

An Updated Survey of Anti-Virus Software from Published Test Results

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January 25, 2017 (amended 2/07/17)

Slide Set Two: Anti-Virus for Mobile Devices:

Part I, protection for Apple iPhone & iPad

Part II, protection for Android smartphones

Anti-virus Software for the Apple Mobile Devices:

Several sources advise that iPhone and iPad don't need an anti-virus product because of locked-down hardware & software:

- iPhone Apps are controlled and assured by the Apple store.
- the iOS operating system, by design, prevents cross interaction between apps.

Exceptions, where malware could get onto your iPhone/iPad:

- when an iPhone/iPad is connected to an iMac or Windows computer, malware could be transferred across;

Preventive action is to have anti-virus on your iMac, and certainly on your Windows computer(s).

- if you “jailbreak” your iPhone, to be able to run apps found outside the Apple Store – then you had better have anti-virus installed.

(glossary – jailbreaking means hacking the iOS operating system to bypass restrictions imposed by iOS on accessing the file system).

Anti-virus Software for the Apple Mobile Devices:

The instances of malware infections that have been reported on iPhones and iPads are explained in an article in MacWorld -

Abstract: We examine the various cases that have begged the question of security on the iOS platform, we look at how to make sure your iPhone or iPad is secure and ask whether this all this means Apple's iOS isn't secure? by Karen Haslam | 22 Sep 15, MacWorld U.K.

<http://www.macworld.co.uk/feature/iosapps/is-ipad-iphone-ios-safe-xcodeghost-what-security-software-need-3453938/>

It explains what happened with each of the reported exploits - Xcode Ghost, Masque Attack, WireLurker, celebrity photos stolen from iCloud, the "Oleg Pliss" ransom case, and the SSL flaw. Then, in Part II, it discusses steps to make sure your iPhone or iPad is secure, how to keep your photos secure, how to update iPhone to the latest iOS, comments on "anti-virus" apps for iDevices, security provisions in Safari browser, Javascript, biggest danger is theft of the phone (set up your passcode, and Find My Phone feature); saving passwords and credit cards in Safari; discusses passwords and the iCloud Keychain.

Anti-virus Software for the Apple Mobile Devices:

Found in the Apple iTunes store:

- 1) Avira Mobile Security (free) – email & contacts identity monitoring, device memory monitor; no mention of any anti-virus function.
- 2) Trend Micro Mobile Security – for iPhone, iPad, iPod; (\$3.00; \$30/year) – secure browser, blocks malicious websites, blocks tracking ads, - no mention of a-v.
- 3) F-Secure Safe (\$50/year) – browsing protection and parental control of websites accessed; no mention of anti-virus function.

Anti-virus Software for iPhone or iPad focuses mostly on features other than detecting malware.

From an Apple web forum,

"is it safe to do banking transactions on an iPad? " (or iPhone)

<http://www.apple.com/shop/question/answers/readonly/tag/ipad/is-there-antivirus-protection-for-ipad/Q7AH44XUXA77FA7H9>

contributed by Mr. M. Phoenix AZ, 12/22/2014:

"WireLurker". is a particularly nasty piece of work that can infect an iOS device like an iPad if the device is connected to an Apple computer via USB and is very difficult to detect and remove.

"One of the best things you can do to protect yourself is ask your bank if they offer two factor authentication. This involves using a token generator (aka RSA key) that makes a unique key every few minutes that you type in along with your password to login to your online bank. Even if a hacker somehow managed to steal your password he would be unable to access anything without the token generator."

(continued on the next slide)

“As for an anti-virus for the iOS, I wouldn't bother. Currently there are a few anti-virus products on the app store, but most of them focus more on your privacy settings and theft protection rather than protecting your device from actual viruses.

They can also be a big drain on your iPad's battery. If you use Facebook and Twitter a lot I highly recommend installing the free McAfee or TrendMicro anti-virus and let it adjust your privacy settings; then uninstall it once it's done, because that's all its good for at the moment.”

Other apps named in “5 best anti-virus products for iPhone”

- 1) Lookout Mobile Security – for iPhone
- 2) McAfee Antivirus Mobile Security – iPhone & iPad
- 3) Norton Antivirus for iPhone, iPad, and iPod Touch (free of charge)
- 4) Virus Barrier – iPhone (in the Apple store? - not found)
- 5) Anti-virus Detective - iPhone

Concluding advice: (from the MacWorld UK article)

- 1) Keep your iPhone current with the latest updates.
- 2) To avoid malware infections such as WireLurker –
Never attach your device to a computer or even a USB charger unless you're 100% sure it's safe. Remember that infections on a Mac or PC are likely to be invisible to the user.
- 3) Additionally, never "jailbreak" your phone – because –
It undoes all the good work Apple has done in securing iOS.
- 4) If you suspect you've been infected by WireLurker or a similar malware, open the Settings app and then tap General > Profiles. If you're infected you'll see an entry here that you didn't install. Tapping it will offer the chance to remove it (although Apple has already revoked the profile used in WireLurker).

Part II - about Anti-virus products for Android phones:

Android smartphones are at a higher risk of infection by malware than Apple's iPhone or iPad.

1) Article about inherent security risk in Android phones:

"Evaluating Android Anti-malware against Transformation Attacks"

http://list.cs.northwestern.edu/mobile/droidchameleon_nu_eecs_13_01.pdf,

March 2013, but it makes suggestions how to improve the vulnerabilities for the future.

2) For a feature writeup on each AV product for Android, read AV-Comparatives' "Mobile Security Review 2016,"

https://www.av-comparatives.org/wp-content/uploads/2016/09/av_mob_2016_en.pdf

3) On the next slides are test result charts from Consumer Reports and AV-Test.com, and a key to the definitions and rating symbols used in the columns.

Consumer Reports' Rating of Anti-malware Software for Mobile Phones, January 2017 (CR online only)

Models of phones tested is not revealed, presumably Android

Locate Phone.
Lock Phone.
Wipe (erase phone data)
Anti-malware rating.
Ease of Use.
Use of Resources
Versatility

Overall score	Brand & Model / Price	Locate Phone.	Lock Phone.	Wipe (erase phone data)	Anti-malware rating.	Ease of Use.	Use of Resources	Versatility
Overall score 71	McAfee Antivirus & Security Recommended Price . \$30.00 Price & Shop		↑	↑	↑	↓	↑	↓
Overall score 67	Avast! Mobile Security & Antivirus Recommended Price . --- Price & Shop		↑	↓	↑	↓	↑	↑
Overall score 66	BitDefender Mobile Security & Antivirus Recommended Price . \$10.00 Price & Shop		↓	↑	↑	↑	↑	↓
Overall score 65	Lookout Security & Antivirus Recommended Price . \$30.00 Price & Shop		↓	↑	↑	↓	↑	↓
Overall score 65	Norton Mobile Security Recommended Price . \$30.00 Price & Shop		↑	↑	↓	↓	↑	↓
Overall score 65	AVG Antivirus Security Free Recommended Price . --- Price & Shop		↓	↓	↓	↑	↑	↓
Overall score 63	Trend Micro Mobile Security & Antivirus Recommended Price . \$30.00 Price & Shop		↓	↓	↑	↓	↑	↓
Overall score 63	ESET Mobile Security Recommended Price . \$20.00 Price & Shop		↓	↓	↑	↓	↑	↓
Overall score 62	TrustGo Antivirus & Mobile Security Recommended Price . --- Price & Shop		↓	↓	↓	↑	↑	↑
Overall score 61	Kaspersky Mobile Security Lite Recommended Price . --- Price & Shop		↓	↓	↓	↓	↑	↓

Key to Definitions and Symbols in the charts

1) Consumer Reports' Column Headings are Rated Categories.

Overall Score: Based mainly on performance blocking malware and effectiveness of anti-theft features, as well as ease of use. 0 – 100%

Locate: How effectively the app allowed locating a lost or stolen device

Lock: How effectively the app allowed locking a lost or stolen device from use.

Wipe: How effectively the app allowed wiping data from a lost or stolen device.

Anti-malware: How effectively the app protected against malware.

Ease of Use: How easy the app was to set up, configure, and use.

Resources: Measures use of phone memory and tendency to slow device operation during a scan.

Versatility: Rates the mix of features and capabilities within the app.

(The features and capabilities are presented in an additional chart of mine giving evaluation by AV-Test.com as well as by Consumer Reports.

Consumer Reports now uses green, light green, yellow, orange, and red to represent ratings of A,B,C,D,E (academic scale).

(This Consumer Reports article is available online, but not in print yet.

If you find the readability poor here,

You can access it online from home if you have a Minuteman Library Card. Go to www.mln.lib.ma.us/menu/research.htm, or use a computer in the library to access this URL.

Click on “Databases,” type in your library card number or username, and click the “login” button. Scroll down to “Consumer Reports Online.” Once in, mouse over “Product Reviews” in the top menu, Select “Electronics” in the left pop-up menu, move to the right and select “All Electronics.” That brings up a Ratings and Buying Guides page. select “Mobile Security Software” down near lower right corner.

However I consider it a sloppy report because the models of 'phones tested are not identified, but presumably are Android devices.)

In my own composite chart I have overlaid the Consumer Reports ABC.. ratings in the Locate, Lock, and Wipe columns; “y” and “c” in the other columns indicate the features confirmed by AV-Test or CR.

AV-Test Summary, Anti-Malware Software for Android OS devices.				Consumer Reports Test Score, January 2017										
November, 2016		Detection of Android Malware		Anti-Theft:	< - - - - - Other Features - - - - - >									
Tested on Android v. 5.1.1		Real-time	Discovered in Last 4 weeks	Locate + Remote Lock + Remote Wipe	Call Blocker	Message Filter	Safe Browsing	Parental Control	Data-Backup	Encryption Supported	App Protection	Privacy Protection	WiFi Security	More Feature(s) *
Anti-Malware Product Name:						(s=anti-spam)								
<i>The top eleven here have 6.0 scores (perfect) for both Protection and Usability.</i>														
Avast Mobile Security (FREE) version 5.7	99.9%	100%	A D A	67	y	s	y				Locking	advisor	y	
BitDefender version 3.2	100	100	C B B	66			y	c			Locking	advisor		
Cheetah Mobile CM Security, version 3.1 (FREE)	99.8	99.9	y y y	--	y		y				Locking	Privacy cleaner	y	
Intel McAfee Mobile Security version 4.7	99.8	99.9	A A C	71	y	s	y	c	y		audit	Privacy scanner		
Kaspersky version 11.2	99.9	99.9	B B C	61	y	y	y?					y?		
Sophos version 6.1 (FREE)	100	100	y y y	--	y	y	y	y		y	y	advisor		
Norton Mobile Security v 3.16	100	100	A A C	65	y	s	y		y					App Advisor
Trend Micro Mobile Security version 8.0	99.8	100	B C B	63	y	y	y	y?	y		audit	Privacy scanner		(no user manual)
AVG Antivirus Security (FREE)	(not tested by AV-Test)	(not tested by AV-Test)	B C C	65	y						Locking			
<i>Chinese Language Only</i>														
Baidu version 8.3 (Chinese language only) FREE	100%	99.9%	y y y (?)	--	y	y			y		audit			Smart Anti-fraud
Tencent WeSecure (Chinese language only) v. 1.4 (FREE)	100	100		--	Y (?)		Y (?)		y					
<i>Lower-scoring products:</i>														
AhnLab version 3.1	99.6	99.8	y y y	--	y		y				Locking	advisor		
Avira Antivirus Security 4.5	98.9	99.8	y y y	--	y		y				Locking	advisor		Identity Safeguard
Bullguard Mobile Security version 14.0	99.2	100	y y y	--	y	y		y	y					
ESET Mobile Security & Antivirus version 3.3	99.2	99.9	B D A	63	y	y	y	y?			audit			Security audit
Gdata Internet Security 25.11	99.0	99.8	B B B	56	y	y	y	y			audit	advisor		Hide contacts; SIM change
Psafe Total, v. 3.8 (FREE)	99.5	99.9	y y y	--			y							Vault; Cleanup
Qihoo 360 Antivirus, (FREE) v. 2.1	99.4	99.9		--	y	y	y					y		
AV-Comparatives versions tested, if different from chart: Android 6.0.1; Avast 5.2.0, BitDefender 3.0, Gdata 25.10, Kaspersky 11.11, McAfee 4.6,														
Android version 6.01 built-ins			y y y				y		y			Privacy scanner		
* = User Manual available unless otherwise indicated (in More Features column)														
Key to letters in table: y = yes by AV-Test review; c = yes by Consumer Reports review, disagreeing with AV-Test														
chart prepared by Gary Patrick 2/07/2017 from AV-test and corroborated by AV-comparatives and Consumer Reports reviews.														

Recommendations for Android Devices:

There are at least nine anti-virus products that do a nearly 100% job of blocking malware - (refer to the chart slide preceding)

Choose one of the free ones, or

Select a product depending more upon appropriate additional features, unique to the products named below:

- 1) For security when your 'phone is using WiFi, choose
Avast Mobile Security 5.7 (free) or
Cheetah Mobile CM Security 3.1 (free)
- 2) For support of encryption, choose Sophos v. 6.1 (free)
- 3) Data backup is supported by
McAfee Mobile Security 4.7
Norton Mobile Security 3.16
Trend Micro Mobile Security 8.0
- 4) For a child's phone, Parental Protection is included in
Sophos v.6.1 (free), Trend Micro Mobile security v.8.0.
McAfee Mobile Security, and Bitdefender.

Anti-virus Apps to Avoid:

Software from sites other than the Google Play Store can be risky, but even some on Google Play are suspect:

- 1) Zoner Anti-virus – lowest score in Consumer Reports tests
- 2) MyMobile Security – doesn't block malicious websites and does a poor job of finding malware.
- 3) NQ Mobile Security and Anti-virus – does poorly finding malware.
- 4) G Data Anti-virus – only fair score at finding malware.
- 5) Dr.Web Anti-virus – lacking ability to block malicious websites.
- 6) Malwarebytes Anti-malware for Android – low score on malicious file detection compared to most other products.

[article ref. #4]

Consumer Reports' comments on individual AV products sometimes reveal further distinguishing features:

McAfee Antivirus & Security: \$30/yr. Overall score, 71

This app was okay at finding malware, but not among the best.

Tops at locating, locking, and wiping phones;

Includes an anti-spam feature.

Parental controls include the ability to create profiles where you can keep selected apps out of the reach of other users.

User comment 12/29/16 that autopay renewal charges suddenly increased by a lot.

Avast Mobile Security and Antivirus: free. Overall score, 67

The best of the free apps.

Not among the best at finding malware, but okay;

Excellent at locating and wiping phones, but not as good at locking them.

The Apps Manager lets you look at the resources your device is using,

Network Meter lets you know how much data you're downloading.

Bitdefender Mobile Security & Antivirus: \$10/yr. - not free but a bargain.

Overall score, 66

One of the best at locating malware, and at allocating the resources to do so.

Very effective at locking and wiping phones; not as good locating them.
(For example, if the GPS is off, it won't find the phone).

User review complains of bait & switch by company from low cost/yr to higher/by/month, and would not undo the mistake. 1/28/2017.

Lookout Security & Antivirus: \$30/yr. Overall score, 65

Not among the best at finding malware, but okay.

Great app for locating, wiping, and locking a phone;

Can take a picture of anyone who tries unsuccessfully to unlock your phone three times, and a siren that goes off even when the phone is on silent.

No user comments.

Norton Mobile Security: \$30/yr. Overall score, 65

Just okay at finding malware.

Excellent at locating and locking your phone; just okay at wiping it;
has a "scream" alarm to help you find a lost phone.

No user comments.

AVG Antivirus Security Free: Overall score, 65

Great job finding malware, and locating phones.

It was just okay for wiping and locking a phone.

Doesn't have the variety of features that some others have.

Can monitor storage space used, as well as data usage.

No recent user comments.

Trend Micro Mobile Security & Antivirus: \$30/yr. Overall score, 63

Just okay at finding malware.

Very good at locating and wiping data from your phone.

Okay for locking a lost or stolen phone

No applicable user comment.

ESET Mobile Security: \$20/yr. Overall score, 63

Just okay at finding malware.

Great job locating and wiping phones, but only fair at locking a lost or stolen phone.

Doesn't block malicious websites.

No user comments.

TrustGo Antivirus & Mobile Security: free, Overall score, 62

Among the best at finding malware.

Just fair at locating phones and okay at locking and wiping them.

No user comments

Kaspersky Mobile Security Lite: free Overall score, 61

Just okay for finding malware.

Great job at locating and locking phones, but just okay for wiping phones

Lacks features many other apps have, (doesn't block malicious websites, create backups, or have parental controls.

No user comments.

References:

- 1) 10 Best Security/Anti-virus Apps for Android & iPhone, 2016
<http://www.designbolts.com/2015/11/11/10-best-security-antivirus-apps-for-android-iphone-2016-edition/>.
- 2) Mobile Security Review 2016, issued by AV-Comparatives.org
https://www.av-comparatives.org/wp-content/uploads/2016/09/av_c_mob_2016_en.pdf
- 3) Evaluating Android Anti-malware Against Transformation Attacks
<http://list.cs.norwestern.edu/mobile> more !!
- 4) Low-scoring Anti-virus Apps for Android:
Six Antivirus Android Apps That Are a Total Ripoff
by Jess Bolluyt Dec 31, 2016 – references Consumer Reports
<http://www.cheatsheet.com/gear-style/antivirus-android-apps-to-tal-ripoff.html/?a=viewall>
(article found by Charly Sestokas)