TESTING GROUND LABS

Android Malware Detection Test

2021 Nov

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Chap.1 Background

Android is a mobile operating system developed by Google. It is based on a modified version of the Linux kernel and other open source software, and is designed primarily for touchscreen mobile devices such as smartphones and tablets. In addition, Google has further developed Android TV for televisions, Android Auto for cars, and Wear OS for wrist watches, each with a specialized user interface. Variants of Android are also used on game consoles, digital cameras, PCs and other electronics.

Android's smartphone share will hover with around 85% throughout the forecast. Volumes are expected to grow at a five-year compound annual growth rate (CAGR) of 1.7% with shipments approaching 1.36 billion in 2022. Android maintained its position as the leading mobile operating system worldwide in June 2021, controlling the mobile OS market with a close to 73 percent share. Google's Android and Apple's iOS jointly possess over 99 percent of the global market share. Overall this is a positive sign that consumers are seeing the benefits of moving to a slightly more premium device than they likely previously owned.

Android security software can protect you away from the following malware activities (all are actual cases):

1. Send messages to "premium service" SMS numbers that cost extra money.
2. Send your personal information to unknown parties.
3. Turn your phone into a part of a botnet so others can execute commands   remotely for nefarious purposes, such as spam, DDOS attack, and more.
4. Non-authorized persons may monitor your phone calls and text messages.
5. Open you to blackmail, if something embarrassing can be found and sent elsewhere.
6. Trick you into entering financial information, such as account number, birth date, and more.
7. Even stuff on your PC if you connect your PC to your smartphone.

Chap.2 Test Process & Test Software

Several android mobility devices will be prepared and backup images are created then. Detailed process is as follows:

1. 1348 malware samples and bulks of clean android applications (442 different installers) are prepared and delivered to the internal storage of devices. The malware were collected in multiple sources (including China region), clean apps were taken from Google AppStore and other legitimate app stores.
2. Install a security product on the physical phone device with default configuration.
3. Update the security product and perform a full scan against the malware set and clean applications. Malware detection rate and false positive status will be recorded.
4. Restore the backup image and repeat the three steps above.
5. Platform: PixelExperience Android 10 on RedMi Note 4X
6. Test date: November, 2021

Vendor	Software	Version
AhnLab	*AhnLab V3 Mobile Security*	*3.2.6.1(Build 3724)*
Antiy Labs	*AVL for Android*	*2.8.1*
Avast	*Avast Mobile Security*	*6.44.2.510138-5778d94446*
Avira	*Avira Antivirus Security for Android*	*7.9.1 build No. 4924*
ESET	*ESET Mobile Security*	*v. 7.1.11.0-15*
Kaspersky	*Kaspersky Internet Security for Android*	*11.76.4.6357*
Malwarebytes	*Malwarebytes for Android*	*3.8.4.50*
McAfee	*McAfee Mobile Security*	*6.3.0.106*
NortonLifeLock	*Norton 360 (Norton Mobile Security)*	*5.23.0.211130007*
Trend Micro	*Trend Micro Mobile Security*	*12.9.1.3670*

Chap.3 Tested Result (The test results are shown on the following tab)

Vendor	Total Samples	Missed Samples	Detected Samples	Detection Rate	False Positive Counts	Total Score
Trend Micro	*1348*	*0*	*1348*	*100.000%*	*0*	*100.000*
Kaspersky	*1348*	*0*	*1348*	*100.000%*	*0*	*100.000*
Avira	*1348*	*1*	*1347*	*99.926%*	*0*	*99.926*
ESET	*1348*	*1*	*1347*	*99.926%*	*0*	*99.926*
McAfee	*1348*	*1*	*1347*	*99.926%*	*0*	*99.926*
NortonLifeLock	*1348*	*3*	*1345*	*99.777%*	*0*	*99.777*
AhnLab	*1348*	*5*	*1343*	*99.629%*	*0*	*99.629*
Avast	*1348*	*5*	*1343*	*99.629%*	*0*	*99.629*
Malwarebytes	*1348*	*10*	*1338*	*99.258%*	*2*	*99.058*
Antiy Labs	*1348*	*0*	*1348*	*100.000%*	*269*	*73.100*

Remarks: Final Score= (Detection %) *100-0.1*FP

Chap.4 Test Summary & Monthly Award

During the test, we had helped some vendors fix the crashes that we discovered and then we also had verified and confirmed the fixes.

Monthly Award

2021.11

Trend Micro	
Kaspersky	
Avira	
ESET	
McAfee	5 Star Monthly Award 2021 November
NortonLifeLock	
AhnLab	
Avast	
Malwarebytes	

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