent, copyright, trademark, trade secret or other intellectual property or contractual rights of any other person, firm, corporation or other entity; (c) each of the Licensed Applications is authorized for distribution, sale and use in, export to, and import into each of the countries designated by You under Section 2.1 of this Schedule 1, in accordance with the laws and regulations of those countries and all applicable export/import regulations; (d) none of the Licensed Applications contains any obscene, offensive or other materials that are prohibited or restricted under the laws or regulations of any of the countries You designate under Section 2.1 of this Schedule 1; and (e) all information You provide using the iTunes Connect tool, including any information relating to the Licensed Applications, is accurate and that, if any such information ceases to be accurate, You will promptly update it to be accurate using the iTunes Connect tool.

4.2 You shall use the software rating tool set forth on iTunes Connect to supply information regarding each of the Licensed Applications delivered by You for marketing and fulfillment by Apple through the App Store under this Schedule 1 in order to assign a rating to each such Licensed Application. For purposes of assigning a rating to each of the Licensed Applications, You shall use Your best efforts to provide correct and complete information about the content of that Licensed Application with the software rating tool. You acknowledge and agree that Apple is relying on: (i) Your good faith and diligence in assigning a rating to each Licensed Application; and (ii) Your representations and warranties in Section 4.1 hereof, in making that Licensed Application available for download by end-users in each of the countries You designate hereunder.

4.3 In the event that any country You designate hereunder requires the approval of, or rating of, any Licensed Application by any government or industry regulatory agency as a condition for the distribution and/or use of that Licensed Application, You acknowledge and agree that Apple may elect not to make that Licensed Application available for download by end-users in that country from any App Store.

5. Responsibility, Liability and Indemnity

5.1 Apple shall have no responsibility for the installation and/or use of any of the Licensed Applications by any end-user. You shall be solely responsible for any and all product warranties, end-user assistance and product support with respect to each of the Licensed Applications.

5.2 You shall be solely responsible for, and Apple shall have no responsibility or liability whatsoever with respect to, any and all claims, suits, liabilities, losses, damages, costs and expenses arising from, or attributable to, the Licensed Applications and/or the use of those Licensed Applications by any end-user, including, but not limited to: (i) claims of breach of warranty, whether specified in the EULA or established under applicable law; (ii) product liability claims; and (iii) claims that any of the Licensed Applications and/or the end-user's possession or use of those Licensed Applications infringes the copyright or other intellectual property rights of

any third party.

5.3 To the extent permitted by law, You shall indemnify and hold Apple harmless against any and all claims, suits, liabilities, losses, damages, taxes, costs and expenses arising from, or related or attributable to: (i) the Licensed Applications or their delivery; (ii) Your failure to fulfill or perform any of Your obligations under the EULA for those Licensed Applications; (iii) Your failure to fulfill or perform any of Your obligations under this Schedule 1, including, but not limited to, Your obligations under Section 5.2 hereof; or (iv) any breach of Your representations and warranties, as set forth in Section 4.1 hereof, or any breach of Your obligations under Section 4.2 hereof.

6. Termination

6.1 This Schedule 1, and all of Apple's obligations hereunder, shall terminate upon the expiration or termination of the Agreement.

6.2 In the event that You no longer have the legal right to distribute the Licensed Applications, or to authorize Apple to allow access to those Licensed Applications by end-users, in accordance with this Schedule 1, You shall promptly withdraw those Licensed Applications from the App Store using the tools provided on the iTunes Connect site; provided, however, that such withdrawal by You under this Section 6.2 shall not relieve You of any of Your obligations to Apple under this Schedule 1, or any liability to Apple and/or any end-user with respect to those Licensed Applications.

6.3 Apple reserves the right to cease allowing download by end-users of the Licensed Applications at any time, with or without cause, by providing notice of termination to You. Without limiting the generality of this Section 6.3, You acknowledge that Apple may cease allowing download by end-users of some or all of the Licensed Applications if Apple reasonably believes that: (i) those Licensed Applications are not authorized for export to one or more of the countries designated by You under Section 2.1 hereof, in accordance with the Export Administration Regulations; (ii) those Licensed Applications and/or any end-user's possession and/or use of those Licensed Applications, infringe patent, copyright, trademark, trade secret or other intellectual property rights of any third party; or (iii) the distribution and/or use of those Licensed Applications violates any applicable law in any country You designate under Section 2.1 of this Schedule 1. An election by Apple to cease allowing download of any Licensed Applications, pursuant to this Section 6.3, shall not relieve You of Your obligations under this Schedule 1.

6.4 You may withdraw any or all of the Licensed Applications from the App Store, at any time, and for any reason, by using the tools provided on the iTunes Connect site.

7. Legal Consequences

The relationship between You and Apple established by this Schedule 1 may have important legal consequences for You. You acknowledge and agree that it is Your responsibility to consult with Your legal advisors with respect to Your legal obligations hereunder.

EXHIBIT A
(to Schedule 1)

**Instructions for Minimum Terms of Developer's
End-User License Agreement**

- 1. Acknowledgement:** You and the end-user must acknowledge that the EULA is concluded between You and the end-user only, and not with Apple, and You, not Apple, are solely responsible for the Licensed Application and the content thereof. The EULA may not provide for usage rules for Licensed Applications that are less restrictive than the Usage Rules set forth for Licensed Applications in, or otherwise be in conflict with, the App Store Terms of Service as of the Effective Date (which You acknowledge You have had the opportunity to review).
- 2. Scope of License:** The license granted to the end-user for the Licensed Application must be limited to a non-transferable license to use the Licensed Application on any iPhone or iPod touch that the end-user owns or controls and as permitted by the Usage Rules set forth in the App Store Terms of Service.
- 3. Maintenance and Support:** You must be solely responsible for providing any maintenance and support services with respect to the Licensed Application, as specified in the EULA, or as required under applicable law. You and the end-user must acknowledge that Apple has no obligation whatsoever to furnish any maintenance and support services with respect to the Licensed Application.
- 4. Warranty:** You must be solely responsible for any product warranties, whether express or implied by law, to the extent not effectively disclaimed. The EULA must provide that, in the event of any failure of the Licensed Application to conform to any applicable warranty, the end-user may notify Apple, and Apple will refund the purchase price for the Licensed Application to that end-user; and that, to the maximum extent permitted by applicable law, Apple will have no other warranty obligation whatsoever with respect to the Licensed Application, and any other claims, losses, liabilities, damages, costs or expenses attributable to any failure to conform to any warranty will be Your sole responsibility.
- 5. Product Claims:** You and the end-user must acknowledge that You, not Apple, are responsible for addressing any claims of the end-user or any third party relating to the Licensed Application or the end-user's possession and/or use of that Licensed Application, including, but not limited to: (i) product liability claims; (ii) any claim that the Licensed Application fails to conform to any applicable legal or regulatory requirement; and (iii) claims arising under consumer protection or similar legislation. The EULA may not limit Your liability to the end-user beyond what is permitted by applicable law.
- 6. Intellectual Property Rights:** You and the end-user must acknowledge that, in the event of any third party claim that the Licensed Application or the end-user's possession and use of that Licensed Application infringes that third party's intellectual property rights, You, not Apple, will be solely responsible for the investigation, defense, settlement and discharge of any such intellectual property infringement claim.
- 7. Legal Compliance:** The end-user must represent and warrant that (i) he/she is not located in a country that is subject to a U.S. Government embargo, or that has been designated by the U.S. Government as a "terrorist supporting" country; and (ii) he/she is not listed on any U.S. Government list of prohibited or restricted parties.
- 8. Developer Name and Address:** You must state in the EULA Your name and address, and the contact information (telephone number; E-mail address) to which any end-user questions, complaints or claims with respect to the Licensed Application should be directed.

9. Third Party Beneficiary: You and the end-user must acknowledge and agree that Apple, and Apple's subsidiaries, are third party beneficiaries of the EULA, and that, upon the end-user's acceptance of the terms and conditions of the EULA, Apple will have the right (and will be deemed to have accepted the right) to enforce the EULA against the end-user as a third party beneficiary thereof.

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EA0527

EXHIBIT K



iPhone in Business

Security Overview



Device protection

- Strong passcodes
- Passcode expiration
- Passcode reuse history
- Maximum failed attempts
- Over-the-air passcode enforcement
- Progressive device protection

Data protection

- Remote wipe
- Local wipe
- Encrypted configuration profiles
- Encrypted iTunes backups
- Hardware encryption (iPhone 3GS)

Network security

- Cisco IPSec, L2TP, PPTP VPN protocols
- SSL/TLS with X.509 certificates
- WPA/WPA2 Enterprise with 802.1X
- Certificate-based authentication
- RSA SecurID, CRYPTOCARD

Platform security

- Runtime protection
- Mandatory code signing
- Keychain services
- Common Crypto APIs

iPhone can securely access corporate services and protect data on the device. It provides strong encryption for data in transmission, proven authentication methods for access to corporate services, and for iPhone 3GS, hardware encryption for all data stored on the device. iPhone also provides secure protection through the use of passcode policies that can be enforced and delivered over-the-air. And if the device falls into the wrong hands, users and IT administrators can initiate a remote wipe command to help ensure that private information is erased.

When considering the security of iPhone for enterprise use, it is helpful to understand the following:

- Methods that prevent unauthorized use of the device
- Protecting data at rest, including when a device is lost or stolen
- Networking protocols and the encryption of data in transmission
- Secure platform foundation of iPhone OS

These capabilities work in concert to provide a secure mobile computing platform.

Device Control and Protection

Establishing strong policies for access to iPhone is critical to protecting corporate information. Passcode enforcement is the front line of defense against unauthorized access and can be configured and enforced over-the-air. Additionally, iPhone provides secure methods to configure the device in an enterprise environment where specific settings, policies, and restrictions must be in place. These methods provide flexible options for establishing a standard level of protection for authorized users.

Passcode Policies

A device passcode prevents unauthorized users from accessing data stored on iPhone or otherwise gaining access to the device. iPhone OS allows you to select from an extensive set of passcode requirements to meet your security needs, including timeout periods, passcode strength, and how often the passcode must be changed.

The following Microsoft Exchange ActiveSync passcode policies are supported:

- Enforce password on device
- Minimum password length
- Maximum failed password attempts
- Require both numbers and letters
- Inactivity time in minutes

With Microsoft Exchange Server 2007, these additional passcode policies are supported:

- Allow or prohibit simple password
- Password expiration
- Password history
- Policy refresh interval
- Minimum number of complex characters in a password

Policy Enforcement

The policies described above can be set on iPhone in two ways. If the device is configured to access a Microsoft Exchange account, the Exchange ActiveSync policies are pushed to the device over-the-air. This enables policies to be enforced and updated without any action by the user.

Policies can also be distributed as part of a configuration profile for users to install. A profile can be defined so that deleting the profile is only possible with an administrative password, or you can define the profile so that it is locked to the device and cannot be removed without completely erasing all of the device contents.

Secure Device Configuration

Configuration profiles are XML files that contain device security policies and restrictions, VPN configuration information, Wi-Fi settings, email and calendar accounts, and authentication credentials that permit iPhone to work with your enterprise systems. The ability to establish passcode policies along with device settings in a configuration profile ensures that devices within your enterprise are configured correctly and according to security standards set by your organization. And because configuration profiles can be both encrypted and locked, the settings cannot be removed, altered, or shared with others.

Configuration profiles can be both signed and encrypted. Signing a configuration profile ensures that the settings it enforces cannot be altered in any way. Encrypting a configuration profile protects the profile's contents and permits installation only on the device for which it was created. Configuration profiles are encrypted using CMS (Cryptographic Message Syntax, RFC 3852), supporting 3DES and AES 128.

For the first-time distribution of encrypted configuration profiles, you'll need to install them via USB sync using the iPhone Configuration Utility or via Over-the-Air Enrollment and Distribution. In addition to these methods, subsequent distribution of encrypted configuration profiles can be delivered via email attachment or hosted on a website accessible to your users.



Available restrictions

- Access to explicit media in iTunes Store
- Use of Safari
- Use of YouTube
- Access to iTunes Store
- Use of App Store and iTunes to install applications
- Use of the camera (can also be controlled with an Exchange policy)

Device Restrictions

Device restrictions determine which iPhone features your users can access on the device. Typically, these involve network-enabled applications such as Safari, YouTube, or the iTunes Store, but restrictions can also control things such as application installation, or use of the camera. Device restrictions let you configure the device to meet your requirements, as well as permit users to utilize the device in ways that are consistent with your business practices. Restrictions are enforced using a configuration profile, or they can be manually configured on each device. Additionally, camera restrictions can be enforced over-the-air via Microsoft Exchange Server 2007.

In addition to setting restrictions and policies on the device, the iTunes desktop application can be configured and controlled by IT. This includes disabling access to explicit content, defining which network services users can access within iTunes, and whether new software updates are available for them to install.



Progressive device protection

iPhone can be configured to automatically initiate a wipe after several failed passcode attempts. If a user repeatedly enters the wrong passcode, iPhone will be disabled for increasingly longer intervals. After too many unsuccessful attempts, all data and settings on the device will be erased.

Data Protection

Protecting data stored on iPhone is important for any environment with a high level of sensitive corporate or customer information. In addition to encrypting data in transmission, iPhone 3GS provides hardware encryption for data stored on the device.

If a device is lost or stolen, it's important to deactivate and erase the device. It's also a good idea to have a policy in place that will wipe the device after a defined number of failed passcode attempts, a key deterrent against attempts to gain unauthorized access to the device.

Encryption

iPhone 3GS offers hardware-based encryption. iPhone 3GS hardware encryption uses AES 256 bit encoding to protect all data on the device. Encryption is always enabled, and cannot be disabled by users.

Additionally, data backed up in iTunes to a user's computer can be encrypted. When an encrypted configuration profile is stored on the user's device, this capability is enforced automatically. And to further protect application data, developers have access to APIs that enable them to encrypt data within their own application data stores.

Remote Wipe

iPhone supports remote wipe. If a device is lost or stolen the administrator or device owner can issue a remote wipe command that removes all data and deactivates the device. If the device is configured with an Exchange account, the administrator can initiate a remote wipe command using the Exchange Management Console (Exchange Server 2007) or Exchange ActiveSync Mobile Administration Web Tool (Exchange Server 2003 or 2007). Users of Exchange Server 2007 can also initiate remote wipe commands directly using Outlook Web Access.

Local Wipe

Devices can also be configured to automatically initiate a local wipe after several failed passcode attempts. This is a key deterrent against brute force attempts to gain access to the device. By default, iPhone will automatically wipe the device after 10 failed pass-code attempts. As with other passcode policies, the maximum number of failed attempts can be established via a configuration profile or enforced over-the-air via Microsoft Exchange ActiveSync policies.

Secure Network Communication

Mobile users must be able to access corporate information networks from anywhere in the world, yet it's also important to ensure that users are authorized and that their data is protected during transmission. iPhone provides proven technologies to accomplish these security objectives for both Wi-Fi and cellular data network connections.

VPN

Many enterprise environments have some form of virtual private networking established. These secure network services are already deployed and typically require minimal setup and configuration to work with iPhone.

iPhone integrates with a broad range of commonly used VPN technologies through support for Cisco IPSec, L2TP, and PPTP. Support for these protocols ensures the highest level of IP-based encryption for transmission of sensitive information. iPhone supports network proxy configuration as well as split IP tunneling so that traffic to public or private network domains is relayed according to your specific company policies.



VPN protocols

- Cisco IPSec
- L2TP/IPSec
- PPTP

Authentication methods

- Password (MSCHAPv2)
- RSA SecureID
- CRYPTOCARD
- x.509 Digital Certificates
- Shared secret

802.1x authentication protocols

- EAP-TLS
- EAP-TTLS
- EAP-FAST
- EAP-SIM
- PEAP v0, v1
- LEAP

Supported certificate formats

iPhone supports X.509 certificates with RSA keys. The file extensions .cer, .crt, and .der are recognized.

In addition to enabling secure access to existing VPN environments, iPhone offers proven methods for user authentication. Authentication via standard x.509 digital certificates provides users with streamlined access to company resources and a viable alternative to using hardware-based tokens. Additionally, certificate authentication enables iPhone to take advantage of VPN On Demand, making the VPN authentication process transparent while still providing strong, credentialed access to network services.

For enterprise environments in which a two-factor token is a requirement, iPhone integrates with RSA SecureID and CRYPTOCARD.

SSL/TLS

iPhone supports SSL v3 as well as Transport Layer Security (TLS v1), the next-generation security standard for the Internet. Safari, Calendar, Mail, and other Internet applications automatically start these mechanisms to enable an encrypted communication channel between iPhone and corporate services.

WPA/WPA2

iPhone supports WPA2 Enterprise to provide authenticated access to your enterprise wireless network. WPA2 Enterprise uses 128-bit AES encryption, giving users the highest level of assurance that their data will remain protected when they send and receive communications over a Wi-Fi network connection. And with support for 802.1x, iPhone can be integrated into a broad range of RADIUS authentication environments.

Secure Platform Foundation

iPhone OS is a platform designed with security at its core. It includes a “sandboxed” approach to application runtime protection and requires mandatory application signing to ensure that applications cannot be tampered with. iPhone OS also has a secure framework that facilitates secure storage of application and network service credentials in an encrypted keychain. For developers, it offers a common crypto architecture that can be used to encrypt application data stores.

Runtime Protection

Applications on the device are “sandboxed” so they cannot access data stored by other applications. In addition, system files, resources, and the kernel are shielded from the user’s application space. If an application needs to access data from another application, it can only do so using the APIs and services provided by iPhone OS. Code generation is also prevented.

Mandatory Code Signing

All iPhone applications must be signed. The applications provided with the device are signed by Apple. Third-party applications are signed by the developer using an Apple issued certificate. This ensures that applications haven’t been tampered with or altered. Additionally, runtime checks are made to ensure that an application hasn’t become untrusted since it was last used.

The use of custom or in-house applications can be controlled with a provisioning profile. Users must have the provisioning profile installed to execute the application. Administrators can also restrict the use of an application to specific devices.

Secure Authentication Framework

iPhone provides a secure, encrypted keychain for storing digital identities, user names, and passwords. Keychain data is partitioned so that credentials stored by third-party applications cannot be accessed by applications with a different identity. This provides the mechanism for securing authentication credentials on iPhone across a range of applications and services within the enterprise.

Common Crypto Architecture

Application developers have access to encryption APIs that they can use to further protect their application data. Data can be symmetrically encrypted using proven methods such as AES, RC4, or 3DES. In addition, iPhone provides hardware acceleration for AES and SHA1 encryption, maximizing application performance.

Revolutionary Phone, Secure Throughout

iPhone 3GS provides encrypted protection of data in transit, at rest, or backed up to iTunes. Whether a user is accessing corporate email, visiting a private website, or authenticating to the corporate network, iPhone provides assurance that only authorized users can access sensitive corporate information. And, with support for enterprise-grade networking and comprehensive methods to prevent data loss, iPhone can be deployed with confidence that you are implementing proven mobile device security and data protection methods.

Additional Resources

Enterprise Deployment Guide

http://manuals.info.apple.com/en_US/Enterprise_Deployment_Guide.pdf

Enterprise Deployment Resource and Scenarios

<http://www.apple.com/iphone/enterprise/integration.html>

EXHIBIT L

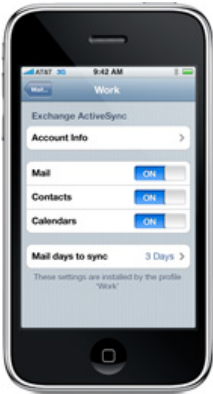
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Overview Enterprise integration Profiles

Works with your work.

iPhone connects to Microsoft Exchange right out of the box. It supports Cisco IPsec VPN and WPA2 Enterprise with 802.1X authentication. And it makes quick work of configuration and enterprisewide deployment. Find out how easily iPhone fits into your enterprise environment.



Microsoft Exchange ActiveSync support.

If your office uses Microsoft Exchange Server 2003 or 2007, iPhone allows you to wirelessly push company email, calendar events, and contacts over a 128-bit encrypted SSL connection. With secure push email and over-the-air contacts and calendar features, users can stay up to date wherever they go. And thanks to the iPhone Multi-Touch display, they'll find it easier to perform common tasks such as accepting meeting invitations and finding contacts in the company directory or Global Address List (GAL).

IT administrators can securely manage any iPhone that contains confidential company information using remote wipe and enforced security and password policies. These device configuration and remote management capabilities allow IT departments to quickly and seamlessly deploy iPhone throughout their companies.

Deployment Resources

Enterprise Deployment Scenarios
Learn how iPhone integrates seamlessly into enterprise environments with these deployment scenarios and device configuration overview.
[Download all deployment scenarios](#)

Microsoft Exchange ActiveSync
IMAP, CalDAV, LDAP
Virtual Private Networks (VPN)
WPA2 Enterprise/802.1X
Digital Certificates
Device Configuration
Over-the-Air Enrollment and Configuration

Security Overview
Find out how iPhone protects against unauthorized access, safeguards data at rest, and enables secure access to corporate services.

Security Overview

Enterprise Deployment Guide
The comprehensive guide for system administrators on how to integrate iPhone with enterprise systems.
[Download the deployment guide](#)

How-to Setup Guide for Users
Need a quick reference document for your users who are setting up iPhone for the first time? Customize and distribute this how-to guide to get them up and running.
[Download the setup guide](#)

iPhone Configuration Utility
A desktop application for IT administrators to easily create, maintain, and sign configuration profiles.
[Download the application](#)

Enterprise-grade networking.

iPhone supports Cisco IPsec VPN to ensure the highest level of IP-based encryption for transmission of sensitive company information. Employees can authenticate via password, two-factor token, or digital certificate. iPhone also supports WPA2 Enterprise with 802.1X authentication — the standard for Wi-Fi network protection. These features help provide safe access to company information on iPhone.



Device configuration.

Deploying iPhone across an enterprise is easy with iPhone. Corporate passcode policies and settings can be set via Configuration Profiles created and distributed by your IT administrator. In addition, Configuration Profiles can be used to remotely configure your company's VPN, email, and wireless network settings, making each iPhone secure and ready for business. Configuration Profiles can also be used to install certificates on iPhone for authentication to Cisco IPSec VPN servers, 802.1X-based wireless networks, and other corporate services. For users, installing a Configuration Profile is as easy as tapping a secure web link or receiving an email with the Configuration Profile attached.

Configuration Profiles can be created easily using iPhone Configuration Utility, a stand-alone application for the desktop. Download iPhone Configuration Utility.

Development Resources

Apply to the iPhone Enterprise Developer Program to start building and deploying you own iPhone applications to employees.



iPhone Developer Program
Learn more and apply ►



iPhone SDK
Download the free SDK ►



iPhone for your enterprise.

Enterprise Rate Plans

Apple and AT&T pair the best phone for business with the largest digital wireless voice and data network in the nation. Enterprise Data Plans for iPhone include Visual Voicemail, unlimited data (within the U.S.), and your choice of SMS text message plans. Browse the Internet and send as many email messages as you want — without additional fees. [Learn more ►](#)

Corporate Phone Sales

Want to purchase iPhone for your employees? Contact an AT&T business representative or call 1-877-5ATT-B2B (1-877-528-8222).

Some features, applications, and services are not available in all areas. See your carrier for details.
Some applications are not available in all areas. Application availability and pricing are subject to change.

EXHIBIT M

Bloomberg Businessweek**Technology**http://www.businessweek.com/technology/content/nov2009/tc20091120_354597.htm

Apple's Schiller Defends iPhone App Approval Process

By [Arik Hesseldahl](#) November 22, 2009

Apple (AAPL) is under fire from some developers for the way it vets applications that can be sold on its online App Store. Facebook developer Joe Hewitt goes so far as to say he's "philosophically opposed" to the very notion of a company deciding which applications can and can't be used on its hardware. The presence of "gatekeepers" in software development "sets a horrible precedent," he says. But in his first extensive interview on the subject, Phil Schiller, Apple's senior vice-president for worldwide product marketing, outlines the many reasons Apple keeps close tabs on which applications can be downloaded onto the iPhone and iPod Touch. He also outlined ways the company is trying to become more flexible in its approval process. "We've built a store for the most part that people can trust," he says. "You and your family and friends can download applications from the store, and for the most part they do what you'd expect, and they get onto your phone, and you get billed appropriately, and it all just works." The number of applications available at the App Store is now north of 100,000, and about 10,000 are submitted each week. As the volume rises, so does the number of potential problems. Schiller compares Apple's role to that of a retailer determining which products line store shelves. "Whatever your favorite retailer is, of course they care about the quality of products they offer," he says. "We review the applications to make sure they work as the customers expect them to work when they download them." About 10% of rejects: "inappropriate" Most are approved and some are sent back to the developer. In about 90% of those cases, Apple requests technical fixes—usually for bugs in the software or because something doesn't work as expected, Schiller says. Developers are generally glad to have this safety net because usually Apple's review process finds problems they actually want to fix, he says. In some 10% of cases where an app is sent back, that's because it's inappropriate. "There have been applications submitted for approval that will steal personal data, or which are intended to help the user break the law, or which contain inappropriate content," Schiller says. About 1% or fewer of returned apps fall into some gray area that Apple hasn't anticipated—for instance, applications intended to help the user cheat at gambling in casinos. "We had to go study state and international laws about what's legal and what isn't, and what legal exposure that creates for Apple or the customer," Schiller says. The verdict: Apps that help a user learn how to play are O.K.; those designed to help a person cheat don't make the cut. Apple is also vigilant about potentially illegal use of trademarks, particularly its own. "If you don't defend your trademarks, in the end you end up not owning them," Schiller says. "And sometimes other companies come to us saying they've seen their trademarks used in apps without permission. We see that a lot." Still, the trademark rules can be applied inflexibly, he concedes. Rogue Amoeba's Run-In In a widely reported case, developers at Rogue Amoeba, a maker of popular Mac apps, built an app called Airfoil Speakers that transmits audio playing on a Mac or Apple TV to an iPhone or iPod Touch that's connected to external speakers. In an effort to make clear the audio source, Rogue Amoeba used images of Macs, Apple TVs, and other Apple products. The app was initially approved. An update was rejected for running afoul of Apple's rules forbidding the use of Apple images in apps. The

current version contains a non-Apple icon that links to a Rogue Amoeba Web page explaining the flap. Schiller didn't directly address Airfoil Speakers, but he says Apple is trying to make trademark guidelines more sophisticated. "We need to delineate something that might confuse the customer and be an inappropriate use of a trademark from something that's just referring to a product for the sake of compatibility," he says. "We're trying to learn and expand the rules to make it fair for everyone." Rogue Amoeba will soon submit a version of the app with the Apple images intact, Rogue Amoeba CEO Paul Kafasis says. One of the biggest accommodations Apple has made with applications is adding parental controls. Parents now can block apps with adult content or games that depict violence from being downloaded to an iPhone or iPod Touch. Turning on parental controls lets Apple boost the number of apps and the type of content allowed. "We've had a lot of eyes on us," Schiller says. "We've had inquiries from governments and political leaders asking us what we were doing to protect children from inappropriate content," he says. Is a smartphone Gatekeeper needed? Schiller makes a strong case for Apple's role as the arbiter of what goes on the iPhone. Still, it's tempting to consider the implications of a less hands-on approach, as is the case with Macs, Microsoft (MSFT) Windows PCs, or other smartphones, including those running the Google (GOOG)-backed Android operating system. The software market for personal computing has existed in this way for nearly three decades, and while there have certainly been some problems along the way, I'd argue that overall we're better off without Microsoft or Apple or some other organization approving software applications before they're released to the market. PC users have learned to be careful about what they put on their computers through unhappy trial and error. My hunch is that greater vigilance is needed with smartphones, in part because they're a relatively recent phenomenon. The iPhone has been on the market only 28 months. Users take them everywhere and are quickly inserting them into daily life in ways the personal computer never could have fit. Malware on smartphones could do significantly more damage than malware on a PC. Imagine a nasty application that records every word you speak—both on and off the phone—without your knowledge, and then e-mails the audio to a stranger. Or picture one that surreptitiously tracks your movements and sends them to a stalker. There may come a time when Apple finds it no longer needs to play such a comprehensive a role as app approver. Apple has shown a willingness to let its app approval process evolve. But today, with smartphones permeating our lives and going everywhere we go, it makes a good deal of sense to have someone keeping a close eye on what those apps do. At least for now.



[Hesseldahl](#) is a reporter for BusinessWeek.com
With Carlos Bergfeld in Silicon Valley

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EXHIBIT N

Apple Previews iPhone OS 4

Includes Multitasking, Folders, iBooks, Unified Inbox & More

CUPERTINO, California—April 8, 2010—Apple® today previewed its iPhone® OS 4 software and released a beta version of the software to iPhone Developer Program members. The iPhone OS 4 beta release includes an updated Software Development Kit (SDK) with over 1,500 new Application Programming Interfaces (APIs) and over 100 new features that will be available to iPhone and iPod touch® users this summer. New features include Multitasking for third party apps; Folders to better organize and access apps; improved Mail with a unified inbox, fast inbox switching and threaded messages; enhanced Enterprise support with even better data protection, mobile device management, wireless app distribution and more; Apple's new iAd mobile advertising platform; and iBooks, the delightful new ebook reader and online bookstore recently debuted on the iPad™.

"iPhone OS 4 is the fourth major release of the world's most advanced mobile operating system," said Steve Jobs, Apple's CEO. "We're delivering over 100 new features, including multitasking, folders, a unified inbox, deeper Enterprise support, and an iPhone version of our iBooks reader and online iBookstore."

iPhone OS 4's new multitasking offers users a new way to quickly move between apps, and provides developers seven new multitasking services to easily add multitasking features to their apps. These services include background audio, so apps like Pandora can play music in the background, and VoIP, so VoIP apps can receive a VoIP call even when the iPhone is asleep or the user is running other apps. iPhone OS 4 provides multitasking to third party apps while preserving battery life and foreground app performance, which has until now proved elusive on mobile devices.

Folders help users better organize and quickly access their apps. Simply drag one app icon onto another, and a new folder is automatically created. The folder is automatically given a name based on the App Store category of that app, such as "Games," which the user can easily rename. Using folders, users can now organize and access over 2,000 apps on their iPhone. Users can also create and manage iPhone folders on their Mac® or PC using iTunes® 9.2.

iPhone OS 4 delivers the best mail experience on a mobile phone with its new Unified Inbox, allowing users to see messages from all their email accounts displayed together in a single inbox. With just a few taps, users can quickly switch between inboxes to see messages from any single account. In addition, users can now thread their messages by conversation, making it easier to stay on top of email discussions, as well as open email attachments with compatible apps from the App Store.

iAd, Apple's new mobile advertising platform, combines the emotion of TV ads with the interactivity of web ads. Today, when users click on mobile ads they are almost always taken out of their app to a web browser, which loads the advertiser's webpage. Users must then navigate back to their app, and it is often difficult or impossible to return to exactly where they left. iAd solves this problem by displaying full-screen video and interactive ad content without ever leaving the app, and letting users return to their app anytime they choose. iPhone OS 4 lets developers easily embed iAd opportunities within their apps, and the ads are dynamically and wirelessly delivered to the device. Apple will sell and serve the ads, and developers will receive an industry-standard 60 percent of iAd revenue.

The iPhone OS 4 beta release includes a developer preview of Game Center, which contains a set of APIs that allows developers to create apps with the ability to invite friends to play a game, start a multiplayer game through matchmaking and track achievements and compare high scores on a leader board. Apps created with GameKit APIs will work with Game Center, Apple's new social gaming network available to iPhone and iPod touch users later this year.

New enterprise features in iPhone OS 4 include improvements in security, scalability and compatibility. The new Mobile Device Management service can be integrated with third party servers to wirelessly configure, query and even wipe or lock managed iPhones, and iPhone OS 4 enables enterprises to securely host and wirelessly distribute their own in-house developed apps to employees. The new Data Protection feature uses a user's passcode as an encryption key to protect mail messages and attachments stored on the iPhone. iPhone OS 4 now provides the option to set a longer, more complex passcode, making iPhone and its data even more secure. iPhone OS 4 allows IT managers to set up multiple Exchange ActiveSync accounts, is compatible with Exchange Server 2010 and includes support for forthcoming SSL VPN applications from Juniper Networks and Cisco.

Today, more than four billion apps have been downloaded from the revolutionary App Store and more than 185,000 apps are available to consumers in 90 countries. Over 85 million iPhone and iPod touch users around the world can choose from an incredible range of apps in 20 categories, including games, business, news, sports, health, reference and travel.

Availability

The iPhone OS 4 beta software and SDK are available immediately for iPhone Developer Program members at developer.apple.com. iPhone OS 4 will be available as a software update to iPhone and iPod touch users this summer.* A version of iPhone OS 4 will be coming to iPad this Fall.

*Some features may not be available on all products. For example, Multitasking requires iPhone 3GS or third generation iPod

touch (late 2009 models with 32GB or 64GB).

Apple ignited the personal computer revolution with the Apple II, then reinvented the personal computer with the Macintosh. Apple continues to lead the industry with its award-winning computers, OS X operating system, and iLife, iWork and professional applications. Apple leads the digital music revolution with its iPods and iTunes online store, has reinvented the mobile phone with its revolutionary iPhone and App Store, and has recently introduced its magical iPad which is defining the future of mobile media and computing devices.

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EXHIBIT O

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Steve Jobs to Valleywag at 2:20 AM: "Why are you so bitter?"

☆ Ryan Tate to sjobs [show details](#) 9:34 PM (12 hours ago) [Reply](#)

If Dylan was 20 today, how would he feel about your company?

Would he think the iPad had the faintest thing to do with "revolution?"

Revolutions are about freedom.

[Reply](#) [Forward](#)

☆ Steve Jobs to me [show details](#) 12:52 AM (9 hours ago) [Reply](#)

Yep, freedom from programs that steal your private data. Freedom from programs that trash your battery. Freedom from porn. Yep, freedom. The times they are a changin', and some traditional PC folks feel like their world is slipping away. It is.

- Show quoted text -

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☆ Ryan Tate to Steve [show details](#) 1:31 AM (8 hours ago) [Reply](#)

Honestly, my MacBook Pro 13 battery holds up fine against Flash. The battery is boss. So is my iPad battery. I'd rather have a Wired magazine app that has some interactivity rather than one that is a glorified PDF. So why not? Just because Adobe tried to fuck you guys in the late 90s? It's not a question of pure Coca vs. Flash cross compile. It's a question of weak content in an approved wrapper vs. something interactive that happens to be cross compiled by Adobe.

And you know what? I don't want "freedom from porn." Porn is just fine! And I think my wife would agree.

- Show quoted text -

[Reply](#) [Forward](#)

May 15, 2010 6:14 PM

Paul Boutin

Valleywag editor Ryan Tate, irked by an iPad ad, drunkmailed Apple CEO Steve Jobs (<http://gawker.com/5539717/>) just after 9:30 last night. To Tate's shock and delight, Jobs argued back and forth with him until 2:20 AM in four rounds of messages, reproduced below.

The real Steve seems to be emulating the Fake Steve (<http://www.fakesteve.net/>) more and more, spilling his controversial opinions directly onto the Internet regardless of what anyone thinks. I like it.

From around the Web

Steve Jobs to me
[show details](#)
1:39 AM (8 hours ago)
 [Reply](#)

Wired is doing a native Cocoa app. So is almost every publisher. And you might care more about porn when you have kids...

- Show quoted text -

[Reply](#)
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Ryan Tate to Steve
[show details](#)
1:53 AM (8 hours ago)
 [Reply](#)

Wired is doing a native Coca app because they HAVE to. But why should they have to waste any effort porting?? These print guys should be encouraged to do any interactivity they are willing to do. It's a miracle anyone within Condé Nast wants to do more than a straight reproduction of the mag, and you're making it harder form them. Trust me, I used to work for the Newhouses, at SF Biz Times – they have zero internet ambition at the corporate level. All you're doing is making it harder for smart guys like Chris Anderson to do something interesting. It's not a question of native app vs non native app with the old media – it's a question of interactive vs non interactive.

at Time Inc is crowing about how smart he was to do the shitty Time app, since, technically, it's Obj C, ported via PDF from their Dutch partner. But really their app is the equiv of all those shitty iPhone apps out there – just barely enough effort to get in the Store and get some money. I'm much more impressed with people who try to do something new and interesting, even if they have to cross compile to do it. Like Wired.

And I've been lobbying Nick Denton to invest in Apple iPhone/iPad development since I started working for the company in 2008. But no more - I'm now convinced Apple will fuck us on the app approval, like it's fucked so many others with remotely controversial content. Better to do straight Web development. Say what you will about Schmidt but he plays fair when it comes to what gets indexed on the Web.

- Show quoted text -

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Ryan Tate to Steve
[show details](#)
1:58 AM (8 hours ago)
 [Reply](#)

PS I'm not a porn fiend. But come on. I don't think it's going to fuck up my kids if someone in my house looks at a porn clip. And if my kids have an iPad you're damn sure there'll be no porn on it! My wife and I are looking at that in a year or so when I'm done with my Harper Business book on skunkworks projects. Like FrontRow! :->

- Show quoted text -

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Steve Jobs to me
[show details](#)
2:00 AM (8 hours ago)
 [Reply](#)

Wait - of course they don't have to. They don't need to publish on the iPad if they don't want to. No one is forcing them. But it appears they DO want to.

There are almost 200,000 apps in the App Store, so something must be going alright. The magazine apps will be far better in the end because they are written native. We've seen this movie before.

Gosh, why are you so bitter over a technical issue such as this? Its not about freedom, its about Apple trying to do the right thing for its users. Users, developers and publishers can do whatever they like - they don't have to buy or develop or publish on iPads if they don't want to. This seems like its your issue, not theirs.

- Show quoted text -

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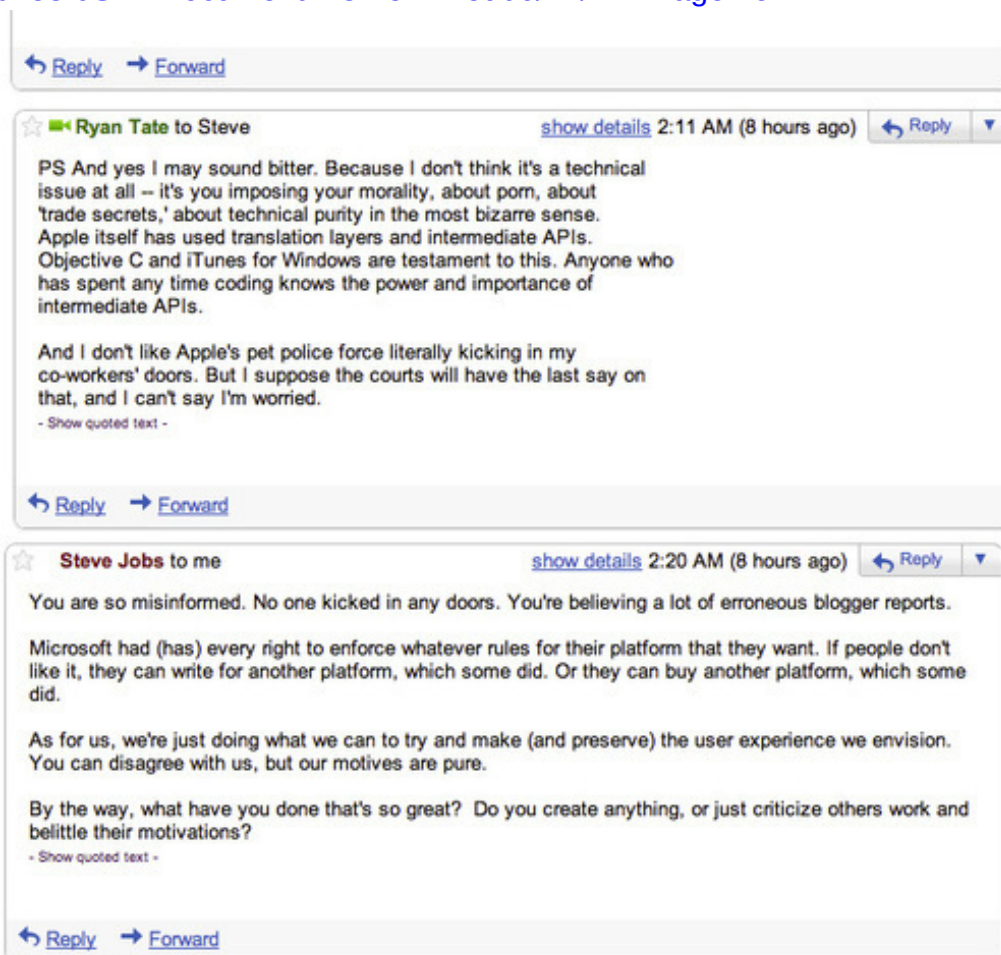
Ryan Tate to Steve
[show details](#)
2:06 AM (8 hours ago)
 [Reply](#)

Was it a "technical issue" when Microsoft was trying to make everyone write to the Win32 API?

Were you happy when Adobe went along with that?

You have the chance to set the tone for a new platform. For the new phone and tablet platform. The platform of the future! I am disappointed to see it's the same old revenge power bullshit.

- Show quoted text -



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(<http://www.pcmag.com/article2/0,2817,2401801,00.asp>)
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3. Boyfriend Maker sneaks violent sexual content — including references to pedophilia — onto Apple's app store | Simply Boundless Entertainment (<http://www.simplyboundless.com/2012/11/boyfriend-maker-sneaks-violent-sexual-content-including-references-to-pedophilia-onto-apples-app-store/>) says:

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EXHIBIT P



D8

Apple CEO Steve Jobs Live at D8: All We Want to Do is Make Better Products

Published on June 1, 2010
by **John Paczkowski**

Much has happened since [Apple CEO Steve Jobs last appeared on the D stage](#). At that time, in May 2007, the iPhone had not yet arrived at market, the app ecosystem it would usher in was still gestating and the iPad was simply a long-running rumor.

So the conversation onstage focused largely on the iPod, iTunes and Apple's (AAPL) relationship with the music industry, and the forthcoming launch of the iPhone. A few months earlier, Jobs had penned a widely read open letter, "[Thoughts on Music](#)," calling on the "big four" music companies to sell their music without digital rights management. iTunes was already the world's largest online music distribution system, so his thoughts generated quite a bit of discussion—and a fair bit of controversy.



Today, the iPhone is nearly three years old. It has sold 50 million units worldwide, and the multitouch interface and app ecosystem it pioneered have arguably revolutionized the smartphone industry.

Today, the iPad is no longer a rumor. Launched just two months ago, it has already [sold two million units](#) and seems poised to revolutionize an industry or two of its own.

And today, Jobs is once again shaking up an industry with another open letter, "[Thoughts on Flash](#)," a withering rumination on Adobe's (ADBE) Flash platform and the future of online video.

Much has changed in three years. But one thing has remained constant: Apple, under Jobs, continues to drive innovation in every industry it touches.

Liveblog

A note about our coverage: *This liveblog is not an official transcript of the conversation that occurred onstage. Rather, it is a compilation of quotes, paraphrased statements and ad-lib observations written and posted to the Web as quickly as possible. It is not intended as a transcript and should not be interpreted as one.*

5:54 pm: In a few moments, Steve Jobs will once again take the **D** stage for the opening session of **D8**.

6:21 pm: Following a welcome from News Corp. (NWS) CEO Rupert Murdoch and a few introductory remarks from Walt and Kara, the pair welcome Jobs to the stage.

6:22 pm: The first question is about Apple surpassing Microsoft in market valuation. Jobs says "It's surreal, but it doesn't really mean anything."

6:23 pm Walt references Jobs's recent "Thoughts on Flash" essay. Even if everything you say is true, is it really fair to consumers to be so abrupt and cut them off, he asks? Jobs doesn't seem to think it's unfair. "Apple is a company that doesn't have the most resources in the world, and they way we've succeeded is to bet the right technological horse, to look at technologies that have a future. We try to pick things that are in their springs. And if you choose wisely, you can be quite successful."

Apple has a history of doing that, Jobs says, noting that Apple was the first company to dump the floppy and later, to adopt USB. "Sometimes when we get rid of things, people call us crazy....But sometimes you just have to pick the things that are going to be the right horse to ride forward....And Flash has had it's day...but HTML5 is starting emerge....The video looks better and it works better and you don't need a plug-in to run it. And while 75 percent of the video on the Web may be available in Flash, a lot of it is available in HTML5 as well."

6:29 pm: What about developers, asks Walt. How are they impacted? Jobs draws a quick parallel to Apple's HyperCard. "HyperCard was *huge* in its day," he says, going on to note that the thousands of apps on the iPhone OS platform are testament to developer involvement.

6:31 pm: Jobs: "We didn't set out to have a war over Flash. We made a technical decision. And it wasn't until the iPad that Adobe raised a stink. They came after us....That's why I wrote "Thoughts on Flash."...We were getting tired of being trashed by Adobe in the press."

6:32 pm: Walt: What if people demand Flash. What if they say the iPad is crippled without Flash. "We're just trying to make great products," says Jobs again. "We don't think Flash makes a great product, so we're leaving it out. Instead, we're going to focus on technologies that are in ascendancy. If we succeed, people will buy them and if we don't they won't....And, so far, I have to say, people seem to be liking the iPad. We are selling an iPad every 3 seconds."

6:35 pm: Ah! The inevitable lost-iPhone question. Walt quickly recounts the history of the discovery of the iPhone prototype, its revelation on Gizmodo and the subsequent police investigation that involved the seizure of a blogger's computers. Where do you come down on this, asks Walt. "To make a wireless product work well, you have to test it. And one of our employees was carrying one and there's a debate about whether it was left in a bar or stolen....And the person who found it decided to sell it...and it turned out this person plugged it into his roommate's computer and that roommate called the police."



6:40 pm: Jobs continues, "And the police showed up and took this guy's computers...and the DA is investigating it...and I don't know where it will end up." In other words, it's a police matter. That said, Jobs is very clearly irked by the whole debacle.

6:40 pm: Any comments on the Foxconn suicides which we've been hearing so much about, asks Kara. Apple is extraordinarily diligent and rigorous about vetting its manufacturing partners, Jobs answers. "Foxconn is not a sweatshop," he adds. "They've got restaurants and swimming pools....For a factory, it's a pretty nice factory."

6:42 pm: Jobs notes that the recent suicides at Foxconn, which number 13 at last count, I think, are still below the national average in the U.S. "But this is very troubling to us," he says. "So we send over our own people and some outside folks as well, to look into the issue."

6:44 pm: Walt: You spent a significant portion of your career involved in a platform war with Microsoft (MSFT). And you lost. But now there are new platforms out there and you're doing quite well on them, as are others—Google (GOOG) and Facebook. So there's a new platform war going on. Do you see it like that?

No, we don't see ourselves in a platform war says Jobs. "We never saw ourselves in a platform war with Microsoft, either...Maybe that's why we lost. ... But we never thought of ourselves in a platform war; we just wanted to make good products."

And what about Google, asks Walt. The relationship has clearly changed there, hasn't it? "Well, they're competing with us," says Jobs, referring to the mobile space. "We didn't go into search."



6:47 pm: Kara: How do you look at Google as a competitor? Eric [Schmidt, Google CEO] was on your board.

Jobs: "They decided to compete with us and got more and more serious."

Walt circles back, asking if Jobs doesn't feel betrayed by Google. Jobs, clearly not buying in to this line of questioning, parries: "My sex life is great, how's yours" he says trying to end it.



6:50 pm: Kara asks if Apple might remove Google from the iPhone and iPad. Jobs says no. Again, he notes that Apple is simply trying to make the best products it can and that the market will decide whose is better. "Right now, we have the better product."

6:52 pm: Walt wonders why Apple bought Siri, a search company. "I don't know if I would describe Siri as a search company," Jobs says. "They're not in the search area...they're in the AI area." Then he adds, a bit vehemently: "We're not going into search."

6:53 pm: Walt asks about AT&T (T), whose network continues to face criticism. Jobs: They're doing pretty good in some ways and in others they could do better. We meet with them once a quarter. Remember, they deal with way more data traffic than anyone else. And they're having trouble. But they have the fastest 3G network and they're improving. I wish they were improving faster....I'm convinced that any other network, had you put the iPhone on it, would have had the same problems.

6:56 pm: Jobs continues: We found a way to sell the phone that we wanted to sell and to define it the way we wanted to define it. We were able to change the rules of the game, and that's what got us excited about the phone business....AT&T took a big leap on us and decided they were going to trust us to do the right thing with the phone. And that's worked out quite well for both of us.



6:59 pm: The conversation moves to talk of tablets. Walt asks if Apple knew it would build a tablet before it built the iPhone.

Jobs: "I'll tell you a secret. It began with the tablet. I had this idea about having a glass display, a multitouch display you could type on with your fingers. I asked our people about it. And six months later, they came back with this amazing display. And I gave it to one of our really brilliant UI guys. He got [rubber band] scrolling working and some other things, and I thought, 'my God, we can build a phone with this!' So we put the tablet aside, and we went to work on the iPhone."

7:01 pm: What does the iPad mean for the publishing industry, Kara asks. Is it the savior that some are touting it as?

"One of my beliefs very strongly is that any democracy depends on a free, healthy press, and so when I think of the most important journalistic endeavors in this country, I think of things like the Washington Post, the New York Times, The Wall Street Journal and publications like that," Jobs replies. "And we all know what's happened to the economics of those businesses. I don't want to see us descend into a nation of bloggers. Anything that we can do to help the news-gathering organizations find new ways of expression so that they can afford to keep their news-gathering and editorial operations intact, I'm all for."

7:03 pm: Jobs adds that he believes people are willing to pay for content and that content providers are not pricing their offerings as aggressively as they should.



7:05 pm: When you did your presentation on the iPad, you described it as a new category of

device, says Walt. But in order for it to succeed, people have to feel that it's worth carrying around. Do you think the tablet will succeed the laptop, he asks.



Jobs: "When we were an agrarian nation, all cars were trucks, because that's what you needed on the farm. But as vehicles started to be used in the urban centers, cars got more popular. Innovations like automatic transmission and power steering and things that you didn't care about in a truck as much started to become paramount in cars. ... PCs are going to be like trucks. They're still going to be around, they're still going to have a lot of value, but they're going to be used by one out of X people. ... I think that we're embarked on that. Is the next step the iPad? Who knows? Will it happen next year or five years from now or seven years from now? Who knows? But I think we're headed in that direction."

7:10 pm: What are your thoughts on content creation on the iPad, Walt asks, noting that some people believe tablets aren't good devices for content creation.

"Well, why wouldn't they be good for content creation," asks Jobs. "It can't be that the software isn't powerful enough, because the software is improving....These devices over time are going to grow to do new things. ... You know, people laugh at me because I use the phrase "magical" to describe the iPad. But it's what I really think. You have a much more direct and intimate relationship with the Internet and media, your apps, your content. It's like some intermediate thing has been removed and stripped away. I think we're just scratching the surface on the kind of apps we can build for it. I think one can create a lot of content on the tablet."

What sorts of apps, asks Kara.

Productivity apps...video-editing software, says Jobs.

7:12 pm: Now a question about App Store rejections: Isn't there a downside to Apple's efforts to protect its customers from porn, malware, etc.

In reply, Jobs first notes that Apple, by supporting HTML5, supports a completely open platform. But it also supports a curated platform—iPhone OS. And that platform has rules. "We approve 95 percent of the apps that are submitted to the App Store every week and we approve them within in seven days."

So what happened with that political-cartoon app you declined to approve a few weeks ago, asks Walt.

"We have a rule that says you can't defame people," says Jobs, noting that political cartoonists by virtue of their profession sometimes defame people. The cartoon app was rejected on those grounds, he adds.

"Then we changed the rules...and in the meantime, the cartoonist won a Pulitzer....But he never resubmitted his app. And then someone asked him, 'Hey why don't you have an iPhone app?' He says we rejected it and suddenly, it's a story in the press....Bottom line is, yes, we sometimes make mistakes...but we correct them....We are doing the best we can, changing the rules when it makes sense. What happens sometimes is that some people lie, we find it, and reject it, and they run to the press, and get their 15 minutes of fame and hope it will get us to change our minds. We take it on the chin, and we move on."

7:20 pm: Kara: "What do you do all day?"

Jobs: "I have one of the best jobs in the world. I get to hang out with some of the most talented, committed people around and together we get to play in this sandbox and build these cool products....Apple is an incredibly collaborative company. You know how many committees we have at Apple? Zero. We're structured like a start-up. We're the biggest start-up on the planet. And we all meet once a week to discuss our business...and there's tremendous teamwork at the top and that filters down to the other employees...and so what I do all day is meet with teams of people and work on ideas and new problems to come up with new products."



7:24 pm: Are people willing to tell you that you're wrong, asks Walt.

Of course, Jobs answers. The best ideas have to win, no matter who has them.

7:25 pm: What do you imagine the next 10 years of your life is going to be about?

Oddly Jobs replies with a comment about Gizmodo and the lost iPhone prototype. "When this whole thing with Gizmodo happened, I got a lot of advice from people who said you've got to just let it slide...you shouldn't go after a journalist because they bought stolen property and tried to extort you....And I thought about that and I decided that Apple can't afford to change its core values and simply let it slide....We have the same core values as when we started, and we come into work wanting to do the same thing today that we wanted to do five years ago."

7:27 pm: But you are going into new businesses, says Walt, trying to redirect Jobs back to the question at hand or at least get him to comment on any new markets that the company is eyeing. Advertising, for example, with its new iAds initiative.

Jobs concedes that Apple is pursuing new businesses like iAds. But he suggests the main reason it's doing that is to make its developers more money. "We want to help our developers make some money so that they can keep providing free or really low-cost apps to customers," he says. "That's why we're doing it. We're not going to make much money in the ad business."

7:29 pm: Jobs continues on the mobile advertising theme. "Something really interesting is happening on mobile phones," he says. "They're not mirroring desktops or laptop PCs. If people want to find out what restaurant to go to, they're not going to their search engine typing in "Japanese" and "Palo Alto," they're going to Yelp or whatever app they want. Ads in mobile apps today, you touch them, and what is the first thing they do? They rip you out of your app, send you to the browser and then you've got to figure out a way back to your app. So, wouldn't it be great if mobile ads didn't take you out of the app, but rather took over the screen, gave you this great experience of an interactive ad, but anytime you wanted you could hit a little button that takes you right back to where you left off in your app? We figured out we could build something like this into the operating system so the apps don't have to do it. We can make it so that an app developer can add these interactive ads in their apps with 30 minutes' worth of work versus working with every advertiser to do some custom thing in their app, which is crazy."

7:31 pm: A question about privacy. Is privacy looked at differently in Silicon Valley than in the rest of the world?

"We've always had a very different view of privacy than some of our colleagues in the Valley," Jobs says. "We take privacy extremely seriously. That's one of the reasons we have the curated apps store. We have rejected a lot of apps that want to take a lot of your personal data and suck it up into the cloud. Privacy means people know what they're signing up for. In plain English, and repeatedly, that's what it means. Ask them. Ask them every time. Make them tell you to stop asking if they get tired of your asking them. Let them know precisely what you're going to do with their data."

Q&A

Q: Given the events of the past few years, what would you add to the Stanford graduation speech you gave a few years ago?

A: I've no idea. I'd probably just turn up the volume a little bit because the past few years have reminded me how precious life is.

Q: I'd like you to put your Disney hat on for a moment....How do you preserve the value of content?

A: The way that we market movies is undergoing a radical shift. It used to be that you spent a fortune on advertising on TV running your trailers. But now you can advertise on the Web....When we went to the music companies, we said "who is your customer?" And they said, "Best Buy, Tower"...their distribution partners. But that wasn't their customer. They needed to recognize who their true customer was....So what changed in the music business was not the back end, but the front end. The way that you market to the consumer....The film industry needs to embrace that. And it needs



to let people watch the content they want to watch, when they want to watch it and where they want to watch it.”

Q: A complaint about dropped calls on AT&T's networks. Is someone from Apple working on that?

A: You can bet we're doing everything we can do....I can tell you what I'm told by reliable people: To make things better, people reallocate spectrum and they do things like increasing backhaul and they put in more robust switches... and things in general, when they start to fix them, get worse before they get better...and if you believe that, things should be getting a lot better real soon.



Q: How is HDCP helping the antipiracy effort?

A: We didn't invent the stuff. The problem is that Hollywood doesn't want what happened to the music industry to happen to them. You can't blame them. But content protection isn't their business and they're grasping at straws here. But we've got to deal with their restrictions....I feel your pain.

Q: What's your vision of social gaming?

A: Clearly, iPhone and iPod touch have created a new class of gaming and it's a subset of casual gaming, but it's surprising how good the games are. Typical console games cost \$40, but on the iPhone, they cost somewhere between free and \$10, and gaming on the platform is taking off. We're trying to do the right things to enable more gaming and social gaming.

Q: Is it time to throw out the interface for TV? Does television need a new human interface.

A: The problem with innovation in the TV industry is the go-to-market strategy. The TV industry has a subsidized model that gives everyone a set top box for free. So no one wants to buy a box. Ask TiVo, ask Roku, ask us... ask Google in a few months. The television industry fundamentally has a subsidized business model that gives everyone a set-top box, and that pretty much undermines innovation in the sector. The only way this is going to change is if you start from scratch, tear up the box, redesign and get it to the consumer in a way that they want to buy it. But right now, there's no way to do that....The TV is going to lose until there's a viable go-to-market strategy. That's the fundamental problem with the industry. It's not a problem with the technology, it's a problem with the go-to-market strategy....I'm sure smarter people than us will figure this out, but that's why we say Apple TV is a hobby.

Steve Jobs Session Photos

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Walt Mossberg and Kara Swisher with Steve Jobs at the D8 conference on June 1.

[More Coverage on the Steve Jobs D8 Speaker Page »](#)

Return to: [Apple CEO Steve Jobs Live at D8: All We Want to Do is Make Better Products](#)

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WC 2010:

JUNE 7, 2010

Steve Jobs live at Apple's WWDC 2010: A new iPhone and more

7:10 PM EDT

GM announces yet another round of recalls, this time for 400,000 cars

6:44 PM EDT

GoPro stock continues surge on second day of trading after IPO

6:07 PM EDT

Goldman's Sachs, good at making money, so-so at World Cup predictions

5:56 PM EDT

SEC warns BlackRock with Wells Notice ahead of possible enforcement action

5:34 PM EDT

With iPhone 6 expected soon, iPhone 5 gets price cut

5:23 PM EDT

Your local news, brought to you by Chevron

4:48 PM EDT

Carlos Slim buys AT&T's \$5.9 billion America Movil stake

This is the spot for our live coverage of Apple's (AAPL) 2010 Worldwide Developers Conference.

Steve Jobs' keynote started at 1 p.m EDT (10 a.m. PDT). All times below are EDT unless otherwise indicated.

The headline is the iPhone 4, as promised (and leaked), with a higher-resolution display, a bigger battery, a faster chip (the same A4 used in the iPad), a gyroscope, a 5 megapixel camera that can shoot HD video and a second camera for two-way video chatting. Available June 24 in five countries in white or black for \$199 (16 GB) or \$299 (32 GB).

There was no Mac news — no hardware upgrades, no Mac OS X news, no new sales figures. It's as if the product category didn't exist, at least for Jobs' keynote. There was also no Apple TV or multitouch peripheral. So much for the rumors.

But Jobs did trot out some new milestones in the nice round numbers he likes to use: 225,000 apps, 8,500 native to the iPad; 5 billion App Store downloads. \$1 billion revenue to the developers; 100 million iOS devices (formerly known as the iPhone OS) by the end of this month; 150 million accounts, with credit cards, across Apple's 3 stores (iTunes, iBookstore, App Store). Over 16 billion downloads all told.

"There is definitely a market for your apps," Jobs tells the developers, looking healthier and more vigorous than we've seen him in years.

Below: The live blog in reverse order, with the most recent posts on top. Apple's iPhone 4 press release is available [here](#).

2:55 p.m. EDT: And that's a wrap.

2:50 Jobs puts up the slide showing the intersection of Technology and Liberal Arts that he showed earlier this year, talks about Apple's core values and thanks the teams — hardware, design, software, manufacturing, operations. "I'm really proud of all you guys. Awesome job."

2:31 Jobs saves video chatting for last with a classic "One more thing ..."

Calls Jony Ive on his iPhone 4. First his face, then Ive's appear on the screen and they begin an awkward video chat. There's an echo and a delay, which Jobs blames on people in the room refusing to turn off their Wi-Fis.

"I grew up with the Jetsons dreaming about video phones," says Jobs. "It's real now."

He calls this FaceTime video calling. It works iPhone 4 to iPhone 4, anywhere there is Wi-Fi. You can use the front or rear camera. Portrait or landscape. Wi-Fi in 2010 (later for 3G; he's got to work on the carriers first). Says Apple will ship 10s of millions of FaceTime devices this year.



FaceTime video chat. Photo: gtgt

Shows a charming movie of babies, grandparents, graduations, trying on clothes, sonograms of a fetus sent to a soldier in the field, sign language phone calls between the deaf. Hits all the emotional buttons.

“This is one of those moments that reminds us why we do what we do,” says Jobs.

To do away with the alphabet soup of standards FaceTime uses, Apple is offering it to the standards bodies as an open video standard.

“FaceTime. That’s No. 9,” says Jobs.

Price and availability of the new iPhone. Two colors, white and blacks. \$199 in U.S. for 16 GB, \$299 for 32 GB. (iPhone 3GS now starts at \$99.)

AT&T is offering a new iPhone 4 at the subsidized price (\$199 or \$299) to all customers whose contract expires anytime in 2010.

Goes on sale: June 24. Pre-orders June 15. Shipping in US, France, Germany, UK, Japan. In July, 18 more countries. By end of September, it will be available for sale in 88 countries. Our fastest rollout ever, says Jobs.

Accessories: Dock \$29. A case — the Bumper. Comes in colors. \$29.

iOS upgrades for iPhone 3GS and 3G (not all features) and iPod touch (not all features) free on June 21. Thanks to the end of subscription accounting, Apple can now offer OS upgrades free to iPod touch owners.

Goes to a video, starting with Jony Ive.

1:28 (This timestamp covers nearly an hour, as Jobs ticks off eight features of the new iPhone)

Now, says Jobs, the iPhone. A lot of stats going around, some good, some questionable. He trots out the Nielsen report (naturally). RIM 35%, iPhone 28%, Windows 19%, Android 9%.

Net Applications for May: iPhone 58.2% of Web traffic, Android 22.7%. (Does not mention

the NPD survey that showed Android getting 28% of U.S. sales in Q1, versus the iPhone with 21%.)

In 2007, he says, the iPhone reinvents the phone, says Jobs, starting a timeline. Not that big an overstatement, in retrospect.

in 2008, we added 3G and the App Store

In 2009, 3GS, twice as fast, added video

In 2010: iPhone 4, the biggest leap since the original iPhone. Now, this is really hot, he says. Well over 100 new features. I get to cover 8 of them for you.

No. 1: An all-new design. Stop me if you've already seen thins (big laugh from everyone who knows the lost iPhone story, which is everyone here). Believe me you ain't seen it, says Jobs.

Compares the design to an old Leica camera. This is the new iPhone 4: 9.3 mm thick, 24% thinner than iPhone 3GS. Thinnest smartphone on the planet. Volume controls. Front-facing camera. Micro sim Tray. Camera and LED flash on back. 2nd mike for noise cancellation.





Three antennas. Photo: gtgt

What's this? The slit on the bottom. What are these lines? Three lines. They are part of some brilliant engineering. Uses the stainless band as part of the antenna system. Never been done before. Really cool engineering, says Jobs. Uses stainless steel for strength, glass on the front. Integrated antennas, extraordinary build quality.

No. 2 Retina display. 4 times as many pixels. Demos what the extra pixels do. Tricks with gray pixels. Zoom out, you can see really really sharp text. 326 pixels per inch. Oohs and ahhs from the audience.

It turns out there's a magic number 300 pixels — the limit of the human retina to tell the pixels apart. Text looks like a fine printed book. Jobs is weaving his magic really hard right now. Demos with text. (I'm having trouble seeing the difference on these screens.)

Once you've used retina display, you never go back, Jobs quips.

Going to the demo.

When he blows up the 4 and a 3GS side by side, you CAN see the difference.



3.5 inch display
960 x 640 pixels (4X more)
326 pixels per inch



Retina display. Photo: gtgt

He's having trouble downloading the NYTimes. Welcome to our world. Asks the audience to get off Wi-Fi.

"Well, geeze, I don't like this." Goes to some photos instead.

Summary:

3.5 display

960 x 640 pixels.

326 pixels per inch.

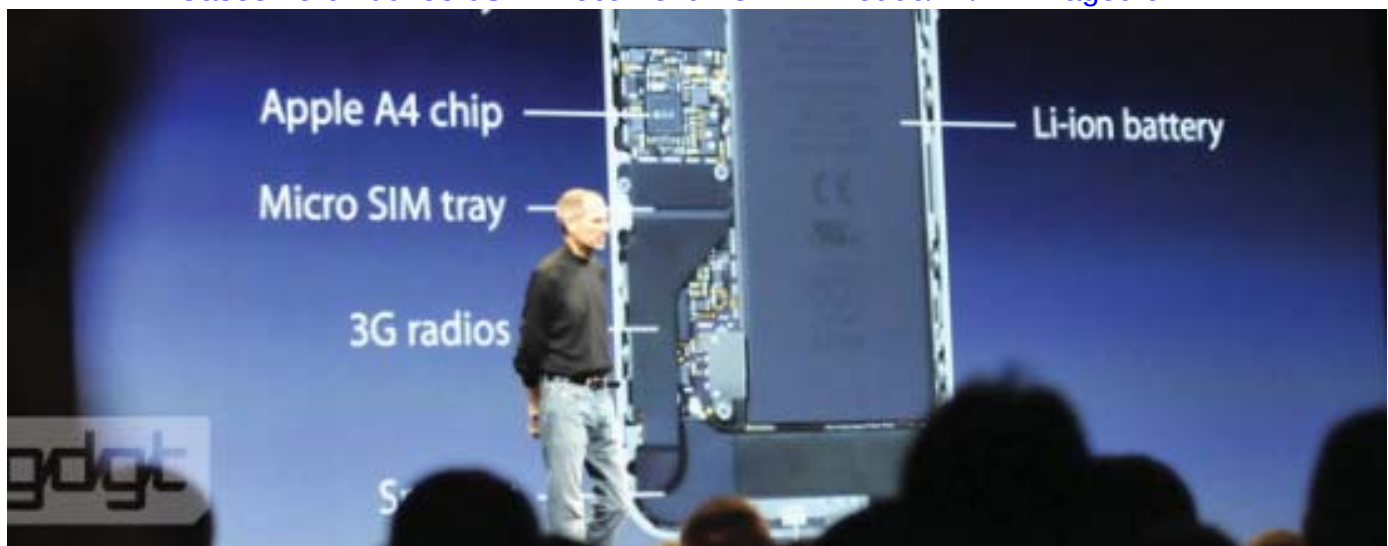
800:1 contrast ratio.

IPS technology for color and wide viewing angle. Better than OLED, he says.

78% of the pixels in an iPad.

We've got something here now that's like the best window on the planet, he tell developers.





Anatomy of an iPhone 4. Photo: gtgt

No. 3 The iPhone 4 is powered by the A4 chip. (Same as iPad) Designed by our own team. Shows the insides. Biggest single component: the battery.

Improved battery life:

3G talk 7 hours

300 hours of standby

Four checks on the environmental checklist.

Up to 32 GB of storage. Quadband HSDPA/HSUP, up to 7.2 Mbps down, 5.8 Mbps up.

No. 4 Remember accelerometer? Adding gyroscope. Big applause. 3 axis gyro, pitch roll and yaw. With compass and accelerometer, 6-axis motion sensing. The first-person gamers are going to like this. Demo.

Turns on Gyro. Shows how it rotates when he does. Pulls out pieces from a wooden puzzle. He's having fun with this demo. The audience is oohing and ahing. "I practice this a little bit." The blocks finally fall. Big applause. "You get the idea."

No. 5 The new camera system. Everybody else talks about megapixels. We talk about better photos. Cameras are really about capturing photons and low-light photography. We've gone to a 5 megapixel camera with a backside illuminated sensor — getting a lot of the wiring out of the way. LED flash. Kept the pixels the same size — 1.75 um size pixels. 3.5 zoom. Tap to

focus. Photos look pretty good.

But that's not all, because the camera records HD video. 720p at 30 frames per second. Added tap to focus video. Built in video editing. One-click sharing, LED flash will stay on for video recording.

Written iMovie for iPhone. Big applause. Demoed by Randy Ubillos. A new face at WWDC.

You can buy it soon for \$4.99 — if we approve it. Big chuckle.

Before Jobs begin No. 6, he address the audience. His people have been working on the Wi-Fi problem. Jobs says there are 570 Wi-Fi basestations operating in this room — including dozens of MiFi units. We can't deal with this. We can either turn them off or see the demo. Your choice. Asks the journalists to put their laptops on the floor and their neighbors to police them. (I'm using a Verizon USB 3G dongle, so I'm spared.)



The new name for iPhone OS 4. Photo: gdgt

No. 6 iPhone OS 4. Renaming iOS 4. We've seen this stuff before. 1,500 new APIs. Over 100 new user features as well. We weren't first with multitasking, just like we weren't with cut and paste. Quotes Larry Page on multitasking buring the battery quickly. Added folders, etc. Going to the demo.

Jobs demos multitasking with Pandora, Safari, Mail, unified inboxes, threaded messages. The Internet is working again, thanks to his insistence that everybody shut down their laptops.

Demos folders. This is all a recap of the iPhone 4.0 intro.

Enterprise integration: better data protection, mobile device management, wireless app distribution,, etc.

On consumer side, choice of Google search, Yahoo, adding Bing — as rumored. Google is still the default. Microsoft's done a great job on this, he says, employing HTML5.

iOS 4. Golden master in developers hands today. Final version "out soon" — no date given.

This month, we will sell our 100 millionth iOS device. "There is definitely a market for your applications," he tells developers. "No one even comes close to this."

No. 7 iBooks. We are bringing it to the iPhone with the iPhone 4. Same controls, notes, etc. Makes a big deal of features that Kindle already offered — buy once for all devices, save latest place, etc.

No. 8 iAds. Why are we doing iAds? Doing it for one reason only: we are doing it for developers so they can earn money from free and low-cost apps. (Leaving aside that Apple might be interested in taking some business from Google.)

Recapping April's intro. Key featured: emotion plus interactivity. keep you in your app. Built into iOS 4.

Names some of the companies that have done iAds since April. Shows a 15-second science

fiction-themed Nissan ad that's a work in progress but looks pretty good.

iAds goes live July 1. Has sold \$60 million worth in the past two months. Estimates that that's 48% of the entire mobile ad market for the second half of 2010.

– end the long timestamp that started back at 1:28 –



Photo: gdgt

1:26. Jobs is back with some new stats. Just last week we crossed 5 billion downloads. How much have we paid developers? A few days ago, we crossed \$1 billion. And that's what makes the App Store the most vibrant on the planet.

1:23 Activision. Karthik Bala with a new Guitar Hero app for iPhone and iPad. Demo. New strumming commands and slides and hammer and pull-up combos. The guy on stage is pretty good. "You rock, Jason!" says Bala. Available now for \$2.99. Jobs is impressed.

1:18 Zynga. Mark Pincus CEO. Farmville for the iPhone. 35 million play Zynga's game — more than the number of viewers who watched the finales of Lost and 24. 70 million monthly active users of Farmville. Demo.

1:15 Focus on eBay. CEO John Donahoe says 10 million downloads. \$600 million in first year. It's going to do \$1.5 to \$2 billion this year.

Introduces Netflix CEO Reed Hastings. Great success. The No. 1 most downloaded entertainment app. Announces free app for iPhone this summer. Demo.

1:11 The App Store. We support two platforms at Apple: HTML5. Fully open, uncontrolled platforms forged by widely respected standards bodies.

The second platform we support is the App Store. It's a curated platform with 225,000 apps — that's a new number.

Addressing the approval process. We get 15,000 new apps a week — new and updates. Come in in 30 languages. 95% approved within 7 days.

What about the 5% that aren't?

No. 1 reason: Doesn't function as advertised.

No. 2 Use of private APIs. Why can't developers use? Because when we change our APIs, the apps will break.

No. 3: The apps crash. If you were in our shoes, you would be rejecting them too.

1:09 Improvements to iBooks. You can make notes. Added control to bookmark page (like Kindle has). Catching up to Amazon. Ability to view and read PDFs. Added a selector on top, new bookshelf just for PDFs. Later this month.





Photo: gdgt

1:08 Updating iBooks. Stats: in first 65 days, customers downloaded 5 million books, 2.5 per iPad. 5 or 6 biggest publishers tell us that the share of e-books is about 22% — so iBooks market share is 22% in about 8 weeks.

1:06 Now 8,500 native apps for iPad, downloaded 35 million times, 17 per iPad. That's a great number.

Cites several iPad apps in particular: Pulse. Web MD, eBay, Anatomy, Ironman, Avatar, Field runners, Flight trackers, FT, Wired, The Elements. Elements author says. I earned more from The Elements in the first day than I earned in five years from Google AdSense.

1:05 The videos in foreign languages are pretty funny. You know what they are saying even if you don't understand a word.





Jobs on stage. Photo: gdgt.com

1:04 I'd like to start with a few updates. Starting with the iPad. Big applause. A whole new way to interact with the Internet, with apps, and it is magical. Proof: got an e-mail from a girl in a cafe who was interested in me.

Sold over 2 million. One every 3 seconds. Now in 10 countries. Video reel of some of the press coverage overseas.

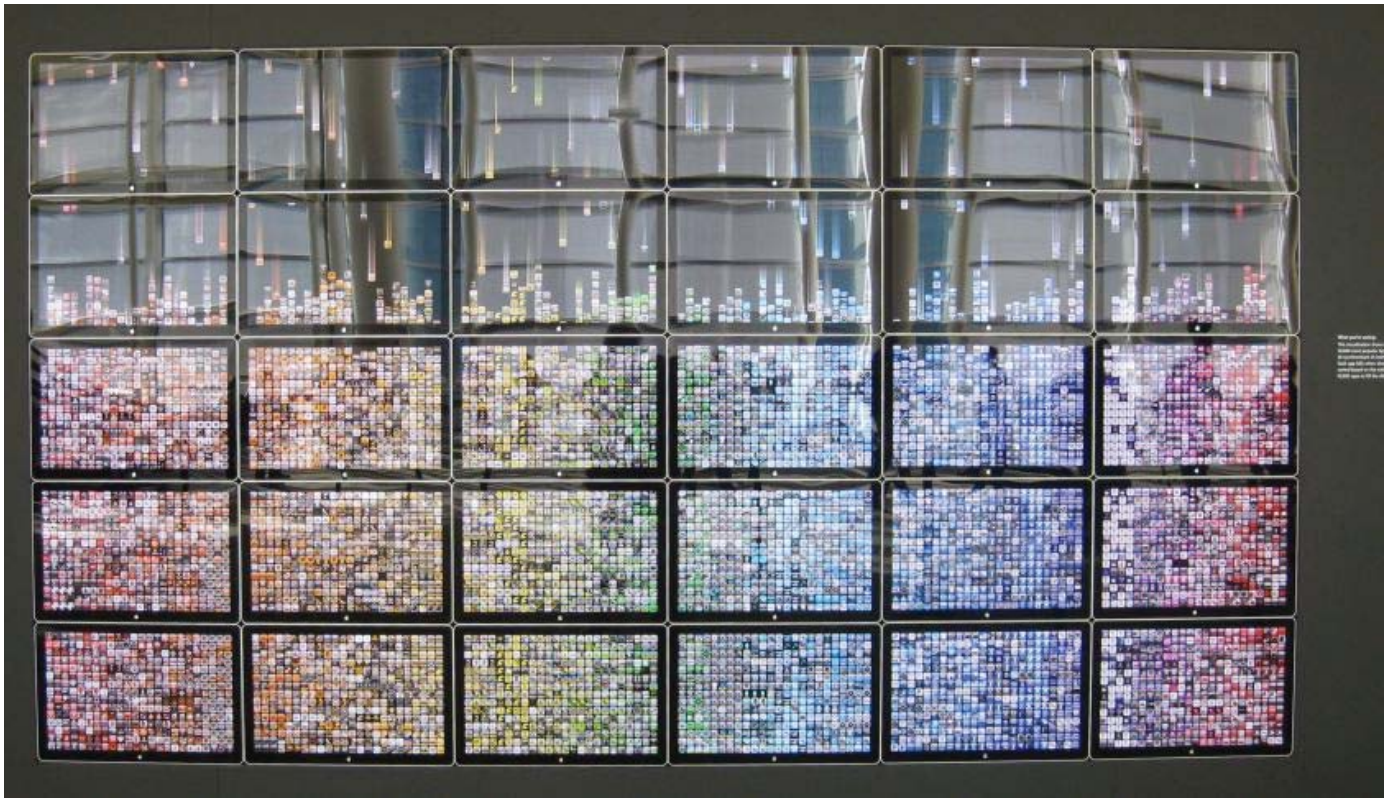
1:00 Jobs walks on stage. Standing ovation.

It's great to be here. We've got a great conference. Over 5,200 attendees. 57 countries. 8 days to sell out. Over 120 sessions, over 120 hands-on labs. Over 1,000 Apple engineers. He loves those round numbers.

12:34 This huge room is filled with flashes as developers by the hundreds raise their cameras over their heads and shoot pictures of the empty stage, the giant screens, the phalanx of videographers.

12:28 They've let the developers in. They're rushing forward. And we thought the press was unseemly.

12:22 The doors have opened. We're moving in. There's the usual unseemly rush for the front seats. The usual array of video cameras fill a set of risers stage right. There's giant screen behind the podium and two more that drop from the ceiling. We've parked ourselves below one of them.



The 50,000 most popular apps.

12:20 There's a cool computer generated display on the second-floor wall that looks like a giant color Tetris game. According to the legend: "This visualization of the 50,000 most popular App Store apps on 30 synchronized 24-inch LED Cinemay Displays. Each app falls when downloaded and is sorted based on the color of its icon. It takes 10,800 apps to fill the displays completely.

12:18 Still waiting for the doors to open. Walt Mossberg and Kara Swisher just sauntered in. There are too many celebrity bloggers to mention. Besides.





Developers in waiting. Photo: PED

12:00 noon The developers have been penned in hallways on the second floor. The press is being fed and hydrated on the third. The media are engaging in their usual greeting and preening and edging their way toward the big metal auditorium doors that won't open for at least another half hour.

11:40 Judging from the posters on the second floor, this keynote could end up being very iPhone 4.0 centric — basically a repeat, presumably at more depth, of the event last April. The key themes: iPad (“It pays to advertise.”), Folders (“Drag. Drop. Organize.”) and Multitasking (“Get things done behind the scenes.”).



iPhone 4.0 poster. Photo: PED

11:22 Don't know what's going on in the market, but at 10:00 a.m. Apple started heading south and didn't stop until it was down more than \$3.40 for the day.

11:15 We have our purple media badge. We have Wi-Fi. All is well with the world.

11:10 While the developers were transported by escalator upstairs, the press and V.I.P.s have been cooling their heels in ragged lines on the ground floor. The lines just started moving.



Developers, developers, developers. Photo: PED

10:40 The doors opened for developers 40 minutes ago and they are still streaming in. We counted 11 TV satellite trucks plus one remote TV studio guarded by Apple security. That turns out to be precisely the same number that turned up in January when Steve Jobs introduced the iPad.

9:50 The biggest buzz on the tech blogs this morning is Engadget's item about what appears to be a Bluetooth multitouch trackpad peripheral that it's calling the Magic Trackpad. You can see the spy shots [here](#). But if you're looking for meatier pre-WWDC speculation, I recommend Adam Lisagor's thoughtful discourse on iPad TV at his [lonelysandwich](#) blog.



9:45 The markets opened down a bit, but Apple opened \$2.41 (0.94%) higher than Friday's close of \$255.96.

9:30 a.m. Several analysts have just come out with new Apple reports, trying to get in under the wire. BMO Capital's Keith Bachman has raised his AAPL price target to \$310 from \$300. BGC's Colin Gillis has initiated coverage with a buy rating and a \$350 price target. JMP's Doug Ireland reports that he called a dozen Best Buy (**BBY ▲ 2.37%**) stores over the weekend and could find only iPad available anywhere in the U.S. "The 3G-enabled devices are selling within hours of arriving, with the WiFi ones very close behind," he writes. "San Francisco stores said that they get calls every morning asking if they received shipments of iPads."

9:00 a.m. It's 6 a.m. in San Francisco, an hour before the doors open, and than four hours before Jobs takes the stage. But the line of developers vying for a good seat in the auditorium has wrapped around the Moscone Center on 4th Street and down Minna toward 5th St. as far as the eye can see. Stragglers are actually sprinting down Minna St. toward the end of the line.

More than 5,000 Apple developers have descended on San Francisco for five days of demonstrations, technical sessions and hands-on training, but the keynote — to be delivered again this year by CEO Steve Jobs after a one-year hiatus — is the headliner and always packs the Moscone Center main hall.

See also:

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Recap: Apple Announces New iPhone

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— AFP/Getty Images The Apple logo reflects in the Louvre museum after the opening of an Apple store in the shopping center there.

Apple CEO Steve Jobs will be speaking at 10 a.m. Pacific at the company's annual Worldwide Developers Conference.

Thanks to Gizmodo, which got a hold of a prototype of the next iPhone and shared details of it in April, Apple watchers already know many of the likely features of the new iPhone: a newly designed, thinner device with a flat back, better screen resolution, a front-facing camera and a flash on the back-facing camera.

But a big question remains: What else will Jobs announce? Apple almost always has a surprise ready, and it's hard to believe that there won't be one this year, particularly given that the likely new iPhone design has been leaked. Speculation by analysts has ranged from a new Apple TV or a MacBook Air to a revamped iTunes.

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11:14 am | by Yukari Iwatani Kane

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There's nearly an hour to go before the event. The lines of attendees waiting to get in are wrapped around the Moscone Center West building — and have been that way for the past half an hour.

11:29 am | by Yukari Iwatani Kane



The doors just opened a few minutes ago, and a mad dash for seats ensued. I may have inadvertently cut off Walt Mossberg. Oops.

11:42 am | by Ethan Smith



Only at a geek-fest like this would you encounter a men's-room line out the door next to an apparently deserted women's restroom. What, Jobs didn't import a bank of iUrinals?

11:59 am | by Yukari Iwatani Kane



A couple of guys are writing random things on their iPad and holding it up for the audience to see. There's laughter and clapping. One of the signs said "Free Hugs." Another had something about AT&T.

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Don't Miss [?]



12:00 pm | by Yukari Iwatani Kane



Huge burst of laughter just now in the back of the room after someone held up an image of someone (Steve Jobs, maybe?) on an iPad. We're sitting in the front section and can't see.

12:01 pm | by Yukari Iwatani Kane



"What a Wonderful World" has started playing in the background.

12:03 pm | by Yukari Iwatani Kane



Steve Jobs has appeared in his trademark black shirt and jeans. A standing ovation. People are whistling, cheering, clapping. Jobs: "It's great to be here." Someone says: "We love you, Steve!"

12:03 pm | by Ethan Smith



The crowd is going nuts as Steve Jobs takes the stage. The cell phone truly is today's cigarette lighter in concert halls.

12:04 pm | by Yukari Iwatani Kane



Jobs: We have over 5,200 attendees. We're packed to the gills. We sold out in 8 days. It took us a little over a month to sell out before.

12:05 pm | by Yukari Iwatani Kane



Mr. Jobs puts up the New York Times on the iPad. Thought he loved our WSJ app 😊.

12:06 pm | by Yukari Iwatani Kane



He says Apple has sold more than 2 million iPads, or one every three seconds.

12:07 pm | by Ethan Smith



Jobs says he knows the iPad is a magical device because he got an email: "I was sitting in a cafe with my iPad and it got a girl interested in me." (Magic indeed, geek bro!)

12:08 pm | by Yukari Iwatani Kane



Mr. Jobs plays video of TV networks overseas announcing the launch of the iPad. A clip from a Japanese network saying "Please look at this iPad" gets laughter.

12:08 pm | by Ethan Smith



Nice musical subtlety. A New Order song was playing the background while Mr. Jobs showed a video montage about the iPad's world-wide adoption.

12:09 pm | by Yukari Iwatani Kane



Mr. Jobs says the iPad will be in 19 countries by the end of July. He says there have been 35 million apps downloaded to iPads.

12:10 pm | by Yukari Iwatani Kane



He's showing the Elements app, a beautiful app about the periodic table of the elements that has proved popular and garnered rave reviews.

12:11 pm | by Yukari Iwatani Kane



Mr. Jobs says iBooks has a 22% share of e-book sales. We've got some enhancements to iBooks today, he says. The program can make notes, find bookmarks and has the ability to view and read PDFs. (There's lots of clapping and cheering.)

12:12 pm | by Ethan Smith



Apparently PDFs are "just gorgeous" on the iPad. I never thought of a PDF that way, but hey, this is Apple!

12:14 pm | by Yukari Iwatani Kane



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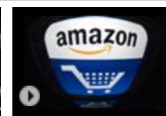
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Moving on to the App Store — “something near and dear to all of us.” Mr. Jobs says “we support two platforms.” The first one is HTML5 — a fully open, uncontrolled platform. The second platform Apple supports is the App Store, Mr. Jobs says, calling it a curated platform. It’s “the most vibrant app store on the planet,” he says.

12:16 pm | by Yukari Iwatani Kane



He wants to give us facts behind the app-approval process. (Perhaps this is in response to criticism about how opaque it is.) Apple gets 15,000 apps a week, and 95% of apps are approved within seven days, he says. For the 5% that aren’t approved, it’s because the app doesn’t function as advertised, it uses private interfaces, or it crashes.

12:17 pm | by Yukari Iwatani Kane



Mr. Jobs highlights the eBay app, which has gotten 10 million downloads and saw \$600 million of volume in its first year. It’s going to do \$1.5 billion to \$2 billion this year, he says.

12:19 pm | by Ethan Smith



Netflix on the iPhone! Netflix CEO Reed Hastings takes the stage. Mr. Hastings: There is a Netflix iPhone app coming free this summer. It’s the same service you get on your HDTV, your laptop and your iPad. You can start a movie on one device and pick up where you left off on another. You can search Netflix’s entire streaming library for movies and shows on the iPhone. Playback works over Wi-Fi and 3G.

12:20 pm | by Yukari Iwatani Kane



Next up is FarmVille maker Zynga (except that Mr. Jobs pronounces it “Zinya”).

12:21 pm | by Yukari Iwatani Kane



CEO Mark Pincus announces FarmVille for the iPhone. (Great. Now we can plant corn on the go. Does this mean an increase in Facebook updates from FarmVille-playing friends?)

12:23 pm | by Yukari Iwatani Kane



We can, indeed, plow, plant and harvest on the go. Mr. Pincus says he wants to mention that if you don’t farm, you should. “What I’m most excited about is how much cooler tractoring just got.” (I’m not sure what to say about that. There’s laughter from the audience.)

12:23 pm | by Ethan Smith



They’re devoting an awful lot of time to the new iPhone availability of Zynga’s virtual farming game. I flew to San Francisco from L.A. for this?

12:24 pm | by Yukari Iwatani Kane



FarmVille for iPhone will be out by the end of June.

12:25 pm | by Yukari Iwatani Kane



Next up: a Guitar Hero app by Activision. Competition for Tap Tap Revenge?

12:26 pm | by Ethan Smith



Based on this presentation, when you activate “star power” during the game, your iPhone delivers sound at rib-rattling volume. Pretty cool.

12:27 pm | by Yukari Iwatani Kane



The Guitar Hero app is available today for \$2.99. And Mr. Jobs is back on stage.

12:29 pm | by Yukari Iwatani Kane



Just last week, Apple crossed 5 billion downloads. (Impressive.) Mr. Jobs’s favorite stat about how much Apple has paid developers: “Just a few days ago, we crossed \$1 billion.” There’s an image of a big check from Apple for the amount. “Let’s go do it again,” he says to laughter.

12:29 pm



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Mr. Jobs: Now I'd like to talk about the iPhone. (Finally!)

12:30 pm | by Yukari Iwatani Kane



He says there have been a lot of statistics floating around. "Some of them are OK. Some of them are questionable." He wants to highlight two. The first is from Nielsen, showing that Apple has 28% market share of smart phones owned by consumers — "three times as much as Android." There are chuckles from the audience.

12:32 pm | by Yukari Iwatani Kane



Another study showing U.S. mobile-browser usage — 58.2% is on iPhone, and Android is far behind. "This may help you put things in perspective," Mr. Jobs says. (Competitive much?)

12:34 pm | by Ethan Smith



Mr Jobs: "It's hard to remember what it was like before iPhone." (Cue laughter.) The words "iPhone 4" land on the screen with a big, dusty, virtual thud. (I guess it's gonna crush the competition!)

12:34 pm | by Yukari Iwatani Kane



Mr. Jobs declares: "We're going to take the biggest leap since the original iPhone ... this is really hot ... well over 100 features." No one has ever called Mr. Jobs modest.

12:36 pm | by Ethan Smith



The photo of the new phone looks familiar to those who saw photos of a prototype. Jobs says some in the audience have already seen this, and the crowd roars with laughter. "Its closest kin is a beautiful old Leica camera," he says.

12:38 pm | by Yukari Iwatani Kane



The new iPhone is 4 inches long, 9.3 millimeters thick — 24% thinner than the iPhone 3GS. (Enough about dimensions, though. We're waiting for price and availability.)

12:39 pm | by Yukari Iwatani Kane



There's a camera and LED flash. There's a microphone, headset and a sleep-wake button.

12:40 pm | by Yukari Iwatani Kane



"Because there have been a few photos of this around, people have asked 'What's this?'" He shows a side of the phone with lines. Apparently it's a primary structural element of the phone. The three slits are some "brilliant engineering" that puts antennas in the structure of the phone.

12:41 pm | by Ethan Smith



The iPhone 4's new "retina display" packs four times as many pixels per inch as the previous iPhone. Mr. Jobs keeps showing these side-by-side displays of text and photos. I honestly can't detect a difference from where I'm sitting. But Mr. Jobs assures us that once you've tried the new one, you'll never be able to go back.

12:45 pm | by Yukari Iwatani Kane



The "retina display" has 326 pixels per inch. (There's clapping at this.) Mr. Jobs says it turns out that 300 is the limit of the human retina to differentiate the pixels. They're so close together at 326 that all of a sudden it looks like continuous curves, he says. He shows an example of the normal display on the right and the retina display on the left. (It's the New York Times app again. Sigh.) I can't see much difference, but maybe it's apparent if you're closer. The developers are clapping, though, so it could also just be me.

12:46 pm | by Ethan Smith



There are very slow loads of the New York Times home page for a live demo of the new iPhone's display. Mr. Jobs: "You could help me out if you're on W-Fi, if you could just get off."

12:47 pm | by Yukari Iwatani Kane



Wi-Fi has failed. Mr. Jobs is staying calm, but one can imagine his internal fury, given the enormous amount of prep that goes into these things. "I'm afraid I'm not going to be able to show you much," says Mr. Jobs as he sighs. (Wonder who will get fired for this. Or maybe there will be a new venue next year?)

12:49 pm | by Yukari Iwatani Kane



He tries one more time. "I'm sorry, guys. I don't know what's going on. ... Scott, got any suggestions?" (He's presumably referring to Scott Forstall, the head of iPhone software.) An audience member shouts, "Verizon!"

12:50 pm | by Yukari Iwatani Kane



Mr. Jobs says, "We're actually on Wi-Fi here. ... Hope things get fixed before the next demo."

12:51 pm | by Yukari Iwatani Kane



The ode to retina display is over, but we're back to the litany of new features. The iPhone 4 is powered by the A4 chip, designed by Apple's own team.

12:55 pm | by Ethan Smith



The WiFi problem provided a great moment. Mr. Jobs was so hammy about it that I thought it might be staged and that he was about to unveil some new connectivity mode — a new wireless partner, maybe.

12:57 pm | by Yukari Iwatani Kane



Mr. Jobs says the biggest single component in the phone is the battery, and because the A4 chip is so good with power management, users will get up to 40% more talk time (5 hours to 7 hours), 10 hours of Wi-Fi browsing, 10 hours of video, 40 hours of music and 300 hours of standby. (I'll be interested to read Walt Mossberg's review, which should tell us what battery life will be in actual use.)

12:58 pm | by Yukari Iwatani Kane



Mr. Jobs says another important element of the new iPhone is a "really cool piece of hardware." The company is adding a gyroscope, which will make the phone even more motion-sensitive.

12:59 pm | by Ethan Smith



Mr. Jobs is playing virtual Jenga to demonstrate the new phone's gyroscope function, which allows for much finer motion and position sensing than previous phones, which used just an accelerometer.

12:59 pm | by Yukari Iwatani Kane



The gyroscope is really cool, but I wish he would stop leading us along and just give us the price and launch date!

1:00 pm | by Yukari Iwatani Kane



OK, the Jenga game is pretty cool. He's removing the individual pieces as he prevents the tower from collapsing. "I practiced a little bit," he says right before it topples over.

1:01 pm | by Yukari Iwatani Kane



Next, he'll be showing the camera system. There's a three-megapixel to a five-megapixel sensor, and a backside-illuminated sensor (which involves capturing more photons). There's a 5-X digital zoom, tap-to-focus capability and an LED flash.

1:02 pm | by Yukari Iwatani Kane



A photo of a man with the Golden Gate Bridge as background, taken by the iPhone 4 and unretouched, gets applause.

1:03 pm | by Yukari Iwatani Kane



Mr. Jobs: We think we've got a great camera built in, but that's not all ... because it also records HD video. (There's lots of happy clapping.) And ... "We're going even further than that," Mr. Jobs says. He unveils iMovie for iPhone, to applause and noises of appreciation.

1:05 pm | by Yukari Iwatani Kane



Randy Ubillos, the chief architect for video applications, comes on stage. He demonstrates iMovie, which will be \$4.99. (I wonder who will be editing video on the iPhone.)

1:06 pm | by Yukari Iwatani Kane



Mr. Jobs says his Internet crashed because there are 570 Wi-Fi base stations operating in this room. We can't deal with that, he says. We either turn off all the stuff or I can't show you the demos.

1:07 pm | by Yukari Iwatani Kane



He asks all of us to police each other. Seriously? An Apple guy asks us to shut down our laptops for five minutes.

1:09 pm | by Yukari Iwatani Kane



I'm not using WiFi and have my own data card, but have gotten repeatedly hassled about shutting my computer down.

1:10 pm | by Yukari Iwatani Kane



Apparently, people have turned off their Wi-Fi devices. Internet is back up, and Mr. Jobs is able to show off Safari.

1:10 pm | by Yukari Iwatani Kane



My colleague, Ethan, who was on Wi-Fi, is down for the count.

1:11 pm | by Yukari Iwatani Kane



On iPhone email, you can see all messages from a single conversation on iPhone OS4.

1:19 pm | by Yukari Iwatani Kane



Mr. Jobs shows how iPhone OS4 users make folders of apps easily through drag-and-drop.

1:19 pm | by Yukari Iwatani Kane



He says we can now search from Google, Yahoo or Bing. "We're going to give you a choice. You decide."

1:20 pm | by Yukari Iwatani Kane



Mr. Jobs says, "This month we'll be selling our 100 millionth iPhone OS device ... There is definitely a market for your applications."

1:21 pm | by Ethan Smith



Now that Mr. Jobs is done with his latest Wi-Fi demo, I'm back! Woo!

1:22 pm | by Yukari Iwatani Kane



Next, iBooks is coming to the iPhone. Winnie the Pooh makes an appearance again in the demo. The software is now available on the iPhone, iPad and iPod touch. "This gets interesting, what we can do across all three products," he says. Users will be able to download the same book to all devices at no extra charge. (The audience claps, but I think this is the same as Amazon's Kindle software.)

1:24 pm | by Yukari Iwatani Kane



Mr. Jobs says iBooks will automatically and wirelessly sync to your place, bookmarks and notes. (One question: Will it do the same thing if you download a non-iBookstore book onto iBooks?)

1:26 pm | by Yukari Iwatani Kane



"We've got over 150 million accounts with credit cards ready to buy your apps," Mr. Jobs says.

1:28 pm | by Ethan Smith



Mr. Jobs is showing the Journal's John Jurgensen's Andre Rieu article from this past weekend to demonstrate iAds. Nice! There's a "Toy Story 3" ad across the bottom of his article. That's the demo. The point is you can see the ad without being dragged out of whatever it was you were doing.

1:29 pm | by Yukari Iwatani Kane



Mr. Jobs is now moving on to iAds, says Apple developed iAds "to help our developers earn money so they can continue to create free and low-cost apps for users."

1:30 pm | by Ethan Smith



There are a bunch of big advertisers on iAds. Nissan ... Disney ... etc.

1:31 pm | by Yukari Iwatani Kane



Mr. Jobs says iAds is built right into the iPhone OS4. Apple has been selling ads for eight weeks, but he says brands like Nissan, Citi, Unilever, AT&T, Chanel and GE already are committed. (The AT&T mention creates a little stir in the audience.)

1:32 pm | by Yukari Iwatani Kane



(As an aside, applications-ad company Mobclix said at a Commonwealth Club panel two weeks ago that there are more brands interested in iAds than there is availability. Firms like theirs are benefiting because the brands are still looking to do richer ads, even if it's not through iAds.)

1:33 pm | by Ethan Smith



Hmm. Steve Jobs just used his iPhone 4 to enter a contest to win an all-electric Nissan Leaf. Good luck, buddy! I hope the universe finally starts smiling on you ...

1:34 pm | by Yukari Iwatani Kane



The Nissan Leaf iAd shows comparisons of how far \$1 worth of gas will take different vehicles. (Hummers don't go very far ...)

1:34 pm | by Yukari Iwatani Kane



Ads starts July 1 for all iPhone OS4 devices. (So this means the iPhone 4 will be available before then?)

1:35 pm | by Yukari Iwatani Kane



In case it wasn't clear before, Mr. Jobs reminds audience that iAds was created to help developers make money.

1:35 pm | by Yukari Iwatani Kane



Mr. Jobs: What do you think so far? ... I think it's a lot more than people thought it was.

1:35 pm | by Ethan Smith



The old "one more thing" moment.

1:36 pm | by Yukari Iwatani Kane



There is one more thing ... I think it's best that I just show you, Mr. Jobs says.

1:37 pm | by Yukari Iwatani Kane



I really want your Wi-Fi devices off, Mr. Jobs says. Are they off? Please turn them off if you turned them back on.

1:38 pm | by Yukari Iwatani Kane.



He's calling iPhone designer Jony Ive on the iPhone 4. Mr. Ive appears on the iPhone, and there's a lot of hooting and clapping.

1:38 pm | by Yukari Iwatani Kane



"This never freezes up, so you guys haven't turned off your WiFi," Mr. Jobs says. (I'm using a data card, FYI.)

1:39 pm | by Yukari Iwatani Kane



They're having a conversation about how they can't believe how video calling is real now. (The "one more thing" is video calling? We've already been expecting that.)

1:41 pm | by Yukari Iwatani Kane



Video calling is called FaceTime. You can use the front and rear camera, portrait or landscape. It's available Wi-Fi only in 2010. ("We need to work a little longer with our cellular partners," Mr. Jobs says.)

1:41 pm | by Ethan Smith



FaceTime users are shown using sign language over their phones. The crowd applauds.

1:42 pm | by Ethan Smith



Once again using Apple's walled-garden approach to life, the new FaceTime video-calling feature works only between iPhone 4s — not to desktop or laptop computers.

1:43 pm | by Yukari Iwatani Kane



Mr. Jobs says FaceTime will be an open industry standard. That is the iPhone 4, and we think it's the biggest leap we've taking since the original iPhone, he says.

1:44 pm | by Yukari Iwatani Kane



The iPhone 4 comes in two colors — black and white. The price with a two-year contract is \$199 in the U.S. for a 16 gigabyte model, and \$299 for 32 gigabytes.

1:45 pm | by Yukari Iwatani Kane



Mr. Jobs says he is thrilled to also announce that AT&T is going to make an incredibly generous upgrade offer. If your contract expires anytime in 2010, you qualify for this price if you top off with another two-year commitment.

1:45 pm | by Yukari Iwatani Kane



The 8 GB iPhone 3GS is \$99. No surprise there.

1:46 pm | by Yukari Iwatani Kane



The new iPhone goes on sale June 24, with preorders on June 15. It will be shipping in five countries that day. (The lucky countries include France, Germany, the U.K., Japan and the U.S.) There will be 18 more countries in July. Mr. Jobs says the phone will be available in 88 countries by September.

1:47 pm | by Ethan Smith



As an iPod touch owner, I'm happy to see that they're offering OS4 upgrades for free to owners of that device.

1:47 pm | by Yukari Iwatani Kane



Apple even now has come up with an accessory to protect the phone called "The Bumper."

1:48 pm | by Yukari Iwatani Kane



The iPhone OS4 upgrade will be available for the iPhone 3GS. The older 3G and the iPod Touch will only get some of the features. The upgrades will be free on June 21.

1:48 pm | by Ethan Smith



The revolutionizing-communication claims about FaceTime are feeling a little overheated. I mean, have these guys seen Skype? (Or their own iChat?)

1:49 pm | by Yukari Iwatani Kane



Apple is showing a video summarizing all the features of the iPhone 4.

1:54 pm | by Yukari Iwatani Kane



Mr. Jobs is back on stage. He says Apple is not just a technology company. It's more than that. It's the marriage of that plus the humanity and liberal arts that distinguishes Apple, he says.

1:54 pm | by Yukari Iwatani Kane



Gizmodo, I guess, really stole Apple's thunder. The new iPhone was probably supposed to make a much larger splash than it did.

1:55 pm | by Yukari Iwatani Kane



The audience claps as Mr. Jobs acknowledges the teams that worked on the new iPhone. "Thank you very much for coming. This is our new baby. I hope you love it as much as we do," Mr. Jobs says.

1:56 pm | by Yukari Iwatani Kane



The keynote ends, and we're outta here.

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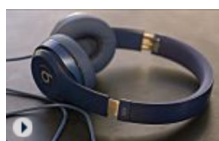
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6:55 am December 15, 2011

candy wrote:

remove from your vocabulary phrases like "one of these days" or "someday";
<http://www.canadagoosejakker-danmark.com>

8:13 am November 2, 2011

Mark wrote:

In such a condition, you should always look for the professional traveling curling tool that can be used anywhere with ease and can be carried comfortably with your luggage.

<http://www.outdoorjacketsonline.com/The-North-Face-Men-s-Triclimate-Goretex-Jacket-Purple-p90.html>

11:33 pm June 7, 2010

C. Kenney wrote:

Great new features, but the fundamental problem with the iPhone continues to be telephone service (after all, it is a phone, right?!). My iPhone (and those of so many people I know – most who have switched back to other phones), continues to drop calls – not just in my own home but in major airports (Neward, Philly, etc.) and overall just randomly drops calls. I don't understand why Steve Jobs, who has such high standards, hasn't made the simple change of switching to Verizon. Surely any existing contracts with AT&T have reached their term. This is a widespread issue and yet has never been addressed. Such a shame. Battery life isn't ideal, but I can live with that. Service is unacceptable.

9:53 pm June 7, 2010

SAN wrote:

I've put off getting an iPad because after hearing that the iPhone would have video chat capability I figured video would make its way to the next generation iPad and that would be worth waiting for. Now I find that while the new iPhone has video chatting, I need 2 iPhones to make it work. Is Apple for real? How is it possible that the same company that made my Mac at home doesn't allow their own video chatting system (iChat) to work between an iPhone and the home computer I had hoped to be able to talk to my kids on from the road? This just strikes me as a boneheaded, shortsighted move right out of the pages of the Microsoft playbook. I'm no Steve Jobs, so clearly I must be missing something here. To top it off, no Verizon announcement yet?! I'm waiting on both the iPhone and the iPad. I'll live. In the meantime, if anyone out there has any easy ideas on video chatting between the iPhone and a Mac (Skype?), please let me know.

8:50 pm June 7, 2010

mjj wrote:

I can't believe it's still on ATT, the great drop company.

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EXHIBIT S

App Store Review Guidelines

Introduction

We're thrilled that you want to invest your talents and time to develop applications for iOS. It has been a rewarding experience – both professionally and financially – for tens of thousands of developers and we want to help you join this successful group. This is the first time we have published our App Store Review Guidelines. We hope they will help you steer clear of issues as you develop your app, so that it speeds through the approval process when you submit it.

We view Apps different than books or songs, which we do not curate. If you want to criticize a religion, write a book. If you want to describe sex, write a book or a song, or create a medical app. It can get complicated, but we have decided to not allow certain kinds of content in the App Store. It may help to keep some of our broader themes in mind:

- We have lots of kids downloading lots of apps, and parental controls don't work unless the parents set them up (many don't). So know that we're keeping an eye out for the kids.
- We have over 250,000 apps in the App Store. We don't need any more Fart apps. If your app doesn't do something useful or provide some form of lasting entertainment, it may not be accepted.
- If your App looks like it was cobbled together in a few days, or you're trying to get your first practice App into the store to impress your friends, please brace yourself for rejection. We have lots of serious developers who don't want their quality Apps to be surrounded by amateur hour.
- We will reject Apps for any content or behavior that we believe is over the line. What line, you ask? Well, as a Supreme Court Justice once said, "I'll know it when I see it". And we think that you will also know it when you cross it.
- If your app is rejected, we have a Review Board that you can appeal to. If you run to the press and trash us, it never helps.
- This is a living document, and new apps presenting new questions may result in new rules at any time. Perhaps your app will trigger this.

Lastly, we love this stuff too, and honor what you do. We're really trying our best to create the best platform in the world for you to express your talents and make a living too. If it sounds like we're control freaks, well, maybe it's because we're so committed to our users and making sure they have a quality experience with our products. Just like almost all of you are too.

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1. Terms and conditions
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19. Religion, culture, and ethnicity
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21. Charities and contributions
22. Legal requirements

from any other agreement.

1. Terms and conditions

1.1 As a developer of applications for the App Store you are bound by the terms of the Program License Agreement (PLA), Human Interface Guidelines (HIG), and any other licenses or contracts between you and Apple. The following rules and examples are intended to assist you in gaining acceptance for your app in the App Store, not to amend or remove provisions

2. Functionality

- 2.1 Apps that crash will be rejected
- 2.2 Apps that exhibit bugs will be rejected
- 2.3 Apps that do not perform as advertised by the developer will be rejected
- 2.4 Apps that include undocumented or hidden features inconsistent with the description of the app will be rejected
- 2.5 Apps that use non-public APIs will be rejected
- 2.6 Apps that read or write data outside its designated container area will be rejected
- 2.7 Apps that download code in any way or form will be rejected
- 2.8 Apps that install or launch other executable code will be rejected
- 2.9 Apps that are "beta", "demo", "trial", or "test" versions will be rejected
- 2.10 iPhone apps must also run on iPad without modification, at iPhone resolution, and at 2X iPhone 3GS resolution
- 2.11 Apps that duplicate apps already in the App Store may be rejected, particularly if there are many of them
- 2.12 Apps that are not very useful or do not provide any lasting entertainment value may be rejected
- 2.13 Apps that are primarily marketing materials or advertisements will be rejected
- 2.14 Apps that are intended to provide trick or fake functionality that are not clearly marked as such will be rejected
- 2.15 Apps larger than 20MB in size will not download over cellular networks (this is automatically prohibited by the App Store)
- 2.16 Multitasking apps may only use background services for their intended purposes: VoIP, audio playback, location, task completion, local notifications, etc
- 2.17 Apps that browse the web must use the iOS WebKit framework and WebKit Javascript
- 2.18 Apps that encourage excessive consumption of alcohol or illegal substances, or encourage minors to consume alcohol or smoke cigarettes, will be rejected
- 2.19 Apps that provide incorrect diagnostic or other inaccurate device data will be rejected
- 2.20 Developers "spamming" the App Store with many versions of similar apps will be removed from the iOS Developer Program

3. Metadata (name, descriptions, ratings, rankings, etc)

- 3.1 Apps with metadata that mentions the name of any other mobile platform will be rejected
- 3.2 Apps with placeholder text will be rejected
- 3.3 Apps with descriptions not relevant to the application content and functionality will be rejected
- 3.4 App names in iTunes Connect and as displayed on a device should be similar, so as not to cause confusion
- 3.5 Small and large app icons should be similar, so as to not to cause confusion
- 3.6 Apps with app icons and screenshots that do not adhere to the 4+ age rating will be rejected
- 3.7 Apps with Category and Genre selections that are not appropriate for the app content will be rejected

- Developers are responsible for assigning appropriate ratings to their apps. Inappropriate ratings may be changed by Apple
- 3.9** Developers are responsible for assigning appropriate keywords for their apps. Inappropriate keywords may be changed/deleted by Apple
- 3.10** Developers who attempt to manipulate or cheat the user reviews or chart ranking in the App Store with fake or paid reviews, or any other inappropriate methods will be removed from the iOS Developer Program

4. Location

- 4.1** Apps that do not notify and obtain user consent before collecting, transmitting, or using location data will be rejected
- 4.2** Apps that use location-based APIs for automatic or autonomous control of vehicles, aircraft, or other devices will be rejected
- 4.3** Apps that use location-based APIs for dispatch, fleet management, or emergency services will be rejected

5. Push notifications

- 5.1** Apps that provide Push Notifications without using the Apple Push Notification (APN) API will be rejected
- 5.2** Apps that use the APN service without obtaining a Push Application ID from Apple will be rejected
- 5.3** Apps that send Push Notifications without first obtaining user consent will be rejected
- 5.4** Apps that send sensitive personal or confidential information using Push Notifications will be rejected
- 5.5** Apps that use Push Notifications to send unsolicited messages, or for the purpose of phishing or spamming will be rejected
- 5.6** Apps cannot use Push Notifications to send advertising, promotions, or direct marketing of any kind
- 5.7** Apps cannot charge users for use of Push Notifications
- 5.8** Apps that excessively use the network capacity or bandwidth of the APN service or unduly burden a device with Push Notifications will be rejected
- 5.9** Apps that transmit viruses, files, computer code, or programs that may harm or disrupt the normal operation of the APN service will be rejected

6. Game Center

- 6.1** Apps that display any Player ID to end users or any third party will be rejected
- 6.2** Apps that use Player IDs for any use other than as approved by the Game Center terms will be rejected
- 6.3** Developers that attempt to reverse lookup, trace, relate, associate, mine, harvest, or otherwise exploit Player IDs, alias, or other information obtained through the Game Center will be removed from the iOS Developer Program
- 6.4** Game Center information, such as Leaderboard scores, may only be used in apps approved for use with the Game Center
- 6.5** Apps that use Game Center service to send unsolicited messages, or for the purpose of phishing or spamming will be rejected
- 6.6** Apps that excessively use the network capacity or bandwidth of the Game Center will be rejected
- 6.7** Apps that transmit viruses, files, computer code, or programs that may harm or disrupt the normal operation of the Game Center service will be rejected

7. iAds

- 7.1** Apps that artificially increase the number of impressions or click-throughs of ads will be

- rejected
- 7.2 Apps that contain empty iAd banners will be rejected
- 7.3 Apps that are designed predominantly for the display of ads will be rejected

8. Trademarks and trade dress

- 8.1 Apps must comply with all terms and conditions explained in the Guidelines for using Apple Trademark and Copyrights and the Apple Trademark List
- 8.2 Apps that suggest or infer that Apple is a source or supplier of the app, or that Apple endorses any particular representation regarding quality or functionality will be rejected
- 8.3 Apps which appear confusingly similar to an existing Apple product or advertising theme will be rejected
- 8.4 Apps that misspell Apple product names in their app name (i.e., GPS for Iphone, iTunz) will be rejected
- 8.5 Use of protected 3rd party material (trademarks, copyrights, trade secrets, otherwise proprietary content) requires a documented rights check which must be provided upon request
- 8.6 Google Maps and Google Earth images obtained via the Google Maps API can be used within an application if all brand features of the original content remain unaltered and fully visible. Apps that cover up or modify the Google logo or copyright holders identification will be rejected

9. Media content

- 9.1 Apps that do not use the MediaPlayer framework to access media in the Music Library will be rejected
- 9.2 App user interfaces that mimic any iPod interface will be rejected
- 9.3 Audio streaming content over a cellular network may not use more than 5MB over 5 minutes
- 9.4 Video streaming content over a cellular network longer than 10 minutes must use HTTP Live Streaming and include a baseline 64 kbps audio-only HTTP Live stream

10. User interface

- 10.1 Apps must comply with all terms and conditions explained in the Apple iPhone Human Interface Guidelines and the Apple iPad Human Interface Guidelines
- 10.2 Apps that look similar to apps bundled on the iPhone, including the App Store, iTunes Store, and iBookstore, will be rejected
- 10.3 Apps that do not use system provided items, such as buttons and icons, correctly and as described in the Apple iPhone Human Interface Guidelines and the Apple iPad Human Interface Guidelines may be rejected
- 10.4 Apps that create alternate desktop/home screen environments or simulate multi-app widget experiences will be rejected
- 10.5 Apps that alter the functions of standard switches, such as the Volume Up/Down and Ring/Silent switches, will be rejected
- 10.6 Apple and our customers place a high value on simple, refined, creative, well thought through interfaces. They take more work but are worth it. Apple sets a high bar. If your user interface is complex or less than very good it may be rejected

11. Purchasing and currencies

- 11.1 Apps that unlock or enable additional features or functionality with mechanisms other than the App Store will be rejected
- 11.2 Apps utilizing a system other than the In App Purchase API (IAP) to purchase content, functionality, or services in an app will be rejected
- 11.3 Apps using IAP to purchase physical goods or goods and services used outside of the application will be rejected
- 11.4 Apps that use IAP to purchase credits or other currencies must consume those credits within the

- application
- 11.5 Apps that use IAP to purchase credits or other currencies that expire will be rejected
 - 11.6 Content subscriptions using IAP must last a minimum of 30 days and be available to the user from all of their iOS devices
 - 11.7 Apps that use IAP to purchase items must assign the correct Purchasability type
 - 11.8 Apps that use IAP to purchase access to built-in capabilities provided by iOS, such as the camera or the gyroscope, will be rejected
 - 11.9 Apps containing "rental" content or services that expire after a limited time will be rejected
 - 11.10 Insurance applications must be free, in legal-compliance in the regions distributed, and cannot use IAP
 - 11.11 In general, the more expensive your app, the more thoroughly we will review it

12. Scraping and aggregation

- 12.1 Applications that scrape any information from Apple sites (for example from apple.com, iTunes Store, App Store, iTunes Connect, Apple Developer Programs, etc) or create rankings using content from Apple sites and services will be rejected
- 12.2 Applications may use approved Apple RSS feeds such as the iTunes Store RSS feed
- 12.3 Apps that are simply web clippings, content aggregators, or a collection of links, may be rejected

13. Damage to device

- 13.1 Apps that encourage users to use an Apple Device in a way that may cause damage to the device will be rejected
- 13.2 Apps that rapidly drain the device's battery or generate excessive heat will be rejected

14. Personal attacks

- 14.1 Any app that is defamatory, offensive, mean-spirited, or likely to place the targeted individual or group in harms way will be rejected
- 14.2 Professional political satirists and humorists are exempt from the ban on offensive or mean-spirited commentary

15. Violence

- 15.1 Apps portraying realistic images of people or animals being killed or maimed, shot, stabbed, tortured or injured will be rejected
- 15.2 Apps that depict violence or abuse of children will be rejected
- 15.3 "Enemies" within the context of a game cannot solely target a specific race, culture, a real government or corporation, or any other real entity
- 15.4 Apps involving realistic depictions of weapons in such a way as to encourage illegal or reckless use of such weapons will be rejected
- 15.5 Apps that include games of Russian roulette will be rejected

16. Objectionable content

- 16.1 Apps that present excessively objectionable or crude content will be rejected
- 16.2 Apps that are primarily designed to upset or disgust users will be rejected

17. Privacy

- 17.1 Apps cannot transmit data about a user without obtaining the user's prior permission and providing the user with access to information about how and where the data will be used

Apps that require users to share personal information, such as email address and date of birth, in order to function will be rejected

17.3 Apps that target minors for data collection will be rejected

18. Pornography

18.1 Apps containing pornographic material, defined by Webster's Dictionary as "explicit descriptions or displays of sexual organs or activities intended to stimulate erotic rather than aesthetic or emotional feelings", will be rejected

18.2 Apps that contain user generated content that is frequently pornographic (ex "Chat Roulette" apps) will be rejected

19. Religion, culture, and ethnicity

19.1 Apps containing references or commentary about a religious, cultural or ethnic group that are defamatory, offensive, mean-spirited or likely to expose the targeted group to harm or violence will be rejected

19.2 Apps may contain or quote religious text provided the quotes or translations are accurate and not misleading. Commentary should be educational or informative rather than inflammatory

20. Contests, sweepstakes, lotteries, and raffles

20.1 Sweepstakes and contests must be sponsored by the developer/company of the app

20.2 Official rules for sweepstakes and contests, must be presented in the app and make it clear that Apple is not a sponsor or involved in the activity in any manner

20.3 It must be permissible by law for the developer to run a lottery app, and a lottery app must have all of the following characteristics: consideration, chance, and a prize

20.4 Apps that allow a user to directly purchase a lottery or raffle ticket in the app will be rejected

21. Charities and contributions

21.1 Apps that include the ability to make donations to recognized charitable organizations must be free

21.2 The collection of donations must be done via a web site in Safari or an SMS

22. Legal requirements

22.1 Apps must comply with all legal requirements in any location where they are made available to users. It is the developer's obligation to understand and conform to all local laws

22.2 Apps that contain false, fraudulent or misleading representations will be rejected

22.3 Apps that solicit, promote, or encourage criminal or clearly reckless behavior will be rejected

22.4 Apps that enable illegal file sharing will be rejected

22.5 Apps that are designed for use as illegal gambling aids, including card counters, will be rejected

22.6 Apps that enable anonymous or prank phone calls or SMS/MMS messaging will be rejected

22.7 Developers who create apps that surreptitiously attempt to discover user passwords or other private user data will be removed from the iOS Developer Program

Living document

This document represents our best efforts to share how we review apps submitted to the App Store, and we hope it is a helpful guide as you develop and submit your apps. It is a living document that will evolve as we are presented with new apps and situations, and we'll update it periodically to reflect these changes.

Thank you for developing for iOS. Even though this document is a formidable list of what not to do,

please also keep in mind the much shorter list of what you must do. Above all else, join us in trying to surprise and delight users. Show them their world in innovative ways, and let them interact with it like never before. In our experience, users really respond to polish, both in functionality and user interface. Go the extra mile. Give them more than they expect. And take them places where they have never been before. We are ready to help.

© Apple, 2010

EXHIBIT T



By John Gruber

ADS VIA THE DECK [Ads via The Deck](#)

A Taste of What's New in the Updated App Store License Agreement and New Review Guidelines

THURSDAY, 9 SEPTEMBER 2010

Apple today [announced](#) several significant changes to the iOS developer agreement, and a new document called the [App Store Review Guidelines](#). The latter is intended as a plain-English guide to the rules and guidelines Apple is using to determine which apps to accept into the store — a guide that has been sorely lacking to date.

These documents are only available to registered iOS developers, however, so here's a look at some of what's new.

SECTION 3.3.1 — THIRD-PARTY DEVELOPER TOOLS AND LANGUAGES

This is the section that was [changed a few months ago](#), with the release of iOS 4.0, to ban the use of third-party developer tools. In the 4.0 version of the agreement, section 3.3.1 read (*italics added*):

3.3.1 Applications may only use Documented APIs in the manner prescribed by Apple and must not use or call any private APIs. *Applications must be originally written in Objective-C, C, C++, or JavaScript as executed by the iPhone OS WebKit engine, and only code written in C, C++, and Objective-C may compile and directly link against the Documented APIs (e.g., Applications that link to Documented APIs through an intermediary translation or compatibility layer or tool are prohibited).*

In today's updated agreement, the entire italicized section has been removed. There's no longer any mention of specific programming languages, nor any prohibition against "intermediary translation or compatibility layers". This means, I believe, that tools such as Adobe's Flash cross-compiler are no longer banned from use. If you can produce a binary that complies with the guidelines, how you produced it doesn't matter.

SECTION 3.3.2 — INTERPRETERS

Old:

3.3.2 An Application may not itself install or launch other executable code by any means, including without limitation through the use of a plug-in architecture, calling other frameworks, other APIs or otherwise. Unless otherwise approved by Apple in writing, no

interpreted code may be downloaded or used in an Application except for code that is interpreted and run by Apple's Documented APIs and built-in interpreter(s).
Notwithstanding the foregoing, with Apple's prior written consent, an Application may use embedded interpreted code in a limited way if such use is solely for providing minor features or functionality that are consistent with the intended and advertised purpose of the Application.

New:

3.3.2 An Application may not download or install executable code. Interpreted code may only be used in an Application if all scripts, code and interpreters are packaged in the Application and not downloaded. The only exception to the foregoing is scripts and code downloaded and run by Apple's built-in WebKit framework.

I don't think this new language is a change in policy. It's just a shorter, more direct explanation. So, for example, games that include a Lua interpreter are OK, but only if they use the Lua interpreter to run scripts that are hard-coded into the app bundle itself — it can't be used to interpret script that users can download or install later. This change in language matches the de facto policy that has been applied by the App Store reviewers.

SECTION 3.3.9 — PRIVACY AND ANALYTICS

Old:

3.3.9 You and Your Applications may not collect, use, or disclose to any third party, user or device data without prior user consent, and then only under the following conditions:

- The collection, use or disclosure is necessary in order to provide a service or function that is directly relevant to the use of the Application. For example, without Apple's prior written consent, You may not use third party analytics software in Your Application to collect and send device data to a third party for aggregation, processing, or analysis.
- The collection, use or disclosure is for the purpose of serving advertising to Your Application; is provided to an independent advertising service provider whose primary business is serving mobile ads (for example, an advertising service provider owned by or affiliated with a developer or distributor of mobile devices, mobile operating systems or development environments other than Apple would not qualify as independent); and the disclosure is limited to UDID, user location data, and other data specifically designated by Apple as available for advertising purposes.

New:

3.3.9 You and Your Applications may not collect user or device data without prior user consent, and then only to provide a service or function that is directly relevant to the use of the Application, or to serve advertising. You may not use analytics software in Your Application to collect and send device data to a third party.

Again, shorter and sweeter. The language that seemed written specifically to ban AdMob — the mobile ad network purchased by Google, a purveyor of mobile operating systems — has been removed.

That's it for the significant changes to the developer license agreement.

APP STORE REVIEW GUIDELINES

This new document is written in remarkably casual language. For example, a few bullet items from the beginning:

- We have over 250,000 apps in the App Store. We don't need any more Fat apps.
- If your app doesn't do something useful or provide some form of lasting entertainment, it may not be accepted.
- If your App looks like it was cobbled together in a few days, or you're trying to get your first practice App into the store to impress your friends, please brace yourself for rejection. We have lots of serious developers who don't want their quality Apps to be surrounded by amateur hour.
- We will reject Apps for any content or behavior that we believe is over the line. What line, you ask? Well, as a Supreme Court Justice once said, "I'll know it when I see it". And we think that you will also know it when you cross it.
- If your app is rejected, we have a Review Board that you can appeal to. If you run to the press and trash us, it never helps.

Much of the introduction sounds as though it were written by Steve Jobs.

Most importantly:

This is a living document, and new apps presenting new questions may result in new rules at any time. Perhaps your app will trigger this.

Some examples of rules that were enforced, but never previously codified:

10.4 Apps that create alternate desktop/home screen environments or simulate multi-app widget experiences will be rejected

10.5 Apps that alter the functions of standard switches, such as the Volume Up/Down and Ring/Silent switches, will be rejected

And some interesting ones:

2.11 Apps that duplicate apps already in the App Store may be rejected, particularly if there are many of them

3.10 Developers who attempt to manipulate or cheat the user reviews or chart ranking in the App Store with fake or paid reviews, or any other inappropriate methods will be removed from the iOS Developer Program [...]

11.11 In general, the more expensive your app, the more thoroughly we will review it [...]

14.1 Any app that is defamatory, offensive, mean-spirited, or likely to place the targeted individual or group in harms way will be rejected

14.2 Professional political satirists and humorists are exempt from the ban on offensive or mean-spirited commentary

(Not sure why “professionals” qualify for an exemption here, nor what it is that qualifies someone as a “professional”).)

The existence of this document is a very welcome change, and it goes a long way to answering much of the criticism regarding prior controversial App Store rejections, by putting in writing the rules that are actually used by the reviewers.

Previous: [Miscellaneous Observations Regarding the Gadgets That Were \(and Were Not\) Announced at Last Week's Apple Event](#)

Next: [What's Next for Nokia?](#)

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EXHIBIT U



Tech

Your Apps Are Watching You

By Scott Thurm and Yukari Iwatani Kane

2,627 words

18 December 2010

The Wall Street Journal Online

WSJO

Tech

English

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Few devices know more personal details about people than the smartphones in their pockets: phone numbers, current location, often the owner's real name—even a unique ID number that can never be changed or turned off.

These phones don't keep secrets. They are sharing this personal data widely and regularly, a Wall Street Journal investigation has found.

An examination of 101 popular smartphone "apps"—games and other software applications for iPhone and Android phones—showed that 56 transmitted the phone's unique device ID to other companies without users' awareness or consent. Forty-seven apps transmitted the phone's location in some way. Five sent age, gender and other personal details to outsiders.

The findings reveal the intrusive effort by online-tracking companies to gather personal data about people in order to flesh out detailed dossiers on them.

Among the apps tested, the iPhone apps transmitted more data than the apps on phones using Google Inc.'s Android operating system. Because of the test's size, it's not known if the pattern holds among the hundreds of thousands of apps available.

Apps sharing the most information included TextPlus 4, a popular iPhone app for text messaging. It sent the phone's unique ID number to eight ad companies and the phone's zip code, along with the user's age and gender, to two of them.

Both the Android and iPhone versions of Pandora, a popular music app, sent age, gender, location and phone identifiers to various ad networks. iPhone and Android versions of a game called Paper Toss—players try to throw paper wads into a trash can—each sent the phone's ID number to at least five ad companies. Grindr, an iPhone app for meeting gay men, sent gender, location and phone ID to three ad companies.

"In the world of mobile, there is no anonymity," says Michael Becker of the Mobile Marketing Association, an industry trade group. A cellphone is "always with us. It's always on."

iPhone maker Apple Inc. says it reviews each app before offering it to users. Both Apple and Google say they protect users by requiring apps to obtain permission before revealing certain kinds of information, such as location.

"We have created strong privacy protections for our customers, especially regarding location-based data," says Apple spokesman Tom Neumayr. "Privacy and trust are vitally important."

The Journal found that these rules can be skirted. One iPhone app, Pumpkin Maker (a pumpkin-carving game), transmits location to an ad network without asking permission. Apple declines to comment on whether the app violated its rules.

Smartphone users are all but powerless to limit the tracking. With few exceptions, app users can't "opt out" of phone tracking, as is possible, in limited form, on regular computers. On computers it is also possible to block or delete "cookies," which are tiny tracking files. These techniques generally don't work on cellphone apps.

The makers of TextPlus 4, Pandora and Grindr say the data they pass on to outside firms isn't linked to an individual's name. Personal details such as age and gender are volunteered by users, they say. The maker of Pumpkin Maker says he didn't know Apple required apps to seek user approval before transmitting location. The maker of Paper Toss didn't respond to requests for comment.

Many apps don't offer even a basic form of consumer protection: written privacy policies. Forty-five of the 101 apps didn't provide privacy policies on their websites or inside the apps at the time of testing. Neither Apple nor Google requires app privacy policies.

To expose the information being shared by smartphone apps, the Journal designed a system to intercept and record the data they transmit, then decoded the data stream. The research covered 50 iPhone apps and 50 on phones using Google's Android operating system. (Methodology available [here](#).)

The Journal also tested its own iPhone app; it didn't send information to outsiders. The Journal doesn't have an Android phone app.

Among all apps tested, the most widely shared detail was the unique ID number assigned to every phone. It is effectively a "supercookie," says Vishal Gurbuxani, co-founder of Mobclix Inc., an exchange for mobile advertisers.

On iPhones, this number is the "UDID," or Unique Device Identifier. Android IDs go by other names. These IDs are set by phone makers, carriers or makers of the operating system, and typically can't be blocked or deleted.

"The great thing about mobile is you can't clear a UDID like you can a cookie," says Meghan O'Holleran of Traffic Marketplace, an Internet ad network that is expanding into mobile apps. "That's how we track everything."

Ms. O'Holleran says Traffic Marketplace, a unit of Epic Media Group, monitors smartphone users whenever it can. "We watch what apps you download, how frequently you use them, how much time you spend on them, how deep into the app you go," she says. She says the data is aggregated and not linked to an individual.

The main companies setting ground rules for app data-gathering have big stakes in the ad business. The two most popular platforms for new U.S. smartphones are Apple's iPhone and Google's Android. Google and Apple also run the two biggest services, by revenue, for putting ads on mobile phones.

Apple and Google ad networks let advertisers target groups of users. Both companies say they don't track individuals based on the way they use apps.

Apple limits what can be installed on an iPhone by requiring iPhone apps to be offered exclusively through its App Store. Apple reviews those apps for function, offensiveness and other criteria.

Apple says iPhone apps "cannot transmit data about a user without obtaining the user's prior permission and providing the user with access to information about how and where the data will be used." Many apps tested by the Journal appeared to violate that rule, by sending a user's location to ad networks, without informing users. Apple declines to discuss how it interprets or enforces the policy.

Phones running Google's Android operating system are made by companies including Motorola Inc. and Samsung Electronics Co. Google doesn't review the apps, which can be downloaded from many vendors. Google says app makers "bear the responsibility for how they handle user information."

Google requires Android apps to notify users, before they download the app, of the data sources the app intends to access. Possible sources include the phone's camera, memory, contact list, and more than 100 others. If users don't like what a particular app wants to access, they can choose not to install the app, Google says.

"Our focus is making sure that users have control over what apps they install, and notice of what information the app accesses," a Google spokesman says.

Neither Apple nor Google requires apps to ask permission to access some forms of the device ID, or to send it to outsiders. When smartphone users let an app see their location, apps generally don't disclose if they will pass the location to ad companies.

Lack of standard practices means different companies treat the same information differently. For example,

Apple says that, internally, it treats the iPhone's UDID as "personally identifiable information." That's because, Apple says, it can be combined with other personal details about people—such as names or email addresses—that Apple has via the App Store or its iTunes music services. By contrast, Google and most app makers don't consider device IDs to be identifying information.

A growing industry is assembling this data into profiles of cellphone users. Mobclix, the ad exchange, matches more than 25 ad networks with some 15,000 apps seeking advertisers. The Palo Alto, Calif., company collects phone IDs, encodes them (to obscure the number), and assigns them to interest categories based on what apps people download and how much time they spend using an app, among other factors.

By tracking a phone's location, Mobclix also makes a "best guess" of where a person lives, says Mr. Gurbuxani, the Mobclix executive. Mobclix then matches that location with spending and demographic data from Nielsen Co.

In roughly a quarter-second, Mobclix can place a user in one of 150 "segments" it offers to advertisers, from "green enthusiasts" to "soccer moms." For example, "die hard gamers" are 15-to-25-year-old males with more than 20 apps on their phones who use an app for more than 20 minutes at a time.

Mobclix says its system is powerful, but that its categories are broad enough to not identify individuals. "It's about how you track people better," Mr. Gurbuxani says.

Some app makers have made changes in response to the findings. At least four app makers posted privacy policies after being contacted by the Journal, including Rovio Mobile Ltd., the Finnish company behind the popular game Angry Birds (in which birds battle egg-snatching pigs). A spokesman says Rovio had been working on the policy, and the Journal inquiry made it a good time to unveil it.

Free and paid versions of Angry Birds were tested on an iPhone. The apps sent the phone's UDID and location to the Chillingo unit of Electronic Arts Inc., which markets the games. Chillingo says it doesn't use the information for advertising and doesn't share it with outsiders.

Apps have been around for years, but burst into prominence when Apple opened its App Store in July 2008. Today, the App Store boasts more than 300,000 programs.

Other phone makers, including BlackBerry maker Research In Motion Ltd. and Nokia Corp., quickly built their own app stores. Google's Android Market, which opened later in 2008, has more than 100,000 apps. Market researcher Gartner Inc. estimates that world-wide app sales this year will total \$6.7 billion.

Many developers offer apps for free, hoping to profit by selling ads inside the app. Noah Elkin of market researcher eMarketer says some people "are willing to tolerate advertising in apps to get something for free." Of the 101 apps tested, the paid apps generally sent less data to outsiders.

Ad sales on phones account for less than 5% of the \$23 billion in annual Internet advertising. But spending on mobile ads is growing faster than the market overall.

Central to this growth: the ad networks whose business is connecting advertisers with apps. Many ad networks offer software "kits" that automatically insert ads into an app. The kits also track where users spend time inside the app.

Some developers feel pressure to release more data about people. Max Binshtok, creator of the DailyHoroscope Android app, says ad-network executives encouraged him to transmit users' locations.

Mr. Binshtok says he declined because of privacy concerns. But ads targeted by location bring in two to five times as much money as untargeted ads, Mr. Binshtok says. "We are losing a lot of revenue."

Other apps transmitted more data. The Android app for social-network site MySpace sent age and gender, along with a device ID, to Millennial Media, a big ad network.

In its software-kit instructions, Millennial Media lists 11 types of information about people that developers may transmit to "help Millennial provide more relevant ads." They include age, gender, income, ethnicity, sexual orientation and political views. In a re-test with a more complete profile, MySpace also sent a user's income, ethnicity and parental status.

A spokesman says MySpace discloses in its privacy policy that it will share details from user profiles to help advertisers provide "more relevant ads." My Space is a unit of News Corp., which publishes the Journal. Millennial did not respond to requests for comment on its software kit.

App makers transmitting data say it is anonymous to the outside firms that receive it. "There is no real-life I.D. here," says Joel Simkhai, CEO of Nearby Buddy Finder LLC, the maker of the Grindr app for gay men. "Because we are not tying [the information] to a name, I don't see an area of concern."

Scott Lahman, CEO of TextPlus 4 developer Gogii Inc., says his company "is dedicated to the privacy of our users. We do not share personally identifiable information or message content." A Pandora spokeswoman says, "We use listener data in accordance with our privacy policy," which discusses the app's data use, to deliver relevant advertising. When a user registers for the first time, the app asks for email address, gender, birth year and ZIP code.

Google was the biggest data recipient in the tests. Its AdMob, AdSense, Analytics and DoubleClick units collectively heard from 38 of the 101 apps. Google, whose ad units operate on both iPhones and Android phones, says it doesn't mix data received by these units.

Google's main mobile-ad network is AdMob, which it bought this year for \$750 million. AdMob lets advertisers target phone users by location, type of device and "demographic data," including gender or age group.

A Google spokesman says AdMob targets ads based on what it knows about the types of people who use an app, phone location, and profile information a user has submitted to the app. "No profile of the user, their device, where they've been or what apps they've downloaded, is created or stored," he says.

Apple operates its iAd network only on the iPhone. Eighteen of the 51 iPhone apps sent information to Apple.

Apple targets ads to phone users based largely on what it knows about them through its App Store and iTunes music service. The targeting criteria can include the types of songs, videos and apps a person downloads, according to an Apple ad presentation reviewed by the Journal. The presentation named 103 targeting categories, including: karaoke, Christian/gospel music, anime, business news, health apps, games and horror movies.

People familiar with iAd say Apple doesn't track what users do inside apps and offers advertisers broad categories of people, not specific individuals.

Apple has signaled that it has ideas for targeting people more closely. In a patent application filed this past May, Apple outlined a system for placing and pricing ads based on a person's "web history or search history" and "the contents of a media library." For example, home-improvement advertisers might pay more to reach a person who downloaded do-it-yourself TV shows, the document says.

The patent application also lists another possible way to target people with ads: the contents of a friend's media library.

How would Apple learn who a cellphone user's friends are, and what kinds of media they prefer? The patent says Apple could tap "known connections on one or more social-networking websites" or "publicly available information or private databases describing purchasing decisions, brand preferences," and other data. In September, Apple introduced a social-networking service within iTunes, called Ping, that lets users share music preferences with friends. Apple declined to comment.

Tech companies file patents on blue-sky concepts all the time, and it isn't clear whether Apple will follow through on these ideas. If it did, it would be an evolution for Chief Executive Steve Jobs, who has spoken out against intrusive tracking. At a tech conference in June, he complained about apps "that want to take a lot of your personal data and suck it up."

Tom McGinty and Jennifer Valentino-DeVries contributed to this report.

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Document WSJO000020101220e6ci008sq

EXHIBIT V

Apple Launches Subscriptions on the App Store

CUPERTINO, California—February 15, 2011—Apple® today announced a new subscription service available to all publishers of content-based apps on the App Store™, including magazines, newspapers, video, music, etc. This is the same innovative digital subscription billing service that Apple recently launched with News Corp.'s "The Daily" app.

Subscriptions purchased from within the App Store will be sold using the same App Store billing system that has been used to buy billions of apps and In-App Purchases. Publishers set the price and length of subscription (weekly, monthly, bi-monthly, quarterly, bi-yearly or yearly). Then with one-click, customers pick the length of subscription and are automatically charged based on their chosen length of commitment (weekly, monthly, etc.). Customers can review and manage all of their subscriptions from their personal account page, including canceling the automatic renewal of a subscription. Apple processes all payments, keeping the same 30 percent share that it does today for other In-App Purchases.

"Our philosophy is simple—when Apple brings a new subscriber to the app, Apple earns a 30 percent share; when the publisher brings an existing or new subscriber to the app, the publisher keeps 100 percent and Apple earns nothing," said Steve Jobs, Apple's CEO. "All we require is that, if a publisher is making a subscription offer outside of the app, the same (or better) offer be made inside the app, so that customers can easily subscribe with one-click right in the app. We believe that this innovative subscription service will provide publishers with a brand new opportunity to expand digital access to their content onto the iPad, iPod touch and iPhone, delighting both new and existing subscribers."

Publishers who use Apple's subscription service in their app can also leverage other methods for acquiring digital subscribers outside of the app. For example, publishers can sell digital subscriptions on their web sites, or can choose to provide free access to existing subscribers. Since Apple is not involved in these transactions, there is no revenue sharing or exchange of customer information with Apple. Publishers must provide their own authentication process inside the app for subscribers that have signed up outside of the app. However, Apple does require that if a publisher chooses to sell a digital subscription separately outside of the app, that same subscription offer must be made available, at the same price or less, to customers who wish to subscribe from within the app. In addition, publishers may no longer provide links in their apps (to a web site, for example) which allow the customer to purchase content or subscriptions outside of the app.

Protecting customer privacy is a key feature of all App Store transactions. Customers purchasing a subscription through the App Store will be given the option of providing the publisher with their name, email address and zip code when they subscribe. The use of such information will be governed by the publisher's privacy policy rather than Apple's. Publishers may seek additional information from App Store customers provided those customers are given a clear choice, and are informed that any additional information will be handled under the publisher's privacy policy rather than Apple's.

The revolutionary App Store offers more than 350,000 apps to consumers in 90 countries, with more than 60,000 native iPad™ apps. Customers of the more than 160 million iOS devices around the world can choose from an incredible range of apps in 20 categories, including games, business, news, sports, health, reference and travel.

Apple designs Macs, the best personal computers in the world, along with OS X, iLife, iWork, and professional software. Apple leads the digital music revolution with its iPods and iTunes online store. Apple is reinventing the mobile phone with its revolutionary iPhone and App Store, and has recently introduced its magical iPad which is defining the future of mobile media and computing devices.

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EXHIBIT W



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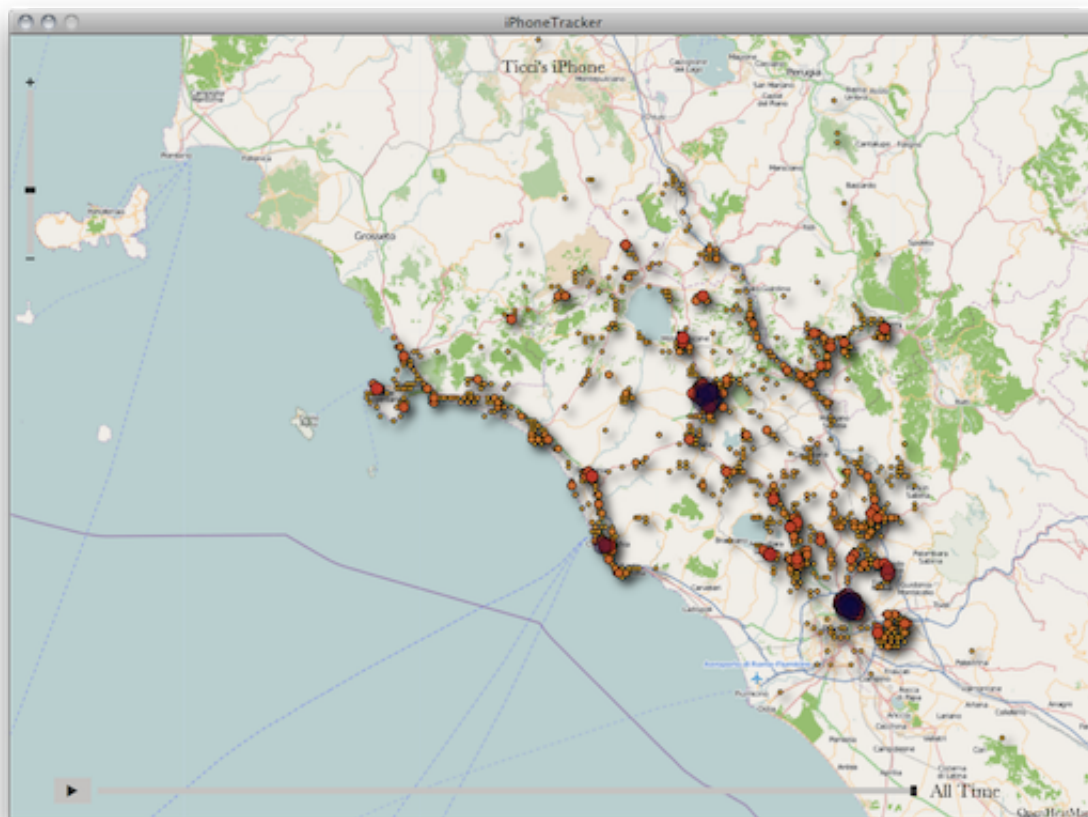
iOS 8 Extensions: Apple's Plan for a Powerful App Ecosystem



APR 27, 2011 — 09:39 PDT

Apple Responds To Location Log Scrutiny With Extensive Q&A Response

BY GRAHAM SPENCER



Apple has today responded to the intense media scrutiny over the **iPhone and 3G iPad location log** that researchers claimed logged extensive data, by **posting a lengthy Q&A response**. [Jump the break for the full Q&A.](#)

In its response Apple categorically states that "Apple is not tracking the location of your iPhone" and differentiates that the location log exists as a database to of Wi-Fi hotspots and cell towers around your current location so that when requested, current location data can be given quickly without waiting on the GPS which can take "up to several minutes" to calculate. By leveraging on Wi-Fi hotspots the iPhone can triangulate its location "within seconds", these calculations are done with a crowd-sourced database of Wi-Fi hotspots and cell tower data that is "generated by tens of millions of iPhones sending geo-tagged locations of nearby Wi-Fi hotspots and cell towers in an anonymous and encrypted form to Apple."

A portion of the crowd-sourced data (relevant to your location) is downloaded to the iPhone, and is left unencrypted - this is what the researchers discovered. "The location data that researchers are seeing on the iPhone is not the past or present

location of the iPhone, but rather the locations of Wi-Fi hotspots and cell towers surrounding the iPhone's location, which can be more than one hundred miles away from the iPhone".

However Apple notes there are several issues that they plan to address in a coming software update in the coming weeks. These include ceasing the practice of syncing that location cache to a computer, reduce the size of the crowd-sourced Wi-Fi hotspot and cell tower data stored on the iPhone and delete the cache when Location services is turned off. The cache will also be encrypted on the iPhone in the software update.

Apple also addresses related privacy concerns, noting that "Apple will continue to be one of the leaders in strengthening personal information security and privacy.". In particular it states that it does build a crowd-sourced traffic database but this is anonymised, as is everything else sent to Apple and as such can not be used to identify individual users. Furthermore third parties gain access to crash logs (which are anonymised) and the iAds system can use location to target specific ads, but this information is not sent to advertisers.

Jump the break for the full Q&A.

1. Why is Apple tracking the location of my iPhone?

Apple is not tracking the location of your iPhone. Apple has never done so and has no plans to ever do so.

2. Then why is everyone so concerned about this?

Providing mobile users with fast and accurate location information while preserving their security and privacy has raised some very complex technical issues which are hard to communicate in a soundbite. Users are confused, partly because the creators of this new technology (including Apple) have not provided enough education about these issues to date.

3. Why is my iPhone logging my location?

The iPhone is not logging your location. Rather, it's maintaining a database of

Wi-Fi hotspots and cell towers around your current location, some of which may be located more than one hundred miles away from your iPhone, to help your iPhone rapidly and accurately calculate its location when requested. Calculating a phone's location using just GPS satellite data can take up to several minutes. iPhone can reduce this time to just a few seconds by using Wi-Fi hotspot and cell tower data to quickly find GPS satellites, and even triangulate its location using just Wi-Fi hotspot and cell tower data when GPS is not available (such as indoors or in basements). These calculations are performed live on the iPhone using a crowd-sourced database of Wi-Fi hotspot and cell tower data that is generated by tens of millions of iPhones sending the geo-tagged locations of nearby Wi-Fi hotspots and cell towers in an anonymous and encrypted form to Apple.

4. Is this crowd-sourced database stored on the iPhone?

The entire crowd-sourced database is too big to store on an iPhone, so we download an appropriate subset (cache) onto each iPhone. This cache is protected but not encrypted, and is backed up in iTunes whenever you back up your iPhone. The backup is encrypted or not, depending on the user settings in iTunes. The location data that researchers are seeing on the iPhone is not the past or present location of the iPhone, but rather the locations of Wi-Fi hotspots and cell towers surrounding the iPhone's location, which can be more than one hundred miles away from the iPhone. We plan to cease backing up this cache in a software update coming soon (see Software Update section below).

5. Can Apple locate me based on my geo-tagged Wi-Fi hotspot and cell tower data?

No. This data is sent to Apple in an anonymous and encrypted form. Apple cannot identify the source of this data.

6. People have identified up to a year's worth of location data being stored on the iPhone. Why does my iPhone need so much data in order to assist it in finding my location today?

This data is not the iPhone's location data—it is a subset (cache) of the crowd-sourced Wi-Fi hotspot and cell tower database which is downloaded from Apple into the iPhone to assist the iPhone in rapidly and accurately calculating location. The reason the iPhone stores so much data is a bug we uncovered and plan to fix shortly (see Software Update section below). We don't think the iPhone needs to store more than seven days of this data.

7. When I turn off Location Services, why does my iPhone sometimes continue updating its Wi-Fi and cell tower data from Apple's crowd-sourced database?

It shouldn't. This is a bug, which we plan to fix shortly (see Software Update section below).

8. What other location data is Apple collecting from the iPhone besides crowd-sourced Wi-Fi hotspot and cell tower data?

Apple is now collecting anonymous traffic data to build a crowd-sourced traffic database with the goal of providing iPhone users an improved traffic service in the next couple of years.

9. Does Apple currently provide any data collected from iPhones to third parties?

We provide anonymous crash logs from users that have opted in to third-party developers to help them debug their apps. Our iAds advertising system can use location as a factor in targeting ads. Location is not shared with any third party or ad unless the user explicitly approves giving the current location to the current ad (for example, to request the ad locate the Target store nearest them).

10. Does Apple believe that personal information security and privacy are important?

Yes, we strongly do. For example, iPhone was the first to ask users to give their permission for each and every app that wanted to use location. Apple will continue to be one of the leaders in strengthening personal information

security and privacy.

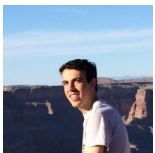
Software Update

Sometime in the next few weeks Apple will release a free iOS software update that:

- reduces the size of the crowd-sourced Wi-Fi hotspot and cell tower database cached on the iPhone,
- ceases backing up this cache, and
- deletes this cache entirely when Location Services is turned off.

In the next major iOS software release the cache will also be encrypted on the iPhone.

Tags: apple



GRAHAM SPENCER

Graham is a regular contributor to MacStories, a law and economics student at university and connoisseur of great TV shows. With a particular passion for telling stories with the aid of data and visualizations, there is a high likelihood that he wrote a story if you see a graph on MacStories.

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EXHIBIT X

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APPLE INC.

REGISTERED APPLE DEVELOPER AGREEMENT

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2. Developer Benefits. As a Registered Apple Developer, you may have the opportunity to attend certain Apple developer conferences, technical talks, and other events (including online or electronic broadcasts of such events) (“Apple Events”). In addition, Apple may offer to provide you with certain services (“Services”), as described more fully herein and on the Registered Apple Developer web pages (“Site”), solely for your own use (except as otherwise permitted in the last two sentences of Section 1) in connection with your participation as a Registered Apple Developer. Services may include, but not be limited to, any services Apple offers at Apple Events or on the Site as well as the offering of any content or materials displayed on the Site (“Content”). Apple may change, suspend or discontinue providing the Services, Site and Content to you at any time, and may impose limits on certain features and materials offered or restrict your access to parts or all of materials without notice or liability.

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7. Paid Content License and Restrictions. As a Registered Apple Developer, you may have access to certain proprietary content (including, without limitation, video presentations and audio recordings) that Apple may make available to you from time to time for a separate fee ("Paid Content"). Paid Content shall be considered Apple Confidential Information, unless otherwise agreed or permitted in writing by Apple. You may not share the Paid Content with anyone, including, without limitation, employees and contractors working for the same entity as you, regardless of whether they are Registered Apple Developers. Subject to these terms and conditions, Apple grants you a personal and nontransferable license to access and use the Paid Content for authorized purposes as a Registered Apple Developer; provided that you may only download one (1) copy of the Paid Content and such download must be completed within the time period specified by Apple for such download. Except as expressly permitted by Apple, you shall not modify, translate, reproduce, distribute, or create derivative works of the Paid Content or any part thereof. You shall not rent, lease, loan, sell, sublicense, assign or otherwise transfer any rights in the Paid Content. Apple and/or Apple's licensor(s) retain ownership of the Paid Content itself and any copies or portions thereof. The Paid Content is licensed, not sold, to you by Apple for use only under this Agreement, and Apple reserves all rights not expressly granted to you. Your rights under this license to use and access the Paid Content will terminate automatically without notice from Apple if you fail to comply with any of these provisions.

8. Compatibility Labs; Developer Technical Support (DTS). As a Registered Apple Developer, You may have access to Apple's software and hardware compatibility testing labs ("Compatibility Labs") and/or developer technical support incidents ("DTS Services") that Apple may make available to you from time to time as an Apple developer benefit or for a separate fee. You agree that all use of such Compatibility Labs and DTS Services will be in accordance with Apple's usage policies for such services, which are subject to change from time to time, with or without prior notice to you. Without limiting the foregoing, Apple may post on the Site and/or send an email to you with notices of such changes. It is your responsibility to review the Site and/or check your email address registered with Apple for any such notices. You agree that Apple shall not be liable to you or any third party for any modification or cessation of such services. As part of the DTS Services, Apple may supply you with certain code snippets, sample code, software, and other materials ("Materials"). You agree that any Materials that Apple provides as part of the DTS Services are licensed to you and shall be used by you only in accordance with the terms and conditions accompanying the Materials. Apple retains ownership of all of its right, title and interest in such Materials and no other rights or licenses are granted or to be implied under any Apple intellectual property. You have no right to copy, decompile, reverse engineer, sublicense or otherwise distribute such Materials, except as may be expressly provided in the terms and conditions accompanying the Materials. You agree that when requesting and receiving TECHNICAL SUPPORT FROM DTS SeRVICES, you will not provide Apple with any INFORMATION, including that incorporated in your software, that is confidential to you or any third party. YOU AGREE THAT Any notice, legend, or label to the contrary contained in any SUCH materials provided by you to Apple shall be without effect. Apple shall be free to use all information it receives from you in any manner it deems appropriate, subject to any applicable patents or copyrights. Apple reserves the right to reject a request for DTS Services at any time and for any reason, in which event Apple may credit you for the rejected support request. You shall be solely responsible for any restoration of lost or altered files, data, programs or other materials provided.

9. Amendment; Communication. Apple reserves the right, at its discretion, to modify this Agreement, including any rules and policies at any time. You will be responsible for reviewing and becoming familiar with any such modifications (including new terms, updates, revisions, supplements, modifications, and additional rules, policies, terms and conditions)("Additional Terms") communicated to you by Apple. All Additional Terms are hereby incorporated into this Agreement by this reference and your continued use of the

Site will indicate your acceptance of any Additional Terms. In addition, Apple may be sending communications to you from time to time. Such communications may be in the form of phone calls and/or emails and may include, but not be limited to, marketing materials, technical information, and updates and/or changes regarding your participation as a Registered Apple Developer. By agreeing to this Agreement, you consent that Apple may provide you with such communications.

10. Term and Termination. Apple may terminate or suspend you as a Registered Apple Developer at any time in Apple's sole discretion. If Apple terminates you as a Registered Apple Developer, Apple reserves the right to deny your reapplication at any time in Apple's sole discretion. You may terminate your participation as a Registered Apple Developer at any time, for any reason, by notifying Apple in writing of your intent to do so. Upon any termination or, at Apple's discretion, suspension, all rights and licenses granted to you by Apple will cease, including your right to access the Site, and you agree to destroy any and all Apple Confidential Information that is in your possession or control. At Apple's request, you agree to provide certification of such destruction to Apple. No refund or partial refund of any fees paid hereunder or any other fees will be made for any reason. Following termination of this Agreement, Sections 1, 3-5, 7 (but only for so long as the duration specified by Apple for such usage), 10-19 shall continue to bind the parties.

11. Apple Independent Development. Nothing in this Agreement will impair Apple's right to develop, acquire, license, market, promote or distribute products, software or technologies that perform the same or similar functions as, or otherwise compete with, any other products, software or technologies that you may develop, produce, market, or distribute. In the absence of a separate written agreement to the contrary, Apple will be free to use any information, suggestions or recommendations you provide to Apple pursuant to this Agreement for any purpose, subject to any applicable patents or copyrights.

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13. No Warranty. APPLE AND ITS AFFILIATES, SUBSIDIARIES, OFFICERS, DIRECTORS, EMPLOYEES, AGENTS, PARTNERS, AND LICENSORS (COLLECTIVELY, "APPLE" FOR PURPOSES OF THIS SECTION 13 AND 14) DO NOT PROMISE THAT THE SITE, CONTENT, SERVICES (INCLUDING, FUNCTIONALITY OR FEATURES OF THE FOREGOING), COMPATIBILITY LABS, DTS SERVICES, OR ANY OTHER INFORMATION OR MATERIALS THAT YOU RECEIVE AS A REGISTERED APPLE DEVELOPER (COLLECTIVELY, THE "SERVICE" FOR PURPOSES OF THIS SECTION 13 AND 14) WILL BE ACCURATE, RELIABLE, TIMELY, SECURE, ERROR-FREE OR UNINTERRUPTED, OR THAT ANY DEFECTS WILL BE CORRECTED. THE SERVICE IS PROVIDED ON AN "AS-IS" AND "AS-AVAILABLE" BASIS AND THE SERVICE IS SUBJECT TO CHANGE WITHOUT NOTICE. APPLE CANNOT ENSURE THAT ANY CONTENT (INCLUDING FILES, INFORMATION OR OTHER DATA) YOU ACCESS OR DOWNLOAD FROM THE SERVICE WILL BE FREE OF VIRUSES, CONTAMINATION OR DESTRUCTIVE FEATURES. FURTHER, APPLE DOES NOT GUARANTEE ANY RESULTS OR IDENTIFICATION OR CORRECTION OF PROBLEMS AS PART OF THE SERVICE AND APPLE DISCLAIMS ANY LIABILITY RELATED THERETO. APPLE DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTIES OF ACCURACY, NON-INFRINGEMENT, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. APPLE DISCLAIMS ANY AND ALL LIABILITY FOR THE ACTS, OMISSIONS AND CONDUCT OF ANY THIRD PARTIES IN CONNECTION WITH OR RELATED TO YOUR USE OF THE SERVICE. YOU ASSUME TOTAL RESPONSIBILITY AND ALL RISKS FOR YOUR USE OF THE SERVICE, INCLUDING, BUT NOT LIMITED TO, ANY INFORMATION OBTAINED THEREON. YOUR SOLE REMEDY AGAINST APPLE FOR DISSATISFACTION WITH THE SERVICE IS TO STOP

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15. Third-Party Notices. Third party software provided by Apple to you as a Registered Apple Developer may be accompanied by its own licensing terms, in which case such licensing terms will govern your use of that particular third party software. Mention of third parties and third party products in any materials, advertising, promotions or coupons provided to you as a Registered Apple Developer is for informational purposes only and constitutes neither an endorsement nor a recommendation. All third party product specifications and descriptions are supplied by the respective vendor or supplier, and Apple shall have no responsibility with regard to the selection, performance, or use of these vendors or products. All understandings, agreements, or warranties, if any, take place directly between the vendors and the prospective users.

16. Export Control. You may not use or otherwise export or re-export any Apple Confidential Information received from Apple except as authorized by United States law and the laws of the jurisdiction in which the Apple Confidential Information was obtained. In particular, but without limitation, the Apple Confidential Information may not be exported or re-exported (a) into any U.S. embargoed countries or (b) to anyone on the U.S. Treasury Department's list of Specially Designated Nationals or the U.S. Department of Commerce Denied Person's List or Entity List. By becoming a Registered Apple Developer or using any Apple Confidential Information, you represent and warrant that you are not located in any such country or on any such list. You also agree that you will not use any Apple Confidential Information for any purposes prohibited by United States law, including, without limitation, the development, design, manufacture or production of nuclear, chemical or biological weapons.

17. Governing Law. This Agreement will be governed by and construed in accordance with the laws of the State of California, excluding its conflict of law provisions. The parties further submit to and waive any objections to personal jurisdiction of and venue in any of the following forums: U.S. District Court for the Northern District of California, California Superior Court for Santa Clara County, Santa Clara County Municipal Court, or any other forum in Santa Clara County, for any disputes arising out of this Agreement.

18. Government End Users. Certain Apple Confidential Information may be considered "Commercial Items", as that term is defined at 48 C.F.R. S2.101, consisting of "Commercial Computer Software" and "Commercial Computer Software Documentation", as such terms are used in 48 C.F.R. S12.212 or 48 C.F.R. S227.7202, as applicable. Consistent with 48 C.F.R. S12.212 or 48 C.F.R. S227.7202-1 through 227.7202-4, as applicable, the Commercial Computer Software and Commercial Computer Software Documentation are being licensed to U.S. Government end users (a) only as Commercial Items and (b) with only those rights as are granted to all other end users pursuant to the terms and conditions herein. Unpublished-rights reserved under the copyright laws of the United States.

19. Miscellaneous. No delay or failure to take action under this Agreement will constitute a waiver unless expressly waived in writing, signed by a duly authorized representative of Apple, and no single waiver will constitute a continuing or subsequent waiver. This Agreement will bind your successors but may not be assigned, in whole or part, by you without the written approval of an authorized representative of Apple. Any non-conforming assignment shall be null and void. If any provision is found to be unenforceable or invalid, that provision shall be limited or eliminated to the minimum extent necessary so that this Agreement shall otherwise remain in full force and effect and enforceable. This Agreement constitutes the entire agreement between the parties with respect to its subject matter and supersedes all prior or contemporaneous understandings regarding such subject matter. No addition to or removal or modification of any of the provisions of this Agreement will be binding upon Apple unless made in writing and signed by an authorized representative of Apple. The parties hereto confirm that they have requested that this Agreement and all attachments and related documents be drafted in English. Les parties ont exigé que le présent contrat et tous les documents connexes soient rédigés en anglais.

EA0588

Rev. 3/1/10

By checking this box I confirm that I have read and agree to be bound by the Agreement above. I also confirm that I am of the legal age of majority in the jurisdiction in which I reside (at least 18 years of age in many countries).

Program License Agreement

iOS Developer Program License Agreement

View the iOS Developer Program License Agreement [PDF](#). Last Modified: Jul 13, 2011

PLEASE READ THE FOLLOWING LICENSE AGREEMENT TERMS AND CONDITIONS CAREFULLY BEFORE DOWNLOADING OR USING THE APPLE SOFTWARE. THESE TERMS AND CONDITIONS CONSTITUTE A LEGAL AGREEMENT BETWEEN YOU AND APPLE.

iOS Developer Program License Agreement

Purpose

You would like to use the Apple Software (as defined below) to develop one or more Applications (as defined below) for Apple-branded products running the iOS. Apple is willing to grant You a limited license to use the Apple Software to develop and test Your Applications on the terms and conditions set forth in this Agreement.

Applications developed under this Agreement can be distributed in three ways: (1) through the App Store, if selected by Apple, (2) through the VPP/B2B Program Site, if selected by Apple, and (3) on a limited basis for use on Registered Devices (as defined below).

Applications that meet Apple's Documentation and Program Requirements may be submitted for consideration by Apple for distribution via the App Store or VPP/B2B Program Site. If submitted by You and selected by Apple, Your Applications will be digitally signed by Apple and distributed through the App Store or VPP/B2B Program Site, as applicable. Distribution of free (no charge) Applications that do not make use of the In App Purchase API will be subject to the distribution terms contained in Schedule 1 to this Agreement. If You would like to distribute Applications for which You will charge a fee or would like to use the In App Purchase API in free Applications, You must enter into a separate agreement with Apple (Schedule 2). If You

would like to distribute Custom B2B Applications via the VPP/B2B Program Site, You must enter into a separate agreement with Apple (Schedule 3).

1. Accepting this Agreement; Definitions

1.1 Acceptance

In order to use the Apple Software and related services, You must first agree to this License Agreement. If You do not or cannot agree to this License Agreement, You are not permitted to use the Apple Software or related services. Do not download or use the Apple Software or any related services in that case.

You accept and agree to the terms of this License Agreement on Your own behalf and/or on behalf of Your company, organization, educational institution, or agency, instrumentality, or department of the federal government as its authorized legal representative, by doing either of the following:

- (a) checking the box displayed at the end of this Agreement if You are reading this on an Apple website; or
- (b) clicking an Agree or similar button, where this option is provided by Apple.

1.2 Definitions

Whenever capitalized in this Agreement:

Advertising API means the Documented API that enables You to use Apples advertising service to deliver advertising to Your Application.

Agreement means this iOS Developer Program License Agreement, including any attachments, Schedule 1 and any exhibits thereto which are hereby incorporated by this reference.

App Store means an electronic store and its storefronts branded, and owned and/or controlled by Apple or an affiliate of Apple.

Apple means Apple Inc., a California corporation with its principal place of business at One Infinite Loop, Cupertino, California 95014, U.S.A.

Apple Push Notification or APN means the Apple Push Notification service that Apple may provide to You to enable You to transmit Push Notifications to Your Application.

APN API means the Documented API that enables You to use the APN to deliver a Push Notification to Your Application.

“Apple Software” means the SDK, the iOS, the Provisioning Profiles and any other software that Apple provides to You under the Program, including any Updates thereto that may be provided to You by Apple.

Apple Subsidiary means a corporation at least fifty percent (50%) of whose outstanding shares or securities (representing the right to vote for the election of directors or other managing authority) are owned or controlled, directly or indirectly, by Apple, and that is involved in the operation of or otherwise affiliated with the App Store or VPP/B2B Program Site, including without limitation Apple Pty Limited, iTunes S.à.r.l., and iTunes K.K.

Application means one or more software programs developed by You in compliance with the Documentation and the Program Requirements, under Your own trademark or brand, and for specific use with an iOS Product, including bug fixes, updates, upgrades, modifications, enhancements, supplements to, revisions, new releases and new versions of such software programs.

Authorized Developers means Your employees and contractors, members of Your organization or, if You are an educational institution, Your faculty and staff who (a) each have an active and valid Registered Apple Developer account with Apple, (b) have a demonstrable need to know or use the Apple Software in order to develop and test Applications, and (c) to the extent such individuals will have access to Apple Confidential Information, each have written and binding agreements with You to protect the unauthorized use and disclosure of such Apple Confidential Information.

Authorized Test Devices means iOS Products owned or controlled by You that have been designated by You for testing and development purposes and specifically registered with Apple under this Program.

Custom B2B Application means a Licensed Application that is customized by You for use by a specific VPP Customer or group of VPP Customers and that is selected and digitally signed by Apple for distribution through the VPP/B2B Program Site.

Documentation means any technical or other specifications or documentation that Apple may provide to You for use in connection with the Apple Software.

Documented API(s) means the Application Programming Interface(s) documented by Apple in published Apple Documentation and which are contained in the Apple Software.

Entitlement means an identifier provided by Apple that allows Your Application to access certain Apple services.

FOSS (Free and Open Source Software) means any software that is subject to terms that, as a condition of use, copying, modification or redistribution, require such software and/or derivative works thereof to be disclosed or distributed in source code form, to be licensed for the purpose of making derivative works, or to be redistributed free of charge, including without limitation software distributed under the GNU General Public License or GNU Lesser/Library GPL.

Game Center means the gaming community service and related APIs provided by Apple for use by You only in connection with Your Application. The Game Center may consist of an Apple confidential, pre-release version of the Game Center service or a production, non-Apple confidential, commercially-available version of such service.

iCloud means the iCloud online service provided by Apple that includes remote online storage.

iCloud Storage APIs means the APIs that allow storage and retrieval of user-generated documents and other files, and allow storage and retrieval of key value data (e.g., a list of stocks in a finance App, settings for an App) for Applications and Multi-Platform Software through the use of iCloud.

In App Purchase API means the Documented API that enables additional content, functionality or services to be purchased and delivered or made available for use within an Application.

“iOS” means the iOS operating system software provided by Apple for use by You only in connection with Your Application development and testing, which, from time to time during the Term, may consist of an Apple confidential, pre-release version of the iOS operating system software or a gold master “GM” production, non-Apple confidential, commercially-available version of the iOS operating system software (or any successor thereto).

iOS Accessory means a non-Apple branded hardware device that interfaces, communicates, or otherwise interoperates with or controls an iOS Product through the iPod Accessory Protocol.

iOS Product means an Apple-branded product that runs the iOS.

iPod Accessory Protocol or iAP means Apples proprietary protocol for communicating with iOS Products and which is licensed under Apples MFi Licensing Program.

iTunes Connect means Apples proprietary online content management tool for Applications.

Licensed Application means an Application that (a) meets and complies with all of the Documentation and Program Requirements, and (b) has been selected and digitally signed by Apple for production distribution.

Licensed Application Information means screen shots, images, artwork, icons and/or any other copyrighted text, descriptions, representations or information relating to a Licensed Application that You provide to Apple for use in accordance with Schedule 1, or, if applicable, Schedule 2 or Schedule 3.

Local Notification means a message, including any content or data therein, that Your Application delivers to end-users at a pre-determined time or when Your Application is running in the background and another application is running in the foreground.

MFi Licensing Program means a separate Apple program that offers iOS Accessory developers, among other things, a license to incorporate certain Apple technology into a hardware device to interface, communicate or otherwise interoperate with or control iOS Products.

“MFi Licensee” means a party who has been granted a license by Apple under the MFi Licensing Program.

Maps API means the Documented API that enables You to add mapping functionality to Applications.

Multi-Platform Software means other versions of Your software applications (i) that have the same title and substantially equivalent features and functionality as Your Licensed Application and that are made available by You for use on Mac OS X Lion and/or supported versions of Windows (as identified in the Documentation), and (ii) that update data with Your Licensed Application through the use of iCloud.

Multitasking means the ability of Applications to run in the background while other Applications are running on the iOS.

Program means the overall iOS application development, testing, digital signing, and distribution program contemplated in this Agreement.

Program Requirements mean the technical, human interface, design, product category, security, performance, and other criteria and requirements specified by Apple, including but not limited to the current set of requirements set forth in Section 3.3, as they may be modified from time to time by Apple in accordance with this Agreement.

“Provisioning Profiles” means the provisioning profiles provided by Apple for use by You in connection with Your Application development and testing, and limited distribution of Your Applications for use on Registered Devices.

Push Application ID means the unique identification number or other identifier that Apple assigns to an Application in order to permit it to access and use the APN.

Push Notification means a message, including any content or data therein, that You transmit to end-users and that is delivered in Your Application.

“Registered Devices” means iOS Products owned or controlled by You, or owned by individuals who are affiliated with You, that You have specifically registered with Apple under this Program.

Security Solution means the proprietary Apple content protection system marketed as Fairplay, to be applied to Licensed Applications distributed on the App Store to administer Apple's standard usage rules for Licensed Applications, as such system and rules may be modified by Apple from time to time.

SDK (Software Development Kit) means the Documentation, software (source code and object code), applications, sample code, simulator, tools, libraries, APIs, data, files, and materials provided by Apple for use by You in connection with Your Application development, and includes any Updates that may be provided by Apple to You pursuant to this Agreement.

Term means the period described in Section 12.

Updates means bug fixes, updates, upgrades, modifications, enhancements, supplements, and new releases or versions of the Apple Software, or to any part of the Apple Software.

Volume Purchase Program or VPP means an Apple program that offers the ability to buy Custom B2B Applications and make volume purchases of Licensed Applications.

VPP/B2B Program Site means an electronic store and its storefronts branded, and owned and/or controlled by Apple or an affiliate of Apple, and that is only accessible to VPP Customers.

VPP Customer(s) means a third party that is enrolled in Apples Volume Purchase Program.

You and Your means and refers to the person(s) or legal entity (whether the company, organization, educational institution, or governmental agency, instrumentality, or department) using the Apple Software or otherwise exercising rights under this Agreement. For the sake of clarity, You may authorize contractors to develop Applications on Your behalf, but any such Applications must be submitted under Your developer account.

2. Internal Use License and Restrictions

2.1 Permitted Uses and Restrictions

Subject to the terms and conditions of this Agreement, Apple hereby grants You during the Term, a limited, non-exclusive, personal, revocable, non-sublicensable and non-transferable license to:

- (a) Install a reasonable number of copies of the Apple Software on Apple-branded computers owned or controlled by You, to be used internally by You or Your Authorized Developers for the sole purpose of developing or testing Applications, unless otherwise specified by Apple;
- (b) Make and distribute a reasonable number of copies of the Documentation to Authorized Developers for their internal use only and for the sole purpose of developing or testing Applications;
- (c) Install one (1) copy of the iOS and a Provisioning Profile on each of Your Authorized Test Devices, up to the number of Authorized Test Devices that You have registered and acquired licenses for, to be used internally by You or Your Authorized Developers for the sole purpose of developing and testing Your Applications; and
- (d) Install a Provisioning Profile on each of Your Registered Devices, up to the limited number of Registered Devices that You have registered and acquired licenses for, for the sole purpose of enabling the distribution and use of Your Applications on such Registered Devices.

Apple reserves the right to set the limited number of iOS Products that each Licensee may register with Apple and obtain licenses for under this Program (a "Block of Registered Device Licenses"), as specified on the Program web portal. For the purposes of limited distribution on Registered Devices under Section 7.2, each

company, organization, educational institution or affiliated group may only acquire one (1) Block of Registered Device Licenses per company, organization, educational institution or group, unless otherwise agreed in writing by Apple. You agree not to knowingly acquire, or to cause others to acquire, more than one Block of Registered Device Licenses for the same company, organization, educational institution or group.

2.2 Authorized Test Devices and Pre-Release Apple Software

As long as an Authorized Test Device contains any pre-release versions of the Apple Software or uses pre-release versions of services, You agree to restrict access to such Authorized Test Device to Your Authorized Developers and to not disclose, show, rent, lease, lend, sell or otherwise transfer such Authorized Test Device to any third party. You further agree to take reasonable precautions to safeguard, and to instruct Your Authorized Developers to safeguard, all Authorized Test Devices from loss or theft.

You acknowledge that by installing any pre-release Apple Software or using any pre-release services on Your Authorized Test Devices, these Devices may be locked into testing mode and may not be capable of being restored to their original condition. Any use of any pre-release Apple Software or pre-release services are for evaluation and development purposes only, and You should not use any pre-release Apple Software or pre-release services in a commercial operating environment or with important data. You should back up any data prior to using the pre-release Apple Software or pre-release services. Apple shall not be responsible for any costs, expenses or other liabilities You may incur as a result of provisioning Your Authorized Test Devices and Registered Devices, Your Application development or the installation or use of this Apple Software or any pre-release Apple services, including but not limited to any damage to any equipment, or any damage, loss, or corruption of any software, information or data.

2.3 Confidential Nature of Pre-Release Apple Software and services

From time to time during the Term, Apple may provide You with pre-release versions of the Apple Software or related services that constitute Apple Confidential Information and are subject to the confidentiality obligations of this Agreement. Such pre-release Apple Software and related services should not be relied upon to perform in the same manner as a final-release commercial-grade product, nor used with data that is not sufficiently and regularly backed up, and may include features, functionality or APIs for software or services that are not yet available. You acknowledge that Apple may not have publicly announced the availability of such pre-release Apple Software or related services, that Apple has not promised or guaranteed to You that such pre-release software or services will be announced or made available to anyone in the future, and that Apple has no express or implied obligation to You to announce or commercially introduce such software or services or any similar or compatible technology. You expressly acknowledge and agree that any research or development that You perform with respect to pre-release versions of the Apple Software or related services is done entirely at Your own risk.

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2.6 No Other Permitted Uses

Except as otherwise set forth in this Agreement, You agree not to rent, lease, lend, upload to or host on any website or server, sell, redistribute, or sublicense the Apple Software or any services, in whole or in part, or to enable others to do so. You may not use the Apple Software or any services provided hereunder for any purpose not expressly permitted by this Agreement. You agree not to install, use or run the SDK on any non-Apple-branded computer, not to install, use or run the iOS and Provisioning Profiles on or in connection with devices other than iOS Products, or to enable others to do so. You may not and You agree not to, or to enable others to, copy (except as expressly permitted under this Agreement), decompile, reverse engineer, disassemble, attempt to derive the source code of, modify, decrypt, or create derivative works of the Apple Software or any services provided by the Apple Software or otherwise provided hereunder, or any part thereof (except as and only to the extent any foregoing restriction is prohibited by applicable law or to the extent as may be permitted by licensing terms governing use of open-sourced components or sample code included with the Apple Software). You agree not to exploit any services provided hereunder in any unauthorized way whatsoever, including but not limited to, by trespass or burdening network capacity. Any attempt to do so is a violation of the rights of Apple and its licensors of the Apple Software or services. If You breach any of the foregoing restrictions, You may be subject to prosecution and damages. All licenses not expressly granted in this Agreement are reserved and no other licenses, immunity or rights, express or implied are granted by Apple, by implication, estoppel, or otherwise. This Agreement does not grant You any rights to use any trademarks, logos or service marks belonging to Apple, including but not limited to the iPhone or iPod word marks. If You make reference to any Apple products or technology or use Apples trademarks, You agree to comply with the published guidelines at <http://www.apple.com/legal/trademark/guidelinesfor3rdparties.html> , as modified by Apple from time to time.

2.7 Updates; No Support or Maintenance

Apple may extend, enhance, or otherwise modify the Apple Software or services provided hereunder at any time without notice, but Apple shall not be obligated to provide You with any Updates to the Apple Software. If Updates are made available by Apple, the terms of this Agreement will govern such Updates, unless the Update is accompanied by a separate license in which case the terms of that license will govern. Apple is not obligated to provide any maintenance, technical or other support for the Apple Software or services. You acknowledge that Apple has no express or implied obligation to announce or make available any Updates to the Apple Software or to any services to anyone in the future. Should an Update be made available, it may have APIs, features, services or functionality that are different from those found in the Apple Software licensed hereunder or the services provided hereunder.

3. Your Obligations

3.1 General

You certify to Apple and agree that:

(a) You are of the legal age of majority in the jurisdiction in which You reside (at least 18 years of age in many countries) and have the right and authority to enter into this Agreement on Your own behalf, or if You are entering into this Agreement on behalf of Your company, organization, educational institution, or agency, instrumentality, or department of the federal government, that You have the right and authority to legally bind such entity or organization to the terms and obligations of this Agreement;

(b) All information provided by You to Apple or Your end-users in connection with this Agreement or Your Application, including without limitation Licensed Application Information, will be current, true, accurate, supportable and complete and, with regard to information You provide to Apple, You will promptly notify Apple of any changes to such information. Further, You agree that Apple may share such information

(including email address and mailing address) with third parties who have a need to know for purposes related to Your Application (e.g., intellectual property questions, customer service inquiries, etc.);

(c) You will comply with the terms of and fulfill Your obligations under this Agreement and You agree to monitor and be responsible for Your Authorized Developers use of the Apple Software and services and Authorized Test Devices and their compliance with the terms of this Agreement;

(d) You will be solely responsible for all costs, expenses, losses and liabilities incurred, and activities undertaken by You and Authorized Developers in connection with the Apple Software and services, the Registered Devices, Your Applications and Your related development and distribution efforts, including, but not limited to, any related development efforts, network and server equipment, Internet service(s), or any other hardware, software or services used by You in connection with Your use of any services;

(e) For the purposes of Schedule 1 (if applicable), You represent and warrant that You own or control the necessary rights in order to appoint Apple and Apple Subsidiaries as Your worldwide agent for the delivery of Your Licensed Applications, and that the fulfillment of such appointment by Apple and Apple Subsidiaries shall not violate or infringe the rights of any third party; and

(f) You will not act in any manner which conflicts or interferes with any existing commitment or obligation You may have and no agreement previously entered into by You will interfere with Your performance of Your obligations under this Agreement.

3.2 Use of the Apple Software

As a condition to using the Apple Software and any services, You agree that:

(a) You will only use the Apple Software and any services for the purposes and in the manner expressly permitted by this Agreement and in accordance with all applicable laws and regulations;

(b) You will not use the Apple Software or any services for any unlawful or illegal activity, nor to develop any Application which would commit or facilitate the commission of a crime, or other tortious, unlawful or illegal act;

(c) Your Application will be developed in compliance with the Documentation and the Program Requirements, the current set of which is set forth in Section 3.3 below;

(d) To the best of Your knowledge and belief, Your Application and Licensed Application Information do not and will not violate, misappropriate, or infringe any Apple or third party copyrights, trademarks, rights of privacy and publicity, trade secrets, patents, or other proprietary or legal rights (e.g. musical composition or performance rights, video rights, photography or image rights, logo rights, third party data rights, etc. for content and materials that may be included in Your Application);

(e) You will not, through use of the Apple Software, services or otherwise, create any Application or other program that would disable, hack or otherwise interfere with the Security Solution, or any security, digital signing, digital rights management, verification or authentication mechanisms implemented in or by the iOS, this Apple Software, any services or other Apple software or technology, or enable others to do so;

(f) You will not, directly or indirectly, commit any act intended to interfere with the Apple Software or related services, the intent of this Agreement, or Apples business practices including, but not limited to, taking actions that may hinder the performance or intended use of the App Store, VPP/B2B Program Site, or the Program (e.g., submitting fraudulent reviews of Your own Application or any third party application, choosing a name for Your Application that is substantially similar to the name of a third party application in order to create consumer confusion, or squatting on application names to prevent legitimate third party use); and

(g) Applications developed using the Apple Software may only be distributed if selected by Apple (in its sole discretion) for distribution via the App Store or VPP/B2B Program Site or for limited distribution on Registered Devices (ad hoc distribution) as contemplated in this Agreement.

3.3 Program Requirements for Applications

Any Application developed using this Apple Software must meet all of the following criteria and requirements, as they may be modified by Apple from time to time:

APIs and Functionality:

3.3.1 Applications may only use Documented APIs in the manner prescribed by Apple and must not use or call any private APIs.

3.3.2 An Application may not download or install executable code. Interpreted code may only be used in an Application if all scripts, code and interpreters are packaged in the Application and not downloaded. The only exception to the foregoing is scripts and code downloaded and run by Apple's built-in WebKit framework, provided that such scripts and code do not change the primary purpose of the Application by providing features or functionality that are inconsistent with the intended and advertised purpose of the Application as submitted to the App Store.

3.3.3 Without Apples prior written approval or as permitted under Section 3.3.23 (In App Purchase API), an Application may not provide, unlock or enable additional features or functionality through distribution mechanisms other than the App Store or VPP/B2B Program Site.

3.3.4 An Application may only read data from or write data to an Application's designated container area on the device, except as otherwise specified by Apple.

3.3.5 An Application must have at least the same features and functionality when run by a user in compatibility mode on an iPad (e.g., an iPhone app running in an equivalent iPhone-size window on an iPad must perform in substantially the same manner as when run on the iPhone; provided that this obligation will not apply to any feature or functionality that is not supported by a particular hardware device, such as a video recording feature on a device that does not have a camera). Further, You agree not to interfere or attempt to interfere with the operation of Your Application in compatibility mode.

3.3.6 You may use the Multitasking services only for their intended purposes as described in the Documentation.

User Interface, Data Collection, Local Laws and Privacy:

3.3.7 Applications must comply with the Human Interface Guidelines and other Documentation provided by Apple.

3.3.8 Any form of user or device data collection, or image, picture or voice capture or recording (collectively Recordings), and any form of data, content or information collection, processing, maintenance, uploading, syncing, storage, transmission, sharing, disclosure or use performed by, through or in connection with Your Application must comply with all applicable privacy laws and regulations as well as any related Program Requirements, including but not limited to any notice or consent requirements. In particular, a reasonably conspicuous audio, visual or other indicator must be displayed to the user as part of the Application to indicate that a Recording is taking place.

3.3.9 You and Your Applications may not collect user or device data without prior user consent, and then only to provide a service or function that is directly relevant to the use of the Application, or to serve advertising. You may not use analytics software in Your Application to collect and send device data to a third party.

3.3.10 You must provide clear and complete information to users regarding Your collection, use and disclosure of user or device data. Furthermore, You must take appropriate steps to protect such data from unauthorized use, disclosure or access by third parties. If a user ceases to consent or affirmatively revokes consent for Your collection, use or disclosure of his or her user or device data, You must promptly cease all such use.

3.3.11 Applications must comply with all applicable criminal, civil and statutory laws and regulations, including those in any jurisdictions in which Your Applications may be offered or made available. In addition:

- You and the Application must comply with all applicable privacy and data collection laws and regulations with respect to any collection, use or disclosure of user or device data.
- Applications may not be designed or marketed for the purpose of harassing, abusing, spamming, stalking, threatening or otherwise violating the legal rights (such as the rights of privacy and publicity) of others.
- Neither You nor Your Application may perform any functions or link to any content, services, information or data or use any robot, spider, site search or other retrieval application or device to scrape, mine, retrieve, cache, analyze or index software, data or services provided by Apple or its licensors, or obtain (or try to obtain) any such data, except the data that Apple expressly provides or makes available to You in connection with such services. You agree that You will not collect, disseminate or use any such data for any unauthorized purpose.

3.3.12 For Applications that use location-based APIs or otherwise provide location-based services, such Applications may not be designed or marketed for automatic or autonomous control of vehicles, aircraft, or other mechanical devices; dispatch or fleet management; or emergency or life-saving purposes. In addition:

- Applications that offer location-based services or functionality must notify and obtain consent from an individual before his or her location data is collected, transmitted or otherwise used by the Application.

3.3.13 For Applications that use location-based APIs for real-time route guidance (including, but not limited to, turn-by-turn route guidance and other routing that is enabled through the use of a sensor), You must have an end-user license agreement that includes the following notice: YOUR USE OF THIS REAL TIME ROUTE GUIDANCE APPLICATION IS AT YOUR SOLE RISK. LOCATION DATA MAY NOT BE ACCURATE.

3.3.14 Applications must not disable, override or otherwise interfere with any Apple-implemented system alerts, warnings, display panels, consent panels and the like, including, but not limited to, those that are intended to notify the user that the user's location data is being collected, transmitted, maintained, processed or used, or intended to obtain consent for such use. If consent is denied or withdrawn, Applications may not collect, transmit, maintain, process or utilize the user's location data or perform any other actions for which the users consent has been denied or withdrawn.

3.3.15 If Your Application accesses the Google Mobile Maps (GMM) service through the Maps API, use of the GMM Service is subject to Googles Terms of Service which will be set forth at: <http://code.google.com/apis/maps/terms/iPhone.html>. If You do not accept such Google Terms of Service, including, but not limited to all limitations and restrictions therein, You may not use the GMM service in Your Application. You acknowledge and agree that use of the GMM Service in Your Application will constitute Your acceptance of such Terms of Service.

Content and Materials:

3.3.16 Any master recordings and musical compositions embodied in Your Application must be wholly-owned by You or licensed to You on a fully paid-up basis and in a manner that will not require the payment of

any fees, royalties and/or sums by Apple to You or any third party. In addition, if Your Application will be distributed outside of the United States, any master recordings and musical compositions embodied in Your Application (a) must not fall within the repertoire of any mechanical or performing/communication rights collecting or licensing organization now or in the future and (b) if licensed, must be exclusively licensed to You for Your Application by each applicable copyright owner.

3.3.17 If Your Application includes or will include any other content, You must either own all such content or have permission from the content owner to use it in Your Application.

3.3.18 Applications may be rejected if they contain content or materials of any kind (text, graphics, images, photographs, sounds, etc.) that in Apples reasonable judgment may be found objectionable, for example, materials that may be considered obscene, pornographic, or defamatory.

3.3.19 Applications must not contain any malware, malicious or harmful code, program, or other internal component (e.g. computer viruses, trojan horses, backdoors) which could damage, destroy, or adversely affect the Apple Software, services, iOS Products or other software, firmware, hardware, data, systems, services, or networks.

3.3.20 If Your Application includes any FOSS, You agree to comply with all applicable FOSS licensing terms. You also agree not to use any FOSS in the development of Your Application in such a way that would cause the non-FOSS portions of the Apple Software to be subject to any FOSS licensing terms or obligations.

3.3.21 Your Application may include promotional sweepstake or contest functionality provided that You are the sole sponsor of the promotion and that You and Your Application comply with any applicable laws and fulfill any applicable registration requirements in the country or territory where You make Your Application available and the promotion is open. You agree that You are solely responsible for any promotion and any prize, and also agree to clearly state in binding official rules for each promotion that Apple is not a sponsor of, or responsible for conducting, the promotion.

3.3.22 Your Application may include a direct link to a page on Your web site where you include the ability for an end-user to make a charitable contribution, provided that You comply with any applicable laws (which may include providing a receipt), and fulfill any applicable regulation or registration requirements, in the country or territory where You enable the charitable contribution to be made. You also agree to clearly state that Apple is not the fundraiser.

In App Purchase API:

3.3.23 All use of the In App Purchase API must be in accordance with the terms of this Agreement (including the Program Requirements) and Attachment 2 (Additional Terms for Use of the In App Purchase API).

Advertising API:

3.3.24 If You choose to use the Advertising API in Your Application, then You must enter into a separate written agreement with Apple and/or an Apple Subsidiary before any distribution of Your Licensed Application may take place via the App Store or VPP/B2B Program Site.

iOS Accessories:

3.3.25 Your Application may interface, communicate, or otherwise interoperate with or control an iOS Accessory (as defined above) through Bluetooth or Apple's 30-pin dock connector only if (i) such iOS Accessory is licensed under Apple's MFi Licensing Program at the time that You initially submit Your Application, (ii) the MFi Licensee has added Your Application to a list of those approved for interoperability

with their iOS Accessory, and (iii) the MFi Licensee has received approval from the Apple MFi Licensing Program for such addition.

Regulatory Compliance for Health, Medical and Related Apps:

3.3.26 You will fulfill any applicable regulatory requirements, including full compliance with all applicable laws, regulations, and policies related to the manufacturing, marketing, sale and distribution of Your Application in the United States, and in particular the requirements of the U.S. Food and Drug Administration ("FDA"), and the laws, regulations and policies of any other applicable regulatory bodies in any countries or territories where You use or make Your Application available. However, You agree that you will not seek any regulatory marketing permissions or make any determinations that may result in any Apple products being deemed regulated or that may impose any obligations or limitations on Apple. By submitting Your Application to Apple for selection for distribution via the App Store or VPP/B2B Program Site, You represent and warrant that You are in full compliance with any applicable laws, regulations, and policies, including but not limited to all FDA laws, regulations and policies, related to the manufacturing, marketing, sale and distribution of Your Application in the United States, as well as in other countries or territories where You plan to make Your Application available via the App Store or VPP/B2B Program Site. You also represent and warrant that You will market Your Application only for its cleared or approved intended use/indication for use, and only in strict compliance with applicable regulatory requirements. Upon Apple's request, You agree to promptly provide any such clearance documentation to support the marketing of Your Application. You agree to promptly notify Apple in accordance with the procedures set forth in Section 15.6 of any complaints or threats of complaints regarding Your Application in relation to any such regulatory requirements, in which case Apple may remove Your Application from the App Store or VPP/B2B Program Site.

Cellular Network:

3.3.27 If an Application requires or will have access to the cellular network, then additionally such Application:

- Must comply with Apple's best practices and other guidelines on how Applications should access and use the cellular network; and
- Must not in Apple's reasonable judgment excessively use or unduly burden network capacity or bandwidth.

3.3.28 Because some mobile network operators may prohibit or restrict the use of Voice over Internet Protocol (VoIP) functionality over their network, such as the use of VoIP telephony over a cellular network, and may also impose additional fees, or other charges in connection with VoIP, You agree to inform end-users, prior to purchase, to check the terms of agreement with their operator, for example, by providing such notice in the marketing text that You provide accompanying Your Application on the App Store. In addition, if Your Application allows end-users to send SMS messages, then You must inform the end-user, prior to use of such functionality, that standard text messaging rates or other carrier charges may apply to such use.

APN (Apple Push Notification service) and Local Notifications:

3.3.29 All use of Push Notifications via the APN or Local Notifications must be in accordance with the terms of this Agreement (including the Program Requirements) and Attachment 1 (Additional Terms for Apple Push Notification service and Local Notifications).

Game Center:

3.3.30 All use of the Game Center must be in accordance with the terms of this Agreement (including the Program Requirements) and Attachment 3 (Additional Terms for the Game Center).

iCloud Storage:

3.3.31 All use of the iCloud Storage APIs must be in accordance with the terms of this Agreement (including the Program Requirements) and Attachment 4 (Additional Terms for the use of iCloud).

Additional Services or End-User Pre-Release Software:

3.3.32 From time to time, Apple may provide access to additional services or pre-release Apple Software for You to use in connection with Your Applications, or as an end-user for evaluation purposes. Some of these may be subject to separate terms and conditions in addition to this Agreement, in which case Your usage will also be subject to those terms and conditions. Such services or software may not be available in all languages or in all countries, and Apple makes no representation that they will be appropriate or available for use in any particular location. To the extent You choose to access such services or software, You do so at Your own initiative and are responsible for compliance with any applicable laws, including but not limited to applicable local laws. To the extent any such software includes Apples FaceTime or Messages feature, You acknowledge and agree that when You use such features, the telephone numbers and device identifiers associated with Your Authorized Test Devices, as well as email addresses and/or Apple ID information You provide, may be used and maintained by Apple to provide and improve such software and features. Certain services made accessible to You through the Apple Software may be provided by third parties. You acknowledge that Apple will not have any liability or responsibility to You or any other person (including to any end-user) for any third-party services or for any Apple services. Apple and its licensors reserve the right to change, suspend, remove, or disable access to any services at any time. In no event will Apple be liable for the removal of or disabling of access to any such services. Further, upon any commercial release of such software or services, or earlier if requested by Apple, You agree to cease all use of the pre-release Apple Software or services provided to You as an end-user for evaluation purposes under this Agreement.

3.3.33 If Your Application accesses the Twitter service through the Twitter API, such access is subject to Twitter terms of service set forth at: <http://dev.twitter.com>. If You do not accept such Twitter terms of service, including, but not limited to all limitations and restrictions therein, You may not access the Twitter service in Your Application through the use of the Twitter API. You acknowledge and agree that use of the Twitter API in Your Application will constitute Your acceptance of such terms of service.

4. Changes to Program Requirements or Terms

Apple may change the Program Requirements or the terms of this Agreement at any time. New or modified Program Requirements will not retroactively apply to Applications already in distribution. In order to continue using the Apple Software or any services, You must accept and agree to the new Program Requirements and/or new terms of this Agreement. If You do not agree to new Program Requirements or new terms, Your use of the Apple Software and any services will be suspended or terminated by Apple. You agree that Your acceptance of such new Agreement terms or Program Requirements may be signified electronically, including without limitation, by Your checking a box or clicking on an agree or similar button. Nothing in this Section shall affect Apple's rights under Section 8 below.

5. Digital Signing of Applications; Restrictions on Certificates

All Applications must be signed with an Apple-issued certificate in order to be installed on Registered Devices. During the Term of this Agreement, You may obtain development-related digital certificates from Apple, subject to a maximum number as reasonably determined by Apple, that will allow Your Application to be installed and tested on Authorized Test Devices. You may also obtain, during the Term, one or more production digital certificates from Apple, subject to a maximum number as reasonably determined by Apple, to be used for the sole purpose of signing Your Application(s) prior to submission of Your Application to Apple or limited distribution of Your Application for use on Registered Devices.

In relation to this, You represent and warrant to Apple that: (a) You will not take any action to interfere with the normal operation of any Apple-issued digital certificates or Provisioning Profiles; (b) You are solely responsible for preventing any unauthorized person from having access to Your digital certificates and corresponding private keys and You will use best efforts to safeguard Your digital certificates and corresponding private keys from compromise; (c) You agree to immediately notify Apple in writing if You have any reason to believe there has been a compromise of any of Your digital certificates or corresponding private keys; (d) You will not provide or transfer Apple-issued digital certificates provided under this Program to any third party, nor use Your digital certificate to sign a third party's application; and (e) You will use Apple-issued certificates provided under this Program exclusively for the purpose of signing Your Applications for testing, submission to Apple and/or limited distribution for use on Registered Devices as contemplated under this Program, and only in accordance with this Agreement.

You further represent and warrant to Apple that the licensing terms governing Your Application, or governing any third party code or FOSS included in Your Application, will be consistent with and not conflict with the digital signing or content protection aspects of the Program or any of the terms, conditions or requirements of the Program or this Agreement. In particular, such licensing terms will not purport to require Apple (or its agents) to disclose or make available any of the keys, authorization codes, methods, procedures, data or other information related to the Security Solution, digital signing or digital rights management mechanisms utilized as part of the Program. If You discover any such inconsistency or conflict, You agree to immediately notify Apple of it and will cooperate with Apple to resolve such matter. Apple may immediately cease distribution of any affected Licensed Applications and refuse to accept any subsequent Application submissions from You until such matter is resolved to Apples reasonable satisfaction.

6. Application Submission and Selection

6.1 Submission to Apple

You may submit Your Application for consideration by Apple for distribution via the App Store or VPP/B2B Program Site once You decide that Your Application has been adequately tested and is complete. By submitting Your Application, You represent and warrant that Your Application complies with the Documentation and Program Requirements then in effect as well as with any additional guidelines that Apple may post on the Program web portal. You further agree that You will not attempt to hide, misrepresent or obscure any features, content, services or functionality in Your submitted Applications from Apple's review or otherwise hinder Apple from being able to fully review such Applications. In addition, You agree to inform Apple in writing through iTunes Connect if Your Application connects to a physical device, including an iOS Accessory, and, if so, to disclose the means of such connection (whether iAP, the headphone jack, or any other communication protocol or standard) and identify at least one physical device with which Your Application is designed to communicate. If requested by Apple, You agree to provide access to or samples of any such devices at your expense (samples will not be returned). You agree to cooperate with Apple in this submission process and to answer questions and provide information and materials reasonably requested by Apple regarding Your submitted Application, including insurance information You may have relating to Your Application, the operation of Your business, or Your obligations under this Agreement. Apple may require You to carry certain levels of insurance for certain types of Applications and name Apple as an additional insured.

If You make any changes to an Application (including to any functionality made available through use of the In App Purchase API) after submission to Apple, You must resubmit the Application to Apple. Similarly all bug fixes, updates, upgrades, modifications, enhancements, supplements to, revisions, new releases and new versions of Your Application must be submitted to Apple for review in order for them to be considered for distribution via the App Store or VPP/B2B Program Site. Further, if Your Application is accepted for distribution via the App Store or VPP/B2B Program Site, You agree that Apple may use Your Application for the limited purpose of compatibility testing of Your Application with Apple products and services, for finding and fixing bugs in Apple products and services and for purposes of providing other information to You (e.g.,

crash logs). In the event that Apple provides You with crash logs for Your Application, You agree to only use such crash logs for purposes of fixing bugs and improving the performance of Your Application and related products.

6.2 Selection by Apple for Distribution

You understand and agree that Apple may, in its sole discretion:

- (a) determine that Your Application does not meet all or any part of the Documentation or Program Requirements then in effect;
- (b) reject Your Application for distribution for any reason, even if Your Application meets the Documentation and Program Requirements; or
- (c) select and digitally sign Your Application for distribution via the App Store or VPP/B2B Program Site.

Apple shall not be responsible for any costs, expenses, damages, losses (including without limitation lost business opportunities or lost profits) or other liabilities You may incur as a result of Your Application development, use of this Apple Software, use of any services, or participation in the Program, including without limitation the fact that Your Application may not be selected for distribution via the App Store or VPP/B2B Program Site. You will be solely responsible for developing Applications that are safe, free of defects in design and operation, and comply with applicable laws and regulations. You will also be solely responsible for any documentation and end-user customer support and warranty of Your Applications. The fact that Apple may have reviewed, tested, approved or selected an Application will not relieve You of any of these responsibilities.

7. Distribution

Applications developed under this Agreement may be distributed in three ways: (1) through the App Store, if selected by Apple, (2) through the VPP/B2B Program Site, if selected by Apple, and (3) through Ad Hoc distribution in accordance with Section 7.2.

7.1 Delivery of Freely Available Licensed Applications via the App Store; Certificates

If Your Application qualifies as a Licensed Application, it is eligible for delivery to end-users via the App Store by Apple and/or an Apple Subsidiary. If You would like Apple and/or an Apple Subsidiary to deliver Your Licensed Application to end-users for free (no charge) via the App Store, then You appoint Apple and Apple Subsidiaries as Your legal agent pursuant to the terms of Schedule 1, for Licensed Applications designated by You as free of charge applications.

If Your Application qualifies as a Licensed Application and You intend to charge end-users a fee of any kind for Your Licensed Application or within Your Licensed Application through the use of the In App Purchase API, You must enter into a separate agreement (Schedule 2) with Apple and/or an Apple Subsidiary before any such commercial distribution of Your Licensed Application may take place via the App Store or before any such commercial delivery of additional content, functionality or services may be made available through the use of the In App Purchase API in Your Licensed Application. If Your Application qualifies as a Custom B2B Application, then You must enter into a separate agreement (Schedule 3) with Apple and/or an Apple Subsidiary before any distribution of Your Custom B2B Application to VPP Customers may take place via the VPP/B2B Program Site. To the extent that You enter (or have previously entered) into Schedule 2 or Schedule 3 with Apple and/or an Apple Subsidiary, the terms of Schedule 2 or 3 will be deemed incorporated into this Agreement by this reference.

When an end-user installs Your Licensed Application, Apple will provide You with a transaction receipt signed with an Apple-issued certificate. It is Your responsibility to verify that such certificate and receipt were

issued by Apple, as set forth in the Documentation. You are solely responsible for Your decision to rely on any such certificates and receipts. YOUR USE OF OR RELIANCE ON SUCH CERTIFICATES AND RECEIPTS IN CONNECTION WITH A PURCHASE OF AN APPLICATION IS AT YOUR SOLE RISK. APPLE MAKES NO WARRANTIES OR REPRESENTATIONS, EXPRESS OR IMPLIED, AS TO MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE, ACCURACY, RELIABILITY, SECURITY, OR NON-INFRINGEMENT OF THIRD PARTY RIGHTS WITH RESPECT TO SUCH DIGITAL CERTIFICATES AND RECEIPTS. You agree that You will only use such receipts and certificates in accordance with the Documentation, and that You will not interfere or tamper with the normal operation of such digital certificates or receipts, including but not limited to any falsification or other misuse.

7.2 Distribution on Registered Devices (Ad Hoc Distribution)

Subject to the terms and conditions of this Agreement, You may also distribute Your Applications to individuals within Your company, organization, educational institution, group, or who are otherwise affiliated with You for use solely on a limited number of Registered Devices (as specified on the Program web portal), if Your Application has been digitally signed using Your Apple-issued digital certificate as described in this Agreement. By distributing Your Application in this manner, You represent and warrant to Apple that Your Application complies with the Documentation and Program Requirements then in effect and You agree to cooperate with Apple and to answer questions and provide information about Your Application, as reasonably requested by Apple.

You also agree to be solely responsible for determining which individuals within Your company, organization, educational institution or affiliated group should have access to and use of Your Applications and Registered Devices, and for managing such Registered Devices. Apple shall not be responsible for any costs, expenses, damages, losses (including without limitation lost business opportunities or lost profits) or other liabilities You may incur as a result of distributing Your Applications in this manner, or for Your failure to adequately manage, limit or otherwise control the access to and use of Your Applications and Registered Devices.

You will be responsible for attaching or otherwise including, at Your discretion, any relevant usage terms with Your Applications. Apple will not be responsible for any violations of Your usage terms. You will be solely responsible for all user assistance, warranty and support of Your Applications.

7.3 No Other Distribution Authorized Under this Agreement

Except for the distribution of freely available Licensed Applications and the distribution of Applications for use on Registered Devices as set forth in Sections 7.1 and 7.2 above, no other distribution of programs or applications developed using the Apple Software is authorized or permitted hereunder. In the absence of a separate agreement with Apple, You agree not to distribute Your Application to third parties via other distribution methods or to enable or permit others to do so.

8. Revocation

You understand and agree that Apple may cease distribution of Your Licensed Application(s) and/or Licensed Application Information or revoke the digital certificate of any of Your Applications at any time. By way of example only, Apple might choose to do this if at any time:

- (a) Any of Your Provisioning Profiles, digital certificates or corresponding private keys has been compromised or Apple has reason to believe that either has been compromised;
- (b) Apple has been notified or otherwise has reason to believe that Your Application violates, misappropriates, or infringes the rights of a third party or of Apple;

- (c) Apple has reason to believe that Your Application contains malicious or harmful code, malware, programs or other internal components (e.g. software virus);
- (d) Apple has reason to believe that Your Application damages, corrupts, degrades, destroys or otherwise adversely affects the devices it operates on, or any other software, firmware, hardware, data, systems, or networks accessed or used by the Application;
- (e) You breach any term or condition of this Agreement or the Registered Apple Developer terms and conditions;
- (f) Any information or documents provided by You to Apple for the purpose of verifying Your identity or obtaining Provisioning Profiles or Apple-issued digital certificates is false or inaccurate;
- (g) Any representation, warranty or certification provided by You to Apple in this Agreement is untrue or inaccurate;
- (h) Apple is required by law, regulation or other governmental or court order to take such action;
- (i) You request that Apple take such action in accordance with Schedule 1;
- (j) You misuse or overburden any services provided hereunder;
- (k) You fail to renew this Agreement and pay the applicable renewal fee; or
- (l) Apple has reason to believe that such action is prudent or necessary.

9. Program Fees

As consideration for the rights and licenses granted to You under this Agreement and Your participation in the Program, You agree to pay Apple the requisite annual program fees as set forth on the Program website. The fees are non-refundable. Any taxes that may be levied on the Apple Software or Your use of it shall be Your responsibility. Your program fees must be paid up and not in arrears at the time You submit (or resubmit) Applications to Apple under this Agreement, and Your continued use of the Program web portal is subject to Your payment of such fees.

10. Confidentiality

10.1 Information Deemed Apple Confidential

You agree that all pre-release versions of the Apple Software (including pre-release Documentation) and services, any terms and conditions contained herein that disclose pre-release features of the Apple Software or services, the terms and conditions of Schedule 2 (available separately to cover distribution of paid-for Licensed Applications via the App Store) and the terms and conditions of Schedule 3 (available separately to cover distribution of Custom B2B Applications to VPP Customers via the VPP/B2B Program Site) will be deemed "Apple Confidential Information"; provided however that upon the commercial release of the Apple Software the terms and conditions that disclose pre-release features of the Apple Software or services will no longer be confidential. Notwithstanding the foregoing, Apple Confidential Information will not include: (i) information that is generally and legitimately available to the public through no fault or breach of Yours, (ii) information that is generally made available to the public by Apple, (iii) information that is independently developed by You without the use of any Apple Confidential Information, (iv) information that was rightfully obtained from a third party who had the right to transfer or disclose it to You without limitation, or (v) any FOSS included in the Apple Software and accompanied by licensing terms that do not impose confidentiality obligations on the use or disclosure of such FOSS.

10.2 Obligations Regarding Apple Confidential Information

You agree to protect Apple Confidential Information using at least the same degree of care that You use to protect Your own confidential information of similar importance, but no less than a reasonable degree of care. You agree to use Apple Confidential Information solely for the purpose of exercising Your rights and performing Your obligations under this Agreement and agree not to use Apple Confidential Information for any other purpose, for Your own or any third party's benefit, without Apple's prior written consent. You further agree not to disclose or disseminate Apple Confidential Information to anyone other than: (i) those of Your employees and contractors, or those of Your faculty and staff if You are an educational institution, who have a need to know and who are bound by a written agreement that prohibits unauthorized use or disclosure of the Apple Confidential Information; or (ii) except as otherwise agreed or permitted in writing by Apple. You may disclose Apple Confidential Information to the extent required by law, provided that You take reasonable steps to notify Apple of such requirement before disclosing the Apple Confidential Information and to obtain protective treatment of the Apple Confidential Information. You acknowledge that damages for improper disclosure of Apple Confidential Information may be irreparable; therefore, Apple is entitled to seek equitable relief, including injunction and preliminary injunction, in addition to all other remedies.

10.3 Information Submitted to Apple Not Deemed Confidential

Apple works with many application and software developers and some of their products may be similar to or compete with Your Applications. Apple may also be developing its own similar or competing applications and products or may decide to do so in the future. To avoid potential misunderstandings, Apple cannot agree, and expressly disclaims, any confidentiality obligations or use restrictions, express or implied, with respect to any information that You may provide in connection with this Agreement or the Program, including information about Your Application, Licensed Application Information and metadata (such disclosures will be referred to as Licensee Disclosures). You agree that any such Licensee Disclosures will be non-confidential. Apple will be free to use and disclose any Licensee Disclosures on an unrestricted basis without notifying or compensating You. You release Apple from all liability and obligations that may arise from the receipt, review, use, or disclosure of any portion of any Licensee Disclosures. Any physical materials You submit to Apple will become Apple property and Apple will have no obligation to return those materials to You or to certify their destruction.

10.4 Press Releases and Other Publicity

You may not issue any press releases or make any other public statements regarding this Agreement, its terms and conditions, or the relationship of the parties without Apples express prior written approval, which may be withheld at Apples discretion.

11. Indemnification

To the extent permitted by applicable law, You agree to indemnify and hold harmless, and upon Apples request, defend, Apple, its directors, officers, employees, independent contractors and agents (each an "Apple Indemnified Party") from any and all claims, losses, liabilities, damages, taxes, expenses and costs, including without limitation, attorneys fees and court costs (collectively, "Losses"), incurred by an Apple Indemnified Party and arising from or related to any of the following: (i) Your breach of any certification, covenant, obligation, representation or warranty in this Agreement, including Schedule 2 and Schedule 3 (if applicable); (ii) any claims that Your Application or the distribution, sale, offer for sale, use or importation of Your Application (whether alone or as an essential part of a combination), Licensed Application Information or metadata, violate or infringe any third party intellectual property or proprietary rights; (iii) Your breach of any of Your obligations under the EULA (as defined in Schedule 1 or Schedule 2 or Schedule 3 (if applicable)) for Your Licensed Application; (iv) Apples permitted use, promotion or delivery of Your Licensed Application, Licensed Application Information, metadata, related trademarks and logos, or images and other materials that You provide to Apple under this Agreement, including Schedule 2 or Schedule 3 (if applicable); or (vi) Your

use of the Apple Software or services, Your Application, Licensed Application Information, metadata, Registered Devices, or Your development and distribution of any Application.

You acknowledge that neither the Apple Software nor any services are intended for use in the development of Applications in which errors or inaccuracies in the content, functionality, services, data or information provided by the Application or the failure of the Application, could lead to death, personal injury, or severe physical or environmental damage, and, to the extent permitted by law, You hereby agree to indemnify, defend and hold harmless each Apple Indemnified Party from any Losses incurred by such Apple Indemnified Party by reason of any such use.

In no event may You enter into any settlement or like agreement with a third party that affects Apple's rights or binds Apple in any way, without the prior written consent of Apple.

12. Term and Termination

12.1 Term

The Term of this Agreement shall extend until the one (1) year anniversary of the original activation date of Your Program account (Effective Date). Thereafter, subject to Your payment of annual renewal fees and compliance with the terms of this Agreement, the Term will automatically renew for successive one (1) year terms, unless sooner terminated in accordance with this Agreement.

12.2 Termination

This Agreement and all rights and licenses granted by Apple hereunder and any services provided hereunder will terminate, effective immediately upon notice from Apple:

- (a) if You or any of Your Authorized Developers fail to comply with any term of this Agreement other than those contained in Section 10 (Confidentiality) and fail to cure such breach within 30 days after becoming aware of or receiving notice of such breach;
- (b) if You or any of Your Authorized Developers fail to comply with the terms of Section 10;
- (c) in the event of the circumstances described in the subsection entitled Severability below;
- (d) if You, at any time during the Term, commence an action for patent infringement against Apple;
- (e) if You become insolvent, fail to pay Your debts when due, dissolve or cease to do business, file for bankruptcy, or have filed against You a petition in bankruptcy; or
- (f) if You engage, or encourage others to engage, in any misleading, fraudulent, improper, unlawful or dishonest act relating to this Agreement, including, but not limited to, misrepresenting the nature of Your submitted Application (e.g., hiding or trying to hide functionality from Apples review, falsifying consumer reviews for Your Application, etc.).

Apple may also terminate this Agreement, or suspend Your rights to use the Apple Software or services, if You fail to accept any new Program Requirements or Agreement terms as described in Section 4.

Either party may terminate this Agreement for its convenience, for any reason or no reason, effective 30 days after providing the other party with written notice of its intent to terminate.

12.3 Effect of Termination

Upon the termination of this Agreement for any reason, You agree to immediately cease all use of the Apple Software and services and erase and destroy all copies, full or partial, of the Apple Software and any information pertaining to the services (including Your Push Application ID) and all copies of Apple Confidential Information in Your and Your Authorized Developers' possession or control. At Apples request, You agree to provide written certification of such destruction to Apple. Upon the expiration of the Delivery Period defined and set forth in Schedule 1, all Licensed Applications and Licensed Application Information in Apples possession or control shall be deleted or destroyed within a reasonable time thereafter, excluding any archival copies maintained in accordance with Apples standard business practices or required to be maintained by applicable law, rule or regulation. The following provisions shall survive any termination of this Agreement: Sections 1, 2.5, 2.6, 3.1(d), 3.1(e), 3.1(f), 3.2(d), 3.2(e), 3.2(f), 3.2(g), 3.3, 5 (second and third paragraphs), 6.1, 6.2, 7.1 (Schedule 1 for the Delivery Period), 7.3, 8, and 10 through 15 inclusive; within Attachment 1, the third sentence of Section 1.1, Section 2, the second and third sentences of Section 3, Section 4, the second and third sentences of Section 5, and Section 7; within Attachment 2, Sections 1.3, 2, 3, 4, 5, the second and third sentence of 6, 7, and 8; within Attachment 3, Section 1, 2 (except the second sentence of Section 2.1), 3 and 5, and within Attachment 4, the last sentence of Section 1.2, Sections 1.3, 2, 3, and 5. For the avoidance of doubt, upon any termination of this Agreement, You may not make available any content, functionality, or services through the use of the In App Purchase API. Apple will not be liable for compensation, indemnity, or damages of any sort as a result of terminating this Agreement in accordance with its terms, and termination of this Agreement will be without prejudice to any other right or remedy Apple may have, now or in the future.

13. NO WARRANTY

The Apple Software may contain inaccuracies or errors that could cause failures or loss of data and it may be incomplete. Apple or its licensors may provide or make available through the Apple Software or as part of the Program, certain web-based applications, certificate-issuance services, App Store services or other services for Your use (collectively the Services for purposes of this Section 13 and 14). Apple and its licensors reserve the right to change, suspend, remove, or disable access to any Services at any time without notice. In no event will Apple or its licensors be liable for the removal of or disabling of access to any such Services. Apple or its licensors may also impose limits on the use of or access to certain Services, in any case and without notice or liability. YOU EXPRESSLY ACKNOWLEDGE AND AGREE THAT USE OF THE APPLE SOFTWARE, SECURITY SOLUTION, SERVICE-RELATED SOFTWARE AND ANY SERVICES IS AT YOUR SOLE RISK AND THAT THE ENTIRE RISK AS TO SATISFACTORY QUALITY, PERFORMANCE, ACCURACY AND EFFORT IS WITH YOU. THE APPLE SOFTWARE, SECURITY SOLUTION, SERVICE-RELATED SOFTWARE AND ANY SERVICES ARE PROVIDED "AS IS" AND "AS AVAILABLE", WITH ALL FAULTS AND WITHOUT WARRANTY OF ANY KIND, AND APPLE, APPLES AGENTS AND APPLE'S LICENSORS (COLLECTIVELY REFERRED TO AS "APPLE" FOR THE PURPOSES OF SECTIONS 13 AND 14) HEREBY DISCLAIM ALL WARRANTIES AND CONDITIONS WITH RESPECT TO THE APPLE SOFTWARE, SECURITY SOLUTION, SERVICE-RELATED SOFTWARE AND SERVICES, EITHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION THE IMPLIED WARRANTIES AND CONDITIONS OF MERCHANTABILITY, SATISFACTORY QUALITY, FITNESS FOR A PARTICULAR PURPOSE, ACCURACY, TIMELINESS, AND NON-INFRINGEMENT OF THIRD PARTY RIGHTS. APPLE DOES NOT WARRANT AGAINST INTERFERENCE WITH YOUR ENJOYMENT OF THE APPLE SOFTWARE, SERVICE-RELATED SOFTWARE OR SERVICES, THAT THE APPLE SOFTWARE, SECURITY SOLUTION, SERVICE-RELATED SOFTWARE OR SERVICES WILL MEET YOUR REQUIREMENTS, THAT THE OPERATION OF THE APPLE SOFTWARE, SECURITY SOLUTION, SERVICE-RELATED SOFTWARE OR THE PROVISION OF SERVICES WILL BE UNINTERRUPTED, TIMELY, SECURE OR ERROR-FREE, THAT DEFECTS OR ERRORS IN THE APPLE SOFTWARE, SECURITY SOLUTION, SERVICE-RELATED SOFTWARE OR SERVICES WILL BE CORRECTED, OR THAT THE APPLE SOFTWARE, SECURITY SOLUTION, SERVICE-RELATED SOFTWARE OR SERVICES WILL BE COMPATIBLE WITH FUTURE APPLE PRODUCTS, SERVICES OR SOFTWARE,

OR THAT ANY INFORMATION STORED OR TRANSMITTED THROUGH ANY APPLE SOFTWARE, SERVICE-RELATED SOFTWARE OR SERVICES WILL NOT BE LOST, CORRUPTED OR DAMAGED. NO ORAL OR WRITTEN INFORMATION OR ADVICE GIVEN BY APPLE OR AN APPLE AUTHORIZED REPRESENTATIVE WILL CREATE A WARRANTY NOT EXPRESSLY STATED IN THIS AGREEMENT. SHOULD THE APPLE SOFTWARE, SECURITY SOLUTION, SERVICE-RELATED SOFTWARE OR SERVICES PROVE DEFECTIVE, YOU ASSUME THE ENTIRE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION. Location data provided by any Services is for basic navigational purposes only and is not intended to be relied upon in situations where precise location information is needed or where erroneous, inaccurate or incomplete location data may lead to death, personal injury, property or environmental damage. Neither Apple nor any of its licensors guarantees the availability, accuracy, completeness, reliability, or timeliness of location data or any other data or information displayed by any Services.

14. LIMITATION OF LIABILITY

TO THE EXTENT NOT PROHIBITED BY APPLICABLE LAW, IN NO EVENT WILL APPLE BE LIABLE FOR PERSONAL INJURY, OR ANY INCIDENTAL, SPECIAL, INDIRECT, CONSEQUENTIAL OR PUNITIVE DAMAGES WHATSOEVER, INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF PROFITS, LOSS OF DATA, BUSINESS INTERRUPTION OR ANY OTHER COMMERCIAL DAMAGES OR LOSSES, ARISING OUT OF OR RELATED TO THIS AGREEMENT, YOUR USE OR INABILITY TO USE THE APPLE SOFTWARE, SECURITY SOLUTION OR SERVICES, DIGITAL CERTIFICATES, OR YOUR DEVELOPMENT EFFORTS OR PARTICIPATION IN THE PROGRAM, HOWEVER CAUSED, WHETHER UNDER A THEORY OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE), PRODUCTS LIABILITY, OR OTHERWISE, EVEN IF APPLE HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, AND NOTWITHSTANDING THE FAILURE OF ESSENTIAL PURPOSE OF ANY REMEDY. In no event shall Apples total liability to You under this Agreement for all damages (other than as may be required by applicable law in cases involving personal injury) exceed the amount of fifty dollars (\$50.00).

15. General Legal Terms

15.1 Third Party Notices. Portions of the Apple Software or services may utilize or include third party software and other copyrighted material. Acknowledgements, licensing terms and disclaimers for such material are contained in the electronic documentation for the Apple Software and services, and Your use of such material is governed by their respective terms.

15.2 Consent to Collection and Use of Non-Personal Data. You agree that Apple and its subsidiaries and agents may collect, maintain, process and use diagnostic, technical, usage and related information, including but not limited to information about Your Applications, computer, system software, other software and peripherals, that is gathered periodically to facilitate the provision of software updates and other services to You (if any) related to the Apple Software and services, and to verify compliance with the terms of this Agreement. Apple may use this information, as long as it is in a form that does not personally identify You, to improve the Apple Software, our products or to provide services or technologies to You and our customers.

15.3 Assignment. This Agreement may not be assigned, nor may any of Your obligations under this Agreement be delegated, in whole or in part, by You by operation of law, merger, or any other means without Apples express prior written consent and any attempted assignment without such consent will be null and void.

15.4 Relationship of Parties. Except for the agency appointment as specifically set forth in Schedule 1 (if applicable), this Agreement will not be construed as creating any other agency relationship, or a partnership, joint venture, fiduciary duty, or any other form of legal association between You and Apple, and You will not

represent to the contrary, whether expressly, by implication, appearance or otherwise. This Agreement is not for the benefit of any third parties.

15.5 Independent Development. Nothing in this Agreement will impair Apple's right to develop, acquire, license, market, promote, or distribute products or technologies that perform the same or similar functions as, or otherwise compete with, Applications, Licensed Applications or any other products or technologies that You may develop, produce, market, or distribute.

15.6 Notices. Any notices relating to this Agreement shall be in writing. Notices will be deemed given by Apple when sent to You at the email address or mailing address You provided during the sign-up process. All notices to Apple relating to this Agreement will be deemed given (a) when delivered personally, (b) three business days after having been sent by commercial overnight carrier with written proof of delivery, and (c) five business days after having been sent by first class or certified mail, postage prepaid, to this Apple address: iOS Developer Program Licensing, Apple Inc., 12545 Riata Vista Circle, MS 198-3SW, Austin, TX 78727, U.S.A.

You consent to receive notices by email and agree that any such notices that Apple sends You electronically will satisfy any legal communication requirements. A party may change its email or mailing address by giving the other written notice as described above.

15.7 Severability. If a court of competent jurisdiction finds any clause of this Agreement to be unenforceable for any reason, that clause of this Agreement shall be enforced to the maximum extent permissible so as to effect the intent of the parties, and the remainder of this Agreement shall continue in full force and effect. However, if applicable law prohibits or restricts You from fully and specifically complying with, or appointing Apple and Apple Subsidiaries as Your agent under, Schedule 1 or the Sections of this Agreement entitled Internal Use License and Restrictions, "Your Obligations or "Digital Signing of Applications; Restrictions on Certificates", or prevents the enforceability of any of those Sections or Schedule 1, this Agreement will immediately terminate and You must immediately discontinue any use of the Apple Software as described in the Section entitled Term and Termination.

15.8 Waiver and Construction. Failure by Apple to enforce any provision of this Agreement shall not be deemed a waiver of future enforcement of that or any other provision. Any laws or regulations that provide that the language of a contract will be construed against the drafter will not apply to this Agreement. Section headings are for convenience only and are not to be considered in construing or interpreting this Agreement.

15.9 Export Control. You may not use, export, re-export, import, sell or transfer the Apple Software except as authorized by United States law, the laws of the jurisdiction in which You obtained the Apple Software, and any other applicable laws and regulations. In particular, but without limitation, the Apple Software may not be exported or re-exported (a) into any U.S. embargoed countries or (b) to anyone on the U.S. Treasury Departments list of Specially Designated Nationals or the U.S. Department of Commerce Denied Persons List or Entity List. By using the Apple Software, You represent and warrant that You are not located in any such country or on any such list. You also agree that You will not use the Apple Software for any purposes prohibited by United States law, including, without limitation, the development, design, manufacture or production of nuclear, missiles, or chemical or biological weapons. You certify that pre-release versions of the Apple Software will only be used for development and testing purposes, and will not be rented, sold, leased, sublicensed, assigned, or otherwise transferred. Further, You certify that You will not transfer or export any product, process or service that is a direct product of such pre-release Apple Software.

15.10 Government End-users. The Apple Software and Documentation are Commercial Items, as that term is defined at 48 C.F.R. §2.101, consisting of Commercial Computer Software and Commercial Computer Software Documentation, as such terms are used in 48 C.F.R. §12.212 or 48 C.F.R. §227.7202, as applicable. Consistent with 48 C.F.R. §12.212 or 48 C.F.R. §227.7202-1 through 227.7202-4, as applicable, the Commercial Computer Software and Commercial Computer Software Documentation are being licensed to

U.S. Government end-users (a) only as Commercial Items and (b) with only those rights as are granted to all other end-users pursuant to the terms and conditions herein. Unpublished-rights reserved under the copyright laws of the United States.

15.11 Dispute Resolution; Governing Law. Any litigation or other dispute resolution between You and Apple arising out of or relating to this Agreement, the Apple Software, or Your relationship with Apple will take place in the Northern District of California, and You and Apple hereby consent to the personal jurisdiction of and exclusive venue in the state and federal courts within that District with respect any such litigation or dispute resolution. This Agreement will be governed by and construed in accordance with the laws of the United States and the State of California, except that body of California law concerning conflicts of law.

Notwithstanding the foregoing, if You are an agency, instrumentality or department of the federal government of the United States, then this Agreement shall be governed in accordance with the laws of the United States of America, and in the absence of applicable federal law, the laws of the State of California will apply. Further, and notwithstanding anything to the contrary in this Agreement (including but not limited to Section 11 (Indemnification)), all claims, demands, complaints and disputes will be subject to the Contract Disputes Act (41 U.S.C. §§601-613), the Tucker Act (28 U.S.C. § 1346(a) and § 1491), or the Federal Tort Claims Act (28 U.S.C. §§ 1346(b), 2401-2402, 2671-2672, 2674-2680), as applicable, or other applicable governing authority.

If You (as an entity entering into this Agreement) are a U.S. public and accredited educational institution, then (a) this Agreement will be governed and construed in accordance with the laws of the state (within the U.S.) in which Your educational institution is domiciled, except that body of state law concerning conflicts of law; and (b) any litigation or other dispute resolution between You and Apple arising out of or relating to this Agreement, the Apple Software, or Your relationship with Apple will take place in federal court within the Northern District of California, and You and Apple hereby consent to the personal jurisdiction of and exclusive venue of such District unless such consent is expressly prohibited by the laws of the state in which Your educational institution is domiciled.

This Agreement shall not be governed by the United Nations Convention on Contracts for the International Sale of Goods, the application of which is expressly excluded.

15.12 Entire Agreement; Governing Language. This Agreement constitutes the entire agreement between the parties with respect to the use of the Apple Software licensed hereunder and supersedes all prior understandings and agreements regarding its subject matter, including the iOS SDK Agreement (clickwrap) accompanying the SDK. This Agreement may be modified only: (a) by a written amendment signed by both parties, or (b) to the extent expressly permitted by this Agreement (for example, by Apple by written or email notice to You). Any translation of this Agreement is done for local requirements and in the event of a dispute between the English and any non-English version, the English version of this Agreement shall govern. If You are located in the province of Quebec, Canada, the following clause applies: The parties hereby confirm that they have requested that this Agreement and all related documents be drafted in English. Les parties ont exigé que le présent contrat et tous les documents connexes soient rédigés en anglais.

Attachment 1

(to the Agreement)

Additional Terms for Apple Push Notification service and Local Notifications

The following terms are in addition to the terms of the Agreement and apply to any use of the APN (Apple Push Notification service) in Your Application or the delivery of Local Notifications to Your Application:

1. Use of the APN and Local Notifications

1.1 Your Application may only access the APN via the APN API and only if You have been assigned a Push Application ID by Apple. You agree not to share your Push Application ID with any third party. You understand that Your Application will not be permitted to access or use the APN after expiration or termination of Your Agreement.

1.2 You are only permitted to use the APN and the APN APIs for the purpose of sending Push Notifications to Your Application on an iOS Product as expressly permitted by the Agreement (including but not limited to this Attachment 1) and the APN Documentation, and You must only do so in accordance with all applicable laws and regulations (including all intellectual property laws). You further agree that You must disclose to Apple any use of the APN as part of the submission process for Your Application.

1.3 You understand that before You send an end-user any Push Notifications through the APN, the end-user must provide consent to receive such Notifications. You agree not to disable, override or otherwise interfere with any Apple-implemented consent panels or any Apple system preferences for enabling or disabling Notifications functionality. If the end-users consent to receive Push Notifications is denied or later withdrawn, You may not send the end-user Push Notifications.

2. Additional Requirements

2.1 You may not use the APN or Local Notifications for the purpose of sending unsolicited messages to end-users or for the purpose of phishing or spamming, including, but not limited to, engaging in any types of activities that violate anti-spamming laws and regulations, or that are otherwise improper, inappropriate or illegal.

2.2 You may not use the APN or Local Notifications for the purposes of advertising, product promotion, or direct marketing of any kind (e.g. up-selling, cross-selling, etc.), including, but not limited to, sending any messages to promote the use of Your Application or advertise the availability of new features or versions.

2.3 You may not excessively use the overall network capacity or bandwidth of the APN, or unduly burden an iOS Product with excessive Push Notifications or Local Notifications, as may be determined by Apple in its reasonable discretion. In addition, You agree not to harm or interfere with Apples networks or servers, or any third party servers or networks connected to the APN, or otherwise disrupt other developers' use of the APN.

2.4 You may not use the APN or Local Notifications to send material that contains any obscene, pornographic, offensive or defamatory content or materials of any kind (text, graphics, images, photographs, sounds, etc.), or other content or materials that in Apples reasonable judgment may be found objectionable by the end-user of Your Application.

2.5 You may not transmit, store or otherwise make available any material that contains viruses or any other computer code, files or programs that may harm, disrupt or limit the normal operation of the APN or an iOS Product, and You agree not to disable, spoof, hack or otherwise interfere with any security, digital signing, verification or authentication mechanisms that are incorporated in or used by the APN, or enable others to do so.

3. Delivery by the APN or via Local Notifications

You understand and agree that in order to provide the APN and make Your Push Notifications available on iOS Products, Apple may transmit Your Push Notifications across various public networks, in various media, and modify or change Your Push Notifications to comply with the technical and other requirements for connecting to networks or devices. You acknowledge and agree that the APN is not, and is not intended to be,

a guaranteed or secure delivery service, and You shall not use or rely upon it as such. Further, as a condition to using the APN or delivering Local Notifications, You agree not to transmit sensitive personal or confidential information belonging to an individual (e.g. a social security number, financial account or transactional information, or any information where the individual may have a reasonable expectation of secure transmission) as part of any such Notification, and You agree to comply with any applicable notice or consent requirements with respect to any collection, transmission, maintenance, processing or use of an end-users personal information.

4. Your Acknowledgements

You acknowledge and agree that:

4.1 Apple may at any time, and from time to time, with or without prior notice to You (a) modify the APN, including changing or removing any feature or functionality, or (b) modify, deprecate, reissue or republish the APN APIs. You understand that any such modifications may require You to change or update Your Applications at Your own cost. Apple has no express or implied obligation to provide, or continue to provide, the APN and may suspend or discontinue all or any portion of the APN at any time. Apple shall not be liable for any losses, damages or costs of any kind incurred by You or any other party arising out of or related to any such service suspension or discontinuation or any such modification of the APN or APN APIs.

4.2 The APN is not available in all languages or in all countries and Apple makes no representation that the APN is appropriate or available for use in any particular location. To the extent You choose to access and use the APN, You do so at Your own initiative and are responsible for compliance with any applicable laws, including but not limited to any local laws.

4.3 Apple provides the APN to You for Your use with Your Application, and does not provide the APN directly to any end-user. You acknowledge and agree that any Push Notifications are sent by You, not Apple, to the end-user of Your Application, and You are solely liable and responsible for any data or content transmitted therein and for any use of the APN in Your Application. Further, You acknowledge and agree that any Local Notifications are sent by You, not Apple, to the end-user of Your Application, and You are solely liable and responsible for any data or content transmitted therein.

4.4 Apple makes no guarantees to You in relation to the availability or uptime of the APN and is not obligated to provide any maintenance, technical or other support for the APN.

4.5 Apple reserves the right to remove Your access to the APN or revoke Your Push Application ID at any time in its sole discretion.

4.6 Apple may monitor and collect information (including but not limited to technical and diagnostic information) about Your usage of the APN to aid Apple in improving the APN and other Apple products or services and to verify Your compliance with this Agreement; provided however that Apple will not access or disclose the content of any Push Notification unless Apple has a good faith belief that such access or disclosure is reasonably necessary to: (a) comply with legal process or request; (b) enforce the terms of this Agreement, including investigation of any potential violation hereof; (c) detect, prevent or otherwise address security, fraud or technical issues; or (d) protect the rights, property or safety of Apple, its developers, customers or the public as required or permitted by law.

5. Third Party Service Providers

You are permitted to employ or retain a third party (Service Provider) to assist You in accessing and using the APN in Your Applications including, but not limited to, engaging any such Service Provider to maintain and administer Your Applications servers on Your behalf, provided any such Service Providers access to and use of the APN is only done on Your behalf in providing such services to You for Your Application and in

accordance with these terms, and is subject to a binding written agreement between You and the Service Provider with terms at least as restrictive and protective of Apple as those set forth herein, including, but not limited to, confidentiality for pre-release versions of the APN and indemnity obligations to Apple. Any actions undertaken by any such Service Provider in relation to Your Push Application and/or arising out of this Agreement shall be deemed to have been taken by You, and You (in addition to the Service Provider) shall be responsible to Apple for all such actions (or any inactions), including but not limited to indemnifying Apple against any harm caused by the Service Provider acting on Your behalf. In the event of any actions or inactions that would constitute a violation of this Agreement or otherwise cause any harm, Apple reserves the right to require You to change Service Providers.

6. Changes to Attachment 1

Apple may change the terms of this Attachment 1 at any time by providing notice to You. In order to continue using the APN, You must accept and agree to the new terms of this Agreement or, if presented separately to You by Apple, to the new terms for this Attachment 1. You agree that any new terms for Attachment 1 (whether agreed to separately by You or as part of the Program Agreement) will be incorporated into the Program Agreement. If You do not agree to new terms of this Agreement or Attachment 1, Your use of the APN will be suspended or terminated by Apple. You agree that Your acceptance of such new Agreement terms or revised Attachment 1 may be signified electronically, including without limitation, by Your checking a box or clicking on an agree or similar button which may be presented to You in a dialog box that is separate from this Agreement.

7. Additional Liability Disclaimer

APPLE SHALL NOT BE LIABLE FOR ANY DAMAGES OR LOSSES ARISING FROM ANY INTERRUPTIONS TO THE APN OR ANY USE OF NOTIFICATIONS, INCLUDING, BUT NOT LIMITED TO, ANY POWER OUTAGES, SYSTEM FAILURES, NETWORK ATTACKS, SCHEDULED OR UNSCHEDULED MAINTENANCE, OR OTHER INTERRUPTIONS. YOU ACKNOWLEDGE THAT THE SERVICE IS NOT INTENDED OR SUITABLE FOR USE IN SITUATIONS OR ENVIRONMENTS WHERE ERRORS, DELAYS, FAILURES OR INACCURACIES IN THE TRANSMISSION OF DATA OR INFORMATION THROUGH THE SERVICE COULD LEAD TO DAMAGE OF ANY KIND INCLUDING BUT NOT LIMITED TO, DEATH, PERSONAL INJURY, OR FINANCIAL, PHYSICAL, PROPERTY OR ENVIRONMENTAL DAMAGE.

Attachment 2

(to the Agreement)

Additional Terms for Use of the In App Purchase API

The following terms are in addition to the terms of the Agreement and apply to any use of the In App Purchase API in Your Application:

1. Use of the In App Purchase API

1.1 You may use the In App Purchase API only to enable end-users to purchase content, functionality, or services that You make available for use within Your Application (e.g. digital books, additional game levels, access to a turn-by-turn map service). You may not use the In App Purchase API to offer goods or services to be used outside of Your Application.

1.2 You must submit to Apple for review and approval all content, functionality, or services that You plan to provide through the use of the In App Purchase API in accordance with these terms and the processes set forth in Section 6 of the Agreement. For all submissions, You must provide the name, text description, price,

unique identifier number, and other information that Apple reasonably requests (collectively, the Submission Description). Apple reserves the right to review the actual content, functionality or service that has been described in the Submission Descriptions at any time, including, but not limited to, in the submission process and after approval of the Submission Description by Apple. If You would like to provide additional content, functionality or services through the In App Purchase API that are not described in Your Submission Description, then You must first submit a new or updated Submission Description for review and approval by Apple prior to making such items available through the use of the In App Purchase API. Apple reserves the right to withdraw its approval of content, functionality, or services previously approved, and You agree to stop making any such content, functionality, or services available for use within Your Application.

1.3 All content, functionality, and services offered through the In App Purchase API are subject to the Program Requirements for Applications, and after such content, services or functionality are added to a Licensed Application, they will be deemed part of the Licensed Application and will be subject to all the same obligations and requirements.

2. Additional Restrictions

2.1 You may not use the In App Purchase API to enable an end-user to set up a pre-paid account to be used for subsequent purchases of content, functionality, or services, or otherwise create balances or credits that end-users can redeem or use to make purchases at a later time.

2.2 You may not enable end-users to purchase Currency of any kind through the In App Purchase API, including but not limited to any Currency for exchange, gifting, redemption, transfer, trading or use in purchasing or obtaining anything within or outside of Your Application. Currency means any form of currency, points, credits, resources, content or other items or units recognized by a group of individuals or entities as representing a particular value and that can be transferred or circulated as a medium of exchange.

2.3 Content and services may be offered through the In App Purchase API on a subscription basis (e.g., subscriptions to newspapers and magazines). Rentals of content, services or functionality through the In App Purchase API are not allowed (e.g., use of particular content may not be restricted to a pre-determined, limited period of time).

Notwithstanding the provisions of Section 3.3.9 of the Agreement, if Your Licensed Application is content based (e.g., magazines and newspapers) and offered on an auto-renewing subscription basis through the use of the In App Purchase API, You may collect certain user data (e.g., user name, email address, zip code), provided that You clearly and conspicuously notify the user of Your privacy policy and that its terms will govern the ways that You may use such information, and further provided that the user consents to Your collection and use prior to gathering such data. You agree to maintain, and strictly comply with the terms of, Your privacy policy.

2.4 You may not use the In App Purchase API to send any software updates to Your Application or otherwise add any additional executable code to Your Application. An In App Purchase item must either already exist in Your Application waiting to be unlocked, be streamed to Your Application after the purchase transaction has been completed, or be downloaded to Your Application solely as data after the purchase transaction has been completed.

2.5 You may not use the In App Purchase API to deliver any items that contain content or materials of any kind (text, graphics, images, photographs, sounds, etc.) that in Apples reasonable judgment may be found objectionable, for example, materials that may be considered obscene, pornographic, or defamatory.

2.6 With the exception of items of content that an end-user consumes or uses up within Your Application (e.g. poker chips or virtual supplies such as construction materials) (a Consumable), any other content, functionality, services or subscriptions purchased through the use of the In App Purchase API must be made

available to end-users in accordance with the same usage rules as Licensed Applications (e.g. any such content, services or functionality must be available to all of the devices associated with an end-users account). You will be responsible for identifying Consumable items to Apple and for disclosing to end-users that Consumables will not be available for use on other devices.

3. Your Responsibilities

3.1 For each successfully completed transaction made using the In App Purchase API, Apple will provide You with a transaction receipt. It is Your responsibility to verify the validity of such receipt prior to the delivery of any content, functionality, or services to an end-user and Apple will not be liable for Your failure to verify that any such transaction receipt came from Apple.

3.2 Unless Apple provides You with user interface elements, You are responsible for developing the user interface Your Application will display to end-users for purchases made through the In App Purchase API. You agree not to misrepresent, falsely claim, mislead or engage in any unfair or deceptive acts or practices regarding the promotion and sale of items through Your use of the In App Purchase API, including, but not limited to, in the Licensed Application Information and any metadata that You submit through iTunes Connect. You agree to comply with all applicable laws and regulations, including those in any jurisdictions in which you make content, functionality, services or subscriptions available through the use of the In App Purchase API, including but not limited to consumer laws and export regulations.

3.3 You are responsible for providing items purchased through the In App Purchase API in a timely manner (i.e., promptly after Apple issues the transaction receipt, except in cases where You have disclosed to Your end-user that the item will be made available at a later time) and for complying with all applicable laws in connection therewith, including but not limited to, laws, rules and regulations related to cancellation or delivery of ordered items. You are responsible for maintaining Your own records for all such transactions.

3.4 You will not issue any refunds to end-users of Your Application, and You agree that Apple may issue refunds to end-users in accordance with the terms of Schedule 2.

4. Apple Services

4.1 From time to time, Apple may choose to offer additional services and functionality relating to In App Purchase API transactions. Apple makes no guarantees that the In App Purchase API or any related services will continue to be made available to You or that they will meet Your requirements, be uninterrupted, timely, secure or free from error, that any information that You obtain from the In App Purchase API or any related services will be accurate or reliable or that any defects will be corrected.

4.2 You understand that You will not be permitted to access or use the In App Purchase API after expiration or termination of Your Agreement.

5. Your Acknowledgements

You acknowledge and agree that:

5.1 Apple may at any time, and from time to time, with or without prior notice to You (a) modify the In App Purchase API, including changing or removing any feature or functionality, or (b) modify, deprecate, reissue or republish the In App Purchase API. You understand that any such modifications may require You to change or update Your Applications at Your own cost in order to continue to use the In App Purchase API. Apple has no express or implied obligation to provide, or continue to provide, the In App Purchase API and may suspend or discontinue all or any portion of thereof at any time. Apple shall not be liable for any losses, damages or costs of any kind incurred by You or any other party arising out of or related to any suspension, discontinuation or modification of the In App Purchase API or any services related thereto.

5.2 Apple provides the In App Purchase API to You for Your use with Your Application, and Apple is not responsible for providing or unlocking any content, functionality, services or subscriptions that an end-user purchases through Your use of the In App Purchase API. You acknowledge and agree that any such items are made available by You, not Apple, to the end-user of Your Application, and You are solely liable and responsible for purchased items and for any such use of the In App Purchase API in Your Application.

5.3 Apple makes no guarantees to You in relation to the availability or uptime of the In App Purchase API or any other services that Apple may provide to You in connection therewith.

6. Third Party Service Providers

You are permitted to employ or retain a Service Provider to assist You in delivery of content, functionality, services or subscriptions through the In App Purchase API including, but not limited to, engaging any such Service Provider to maintain and administer Your Applications servers on Your behalf, provided any such Service Providers access to and use of the In App Purchase API is only done on Your behalf in providing such services to You for Your Application and in accordance with these terms, and is subject to a binding written agreement between You and the Service Provider with terms at least as restrictive and protective of Apple as those set forth herein, including, but not limited to, confidentiality for pre-release versions of the Apple Software and indemnity obligations to Apple. Any actions undertaken by any such Service Provider in relation to Your Application, Your use of the In App Purchase API, and/or arising out of this Agreement shall be deemed to have been taken by You, and You (in addition to the Service Provider) shall be responsible to Apple for all such actions (or any inactions), including but not limited to indemnifying Apple against any harm caused by the Service Provider acting on Your behalf. In the event of any actions or inactions that would constitute a violation of this Agreement or otherwise cause any harm, Apple reserves the right to require You to change Service Providers.

7. Use of Digital Certificates for In App Purchase

When an end-user completes a purchase using the In App Purchase API in Your Application, Apple will provide You with a transaction receipt signed with an Apple-issued certificate. It is Your responsibility to verify that such certificate and receipt were issued by Apple, as set forth in the Documentation. You are solely responsible for Your decision to rely on any such certificates and receipts. YOUR USE OF OR RELIANCE ON SUCH CERTIFICATES AND RECEIPTS IN CONNECTION WITH THE IN APP PURCHASE API IS AT YOUR SOLE RISK. APPLE MAKES NO WARRANTIES OR REPRESENTATIONS, EXPRESS OR IMPLIED, AS TO MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE, ACCURACY, RELIABILITY, SECURITY, OR NON-INFRINGEMENT OF THIRD PARTY RIGHTS WITH RESPECT TO SUCH DIGITAL CERTIFICATES AND RECEIPTS. You agree that You will only use such receipts and certificates in accordance with the Documentation, and that You will not interfere or tamper with the normal operation of such digital certificates or receipts, including but not limited to any falsification or other misuse.

8. Additional Liability Disclaimer

APPLE SHALL NOT BE LIABLE FOR ANY DAMAGES OR LOSSES ARISING FROM THE USE OF THE IN APP PURCHASE API AND ANY RELATED SERVICES, INCLUDING, BUT NOT LIMITED TO, (I) ANY LOSS OF PROFIT (WHETHER INCURRED DIRECTLY OR INDIRECTLY), ANY LOSS OF GOODWILL OR BUSINESS REPUTATION, ANY LOSS OF DATA SUFFERED, OR OTHER INTANGIBLE LOSS, (II) ANY CHANGES WHICH APPLE MAY MAKE TO THE IN APP PURCHASE API, OR FOR ANY PERMANENT OR TEMPORARY CESSATION IN THE PROVISION OF THE IN APP PURCHASE API OR ANY SERVICES (OR ANY FEATURES WITHIN THE SERVICES) PROVIDED THEREWITH, OR (III) THE DELETION OF, CORRUPTION OF, OR FAILURE TO PROVIDE ANY DATA TRANSMITTED BY OR THROUGH YOUR USE OF THE IN APP PURCHASE API OR SERVICES.

9. Changes to Attachment 2

Apple may change the terms of this Attachment 2 at any time by providing notice to You. In order to continue using the In App Purchase API, You must accept and agree to the new terms of this Agreement or, if presented separately to You by Apple, to the new terms for this Attachment 2. You agree that any new terms for Attachment 2 (whether agreed to separately by You or as part of the Program Agreement) will be incorporated into the Program Agreement. If You do not agree to the new terms of this Agreement or Attachment 2, Your use of the In App Purchase API will be suspended or terminated by Apple. You agree that Your acceptance of such new Agreement terms or revised Attachment 2 may be signified electronically, including without limitation, by Your checking a box or clicking on an agree or similar button which may be presented to You in a dialog box that is separate from this Agreement.

Attachment 3

(to the Agreement)

Additional Terms for the Game Center

The following terms are in addition to the terms of the Agreement and apply to any use of the Game Center service by You or Your Application; provided however that You may only use confidential, pre-release versions of the Game Center service for testing and development of Your Application and may not use such pre-release service in Your Licensed Application or disclose it in any way until it is publicly released by Apple.

1. Use of the Game Center service

1.1 You and Your Application may not connect to or use the Game Center service in any way not expressly authorized by Apple. You agree to only use the Game Center service in accordance with this Agreement (including this Attachment 3), the Game Center Documentation and in accordance with all applicable laws. You understand that neither You nor Your Application will be permitted to access or use the Game Center service after expiration or termination of Your Agreement.

1.2 Apple may provide You with a unique identifier which is associated with an end-users alias as part of the Game Center service (the Player ID). You agree to not display the Player ID to the end-user or to any third party, and You agree to only use the Player ID for differentiation of end-users in connection with Your Applications use of the Game Center. You agree not to reverse look-up, trace, relate, associate, mine, harvest, or otherwise exploit the Player ID, aliases or other data or information provided by the Game Center service, except to the extent expressly permitted herein. For example, You will not attempt to determine the real identity of an end-user.

1.3 You will only use information provided by the Game Center service as necessary for providing services and functionality for Your Application. For example, You will only use leaderboard scores within Your Application, and You will not host or export any such information to a third party service. Further, You agree not to transfer or copy any user information or data (whether individually or in the aggregate) obtained through the Game Center service to a third party except as necessary for providing services and functionality for Your Application, and then only with express user consent and only if not otherwise prohibited in this Agreement.

1.4 You will not attempt to gain (or enable others to gain) unauthorized use or access to the Game Center service (or any part thereof) in any way, including but not limited to obtaining information from the Game Center service using any method not expressly permitted by Apple. For example, You may not use packet sniffers to intercept any communications protocols from systems or networks connected to the Game Center,

scrape any data or user information from the Game Center, or use any third party software to collect information through the Game Center about players, game data, accounts, or service usage patterns.

2. Additional Restrictions

2.1 You agree not to harm or interfere with Apples networks or servers, or any third party servers or networks connected to the Game Center service, or otherwise disrupt other developers' or end-users use of the Game Center. You agree that, except for testing and development purposes, You will not create false accounts through the use of the Game Center service or otherwise use the Game Center service to misrepresent information about You or Your Application in a way that would interfere with an end-users use of the Game Center service, e.g., creating inflated high scores through the use of cheat codes or falsifying the number of user accounts for Your Application.

2.2 You will not institute, assist, or enable any disruptions of the Game Center, such as through a denial of service attack, through the use of an automated process or service such as a spider, script, or bot, or through exploiting any bug in the Game Center service or Apple Software. You agree not to probe, test or scan for vulnerabilities in the Game Center service. You further agree not to disable, spoof, hack, undermine or otherwise interfere with any data protection, security, verification or authentication mechanisms that are incorporated in or used by the Game Center service, or enable others to do so.

2.3 You will not transmit, store or otherwise make available any material that contains viruses or any other computer code, files or programs that may harm, disrupt or limit the normal operation of the Game Center or an iOS Product.

2.4 You agree not to use any portion of the Game Center service for sending any unsolicited, improper or inappropriate messages to end-users or for the purpose of poaching, phishing or spamming of Game Center users. You will not reroute (or attempt to reroute) users of the Game Center to another service using any information You obtain through the use of the Game Center service.

2.5 You shall not charge any fees to end-users for access to the Game Center service or for any data or information provided therein.

3. Your Acknowledgements

You acknowledge and agree that:

3.1 Apple may at any time, and from time to time, with or without prior notice to You (a) modify the Game Center service, including changing or removing any feature or functionality, or (b) modify, deprecate, reissue or republish the Game Center APIs or related APIs. You understand that any such modifications may require You to change or update Your Applications at Your own cost. Apple has no express or implied obligation to provide, or continue to provide, the Game Center service and may suspend or discontinue all or any portion of the Game Center service at any time. Apple shall not be liable for any losses, damages or costs of any kind incurred by You or any other party arising out of or related to any such service suspension or discontinuation or any such modification of the Game Center service or Game Center APIs.

3.2 As long as the Game Center service is a confidential, pre-release service, You will only allow it to be used for testing and development purposes by Your Authorized Developers and only for use on Your Authorized Test Devices, and You will not use any Game Center APIs in Your Licensed Applications. You agree to restrict access to such Authorized Test Devices in accordance with the terms of the Agreement.

3.3 Apple makes no guarantees to You in relation to the availability or uptime of the Game Center service and is not obligated to provide any maintenance, technical or other support for such service.

3.4 Apple reserves the right to remove Your access to the Game Center service at any time in its sole discretion.

3.5 Apple may monitor and collect information (including but not limited to technical and diagnostic information) about Your usage of the Game Center service to aid Apple in improving the Game Center and other Apple products or services and to verify Your compliance with this Agreement.

4. Changes to Attachment 3

Apple may change the terms of this Attachment 3 at any time by providing notice to You. In order to continue using the Game Center, You must accept and agree to the new terms of this Agreement or, if presented separately to You by Apple, to the new terms for this Attachment 3. You agree that any new terms for Attachment 3 (whether agreed to separately by You or as part of the Program Agreement) will be incorporated into the Program Agreement. If You do not agree to new terms of this Agreement or Attachment 3, Your use of the Game Center will be suspended or terminated by Apple. You agree that Your acceptance of such new Agreement terms or revised Attachment 3 may be signified electronically, including without limitation, by Your checking a box or clicking on an agree or similar button which may be presented to You in a dialog box that is separate from this Agreement.

5. Additional Liability Disclaimer

APPLE SHALL NOT BE LIABLE FOR ANY DAMAGES OR LOSSES ARISING FROM ANY INTERRUPTIONS TO THE GAME CENTER OR ANY SYSTEM FAILURES, NETWORK ATTACKS, SCHEDULED OR UNSCHEDULED MAINTENANCE, OR OTHER INTERRUPTIONS. YOU ACKNOWLEDGE THAT THE SERVICE IS NOT INTENDED OR SUITABLE FOR USE IN SITUATIONS OR ENVIRONMENTS WHERE ERRORS, DELAYS, FAILURES OR INACCURACIES IN THE SERVICE COULD LEAD TO DAMAGE OF ANY KIND INCLUDING BUT NOT LIMITED TO, DEATH, PERSONAL INJURY, OR FINANCIAL, PHYSICAL, PROPERTY OR ENVIRONMENTAL DAMAGE.

Attachment 4

(to the Agreement)

Additional Terms for the use of iCloud

The following terms are in addition to the terms of the Agreement and apply to Your use of the iCloud service for software development and testing in connection with Your Application or Multi-Platform Software. If You receive access to a beta trial for the end-user iCloud service, then Your usage as an end-user of the pre-release iCloud service will be subject to the terms accompanying such beta trial in addition to the terms of this Agreement. You may not use the pre-release iCloud Storage APIs or iCloud service in Your Licensed Application or Multi-Platform Software, or disclose it in any way until it is publicly released by Apple.

1. Use of iCloud

1.1 Your Application or Multi-Platform Software may only access the iCloud service via the iCloud Storage APIs, and then only if You have been assigned an Entitlement by Apple. You agree not to access the iCloud service, or any content, data or information contained therein, other than through the iCloud Storage APIs or as otherwise licensed by Apple. You agree not to share Your Entitlement with any third party or use it for any purposes not expressly permitted by Apple.

1.2 You understand that You will not be permitted to access or use the iCloud service for software development or testing after expiration or termination of Your Agreement; however users who have Your Applications or Multi-Platform Software installed and who have a valid end-user account with Apple to use

iCloud may continue to access their user-generated documents and files in accordance with the applicable iCloud terms and conditions. You agree not to interfere with a users ability to access iCloud (or the users own user-generated documents and files) or to otherwise disrupt their use of the iCloud in any way and at any time.

1.3 Your Application is only permitted to use the iCloud service and the iCloud Storage APIs for the purpose of storage and retrieval of key value data (e.g., a list of stocks in a finance App, settings for an App) for Your Applications and Multi-Platform Software, and enabling Your end-users to access user-generated documents and files through the iCloud service. You agree to only use the iCloud service and iCloud Storage APIs as expressly permitted by the Agreement (including but not limited to this Attachment 4) and the iCloud Documentation, and in accordance with all applicable laws and regulations.

1.4 You may allow a user to access their user-generated documents and files from iCloud through the use of Your Applications as well as from Multi-Platform Software. However, You may not share key value data from Your Application with other Applications or Multi-Platform Software, unless You are sharing such data among different versions of the same title (e.g., the iPhone version of an Application can share key value data with an iPad or Mac App Store version of the same titled Application), or You have user consent.

2. Additional Requirements

2.1 You understand there are storage capacity limits for the iCloud service. If You or Your end-user reaches such capacity, then You or Your end-user may be unable to use the iCloud service until You or Your end-user have removed enough data from the service to meet the capacity limits or increased storage capacity, and You or Your end-user may be unable to access or retrieve data from iCloud during this time.

2.2 You may not charge any fees to users for access to or use of the iCloud service through Your Applications and Multi-Platform Software, and You agree not to sell access to the iCloud service in any other way, including but not limited to operating Your own file storage service or reselling any part of the service. You will only use the iCloud service in Your Application or Multi-Platform Software to provide storage for an end-user who has a valid end-user account with Apple and only for use in accordance with the terms of such user account. For example, You will not induce any end-user to violate the terms of their applicable iCloud service agreement with Apple or to violate any Apple usage policies for data or information stored in the iCloud service.

2.3 You may not excessively use the overall network capacity or bandwidth of the iCloud service or otherwise burden such service with unreasonable data loads. You agree not to harm or interfere with Apples networks or servers, or any third party servers or networks connected to the iCloud, or otherwise disrupt other developers' or users use of the iCloud service.

2.4 You will not disable or interfere with any warnings, iOS system settings, notices, or notifications that are presented to an end-user of the iCloud service by Apple.

3. Your Acknowledgements

You acknowledge and agree that:

3.1 Apple may at any time, with or without prior notice to You (a) modify the iCloud Storage APIs, including changing or removing any feature or functionality, or (b) modify, deprecate, reissue or republish the iCloud Storage APIs. You understand that any such modifications may require You to change or update Your Applications or Multi-Platform Software at Your own cost. Apple has no express or implied obligation to provide, or continue to provide, the iCloud service and may suspend or discontinue all or any portion of the iCloud service at any time. Apple shall not be liable for any losses, damages or costs of any kind incurred by

You or any other party arising out of or related to any such service suspension or discontinuation or any such modification of the iCloud service or iCloud Storage APIs.

3.2 The iCloud service is not available in all languages or in all countries and Apple makes no representation that the iCloud service is appropriate or available for use in any particular location. To the extent You choose to provide access to the iCloud service in Your Applications or Multi-Platform Software through the iCloud Storage APIs, You do so at Your own initiative and are responsible for compliance with any applicable laws.

3.3 Apple makes no guarantees to You in relation to the availability or uptime of the iCloud service and is not obligated to provide any maintenance, technical or other support for the iCloud service. Apple is not responsible for any expenditures, investments, or commitments made by You in connection with the iCloud service, or for any use of or access to the iCloud service.

3.4 Apple reserves the right to revoke Your access to the iCloud service or impose limits on Your use of the iCloud service at any time in Apples sole discretion. In addition, Apple may impose or adjust the limit of transactions Your Applications or Multi-Platform Software may send or receive through the iCloud service or the resources or capacity that they may use at any time in Apples sole discretion.

3.5 Apple may monitor and collect information (including but not limited to technical and diagnostic information) about usage of the iCloud service to aid Apple in improving the iCloud service and other Apple products or services and to verify compliance with this Agreement; provided however that Apple will not access or disclose any user-generated documents or files, or key value data, stored using the iCloud Storage APIs and iCloud service unless Apple has a good faith belief that such access, use, preservation or disclosure is reasonably necessary to: (a) comply with legal process or request; (b) enforce the terms of this Agreement, including investigation of any potential violation hereof or of the applicable end-user terms of service; (c) detect, prevent or otherwise address security risk, fraud or technical issues; or (d) protect the rights, property or safety of Apple, its developers, customers or the public as required or permitted by law.

4. Changes to Attachment 4

Apple may change the terms of this Attachment 4 at any time by providing notice to You. In order to continue using the iCloud service, You must accept and agree to the new terms of this Agreement or, if presented separately to You by Apple, to the new terms of this Attachment 4. You agree that any new terms of Attachment 4 (whether agreed to separately by You or as part of the Program Agreement) will be incorporated into the Program Agreement. If You do not agree to new terms of this Agreement or Attachment 4, Your use of the iCloud service will be suspended or terminated by Apple. You agree that Your acceptance of such new Agreement terms or revised Attachment 4 may be signified electronically, including without limitation, by Your checking a box or clicking on an agree or similar button which may be presented to You in a dialog box that is separate from this Agreement.

5. Additional Liability Disclaimer

NEITHER APPLE NOR ITS SERVICE PROVIDERS SHALL BE LIABLE FOR ANY DAMAGES OR LOSSES ARISING FROM ANY USE, MISUSE, RELIANCE ON, INABILITY TO USE, INTERRUPTION, SUSPENSION OR TERMINATION OF THE iCloud STORAGE SERVICE OR ANY UNAUTHORIZED ACCESS TO, ALTERATION OF, OR DELETION, DESTRUCTION, DAMAGE, LOSS OR FAILURE TO STORE ANY OF YOUR DATA OR ANY END-USER DATA OR ANY CLAIMS ARISING FROM ANY USE OF THE FOREGOING BY YOUR END-USERS. YOU ACKNOWLEDGE THAT THE SERVICE IS NOT INTENDED OR SUITABLE FOR USE IN SITUATIONS OR ENVIRONMENTS WHERE ERRORS, DELAYS, FAILURES OR INACCURACIES IN THE TRANSMISSION OR STORAGE OF DATA OR INFORMATION THROUGH THE SERVICE COULD LEAD TO DAMAGE OR LOSS OF ANY KIND INCLUDING BUT NOT LIMITED TO, LOSS OR DESTRUCTION OF DATA, LOSS OF PROFITS,

DEATH, PERSONAL INJURY, OR FINANCIAL, PHYSICAL, PROPERTY OR ENVIRONMENTAL DAMAGE.

Schedule 1

1. Appointment of Agent

1.1 You hereby appoint Apple and Apple Subsidiaries (collectively Apple) as Your worldwide agent for the delivery of the Licensed Applications to end-users, during the Delivery Period. You hereby acknowledge that Apple will deliver the Licensed Applications to end-users in Apples own name, through one or more App Stores, but for You and on Your behalf.

1.2 In furtherance of Apples appointment under Section 1.1 of this Schedule 1, You hereby authorize and instruct Apple to:

- (a) solicit and obtain orders on Your behalf for Licensed Applications from end-users located in the countries You designate under Section 2.1 hereof;
- (b) provide hosting services to You, in order to allow for the storage of, and end-user access to, the Licensed Applications;
- (c) make copies of, format, and otherwise prepare Licensed Applications for acquisition and download by end-users, including adding the Security Solution;
- (d) allow end-users to access and re-access copies of the Licensed Applications, so that end-users may acquire from You and electronically download those Licensed Applications, Licensed Application Information, and associated metadata to end-users through one or more App Stores;
- (e) use (i) screen shots and/or up to 30 second excerpts of the Licensed Applications; (ii) trademarks and logos associated with the Licensed Applications; and (iii) Licensed Application Information, for promotional purposes in marketing materials and gift cards, excluding those portions of the Licensed Applications, trademarks or logos, or Licensed Application Information which You do not have the right to use for promotional purposes, and which You identify in writing at the time that the Licensed Applications are delivered by You to Apple under Section 2.1 of this Schedule 1, and use images and other materials that You may provide to Apple, at Apples reasonable request, for promotional purposes in marketing materials and gift cards; and
- (f) otherwise use Licensed Applications, Licensed Application Information and associated metadata as may be reasonably necessary in the delivery of the Licensed Applications in accordance with this Schedule 1. You agree that no royalty or other compensation is payable for the rights described above in Section 1.2 of this Schedule 1.

1.3 The parties acknowledge and agree that their relationship under this Schedule 1 is, and shall be, that of principal and agent, and that You, as principal, are, and shall be, solely responsible for any and all claims and liabilities involving or relating to, the Licensed Applications, as provided in this Schedule 1. The parties acknowledge and agree that Your appointment of Apple as its agent under this Schedule 1 is non-exclusive.

1.4 For purposes of this Schedule 1, the Delivery Period shall mean the period beginning on the Effective Date of the Agreement, and expiring on the last day of the Agreement or any renewal thereof; provided, however, that Apples appointment as Your agent shall survive expiration of the Agreement for a reasonable phase-out period not to exceed thirty (30) days and further provided that, solely with respect to Your end-users, subsections 1.2(b), (c), and (d) of this Schedule 1 shall survive termination or expiration of the Agreement unless You indicate otherwise pursuant to sections 4.1 and 6.2 of this Schedule 1.

1.5 All of the Licensed Applications delivered by You to Apple under Section 2.1 of this Schedule 1 shall be made available by Apple for download by end-users at no charge. Apple shall have no duty to collect any fees for the Licensed Applications for any end-user and shall have no payment obligation to You with respect to any of those Licensed Applications under this Schedule 1. In the event that You intend to charge end-users a fee for any Licensed Application, You must enter (or have previously entered) into a separate agreement (Schedule 2) with Apple with respect to that Licensed Application.

2. Delivery of the Licensed Applications to Apple

2.1 You will deliver to Apple, at Your sole expense, using the iTunes Connect site, the Licensed Applications, Licensed Application Information and associated metadata, in a format and manner prescribed by Apple, as required for the delivery of the Licensed Applications to end-users in accordance with this Schedule 1. Metadata You deliver to Apple under this Schedule 1 will include: (i) the title and version number of each of the Licensed Applications; (ii) the countries You designate, in which You wish Apple to allow end-users to download those Licensed Applications; (iii) any copyright or other intellectual property rights notices; and (iv) Your end-user license agreement (EULA), if any, in accordance with Section 3.2 of this Schedule 1.

2.2 All Licensed Applications will be delivered by You to Apple using software tools, a secure FTP site address and/or such other delivery methods as prescribed by Apple.

2.3 You hereby certify that all of the Licensed Applications You deliver to Apple under this Schedule 1 are authorized for export from the United States to each of the countries designated by You under Section 2.1 hereof, in accordance with the requirements of the United States Export Administration Regulations, 15 C.F.R. Parts 730-774. Without limiting the generality of this Section 2.3, You certify that (i) none of the Licensed Applications contains, uses or supports any data encryption or cryptographic functions; or (ii) in the event that any Licensed Application contains, uses or supports any such data encryption or cryptographic functionality, You have qualified that Licensed Application for export as a mass market encryption item in accordance with section 742.15(b)(2) of the Export Administration Regulations, and You will provide Apple with a PDF copy of the mass market export classification ruling (CCATS) issued by the United States Commerce Department, Bureau of Industry and Security for that Licensed Application. For purposes of determining the proper export classification and export control status of each Licensed Application, You should consult the export compliance decision tree in the iTunes Connect tool. You acknowledge that Apple is relying upon Your certification in this Section 2.3 in allowing end-users to access and download the Licensed Applications under this Schedule 1. Except as provided in this Section 2.3, Apple will be responsible for compliance with the requirements of the Export Administration Regulations in allowing end-users to access and download the Licensed Applications under this Schedule 1.

3. Ownership and End-User Licensing and Delivery of the Licensed Applications to End Users

3.1 The parties acknowledge and agree that Apple shall not acquire any ownership interest in or to any of the Licensed Applications or Licensed Applications Information, and title, risk of loss, responsibility for, and control over the Licensed Applications shall, at all times, remain with You. Apple may not use any of the Licensed Applications or Licensed Application Information for any purpose, or in any manner, except as specifically authorized in this Schedule 1.

3.2 You may deliver to Apple Your own EULA for any Licensed Application at the time that You deliver that Licensed Application to Apple, in accordance with Section 2.1 of this Schedule 1; provided, however, that Your EULA must include and may not be inconsistent with the minimum terms and conditions specified on Exhibit A to this Schedule 1 and must comply with all applicable laws in all countries where You wish Apple to allow end-users to download that Licensed Application. Apple shall allow each end-user to which Apple allows access to any such Licensed Application to review Your EULA (if any) at the time that Apple delivers that Licensed Application to that end-user, and Apple shall notify each end-user that the end-users use of that Licensed Application is subject to the terms and conditions of Your EULA (if any). In the event that You do

not furnish Your own EULA for any Licensed Application to Apple, You acknowledge and agree that each end-users use of that Licensed Application shall be subject to Apples standard EULA (which is part of the App Store Terms of Service).

3.3 You hereby acknowledge that the EULA for each of the Licensed Applications is solely between You and the end-user and conforms to applicable law, and Apple shall not be responsible for, and shall not have any liability whatsoever under, any EULA or any breach by You or any end-user of any of the terms and conditions of any EULA.

3.4 A Licensed Application may read or play content (magazines, newspapers, books, audio, music, video) that is offered outside of the Licensed Application (such as, by way of example, through Your website) provided that You do not link to or market external offers for such content within the Licensed Application. You are responsible for authentication access to content acquired outside of the Licensed Application.

4. Content Restrictions and Software Rating

4.1 You represent and warrant that: (a) You have the right to enter into this Agreement, to reproduce and distribute each of the Licensed Applications, and to authorize Apple to permit end-users to download and use each of the Licensed Applications through one or more App Stores; (b) none of the Licensed Applications, or Apples or end-users permitted uses of those Licensed Applications, violate or infringe any patent, copyright, trademark, trade secret or other intellectual property or contractual rights of any other person, firm, corporation or other entity and that You are not submitting the Licensed Applications to Apple on behalf of one or more third parties; (c) each of the Licensed Applications is authorized for distribution, sale and use in, export to, and import into each of the countries designated by You under Section 2.1 of this Schedule 1, in accordance with the laws and regulations of those countries and all applicable export/import regulations; (d) none of the Licensed Applications contains any obscene, offensive or other materials that are prohibited or restricted under the laws or regulations of any of the countries You designate under Section 2.1 of this Schedule 1; (e) all information You provide using the iTunes Connect tool, including any information relating to the Licensed Applications, is accurate and that, if any such information ceases to be accurate, You will promptly update it to be accurate using the iTunes Connect tool; and (f) in the event a dispute arises over the content of Your Licensed Applications or use of Your intellectual property on the App Store, You agree to follow Apples app dispute process on a non-exclusive basis and without any party waiving its legal rights.

4.2 You shall use the software rating tool set forth on iTunes Connect to supply information regarding each of the Licensed Applications delivered by You for marketing and fulfillment by Apple through the App Store under this Schedule 1 in order to assign a rating to each such Licensed Application. For purposes of assigning a rating to each of the Licensed Applications, You shall use Your best efforts to provide correct and complete information about the content of that Licensed Application with the software rating tool. You acknowledge and agree that Apple is relying on: (i) Your good faith and diligence in accurately and completely providing the requested information for each Licensed Application; and (ii) Your representations and warranties in Section 4.1 hereof, in making that Licensed Application available for download by end-users in each of the countries You designate hereunder. Furthermore, You authorize Apple to correct the rating of any Licensed Application of Yours that has been assigned an incorrect rating; and You agree to any such corrected rating.

4.3 In the event that any country You designate hereunder requires the approval of, or rating of, any Licensed Application by any government or industry regulatory agency as a condition for the distribution and/or use of that Licensed Application, You acknowledge and agree that Apple may elect not to make that Licensed Application available for download by end-users in that country from any App Store.

5. Responsibility and Liability

5.1 Apple shall have no responsibility for the installation and/or use of any of the Licensed Applications by any end-user. You shall be solely responsible for any and all product warranties, end-user assistance and product support with respect to each of the Licensed Applications.

5.2 You shall be solely responsible for, and Apple shall have no responsibility or liability whatsoever with respect to, any and all claims, suits, liabilities, losses, damages, costs and expenses arising from, or attributable to, the Licensed Applications and/or the use of those Licensed Applications by any end-user, including, but not limited to: (i) claims of breach of warranty, whether specified in the EULA or established under applicable law; (ii) product liability claims; and (iii) claims that any of the Licensed Applications and/or the end-users possession or use of those Licensed Applications infringes the copyright or other intellectual property rights of any third party.

6. Termination

6.1 This Schedule 1, and all of Apples obligations hereunder, shall terminate upon the expiration or termination of the Agreement.

6.2 In the event that You no longer have the legal right to distribute the Licensed Applications, or to authorize Apple to allow access to those Licensed Applications by end-users, in accordance with this Schedule 1, You shall promptly notify Apple and withdraw those Licensed Applications from the App Store using the tools provided on the iTunes Connect site; provided, however, that such withdrawal by You under this Section 6.2 shall not relieve You of any of Your obligations to Apple under this Schedule 1, or any liability to Apple and/or any end-user with respect to those Licensed Applications.

6.3 Apple reserves the right to cease allowing download by end-users of the Licensed Applications at any time, with or without cause, by providing notice of termination to You. Without limiting the generality of this Section 6.3, You acknowledge that Apple may cease allowing download by end-users of some or all of the Licensed Applications if Apple reasonably believes that: (i) those Licensed Applications are not authorized for export to one or more of the countries designated by You under Section 2.1 hereof, in accordance with the Export Administration Regulations; (ii) those Licensed Applications and/or any end-users possession and/or use of those Licensed Applications, infringe patent, copyright, trademark, trade secret or other intellectual property rights of any third party; or (iii) the distribution and/or use of those Licensed Applications violates any applicable law in any country You designate under Section 2.1 of this Schedule 1. An election by Apple to cease allowing download of any Licensed Applications, pursuant to this Section 6.3, shall not relieve You of Your obligations under this Schedule 1.

6.4 You may withdraw any or all of the Licensed Applications from the App Store, at any time, and for any reason, by using the tools provided on the iTunes Connect site, except that, with respect to Your end-users, You hereby authorize and instruct Apple to fulfill sections 1.2(b), (c), and (d) of this Schedule 1, which shall survive termination or expiration of the Agreement unless You indicate otherwise pursuant to sections 4.1 and 6.2 of this Schedule 1.

7. Legal Consequences

The relationship between You and Apple established by this Schedule 1 may have important legal consequences for You. You acknowledge and agree that it is Your responsibility to consult with Your legal advisors with respect to Your legal obligations hereunder.

EXHIBIT A

(to Schedule 1)

Instructions for Minimum Terms of Developers

End-User License Agreement

1. **Acknowledgement** : You and the end-user must acknowledge that the EULA is concluded between You and the end-user only, and not with Apple, and You, not Apple, are solely responsible for the Licensed Application and the content thereof. The EULA may not provide for usage rules for Licensed Applications that are less restrictive than the Usage Rules set forth for Licensed Applications in, or otherwise be in conflict with, the App Store Terms of Service as of the Effective Date (which You acknowledge You have had the opportunity to review).
2. **Scope of License** : The license granted to the end-user for the Licensed Application must be limited to a non-transferable license to use the Licensed Application on an iOS Product that the end-user owns or controls and as permitted by the Usage Rules set forth in the App Store Terms of Service.
3. **Maintenance and Support** : You must be solely responsible for providing any maintenance and support services with respect to the Licensed Application, as specified in the EULA, or as required under applicable law. You and the end-user must acknowledge that Apple has no obligation whatsoever to furnish any maintenance and support services with respect to the Licensed Application.
4. **Warranty** : You must be solely responsible for any product warranties, whether express or implied by law, to the extent not effectively disclaimed. The EULA must provide that, in the event of any failure of the Licensed Application to conform to any applicable warranty, the end-user may notify Apple, and Apple will refund the purchase price for the Licensed Application to that end-user; and that, to the maximum extent permitted by applicable law, Apple will have no other warranty obligation whatsoever with respect to the Licensed Application, and any other claims, losses, liabilities, damages, costs or expenses attributable to any failure to conform to any warranty will be Your sole responsibility.
5. **Product Claims** : You and the end-user must acknowledge that You, not Apple, are responsible for addressing any claims of the end-user or any third party relating to the Licensed Application or the end-users possession and/or use of that Licensed Application, including, but not limited to: (i) product liability claims; (ii) any claim that the Licensed Application fails to conform to any applicable legal or regulatory requirement; and (iii) claims arising under consumer protection or similar legislation. The EULA may not limit Your liability to the end-user beyond what is permitted by applicable law.
6. **Intellectual Property Rights** : You and the end-user must acknowledge that, in the event of any third party claim that the Licensed Application or the end-users possession and use of that Licensed Application infringes that third party's intellectual property rights, You, not Apple, will be solely responsible for the investigation, defense, settlement and discharge of any such intellectual property infringement claim.
7. **Legal Compliance** : The end-user must represent and warrant that (i) he/she is not located in a country that is subject to a U.S. Government embargo, or that has been designated by the U.S. Government as a terrorist supporting country; and (ii) he/she is not listed on any U.S. Government list of prohibited or restricted parties.
8. **Developer Name and Address** : You must state in the EULA Your name and address, and the contact information (telephone number; E-mail address) to which any end-user questions, complaints or claims with respect to the Licensed Application should be directed.
9. **Third Party Terms of Agreement**: You must state in the EULA that the end-user must comply with applicable third party terms of agreement when using Your Application, e.g., if You have a VoIP application, then the end-user must not be in violation of their wireless data service agreement when using Your Application.
10. **Third Party Beneficiary** : You and the end-user must acknowledge and agree that Apple, and Apples subsidiaries, are third party beneficiaries of the EULA, and that, upon the end-users acceptance of the terms

and conditions of the EULA, Apple will have the right (and will be deemed to have accepted the right) to enforce the EULA against the end-user as a third party beneficiary thereof.

Rev. 7-5-11

EA0770

By checking this box I confirm that I have read and agree to be bound by the Agreement above. If I am agreeing on behalf of my company, I represent that I have legal authority to bind my company to the terms of the Agreement above. I also confirm that I am of the legal age of majority in the jurisdiction in which I reside (at least 18 years of age in many countries).

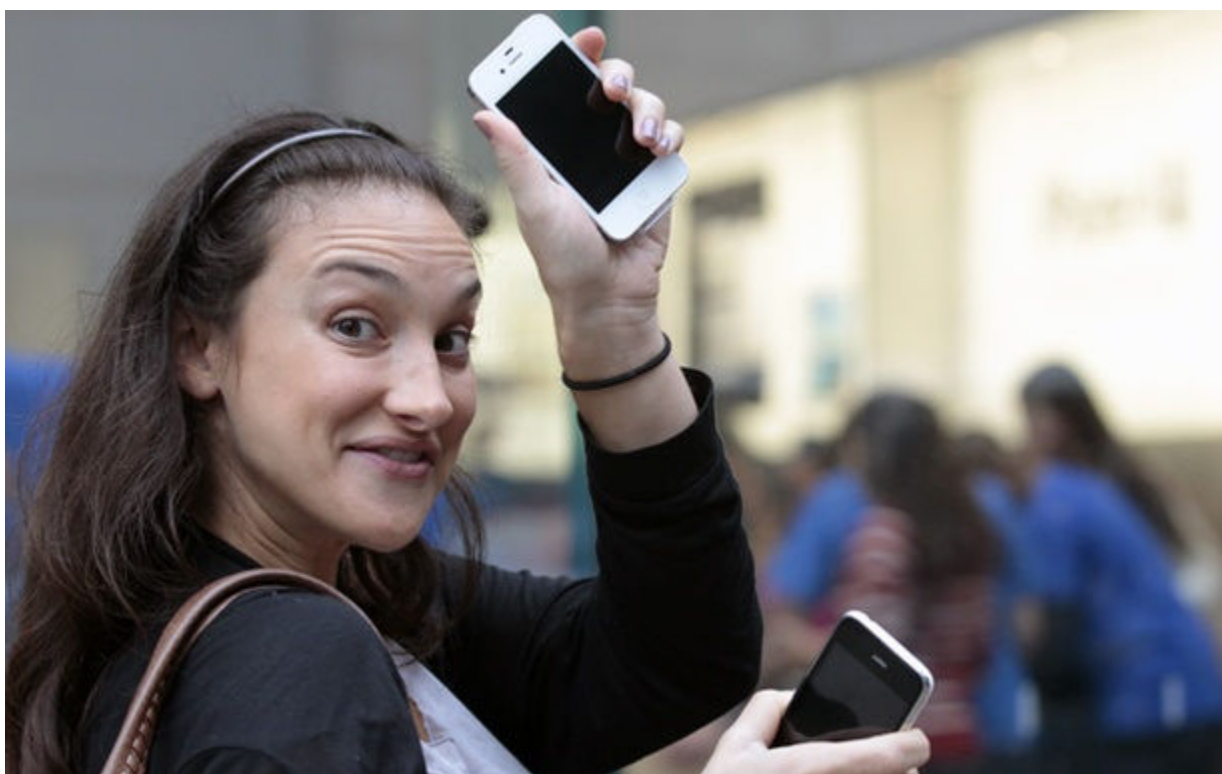
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EXHIBIT Y

There's an Easy Fix to Apple's Latest iPhone Privacy Problem



Reuters

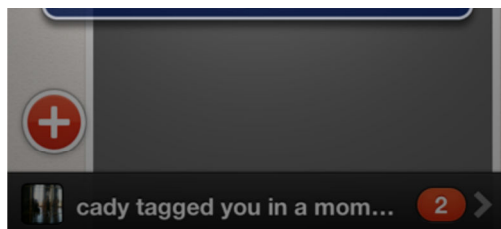
Rebecca Greenfield 4,245 Views Feb 15, 2012

Apple can make this whole iPhone address book fiasco all better with a simple fix. Following last week's Path scandal, amid the blogger fighting, turns out tons of other apps are also uploading user address book information to servers without asking the phone owner's permission. In fact, the way the iPhone works, any app can access contacts without a notification of any sort. These apps then have access to any phone numbers, email addresses and the names attached to them without users knowing. That's a privacy mess. But, the phone doesn't have to have this power. Apple can (and should) fix this.

Apple already knows the answer to this problem, as Steve Jobs explained it as part of the Apple privacy philosophy back at a 2010 D8 conference. "Privacy means people know what they are signing up for. In plain English," said Jobs in an interview flagged by Gizmodo's Jesus Diaz. "Ask them. Ask them every time. Make them tell you to stop asking if they get tired of you



asking. Let them know precisely what you are going to do with their data." The iPhone does this for location services, asking if a user will allow the iPhone to track its location, enabling the GPS



function. The iPhone should have the same mandatory barrier for uploading contact information.

As of now, it leaves that decision up to the individual app developer. Each application can decide if it wants to covertly upload contacts, or if it wants to inform users of its intrusion. Users hold these companies responsible for their choices, as we saw with Path. But Path was just one of the many taking data. The others went undetected. Apple should take responsibility; make this mandatory and consistent, rather than something users have to worry about with each new application.

Until Apple changes its policy, however, Forkly, an iPhone application, has discovered a better way to help users find friends. Rather than upload all of the contact information, it discovered it only needed the "hash" -- a code that corresponds to contact information without actually detailing said information -- to make matches. Here's how it works:

So, instead of sending a user's address book contents to our servers, we only sent the hashed entries (with some normalization, such as lowercasing strings, and cleaning up phone numbers prior to hashing).

Then, we could just compare the hashes on our servers and inform our iPhone app that entry X in a user's address book matches Brightkite user Y, all without ever "seeing" any actual phone numbers, names or email addresses. This enabled us to implement the same "Find Friends" functionality that so many apps nowadays use without compromising the privacy of the address book.

Any app makers hoping to avoid a privacy controversy, and, you know, do the right thing, might want to take this road instead of the Path-way.

Want to add to this story? Let us know in comments or send an email to the author at rgreenfield@theatlantic.com. You can share ideas for stories on the Open Wire.

10 Funny Photos You Have to See to Believe

(Reader's Digest)

New Divorce Details Make Tom Cruise Look Like Christian Grey

(MamasLatinas)

5 iPhone Apps I Can't Live Without

(Completely You)

Vitamin D Affects Genes for Cancer, Autoimmune Diseases

(HealthCentral.com)

**The Most Unrecognizable Airbrushing Jobs
In Hollywood History** (StyleCaster)

[what's this]

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EXHIBIT Z

iPhone Privacy

Nicolas Seriot*
<http://seriot.ch>

Black Hat DC 2010
Arlington, Virginia, USA

Abstract

It is a little known fact that, despite Apple's claims, any applications downloaded from the App Store to a standard iPhone can access a significant quantity of personal data.

This paper explains what data are at risk and how to get them programmatically without the user's knowledge. These data include the phone number, email accounts settings (except passwords), keyboard cache entries, Safari searches and the most recent GPS location.

This paper shows how malicious applications could pass the mandatory App Store review unnoticed and harvest data through officially sanctioned Apple APIs. Some attack scenarios and recommendations are also presented.

Keywords: Apple, iPhone, Security, Privacy, App Store, Malware.

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1 Introduction

1.1 Background facts

This subsection presents some quick facts and figures for people unfamiliar with the iPhone.

1.1.1 Market share

Apple introduced the iPhone on June 29, 2007. iPhone worldwide market share of smartphone sales to end users was 17% in Q3 2009¹. In late 2009, 34 millions iPhones had been sold².

1.1.2 App Store

Developers distribute iPhone applications through Apple's App Store, which had more than 100,000 applications available³ in late 2009. As of January 5, 2010 three billion applications have been downloaded⁴ in 70 countries worldwide.

1.1.3 Jailbreak

In its standard configuration, the iPhone only runs software cryptographically signed by Apple. However, iPhone hackers have found ways to circumvent this limitation by creating a modified version of the iPhone OS that will run any code. Installing such a firmware is called "jailbreaking". Most "jailbroken" devices feature an SSH server and enable the root login at the same time. According to Intego⁵ about 6–8% of all iPhones are "jailbroken".

1.2 Motivation

1.2.1 Press reports

The second half of 2009 has been a huge commercial success for Apple, but at the same time numerous reports have surfaced about privacy issues with the iPhone.

Customers of ID Mobile's MogoRoad iPhone application are complaining that they're getting sales calls from the company, a process which turns out to be technically a piece of cake.

The Register, 30th September 2009

http://www.theregister.co.uk/2009/09/30/iphone_security/

¹<http://www.gartner.com/it/page.jsp?id=1224645>

²<http://www.apple.com/pr/library/>

³<http://www.apple.com/pr/library/2009/11/04appstore.html>

⁴<http://www.apple.com/pr/library/2010/01/05appstore.html>

⁵<http://blog.intego.com/2009/11/11/>

A maker of some of the most popular games for the iPhone has been surreptitiously collecting users' cell numbers without their permission, according to a federal lawsuit filed Wednesday.

The Register, 6th November 2009

http://www.theregister.co.uk/2009/11/06/iphone_games_storm8_lawsuit//

iPhone owners in Australia awoke this weekend to find their devices targeted by self-replicating attacks that display an image of 1980s heart throb Rick Astley that's not easily removed.

The Register, 8th November 2009

http://www.theregister.co.uk/2009/11/08/iphone_worm_rickrolls_users/

In a world where lost or stolen laptops and phones scream at us from newspaper headlines and data breaches invite multi-million dollar government fines and lawsuits, do we want a smartphone whose insecurity is well documented? In our judgment, no.

Sharon D. Nelson and John W. Simek, Sensei Enterprises, 2009 [4]

Mark Bregman, Symantec's executive vice president and CTO, highlighted mobile security as a critical area to monitor in the new year, in which "more attackers will devote time to create malware to exploit these devices". In a separate report, Symantec noted that Apple's products, including its popular iPhone, will face increased attacks from cybercriminals.

ZDNet Asia, 9th December 2009

<http://www.zdnetasia.com/news/software/0,39044164,62059902,00.htm>

Should people care? Should they be scared? Can users trust iPhone applications because they are reviewed by Apple? What about corporate environments? The aim of the work presented in this paper is to get facts and a clear view of iPhone privacy issues, in order to help consumers and professionals taking sensible and well-informed decisions.

1.2.2 Outline of the paper

This paper starts by defining privacy and presenting an overview of past iPhone privacy issues.

Next, it specifically considers the unmodified devices and examines what sensitive data may be compromised by an application downloaded from the App Store. Because seeing is believing, the source code of a proof-of-concept malicious application was made available publicly.

This paper goes on to explain how a malicious application could be crafted to fool Apple's mandatory reviews in order to be accepted on the App Store. Finally, it discusses several attack scenarios, tries to suggest improvements and delivers basic recommendations.

This paper doesn't try to compare other mobile platforms such as Android, Windows Mobile or BlackBerry. It also doesn't discuss data harvesting on desktop computers.

2 Privacy, spyware and law

2.1 Privacy and spyware

According to the Merriam-Webster's dictionary, privacy is *the quality or state of being apart from (...) observation*. In the context of spyware applications, we can consider privacy more narrowly as *personal data confidentiality*.

By spyware, I mean an application that gathers personal data without the user's knowledge and consent. So what is personal data? At the end of the day, the definition that matters is the legal one. Of course, it depends on the country one lives in. Because the author of this paper lives in Switzerland, let us have a quick look at Swiss law, which is quite strict regarding protection of privacy.

Note that this law is only applicable if the spyware author is either resident in Switzerland, or if the government can successfully negotiate extradition to Switzerland. In the European Union, the extradition is allowed by the Convention on Cybercrime⁶.

2.2 Swiss law

2.2.1 Personal data

The Swiss Federal Constitution states that *everyone has the right to be protected against the misuse of their personal data* (Art. 13 al. 2). Personal

⁶<http://conventions.coe.int/Treaty/EN/Treaties/html/185.htm>

data are then defined in a specific law called the Federal Act on Data Protection (FIDP), which defines personal data as all information relating to an identified or identifiable person (FIDP Art. 3 lit. a).

2.2.2 Personality profile

The same law defines a collection of personal data as a “personality profile”. It permits an assessment of the essential characteristics of the personality of a natural person (FIDP Art. 3 lit. d). Personality profiles are especially protected and strictly regulated (eg. FIDP Art. 11 lit. a al. 3).

2.2.3 Spyware authors

Now, where are the legal responsibilities? Spyware authors may be jailed for up to three years and have to pay big fines for “obtaining personal data without authorization” (Criminal Code Art. 179 novies). Also, applicable civil laws can be used to impose hefty fines (Breaches of privacy FIDP Art. 12.2, Breach of obligations to provide information or to cooperate FIDP Art. 34). This is scarcely applied, though.

2.2.4 End users

End users are protected from over reaching End User License Agreements (EULAs). Arbitrary provisions that have been “snuck into” EULAs are void (Civil Code Art. 2 al. 1). Thus, the EULA cannot simply state that you agree to send your personal data to bad guys if you do not. There must be a real mutual agreement, ruling out the use of potentially misleading terms (Civil Code).

2.2.5 Technical staff

In case of damages, civil liability may apply to technical staff if the plaintiff can prove that an organization failed to protect confidential data properly (FIDP-O Art. 8, 9, 10, 11, 12). Under this law, liability could extend all the way to Apple itself. For more detail, see this document [2] by the Swiss Federal Data Protection and Information Commissioner.

3 History of iPhone privacy concerns

This section presents the main privacy issues that have been encountered on the iPhone. Figure 1 summarizes them on a timeline.

	...2007	2008	2009
Root exploits	libtiff		
			SMS fuzzing
Pulled out from AppStore	Aurora Faint		
			MogoRoad
Lawsuits			Storm8
Analytics			PinchMedia concerns
Worms			lkee & co. (jailbreak)
OS	1.0	1.1	2.0 2.1 2.2 3.0 3.1

Figure 1: Timeline of the main past privacy issues

3.1 Root exploits

Here are two well known root exploits on the iPhone. The vulnerabilities were quickly patched by Apple, but could have been exploited to steal private data.

3.1.1 libtiff

July 2007. The first exploit was due to multiple buffer overflows⁷ discovered in libtiff by Tavis Ormandy. The vulnerable libtiff version was used by the Apple's ImageIO framework. The simple opening of a maliciously crafted TIFF image could lead to arbitrary code execution, as demonstrated⁸ by Rik Farrow. Apple patched⁹ this vulnerability in iPhone OS 1.1.2.

3.1.2 SMS fuzzing

July 2009. This exploit was presented at Black Hat USA 2009 by Charlie Miller and Collin Mulliner. The researchers presented an iPhone vulnerability¹⁰ that could allow a hacker to seize control of the phone through maliciously crafted SMS messages. The vulnerability was patched¹¹ in iPhone OS 3.0.1.

⁷CVE-2006-3459, CVE-2006-3461, CVE-2006-3462, CVE-2006-3465

⁸<http://www.fastcompany.com/multimedia/2007/11/hacking-the-iphone.html>

⁹<http://support.apple.com/kb/HT2170>

¹⁰http://securityevaluators.com/content/news/index.jsp?topic=iphone_sms_2009

¹¹<http://support.apple.com/kb/HT3754>

3.2 Personal data harvesting

3.2.1 Aurora Feint

In July 2008, the popular iPhone game *Aurora Feint* was the first application to be pulled from the App Store due to privacy concerns. The game would upload all the contacts stored in the iPhone to the developer's server, allegedly to discover if any of the user's friends also play that game.

3.2.2 MogoRoad

In September 2009, the Swiss road traffic information application MogoRoad was pulled from App Store after users complained they got sales calls from the company. MogoRoad is back on App Store after Mogo's explanations¹².

3.2.3 Storm8 complaint

In November 2009, a federal lawsuit was filed in California against iPhone applications editor Storm8, whose games had already been downloaded more than 20 million times. The games were harvesting the user's phone number¹³ without encryption. Since then, Storm8 games have stopped collecting the users' phone numbers.

3.2.4 Pinch Media

Pinch Media¹⁴ is a free analytics framework used by many iPhone developers. It collects anonymous usage data from mobile phone applications and could be compared to Google Analytics.

In July 2009, some bloggers started to raise serious concerns¹⁵ about Pinch Media, claiming that iPhone users were being tracked by some applications without their knowledge and without the possibility of opting out. According¹⁶ to Pinch Media, the collected data are:

- a unique hardware identifier
- the model of your phone and operating system
- the application's name and version
- the result of a check to see if the device has been jailbroken
- the result of a check to see if the application has been stolen
- the length of time the application was run

¹²http://www.mogo.ch/presse/ID_MOBILE_COMMUNICATE_MOGOROAD_EN.pdf

¹³http://www.sfgate.com/cgi-bin/blogs/ybenjamin/detail?entry_id=46236

¹⁴<http://www.pinchmedia.com/>

¹⁵<http://i-phone-home.blogspot.com/2009/07/pinchmedia-anatomy-of-spyware-vendor.html>

¹⁶<http://www.pinchmedia.com/blog/pinch-media-user-privacy-and-spyware/>

- if the user explicitly agrees to share it, the user’s location
- if the application uses Facebook Connect, the gender & age of the user

3.3 Worms on jailbroken devices

November 2009 saw an important wave of worm attacks targeting jailbroken iPhones. All of them exploit the fact that very few users bother to change the default root password (`alpine`) after jailbreaking their iPhone and installing an SSH server.

3.3.1 Ikee

Ikee is the first known iPhone worm. It changes the iPhone’s wallpaper and displays a photograph of 1980s singer Rick Astley with the words *Ikee is never gonna give you up*. It was written by a 21-year old Australian programmer, who was subsequently hired by the Australian iPhone development company *mogeneration*.

3.3.2 Dutch 5 € ransom

This worm locked the screen with the following message: *Your iPhone’s been hacked because it’s really insecure! Please visit doiop.com/iHacked and secure your iPhone right now!*, until the user had paid a 5 € ransom on a PayPal account. The Dutch hacker has now taken down his PayPal, returned the money he earned and published free instructions on how to remove the backdoor.

3.3.3 iPhone / Privacy.A

This worm steals personal data but, unlike the previous worms, does not reveal its presence.

3.3.4 Ikee.B / Duh

This worm is highly pernicious. It connects to a Lithuanian master, like a traditional botnet node. It changes the root password into “`ohshit`”, steals private data and attempts to infect other hosts. The worm also tries to exploit ING Direct bank’s two-factor authentication by using SMS. This worm was analyzed by SRI International [5].

3.4 iPhone forensics

Physical access to any device means that pretty much everything can be compromised, with the notable exception of passwords, which are stored encrypted in the phones Keychain.

Jonathan Zdziarski [3] showed that both the passcode and the disk encryption could be bypassed and the full iPhone disk image could be retrieved unencrypted by an investigator with the proper tools. This led an unnamed mid-sized US law firm (50 plus lawyers) to completely ban the iPhone¹⁷.

An interesting white paper [6] on iPhone forensics was also released in March 2009 by viaForensics.

3.5 Security solutions editors

As a result of the late 2009 worms, Apple got a lot of bad press, much of which was unjustified. Some people criticize Apple for having an insecure configuration, whereas in fact worms only target jailbroken devices that have an SSH server *and* root access with the default password. It has also been suggested that jailbroken iPhone are more secure than stock devices because users can theoretically install firewalls.

Neither firewalls nor antivirus products are available for stock iPhones, from either Apple or third parties, so, not surprisingly, security software editors are among the most vocal critics.

Chester Wisniewski from Sophos writes on his blog that *iPhones are not ready for the business environment*¹⁸ because they can be jailbroken. This is somewhat unfair. Would anybody claim that Linux is not ready for business because you can exploit a weak default root password on an SSH server?

Thus, F-Secure¹⁹ and Intego²⁰ argue that Apple should modify the iPhone OS design and allow background running applications with a broader access to the OS, which would have the significant effect of allowing vendors to offer security solutions to iPhone users.

4 Writing spyware for the iPhone

4.1 Methodology

Now imagine that we would like to write a spyware for the iPhone. It would look like a breakout game and actually play breakout but, at the same time, silently harvest personal data and send them to a remote server.

¹⁷<http://ridethelightning.senseient.com/2009/12/my-entry.html>

¹⁸<http://www.sophos.com/blogs/chetw/g/2009/11/21/malicious-iphone-worm-loose/>

¹⁹<http://www.itpro.co.uk/618154/security-firms-cannot-protect-the-iphone-from-threats>

²⁰http://www.theregister.co.uk/2009/11/25/iphone_anti_malware/

In order to reach the App Store, the spyware can't normally use private APIs, because this is forbidden by Apple and checked during the mandatory review process. It must also run on a non-jailbroken iPhone, namely on the original iPhone OS version 3.1.2, which is the latest version available at the time of writing.

Let's look for entry points to steal personal data within these constraints. We consider neither hardware attacks — see [3] on this matter — nor root exploits. Also, we don't target the information voluntarily submitted by users, such as Facebook or Twitter profiles, although a real-life spyware would certainly be interested in these data. It would be really easy to harvest Twitter or Facebook details, by offering to upload high scores to social networks.

4.2 Entry points

4.2.1 Cell Number

The first and easiest item of personal data to collect is the user's phone number. This number is entered in iTunes when the phone is first connected. The good news is that you can change it anytime in iPhone Settings. The number is stored in the file `.GlobalPreferences.plist`. Listing 1 shows how to retrieve the number programmatically.

Listing 1: Retrieve the cell phone number

```
NSDictionary *d = [NSUserDefaults standardUserDefaults];
NSString *phone = [d valueForKey:@"SBFormattedPhoneNumber"];
```

Novice iPhone programmers sometimes think that they need the cell number, when in fact they just need some kind of device-specific identifier. In this case, they should use the Objective-C method `-[UIDevice uniqueIdentifier]`. Note that this unique identifier can also raise privacy concerns, as discussed in section 7.1.6.

4.2.2 Address Book

Another way to collect personal data is through the Address Book API. It turns out that the full Address Book is readable without the user's knowledge or consent. It contains names, users' phone numbers and email addresses, but also a "notes field", in which many Mac users store sensitive data such as door codes or bank accounts. These notes are synchronized with the user's computer and may be harvested on the iPhone. Moreover, a spyware can edit the Address Book, that is add, change or delete any record, without the user's knowledge or consent.

This surprising state of affairs appears to reflect a deliberate decision by Apple. This API is very similar to the one on the Mac, but it lacks the “Me” record, as if Apple had sought to prevent the iPhone owner identification.

Spammers can easily retrieve all the email addresses, and more sinister scenarios are all too readily imaginable. For example, if a rogue application alters the email addresses, there is a great potential for harm, because the Mail application displays the contact’s full name only, and a confidential email could be sent to the wrong address (see attack scenarios section 6).

The Address Book issue is one of the most serious for corporate environments.

4.2.3 File system

Next, we consider the data that can be read on the iPhone filesystem. A sandboxing mechanism limits access to other application’s data. Third-party applications are installed in `/private/var/mobile/Applications/` and are prevented from seeing each other or accessing specific locations, such as the Music Library for instance.

The sandboxing mechanism is implemented at the kernel level and described by a set of rules shown in the file `SandboxTemplate.sb` (appendix A). See `man sandbox` on Mac OS X for more details.

About the sandboxing mechanism, Apple writes:

Applications on the device are “sandboxed” so they cannot access data stored by other applications.

In addition, system files, resources, and the kernel are shielded from the user’s application space.

Apple, iPhone in Business: Security Overview [1]

It turns out that, despite sandboxing, numerous system and application preference files are in fact readable (see listing 2) by downloaded applications, and some of them contain personal data. This concerns primarily preference files in plist format, but is not limited to them. The file system can be browsed and the content of these files viewed using the open-source file system browser FSWalker²¹.

²¹<http://fswalker.googlecode.com/>

Indeed, as suggested by the comments found in the file in the appendix A, the sandbox rules are far too loose. This appears to be a case of security being sacrificed in the rush to get a product to market.

Note that our spyware doesn't even need undocumented APIs to read these files. Also, the user is never asked nor informed of the application poking the file system. He cannot prevent it.

Listing 2: Printing the paths readable on the file system

```
- (void)printReadablePaths {
    NSFileManager *fm = [NSFileManager defaultManager];
    NSDirectoryEnumerator *dirEnumerator = [fm enumeratorAtPath:@""];
    NSString *path = nil;

    while(path = [dirEnumerator nextObject]) {
        if([fm isReadableFileAtPath:path]) {
            NSLog(@"-- %@", path);
        }
    }
}
```

4.3 Introducing SpyPhone

At this point, we know where to find personal data, including the phone number, the Address Book contents and several other pieces of data readable on the file system. A spyware would want to gather the potentially valuable information from all these sources. SpyPhone²² is an open-source²³ proof of concept “that does just that”. Figure 2 shows the files actually read by SpyPhone. Let's have an overview of the data the rogue application can collect. You may want to look at the source code for details.

The spyware can access the 20 most recent Safari searches (figure 3) and YouTube history (figure 4). It can access the email account parameters (figure 6), such as the full name of the user, the email address, as well as the host and login. The password is kept safe in the Keychain. The email content itself is not accessible, thanks to correct sandbox rules.

The spyware can access data about the phone (figure 5) itself, starting with the phone number, as discussed in section 4.2.1. The spyware can also read the iPhone UUID (through a documented API), the ICCID (SIM card serial number) and the IMSI (International Mobile Subscriber Identity), making it possible to track users even when they change their device. IMSI reveals the country and the mobile operator.

²²<http://github.com/nst/spyphone/>

²³You still need an iPhone developer certificate to install it on a non jailbroken iPhone.

```

/var/mobile/Library/Keyboard/
/var/mobile/Library/Preferences/com.apple.accountsettings.plist
/var/mobile/Library/Preferences/com.apple.commcenter.plist
/var/mobile/Library/Preferences/com.apple.mobilephone.settings.plist
/var/mobile/Library/Preferences/com.apple.mobilephone.plist
/var/mobile/Library/Preferences/com.apple.mobilesafari.plist
/var/mobile/Library/Preferences/com.apple.preferences.datetime.plist
/var/mobile/Library/Preferences/com.apple.weather.plist
/var/mobile/Library/Preferences/com.apple.youtube.plist
/var/mobile/Library/Preferences/com.apple.Maps.plist
/var/mobile/Media/DCIM/

```

Figure 2: Paths actually read by SpyPhone

Figure 7 shows the email addresses stored in the Address Book database. It is also possible to display any other field, as discussed in 4.2.2.

The keyboard cache contains all the words ever typed on the keyboard, except the ones entered in password fields. This is supposed to help autocompletion but this mechanism effectively acts as a key-logger, storing potentially private and confidential names and numbers. Figure 9 shows the structure of a keyboard cache file containing the dictionary. There is one cache file per language. The keyboard cache can be reset in iPhone Settings.

Any application has read and write access to the DCIM directory that contains the photos stored in the iPhone. By default, these photos are tagged with the GPS coordinate. By listing (figure 10) the date and location of each one, SpyPhone can thus keep detailed track of a user's physical movements. These data can then be mapped (figure 11). Note that SpyPhone can also send the photo itself by reading it on the file system, where a program would normally be able to access only one image at a time through the UIImagePickerController class, chosen by the user, and without EXIF and GPS data.

The first time an application needs to access the GPS location, it prompts the user. But a spyware could also gain a pretty accurate estimate of the user's location without enabling the GPS. It could simply read the previous position in the Maps application preferences (figure 12). It could also know which areas you are in simply by reading the weather cities. A marketer rarely needs a more precise location.

Another file keeps track of every time you join a Wifi network. Based on these logs, it is possible to gain insights into the user's recent whereabouts.

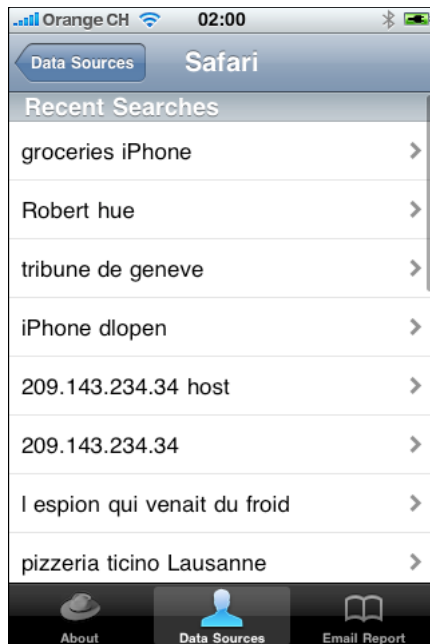


Figure 3: Safari Searches History

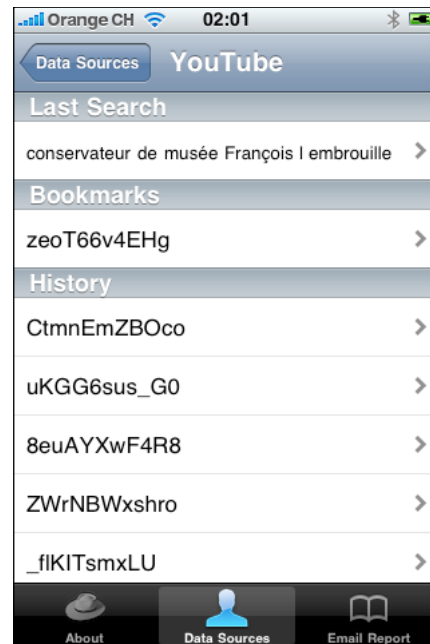


Figure 4: YouTube History



Figure 5: Phone and Hardware

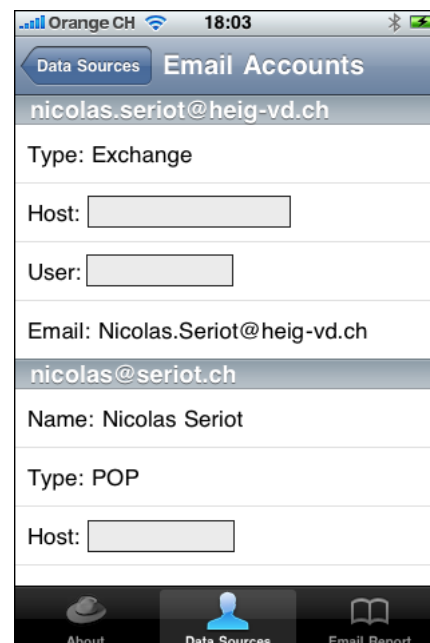


Figure 6: The email accounts

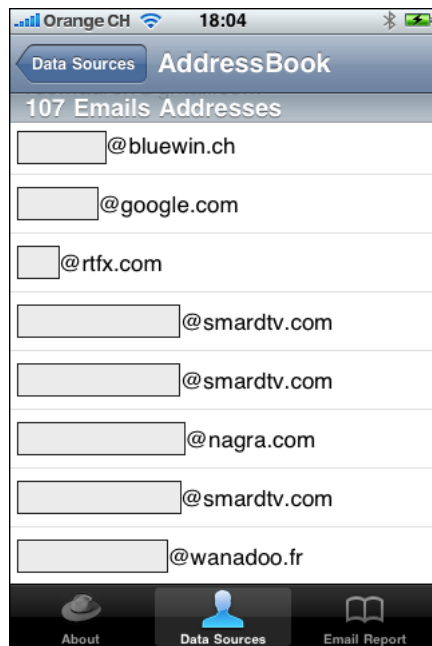


Figure 7: AddressBook emails

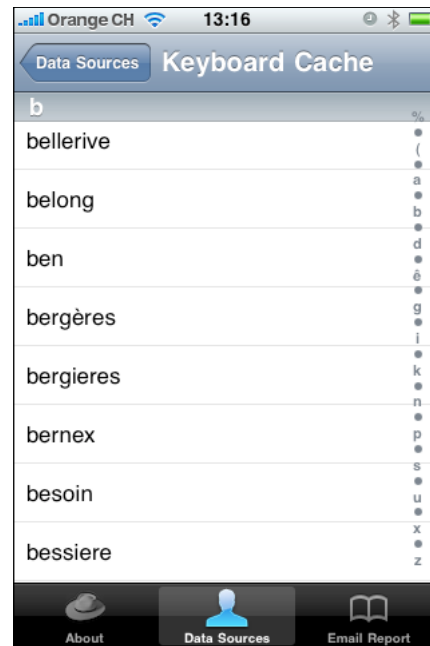


Figure 8: The keyboard cache

```
# hexdump -C dynamic-text.dat
00000000 44 79 6e 61 6d 69 63 44 69 63 74 69 6f 6e 61 72 |DynamicDictionar|
00000010 79 2d 34 00 00 00 00 02 63 6f 6e 66 65 72 65 6e |y-4.....conferen|
00000020 63 65 00 74 65 73 74 00 00 00 00 00 00 00 06 |ce.test.....|
00000030 01 62 6c 61 63 6b 68 61 74 00 01 68 65 69 67 00 |.blackhat..heig.|
00000040 01 76 64 00 01 67 76 61 00 01 6c 68 72 00 01 69 |.vd..gva..lhr..i|
00000050 61 64 00                                     |ad.|
00000053
```

Figure 9: A keyboard cache file. There is one per language.

For instance, our spyware knows that, on January 19th, I was at school at 19:28 and then at Café du Simplon at 20:18 (figure 13).

4.4 Valuable data

Safari recent searches (figure 3), YouTube history (figure 4) and your keyboard cache (figure 8) give clues about your current interests. These interests are linked with your name and your email addresses (figure 6), your phone number (figure 5) and your area (figure 12). Harvested from large numbers of users, such data have a huge value in the underground market of personal data, and it must be assumed that trojans are in fact exploiting this on the App Store.



Figure 10: Geotagged photos...



Figure 11: ...displayed on a map

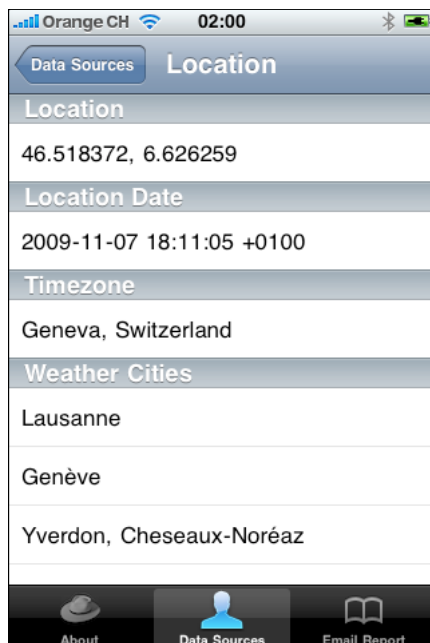


Figure 12: Location guess



Figure 13: Wifi connection log

Also, the approximate location (figure 12), recent calls (figure 5, geo-tagged photos (figure 10) and Wifi connection logs are potentially valuable for forensics purposes.

5 Getting published on the App Store

To be published on Apple's App Store, an application must be submitted by a developer enrolled in the (paid) "iPhone Developer Program"²⁴. Apple only gets the executable file, not the source code. Next, the application goes through an approval process which mainly looks for user interface inconsistencies but also undocumented function calls and yes, malware. The challenge for a malware author is to go unnoticed through this process. When approved, the binary is properly signed by Apple and can be run on any device. For paid applications, Apple keeps 30% of the revenues.

5.1 App Store and malware

5.1.1 The purpose of reviews

Apple's tight control over the App Store is resented by many²⁵ developers²⁶. Moreover, it normally takes about one week, which may be prohibitively slow for security updates. This delay can be shortened by asking for an expedite review, though. The reasons for rejection are often²⁷ perceived to be arbitrary and unreasonable.

Apple's senior vice president Phil Schiller explained²⁸ that Apple needs to ensure that everything works as expected by consumers. Apple also intends to reject applications which are in a legal gray zone such a casino gambling or collecting personal data, which seems only reasonable. Nonetheless, with some 10,000 binaries submitted each week, invariably, some malware are going to sneak through.

5.1.2 iPhone software development kit agreement

Every iPhone developer is bound by the terms of Apple's iPhone SDK Agreement. Unfortunately, this agreement forbids iPhone developers from commenting on its terms and conditions:

²⁴<http://developer.apple.com/iphone/program/>

²⁵<http://www.joehewitt.com/post/innocent-until-proven-guilty/>

²⁶<http://www.paulgraham.com/apple.html>

²⁷<http://www.tuaw.com/2008/08/07/thoughts-on-the-iphone-app-store-review-process/>

²⁸http://www.businessweek.com/print/technology/content/nov2009/tc20091120_354597.htm

5.4 You may not issue any press releases or make any other public statements regarding this Agreement, its terms and conditions, or the relationship of the parties without Apple's express prior written approval, which may be withheld at Apple's discretion.

As a consequence, I won't be commenting further here, except to note that it states that developers should comply with local laws and regulations, and should not harvest users' personal information. Spyware submitted to the App Store are rejected on this basis.

The content of the agreement has been divulged on Wikileaks and Wired²⁹.

5.2 Hiding the beast

5.2.1 The review process

The exact App Store analysis reviewing process is unknown and the following considerations are only guesswork based on actual App Store rejections³⁰ and knowledge of Apple development tools. Nonetheless, it is safe to assume that Apple probably mixes static and dynamic analysis.

Note that even if Apple had access to the source code, it probably could not afford a full security code review, and malware authors would just hide malicious behavior a bit better, as demonstrated each year in the *Underhanded C Contest*³¹.

5.2.2 Static analysis

The static analysis probably consist of dumping the strings in the binary file — say with the “strings” command — and checking them against a black list of forbidden class and method names as well as file paths. This process can easily be circumvented with simple yet effective obfuscation techniques, as shown in listing 3.

Listing 3: Simple yet effective string obfuscation technique

```
- (NSString *)stringMinus1:(NSString *)s {
    NSMutableString *s2 = [NSMutableString string];
    for(int i = 0; i < [s length]; i++) {
        unichar c = [s characterAtIndex:i];
        [s2 appendFormat:@"%C", c-1];
    }
    return s2;
}
```

²⁹http://wired.com/images_blogs/gadgetlab/files/iphone-sdk-agreement.pdf

³⁰<http://appreview.tumblr.com/>

³¹<http://underhanded.xcott.com/>

```

}

- (void)viewDidAppear:(BOOL)animated {
    NSString *pathPlus1 =
        @"0wbs0npcjmf0Mjcsbsz0Qsfgsfodft0dpn/bqqmf/bddpvoutfuujohht/qmjtu";
    // @"/var/mobile/Library/Preferences/com.apple.accountsettings.plist"
    NSString *path = [self stringWithMinus1:pathPlus1];
    NSDictionary *d = [NSDictionary dictionaryWithContentsOfFile:path];
    // ...
}

```

5.2.3 Dynamic analysis

The dynamic analysis probably consists in running the “I/O Activity” instrument in Apple’s Instruments application and checking the paths of opened files against a black list of forbidden paths. Such a process is easily circumvented by delaying the malicious behavior to a later date, triggered by a flag to be set remotely or activated only in a specific geographic area.

5.2.4 Private APIs

Apple is known to look for calls to private APIs (undocumented APIs) and reject applications on that basis. This is why our SpyPhone application does not use any of them and indeed it does not really need to.

However, a real spyware author probably wouldn’t mind and would take advantage of Objective-C’s ability to lookup classes and selectors by name at runtime. This way, he could define them remotely or obfuscate their usage.

According to my research, using private APIs doesn’t help much in harvesting personal data. The most interesting piece of data is the IMEI number (listing 4), which uniquely identifies a specific mobile phone being used on a mobile network.

Private APIs can be browsed with iPhone Objective-C Runtime Browser³².

Listing 4: Using a private API to dynamically retrieve the IMEI number

```

NSString *path = @"/System/Library/PrivateFrameworks/Message.framework";
BOOL bundleLoaded = [[NSBundle bundleWithPath:path] load];

Class NetworkController = NSClassFromString(@"NetworkController");
NSString *IMEI = [[NetworkController sharedInstance] IMEI];

```

³²<http://runtimebrowser.googlecode.com>

5.3 Apple's kill switch

Rumor has it that Apple can remotely deactivate iPhone applications. In July 2008, iPhone forensics expert Jonathan Zdziarski [3] discovered a URL (see figure 14) with a Core Location³³ black list. This black list can prevent an application from using the Core Location functionalities, as an anonymous contact at Apple confirmed³⁴ to noted Mac blogger John Gruber. However, Apple has apparently never used the black list nor acknowledged its existence publicly.

How would our SpyPhone be affected by this kill switch? The short answer is: not at all! SpyPhone uses various informations to estimate the location, including the last GPS lookup from Maps, and does not use Core Location directly.

```
# curl https://iphone-services.apple.com/clbl/unauthorizedApps
{
    "Date Generated" = "2010-01-20 17:23:37 Etc/GMT";
    "BlackListedApps" = {};
}
```

Figure 14: Core Location black list

6 Attack scenarios

Here are some attack scenarios, outlining the potential consequences of a “privacy attack” and illustrating ways in which iPhone security is not as good as it should be.

6.1 The spammer

A breakout game is made available for free on Apple's App Store. While you are playing breakout, it reads your email address, your recent Safari searches, your weather cities and the words contained in your keyboard cache.

When you submit your high score to the application's server, stolen information is sent at the same time in an encrypted form. The application also sends all the email addresses in your address book.

³³Core Location is the iPhone's framework for locating the device's position through GPS or A-GPS.

³⁴http://daringfireball.net/2008/08/core_location_blacklist

Now the spammer knows your interests from Safari searches and the keyboard cache. It also knows your location thanks to weather cities. This information can then be used to send you targeted commercial offers, or it can be sold on to other parties.

6.2 The blackmailer

A collaborative application on Hollywood gossip is made available for free on the App Store. While giving clues about spotting stars, it surreptitiously goes through your address book and edits the email addresses.

Knowing that film industry people are likely to download this application, the emails they send are diverted to a clandestine server, providing potentially compromising private information to a prospective blackmailer.

The approach can be tailored to produce the same scenario in the industrial, political or financial world.

6.3 The luxury products thief

An application for Rolls Royce owners or art collectors could report the name, the area, the phone and the geotagged photos of wealthy people. This is enough informations to rob them, especially if it can be determined that the targeted individuals are currently away from home.

6.4 The jealous husband

Unlike the previous scenarios, this one needs a physical access to the device.

A detective, an evil competitor or even a jealous husband may be interested in stealing the personal data in an iPhone to which they have physical access. All that is needed to do so is a Mac, a 99 USD Apple developer license and a USB cable. It takes just five minutes to install SpyPhone, steal the personal data with the “email report” function, erase the evidence by deleting the sent mail and delete SpyPhone itself.

Nothing has been jailbroken, no expensive device wiper was involved, and a horde of valuable personal data has been stolen. The iPhone owner need never suspect anything, and the jealous spouse or business competitor has full liberty to study Wifi connection logs, photo library dates and geotags for evidence that, say, the partner was not at the office at a given time.



Figure 15: French Prime Minister and French former Justice Minister using an iPhone (business-week.com).

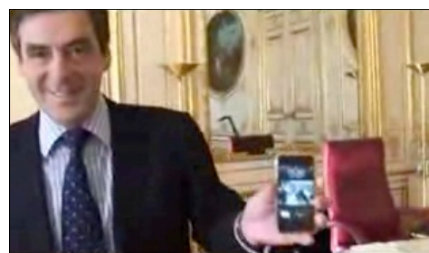


Figure 16: François Fillon showing his iPhone on TV (iphon.fr).

6.5 VIPs

It is easy to imagine how an attack could be targeted against a particular individual. For example, French Prime Minister François Fillon (figures 15 and 16) is very proud of his iPhone and takes it everywhere. Fillon is a native of the French region called *la Sarthe*, where he also has his political roots. There is a significant likelihood that he would download an iPhone application designed to provide local breaking political news. It does not take much imagination to see the potential for damage in such a scenario.

7 Recommendations

7.1 For Apple

7.1.1 Don't rely on security through obscurity

First of all, Apple should stop claiming [1] that an application cannot access data from other applications (see 4.2.3). This is clearly wrong, misleading and dangerous. Secondly, Apple should decide if the observed behavior, present since day one, is a flaw or not. If it is not, then Apple should document it properly. But if it is, Apple may have to review its secure software development lifecycle (S-SDLC) process. Given Apple's interest in corporate environments and the level of competition, this is a matter of credibility.

7.1.2 Wifi connection log and keyboard cache

There is no reason why the wifi connection logs should be readable. The same applies to the keyboard cache, which should be an OS service associated with text fields. It should not be possible to retrieve their whole contents.

7.1.3 Firewall and analytics frameworks

The iPhone clearly lacks an optional outbound firewall similar to LittleSnitch³⁵ on the Mac. Such a service would allow people to opt-out from the various analytics frameworks. An alternative would be to implement a single switch that gives consumers some kind of universal or per framework tracking opt-out option. This is what PrivaCy³⁶ does in the jailbroken world.

At the end of the day, the fact that so many developers use analytics frameworks may be a hint to Apple to give more usage information to developers, and provide users a setting to opt-out.

7.1.4 Address Book

Users should be required to grant access to the Address Book (see 4.2.2) individually for each application, as is currently the case for the Core Location framework. A breakout game has no business accessing your contacts. Moreover, a separate request should be prompted before editing the Address Book. I may want to authorize a quick dialer to retrieve my contacts, but I certainly don't want it to change them without my knowledge and consent.

The risk, naturally, is that the security rules and settings become overwhelming, as in Windows Vista or in the Java security model, which shifts the burden entirely to the consumer. The resulting annoyance and irritation leads many users to simply allow everything.

7.1.5 Towards Apple approved security policies?

To stay in line with the current model where most of the iPhone security depends on Apple and not the user, Apple could ask application developers to establish a security policy for their applications. For instance, the `Info.plist` file could contain a Policy dictionary allowing HTTP access to a specific URL and Core Location usage, but preventing Address Book or file system access. These policies would then be assessed by Apple's reviewers (figure 17). This might be one way to mitigate risk without the user having to manage complex security policies.

This approach is actually a very simple version of a self-defined sandboxing principle called model-carrying [7]. The generation of models could be automated, and it would be possible for the App Store pages to describe it

³⁵<http://www.obdev.at/products/littlesnitch/>

³⁶<http://cydia.saurik.com/package/com.saurik.privacy>

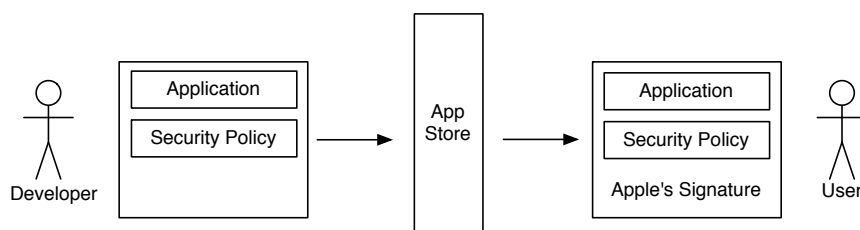


Figure 17: Developers could submit a security policy with their application. Apple would ensure that authorizations are tight enough, and risks would be mitigated without users being overwhelmed with security pop-ups.

in simple terms to potential customers. This is where a closed system could actually be a benefit for users who just want their phone to work.

7.1.6 Device unique identifier

The device unique identifier is currently available through the official SDK's API. While it is not personal data since it cannot identify a physical person, it may be used to aggregate data collected from various applications and analytics frameworks.

As a general rule, an application should not be able to know which other applications you have run. Users merely accept cross-site cookies on the web, they probably would not accept their computer's unique identifier to be transmitted to Google Analytics.

A possible solution for Apple would be to add something like an *app-device identifier* or ADID. This value would be unique for a given device and the requesting application. The current device unique identifier could be kept, but the user should be asked to allow or deny its usage, as with Core Location.

7.2 For consumers

Consumers should be aware that iPhone security is far from perfect and that a piece of software downloaded from the App Store may still be harmful. As a basic precaution, users should regularly clean the browser's recent searches and the keyboard cache in Settings. They should also change or delete the declared phone number, also in Settings.

7.3 For professionals

Professional users should avoid running untrusted applications, especially if they are required by law to protect data confidentiality. This includes groups such as bankers, attorneys, medical staff, law enforcement officers and so on. Also, legal departments should be aware that confidential data may already have leaked.

An answer to this potential spyware issue may be Apple's program for iPhone enterprise deployment³⁷, which lets administrators create configuration profiles enforcing restrictions such as disabling Safari or disabling the App Store.

8 Conclusion

Overall, Apple has addressed iPhone security in a sensible manner to protect most of the data. The file system permissions rely both on Unix permissions and on the sandboxing system. Passwords are kept safe, encrypted in the Keychain. Application databases are not readable by other applications. Overall security improves with each new iPhone version, but some basic security principles are still not correctly implemented, in particular the least privilege principle, the deny by default principle and also a recognition that it is dangerous for Apple to deny the existence of vulnerabilities.

Unix permissions, sandboxing system rule sets and App Store reviews are all very well in theory but their actual implementation is flawed. Numerous files are still readable directly by an application downloaded from App Store (section 4.3), mainly preference files, but also the photo library including geotags, the keyboard cache and the Wifi joined networks history. Combined with full access to the Address Book and the phone number, these data are too tempting for cybercriminals not to be exploited by spyware, especially in a store dominated by free and "one-buck" applications.

To be useful, a trojan would still need to be distributed on the App Store. The fact that our SpyPhone application does not use private APIs would greatly help it pass unnoticed through the App Store review. The huge quantity of submissions, and the fact that reviewers only have the binary code to review, make it easy to hide the malicious behavior, as shown in section 5.2. Consequently, it must be assumed that spyware are currently on the App Store.

³⁷<http://www.apple.com/iphone/business/integration/>

While the fact that personal data are accessible will not be a complete surprise for experienced iPhone developers, the scale of such access probably will. Some may consider that this is unavoidable and therefore normal. Such an attitude, however, amounts to denial, and exposes users to major privacy incidents including massive identity theft and other targeted attacks (section 6).

It is a matter of concern that, two years and a half after iPhone's introduction, and despite its huge commercial success, Apple has not fully addressed several basic filesystem privacy issues and, even worse, continues to disseminate misleading information in its public documentation on iPhone security (section 4.2.3). The danger is therefore that the problem, far from being a bug that you can fix, may be closer to something like a design flaw.

I hope that this paper will give the general public and professionals a clearer view of the real risks, and some clues on how to assess and mitigate these risks, so that they can decide themselves how they should use their iPhones properly in their private lives or corporate environments.

I also want to make it clear that you should have no illusion: in the fast-paced environment of smartphone operating systems, every platform has its own flaws. To Apple's credit, it has at least a first line of defense against harmful applications, in the form of App Store reviews. At a time when malware are appearing on Android Marketplace³⁸, this defense should be retained and improved.

Acknowledgments

I would like to thank everyone who has taken the time to review this paper and exchange their views with mine, especially Graham Lee (@iamleeg), Dominique Bongard (@reversity), Eduard Friesen and Joël Spaltenstein, as well as several other anonymous reviewers.

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³⁸http://www.theregister.co.uk/2010/01/11/android_phishing_app/

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A Sandboxing rules

Here is the file `/usr/share/sandbox/SandboxTemplate.sb`, which documents the rules enforced at the kernel level. Comments are part of the original file.

```
(version 1)
(deny default)

; Sandbox violations get logged to syslog via kernel logging.
(debug deny)

(allow sysctl-read)

; Mount / umount commands
(deny file-write-mount file-write-umount)

; System is read only
(allow file-read*)
(deny file-write*)

; NOTE: Later rules override earlier rules.

; Private areas
(deny file-write*
  (regex "~/private/var/mobile/Applications/.*$"))
```

```

(deny      file-read*
  (regex "~/private/var/mobile/Applications/.*$"))

; SQLite uses /private/var/tmp
; TBR: <rdar://problem/5805879> SQLite doesn't honor
; the TMPDIR environment variable
(allow     file-write*
  (regex "~/private/var/tmp(/|$)"))
(allow     file-read*
  (regex "~/private/var/tmp(/|$)"))

; TBR: <rdar://problem/5806524>
(allow process-exec
  (regex "~/private/var/tmp$"))

; TBR: <rdar://problem/5830139>
(allow file-write*
  (regex "~/private/var/tmp/UpdatedSnapshots/$"))

; Permit reading and writing in the App container
(allow     file-read*
  (regex "~/private/var/mobile/Applications/ \
XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXX(/|$)"))

(allow     file-write*
  (regex "~/private/var/mobile/Applications/ \
XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXX/(tmp|Library|Documents)(/|$)"))

(allow     process-exec
  (regex #"~/private/var/mobile/Applications/ \
XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXX/.*\.app(/|$)"))

; Allow Address book access via filesystem
; This is an SQLite3 database - there is room to make the rules tighter
(allow     file-write*
  (regex "~/private/var/mobile/Library/AddressBook(/|$)"))
(allow     file-read*
  (regex "~/private/var/mobile/Library/AddressBook(/|$)"))

; Allow keyboard db access via filesystem
; This is a custom file format. There is room to make the rules tighter
(allow     file-write*
  (regex "~/private/var/mobile/Library(/Keyboard)?(/|$)"))
(allow     file-read*
  (regex "~/private/var/mobile/Library(/Keyboard)?(/|$)"))

; Pictures, but not other media
; Allow photo access via filesystem. There is room to make the rules tighter
(deny      file-write*
  (regex "~/private/var/mobile/Media(/|$)"))
(deny      file-read*
  (regex "~/private/var/mobile/Media/"))

(allow     file-write*

```

```

        (regex "~/private/var/mobile/Media/com.apple.itunes.lock_sync$"))
(allow file-read*
  (regex "~/private/var/mobile/Media/com.apple.itunes.lock_sync$"))

(allow file-write*
  (regex "~/private/var/mobile/Media/DCIM(/|$)"))
(allow file-read*
  (regex "~/private/var/mobile/Media/DCIM(/|$)"))

(allow file-read*
  (regex "~/private/var/mobile/Media/Photos(/|$)"))

; Mach lookups. There is room to make the rule tighter.
(allow mach-lookup)
;; (global-name "PurpleSystemEventPort")
;; (global-name "com.apple.CARenderServer")
;; (global-name "com.apple.eventpump")
;; (global-name "com.apple.springboard.migserver")
;; (global-name "com.apple.system.notification_center"))

(deny process-fork)

; For ASL logs - /var/run/asl_input (XXX: socket can now be named)
; (allow network-outbound)
; (to unix-socket "/private/var/run/asl_input"))

(allow network*)

; To allow crash reporter / exceptions to kill the process
(allow signal (target self))

```

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Wednesday, February 23, 2011, 12:00 pm PT (03:00 pm ET)

Inside Apple's shareholder meeting and Q&A with Tim Cook

Feature By [Daniel Eran Dilger](#)

Apple shareholders met at the company's Cupertino, California headquarters today to vote on six proposals and voice questions directed at Apple's executive team, followed by comments and a question and answer session handled by the company's chief operations officer Tim Cook.

Among the proposals were two regular corporate approval votes, one to approve the company's existing seven board members (William Campbell, Millard Drexler, Albert Gore, Steven Jobs, Andrea Jung, Arthur Levinson and Ronald Sugar) and a second for ratification of the firm's appointment of Ernst & Young LLC as its independent registered public accountant for the 2011 fiscal year. Both passed in the preliminary vote count.

An advisory vote on executive compensation also passed, with an advisory vote stipulating a 1 year frequency for votes on executive compensation.

Two shareholder proposals were also brought forward, one pertaining to succession planning, which did not pass in the preliminary tally, and a second regarding minority voting that was approved in the preliminary vote count. That measure, argued by CALPERS, asked for transparency and accountability in the voting process for director nominees.

Final votes will be published by Apple after all ballots cast at the meeting are counted. The preliminary vote covers ballots submitted prior to the event. Following the formal vote, the company conducted a question and answer session involving the roughly 400 attendees, about 300 of whom security reported were sat in the main theater area, with the remainder being pushed into an upstairs overflow room.

Cook's Comments

Cook handled a question and answer session after providing an overview of Apple's accomplishments over the past year. He noted that Apple's Mac sales were up 31 percent to 14 million computers, twice what the company was selling just three years ago. He reiterated that Apple has outgrown the overall PC industry for every quarter over nearly five years now, later remarking that the 375 million PCs sold worldwide indicate Apple has plenty of room for additional growth.

Cook added that in education, Apple has been number one in notebooks for three years, a position that is not just limited to the US, as the company has also led European sales in education for the last four years.

In mobile devices, Cook pointed out that Apple doubled its iPhone business over the last year to 40 million units, pointing out that not many companies take a 20 million unit business and double it, nor is it easy to do, before adding that Apple had also launched an entirely new business with iPad, generating sales of 7.6 million in the first month, sales that represented \$5 billion in revenue.

Cook also said that over the last year, Apple had added 44 retail stores, hit a new milestone of 10 billion downloads in the iOS App Store, sold 160 million iOS devices, and in the December quarter, had sold a million Apple TVs, which is "not bad for a hobby." He also pointed out to shareholders that Apple's stock is up about 70 percent from a year ago, compared to 20 percent growth in the S&P average.

Shareholder Q&A

The first question pertained to Apple's vast and growing cash reserves, which shareholders have regularly pointed out could be used to distribute a dividend. This time, the question acknowledged the company's interest in having a strategic reserve of cash, but asked whether Apple had any ceiling in mind when a stockpile would overflow, triggering a distribution to shareholders. Apple's chief financial officer Peter Oppenheimer stated Apple wanted to hold the cash "to do great things," and stated the company has no ceiling in mind, but will continue to monitor the situation as the company's cash pile grows. He added that the cash indicates Apple is doing all the right things.

Another shareholder addressed competition from Google's Android platform, asking what the company was doing to secure its inventions and prevent losses in its supply chain. Cook pointed out that this year, Apple became the second largest phone maker after Nokia, surpassing RIM.

Cook also noted that Apple's iOS focuses on an integrated experience, contrasted with Android, which "turns the user into the system integrator" and noted the platform fragmentation that is resulting from each Android licensee adding its own layers of differentiation in both hardware and the user experience. Cook also said Apple could have sold more iPhones if it had been possible to build more, describing the company's competitive position in saying, "we like our hand."

Speaking directly to shareholder worries that Apple was simply letting others steal its inventions, Cook said, "there's a lot of lawsuits going around," and adding that "nobody likes to have their stuff stolen." Cook also added that Apple takes significant precautions in guarding access to its intellectual property, although admitting that in a couple of cases, "things go missing," a comment that elicited some laughs in alluding to the leak of iPhone 4 last summer.

Phil Schiller, Apple's VP of worldwide marketing, added, "we love competition," adding that Apple's success is so great that everyone else is trying to design an iPhone, and now and iPad.

Android the next Windows?

Bringing up Android again, another question asked if Apple saw parallels between the broadly licensed Android and the competitive threat of Windows back in the early 90s. Schiller answered that the situation is completely different today, as Apple is a different company, with different products, adding that it has learned a lot from looking at its history, and noting that many of the people who were at Apple during that previous period are still there, including Schiller himself.

Schiller added that back then, Apple was competing against companies like Compaq and IBM, which are not around today in the PC business, unlike Apple. He also pointed out that in "post PC" devices, "integration is far more important," than it was among desktop PCs. Apple is also the undisputed leader, adding that Apple was now well ahead of its competitors in software with its App Store, an area it formerly lagged behind on with the Mac.

Schiller said that some in the press like to equate Android with Windows because it's an easy comparison to make, but that "the analogy doesn't fit."

He also noted that enterprise features, and subsequent rapid adoption by businesses, are also being led by iOS, again in stark contrast to the history of the Mac, where the entrenched DOS world was difficult to compete against. Reiterating that 88 percent of the Fortune 100 are testing or actively deploying iPhones, and that 80 percent are already doing the same with iPad, Cook noted that "we never guessed we would see such penetration" among a segment of the market usually resistant to completely new products.

Android input plugins for iOS?

A third major question involving Android related to whether Apple would roll out OS plugins that allowed users to change how devices work, beyond just adding apps, bringing up Android's input manager plugins that allow users to install alternative keyboard types or voice recognition.

The question was fielded by Apple's leader of iOS development Scott Forstall, who pointed out that Apple has, in the iOS App Store, "created the best economy in software in the history of the planet," and noted that Apple is very careful not to create problems that might jeopardize that position. He noted that backwards compatibility is something the company takes very seriously, mentioning that users have been able to use their apps across four major releases of the system.

Forstall also referenced the security of iOS, mentioning its app curation and sandbox design that prevent viruses or malware from "stealing contacts," adding that adding operating system plugins is "very tricky" and saying the company is "very cognizant of the dangers" in allowing unsustainable customization that causes problems moving forward, specifically noting issues related to Mac OS 7.

Apple and gaming

A young man asked whether Apple sees console gaming as a potential market, given that Microsoft and Sony haven't released new generations of their gaming devices. Cook replied that "we are in the gaming business" with iPod touch, and that iPhone and iPad users are also downloading lots of games.

"We found ourselves in the broader gaming market. We think it's a good place to be," Cook said, before adding, "Where we are at now."

Another shareholder asked about Apple's business relationship with Liquid Metal, which it licenses technology from; Cook noted that Apple has bought a variety of small companies, mainly for their engineering ability and people skills, but refused to comment anything specific about any of them.

"Misinformation" about Apple's publisher subscription plans

Another issue raised was Apple's 30 percent cut of publisher subscriptions, compared to Google's reported 10 percent cut. Schiller noted that "there's a lot of misinformation" about the subject, adding that according to Google's public information, it plans to take a 10 percent cut only of web sites that use its subscription fulfillment system, and will charge the same 30 percent cut within apps, just like Amazon and just like other software app stores do.

Oppenheimer added that Apple continues to run the App Store at "just a little over break even."

A second question about Apple's cut for publishers asked whether newspapers can afford to give up 30 percent of their revenues, to which Cook answered that the split Apple shares only applies to new customers, and that publishers can bring their existing subscribers content through App Store titles at no cost, managing that themselves. Apple's executives made it clear that the 30 percent cut is not the issue, and that the real controversy is related to customer information.

"We believe customers should decide" whether to share their data, Cook said, adding that "we want journalism," a response to the question's fear that Apple's cut might doom struggling newspapers.

What about Jobs?

A final question came from a woman asking if Apple's executives had seen Mike Daisey's monologist play, "The Agony and the Ecstasy of Steve Jobs," which references the role of Steve Jobs and Apple's activities in China. Cook dismissed the play, saying "if it's not on ESPN or CNBC, I don't see it," but said he could comment on China.

Cook said in everything from worker safety to making processes environmentally friendly "we have the highest standards," adding that Apple is the most transparent in its auditing and reporting than any other company, reporting actual problems and taking real action.

Cook also noted that Apple's policies apply not just to the more reputable companies it does direct business with, but that its auditing is "going deep into the supply chain" where the real problems are. He described problems such as workers from countries like Indonesia who are recruited by layers of companies that each charge fees that add up to be a large amount of the workers' wages, or fake young workers' birth certificates to skirt employment laws.

Apple has terminated relationships with suppliers who "just don't get it," Cook said, while working to resolve problems with others who appear to have made honest mistakes. Cook noted that Apple's actions "will help more than Apple," because the company is pushing to change how business is done.

It had forced reimbursements of \$300 million to workers and has involved governments to get involved and understand the issues. "We are doing the heavy lifting," Cook said. "I am really proud of the changes we have forced in."

Cook was then encouraged again by the woman to see "The Agony and the Ecstasy of Steve Jobs," because she wanted him to see how Jobs was being portrayed as a man who traveled to China and observed conditions there. To this Cook answered, "I don't need to see a play. I know Steve Jobs," adding that Apple's executives have also been there, interviewing workers and not just management, and opening lines of communications that allow workers to report problems independently.

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APR 27, 2011 — 14:27 PDT

Steve Jobs Discusses Location Tracking, Privacy



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Ina Fried at Mobilized reports some excerpts from a phone interview with Steve Jobs about the location tracking issues also addressed by Apple this morning:

The files they found on these phones, as we explained, it turned out were basically files we have built through anonymous, crowdsourced information that we collect from the tens of millions of iPhones out there.

He said Apple looks forward to testifying before Congress and other regulatory bodies and said the company will do what it can to clarify things further. "I think Apple will be testifying," Jobs said. "They have asked us to come and we will honor their request of course."

Steve Jobs also reiterated the statements from today's Q&A, saying much of the speculation last week arose from "wrong conclusions" -- generated by the fact that Apple, and the tech industry overall, failed at educating users about several aspects of location data, anonymous tracking and privacy:

As new technology comes into the society there is a period of adjustment and education," Jobs said. "We haven't as an industry done a very good job educating people I think, as to some of the more subtle things going on here. As such (people) jumped to a lot of wrong conclusions in the last week."

Update: Mobilized has updated their original post with an edited transcript of the interview with Jobs, Schiller, and Forstall. Other interesting tidbits:

Is there anything that you guys have learned over the last week or so and take away from this?

Forstall: One thing I think we have learned is that, the cache we had on the system, the point of that cache, is we do all the location calculations on the phone itself so no location calculations are done separately. You can imagine in ideal world the entire crowdsourced database is on the phone and it just never has to talk to a server to do these calculations (or) to even get the cache.

What we do is we cache a subset of that. We picked a size, around 2MB, which is less than half a song. It turns out it was fairly large and could hold items for a long time.

We had that protected on the system. It had root protection and was sandboxed from any other application. But if someone hacks their phone and jailbreaks it, they can get to this and misunderstand the point of that.

It's all anonymous and cannot be traced back to any individual phone or person. But we need to be even more careful about what files are on the phone, even if they are protected.

Schiller: Sometimes it helps people to understand an analogy that describes what these things are like because they are so new. I would think an analogy of a crowdsourced database is every time you walk into a retail store, many retailers have a clicker that counts how many people come in and out of the store. Nobody really cares about that because it is completely anonymous. It is not personal data. It is not anything to worry about. It's not something that people feel is private because it is really not about them. It's a coagulated total of all traffic. These crowdsourced databases are sort of like that.

Things like that aren't so scary when you think about them in everyday terms.

Source: mobilized.allthingsd.com

Tags: interview, steve jobs

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Code by **Alessandro Vendruscolo** | Design by **Silvia Gatta** | Hosted by **Macminicolo** | **Acknowledgements**

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Working Notes for the 2011 IJCAI Workshop on Intelligent Security (SecArt)

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18 July 2011

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Preface

This is the third in a series of workshops exploring issues at the intersection of Computer Security and Artificial Intelligence. This is a fertile area for research, and has been attracting an increasing amount of interest in both communities. Previous workshops on Intelligent Security have been held at ICAPS 2009, and AAAI 2010. In addition, and more from the Security community than from the AI community, there is a series of workshops, now on their third iteration, being held in conjunction with the ACM Conference on Computer and Communications Security (CCS), and so organized primarily from the Computer Security community. Clearly, this is an active area of research in both communities.

The aim of these workshops is to encourage ongoing dialogue and collaboration, both between the AI and Security communities, and among researchers on both sides, working on similar problems. AI and security is a large and growing area, both for research and for applications. Our increasingly networked world continues to provide new opportunities for security breaches that have severe consequences at the personal level (identity theft, and resulting financial losses), for businesses (theft of intellectual property, or business plans, or costly responses to the theft of customer data), and for governments. Computing and the internet have become crucial parts of the infrastructure of almost every significant commercial or governmental enterprise. Turning off the computers or disconnecting from the network has become tantamount to turning off the power.

The current workshop includes research papers describing the application to computer security of a wide range of techniques in Artificial Intelligence. We have also included a brief description of a live demonstration of the vulnerabilities of current smart-phones and PDAs, which we hope will be of interest to workshop attendees.

Security through Sandboxing? - Towards more secure smartphone platforms

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Abstract

Smartphones are becoming an integral part of modern communication and thus a potential target for attacks. The multitude of interfaces and apps makes it hard to keep an overview of potential threats. Nevertheless, these devices are increasingly used even in safety-critical domains. Even though typical operating systems for smartphones include features intended to prevent malicious applications from running, hackers have found ways to circumvent these security mechanisms. Results from our research show that the situation worsens once the attacker has system-level (or root) privileges. Two major smartphone platforms (iOS and Android) do not provide any means to indicate to the user that her phone has been compromised in such a way. To illustrate this point, we wrote an undetectable data-collecting piece of malware. We argue that the security mechanisms of these operating systems thus do not only fail to fully prevent unauthorized access, but also hinder security tools that could detect such access. Finally, we suggest possible improvements to smartphone security that might mitigate this situation.

Introduction

Smartphones changed the way in which mobile communication devices are used. Calling and texting are no longer the primary purposes of these phones. Quite contrary: since a user may install additional applications, they have turned into small personal computers. As with those, a modern phone is used to access very personal data, such as emails, photos or web sites. However, in contrast to a personal computer, the user only has limited access to the internals of the hardware or the operating system. The choice of additional software suffers from this approach. Usually, there is a predefined source from which software can be installed (App store or Android market). Even if other sources are available (Android offers the opportunity to install software from other markets), some functionality may be missing if the provider does not offer it.

This has not hindered the uptake of smartphone usage. More and more users replace their old feature phone with a smartphone. However, this sometimes happens without considering the security implications that arise through such a device. We argue that upon such a change, people need to reconsider

the data that could be obtained through access to their phone. This is especially true if they use it to access sensitive data.

Vulnerability demonstration

To illustrate this problem, we have created a software wiretap for iOS devices. This application accesses a number of data sources within the phone and makes them available to other interested parties. Currently, it can read the data stores for the user's address book, browser history, keyboard cache, captured photos and movies, text messages, phone history, bookmarks and emails. It also can access the camera and audio hardware as well as the GPS module. Finally, some additional data such as serial number, OS version and battery level is read. When the device is connected to the internet, it is possible to transmit this information to another system.

To install this application on a machine, any security exploit can be used that allows the execution of random code. Currently, we use a customized version of the redsn0w jailbreak.¹ This enables us to jailbreak the phone and install our wiretap with a single click. The whole process takes about two minutes and can conceivably be done while a device is left unattended for a short time. Depending on the exploit used, other attack vectors may become available. To further emphasize how easily data can be accessed once the wiretap is installed on a device, we have created an iPad application that serves as a client to display the gathered information (see figure 1). All functionality of the wiretap can easily be controlled through a touch-based interface. A demonstration of this has been documented in (Schwirblat 2011).

The impossibility of anti-malware apps

Both Android and iOS currently limit the rights of the account that is running user-installed programs. Such a program is saved to a reserved part of the system that acts as a sandbox. A program is only given permission to read and write data within this location. Additionally, an iOS application installed through the AppStore may not use the full Application Programming Interface (API) provided for the system, but just a "public" subset of it. These limitations are supposed to increase the users security. As Ap-

¹<http://blog.iphone-dev.org>

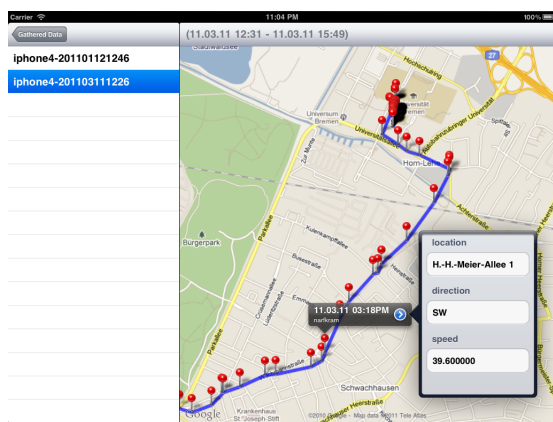


Figure 1: The iPad client, displaying a GPS trace created by our wiretap

ple states², "Applications on the device are 'sandboxed' so they cannot access data stored by other applications. In addition, system files, resources, and the kernel are shielded from the user's application space." During a court hearing to establish the legality of jailbreak software, Apples Greg Joswiak stated: "Why do we have these security mechanisms in [the iPhone]? Well, one is we want to protect the product from modification and copying, protect our software from being modified and copied, because these OS modifications can cause damage. And we want to secure the user's data. Again, their E-mail, their context, their pictures, et cetera." (Leonard 2009)

As we demonstrated above, however, there are ways to run software on a smartphone that bypasses these restrictions. In this regard, the security mechanisms intended to protect the device from malicious software turn into limitations that prevent the detection and elimination of such software.

Countermeasures

Since our wiretap does not alter the behaviour of the phone or the appearance of its software, it is not easily detectable by the user. For this reason, the user has to reinstall the operating system of the phone to make sure that such an application is removed from the device. This can be a lengthy process, depending on the amount of data stored on the system, and may take upwards of 30 minutes. It is thus impractical to perform as a daily routine.

To prevent infection with software comparable to ours, we suggest to make sure that control over the physical device is maintained at all times. Furthermore, it is advisable to update to new versions of the operating system as they become available. Usually, these fix security flaws and require the tools used to install unauthorized software to be updated before they can be used again. However, even doing so cannot guarantee that a system will never be compromised by malware. As it is generally considered impossible to produce error-free software, exploits will continue to allow the execution of unsigned code on these platforms. For example,

²http://images.apple.com/iphone/business/docs/iPhone_Security.pdf

a bug in a previous version of iOS used a flaw in the handling of PDF files to inject software into the runtime.³ Just visiting a website could execute arbitrary code. It would thus have been possible to install our wiretap through this mechanism.

To adequately scan for and act against such attacks, the limitations on 3rd party software as stated in the previous section would need to be removed. Whether this may ever happen is questionable at this time. At this moment, these developments have not encouraged Apple to open up their system any further.

Conclusion and Outlook

Our evaluated smartphone platforms are designed to secure the system and its content by limiting the access to library functions that can be used by 3rd party programmers. Today, however, it can be seen that this limitations have not prevented those with sufficient motivation and resources from accessing data on the device that should be inaccessible to them. Furthermore, the lack of complete system access prevents the creation and usage of tools which would be able to detect code running out of its designated sandbox.

This demonstrates that the attempt to create a secure platform through closing down the system has proven unsuccessful. Therefore, we propose to remove these limitations in order to allow security tools to be created. While this may change the perceived security of a platform, we feel that it would benefit the customer and allow for more secure use of smartphones in sensitive areas.

Another possible approach is the inclusion of a trusted hardware module that maintains control over the system. One might conceive a smartphone platform which deeply integrates a Trusted Platform Module (TPM) to ensure only software is executed which is included on the device's whitelist. Currently, research is trying to determine ways in which such a module could, for example, be integrated into business processes.⁴

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³<https://github.com/comex/star>

⁴<http://www.vogue-project.de>