

Trend Micro Comparison Test: Performance

A test commissioned by Trend Micro and performed by AV-Test GmbH
Date of the report: August 23rd, 2016, last update: September 7th, 2016

Executive Summary

In July 2016, AV-Test performed a comparative review of Trend Micro Virusbuster Versions 8, 10 and 11 against Norton Security 2016 and Microsoft Security Essentials 4.9 to determine their performance impact.

The test runs on several identical PCs on Windows 7 Professional (SP1, 64-bit). On this image, the security software was installed and tasks or services that may affect the results have been disabled, like Windows Updates, Scheduled tasks and so on. Any detection by the security software was noted. Finally the performance impact of the solutions to the system has been measured.

All three Trend Micro products delivered perfect results for performance and had a smaller performance impact than the competitors.

Especially Trend Micro Virusbuster 11 stands out with an impact below 10% in comparison to a clean Windows 7.

Overview

With the increasing number of threats that is being released and spreading through the Internet these days, the danger of getting infected is increasing as well. A few years back there were new viruses released every few days. This has grown to several thousand new threats per hour.

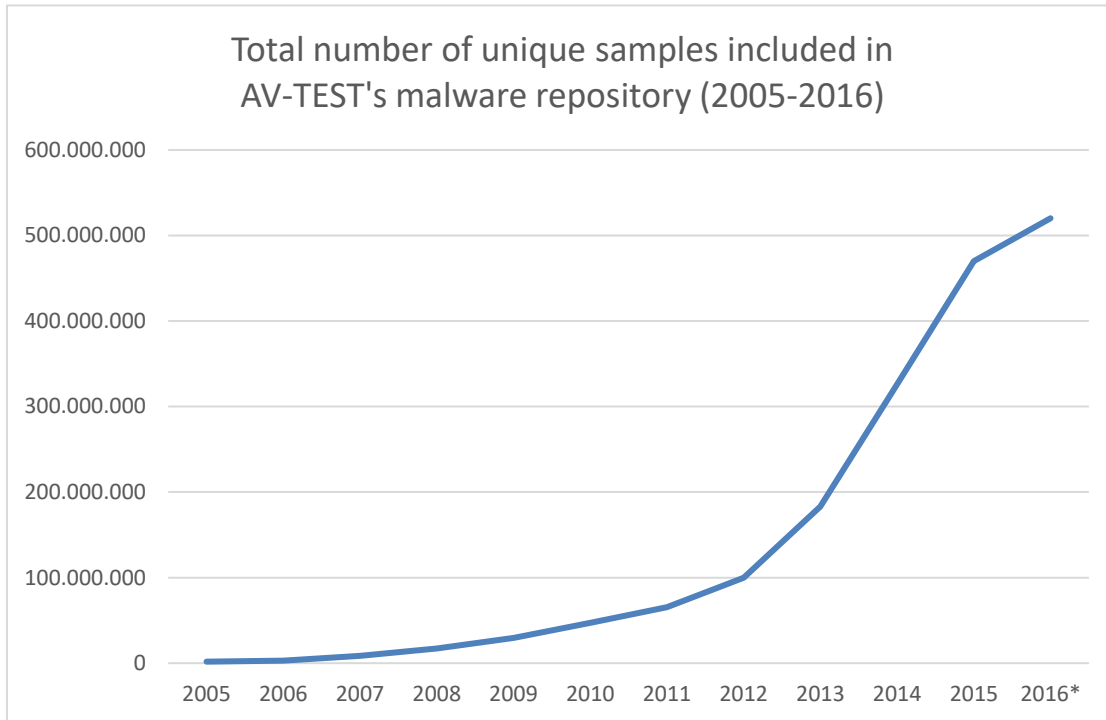


Figure 1: New samples added per year

In the year 2000, AV-Test received more than 170,000 new samples, and in 2013, the number of new samples grew to over 80,000,000 new samples. The numbers continue to grow in the year 2016. The growth of these numbers is displayed in Figure 1. AV-TEST currently has over 500 million malware samples in its database.

The volume of new samples that have to be processed by anti-malware vendors in order to protect their customers can create problems. It is not always possible to successfully protect a PC in time. It is possible that a PC can get infected, even if up-to-date anti-malware software is installed because signatures are provided only every few hours, which sometimes may be too late. Infections create financial loss, either because sensitive data is stolen or because the PC cannot be used for productive work anymore until the malware has completely removed from the system. And on the other hand more protection layers need more resources on the PC which can in turn influence the performance.

Products Tested

The testing occurred in July 2016. AV-Test used the latest releases available at the time of the test of the following two products:

- (1) Microsoft Windows Defender 4.9
- (2) Symantec Norton Security 2016
- (3) Trend Micro Virusbuster 8
- (4) Trend Micro Virusbuster 10
- (5) Trend Micro Virusbuster 11

Methodology and Scoring

Platform

All tests have been performed on identical PCs equipped with the following hardware:

- Intel Xeon Quad-Core X3360 CPU
- 4 GB Ram
- 500 GB HDD (Western Digital)
- Intel Pro/1000 PL (Gigabit Ethernet) NIC

The operating system was Windows 7 Professional with all patches that were available on August 1st 2016.

General Approach

1. **Clean system for each sample.** The test systems should be restored to a clean state before being exposed to each malware sample.
2. **Physical Machines.** The test systems used should be actual physical machines. No Virtual Machines should be used.
3. **Product Cloud/Internet Connection.** The Internet should be available to all tested products that use the cloud as part of their protection strategy.
4. **Product Configuration.** All products were run with their default, out-of-the-box configuration.
5. **Sample Cloud/Internet Accessibility.** If the malware uses the cloud/Internet connection to reach other sites in order to download other files and infect the system, care should be taken to make sure that the cloud access is available to the malware sample in a **safe** way such that the testing network is not under the threat of getting infected.

Performance Test

AV-TEST refers to the 5 test sections as the "Real-World Test", as all the tested operations are typically performed daily multiple times by users. All tests were performed on the same hardware as the malware related tests.

Our performance test set is divided into two parts - fix set and random set. The fix set is a known test set that was used for all tests in 2016. And the random set that is unknown and newly created for each test.

To ensure that no other processes or scheduled tasks will influence the measurement we disabled automatic updates of Windows and of the products itself. Also all scheduled scans of the tested products are deactivated.

Additionally, we wait a predefined time before we start the test and make sure that all services for Windows and the products are running.

1. Downloading files from the Internet: In order to ensure that all the products have exactly the same line for downloading, a server is used as a download server in a separate test network. All the programs offered on the server are available unmodified in the same version during the entire test period. This guarantees the identical download scenario during the endurance test.

2. Launching websites: For this test, a few dozen premium websites are launched, such as Amazon, Yahoo, Apple or Google. The selected websites are always highly available in the web and therefore perfect for the comparison.

3. Installing applications: In the test, applications are installed per command line (without clicks), and the time is clocked for this operation. Included in this test section are popular programs such as the Flash Player or the Adobe Reader.

4. Opening applications, including a file: In this test, a DOC file, a pdf file and a presentation file – all having a large size – are opened repeatedly and directly with LibreOffice.

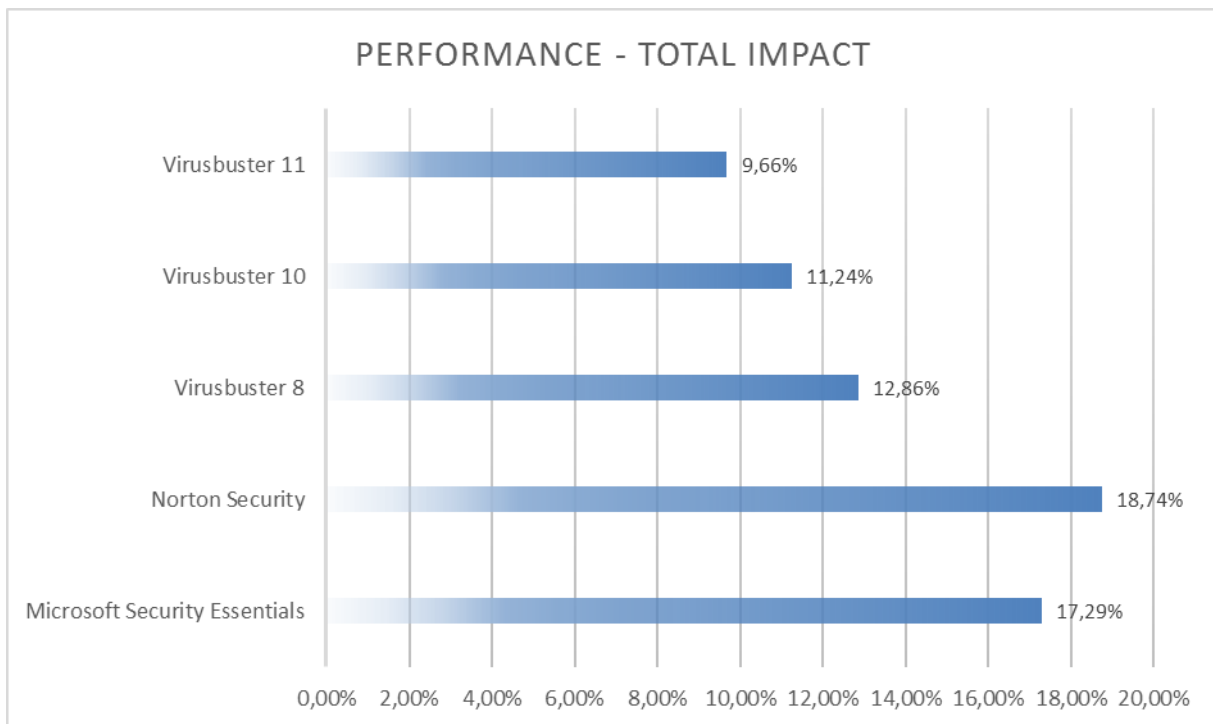
5. Copying files: Especially when copying data under Windows, most security solutions cause frustration among users. That is why the lab team examined how heavily the products delayed the copying of files. The test featured a 3.3 GB set with a wide variety of file types such as films, images, graphics, documents, pdfs and programs.

Test Results

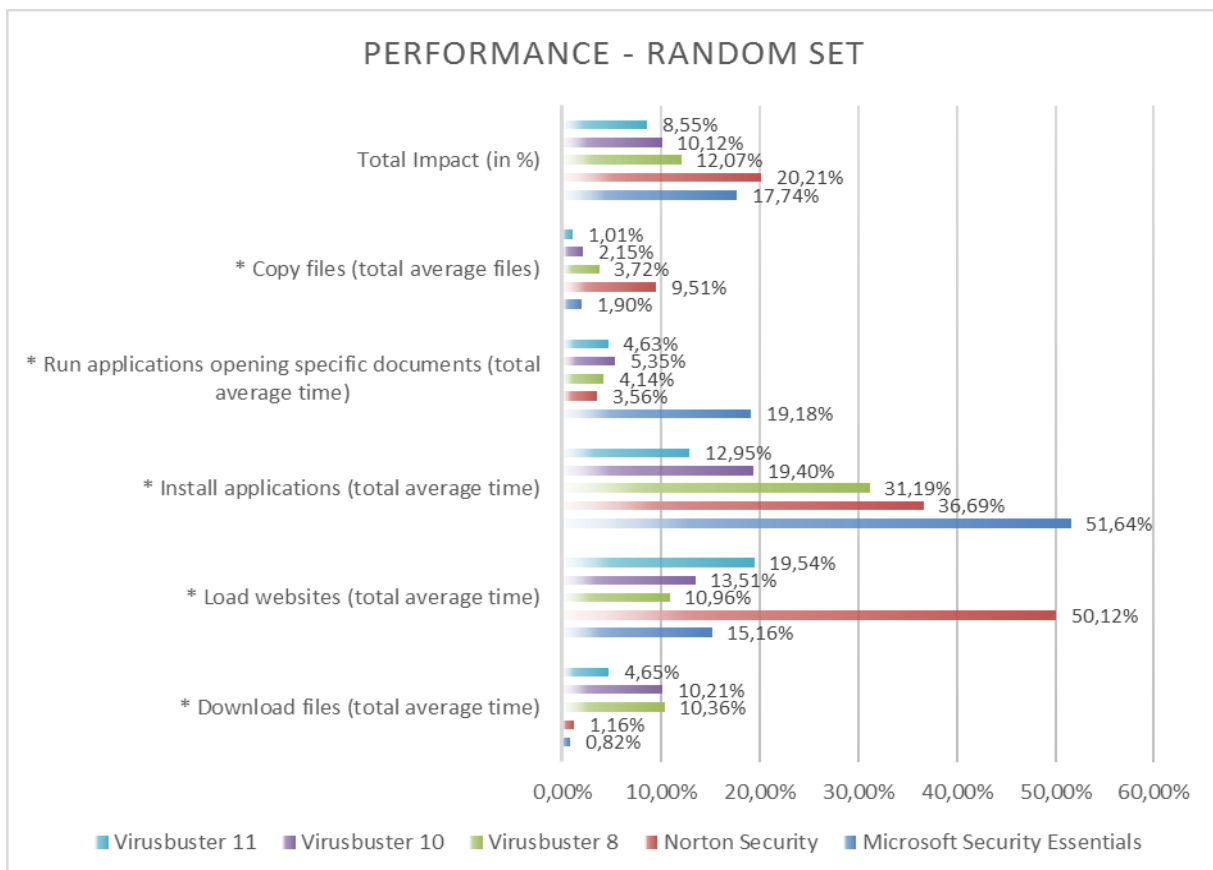
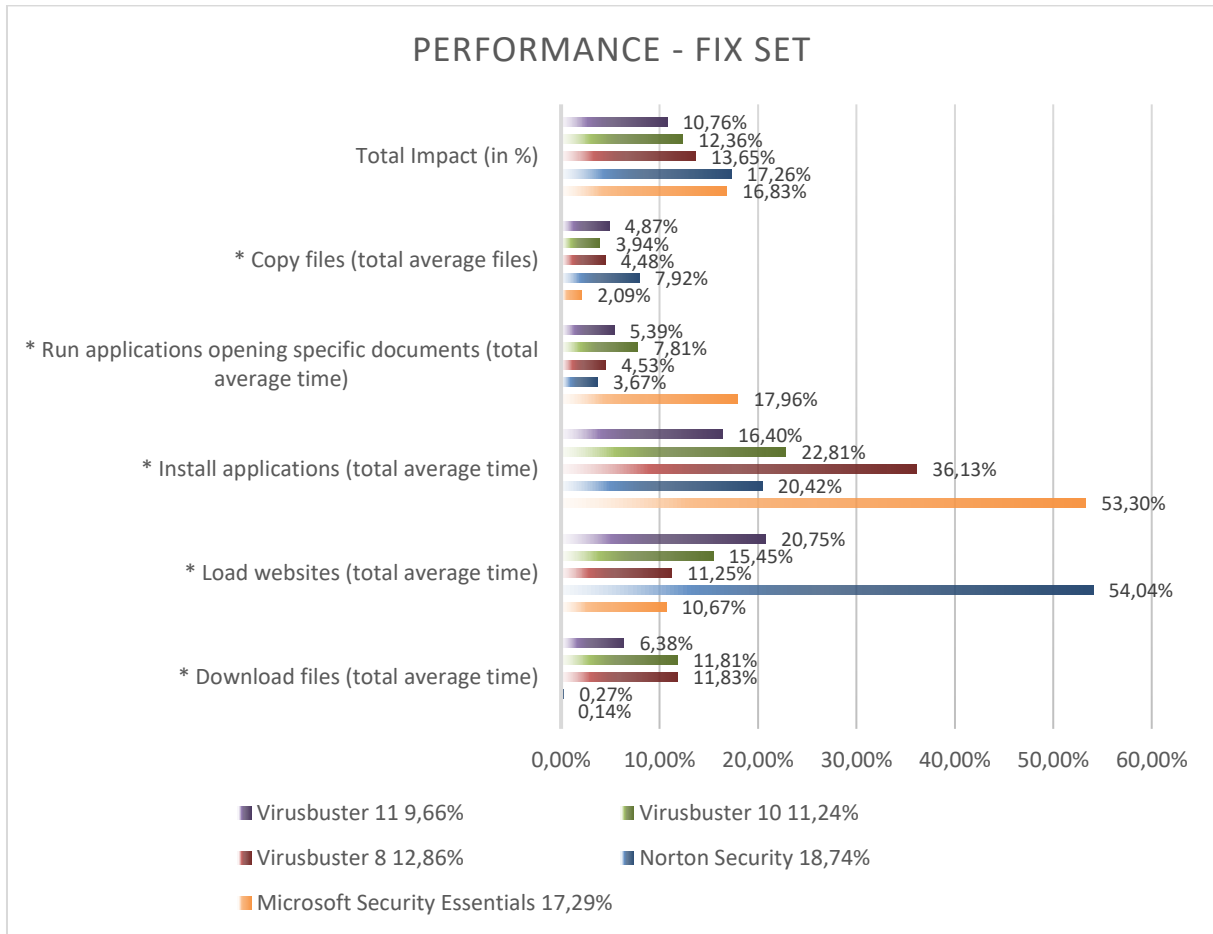
Performance Test

The test shows how much the products affect the system during typical daily use.

The average impact for all three Trend Micro products is compared to the competitors lower. The latest version of Trend Micro Virusbuster achieved a very good total impact of only 9,66%. There is only one category in which a significant impact could be measured for Trend Micro Virusbuster 11 compared to the two other Trend Micro products that is "Launching website".



The next two charts give an overview how the products perform the tests divided into the individual test cases.



Appendix

Version information of the tested software

Developer, Distributor	Product name	Program version	Engine/ signature version
Microsoft	Microsoft Security Essentials 4.9	4.9.218.0	1.1.12902.0/1.225.1338.0
Symantec	Norton Security	22.7.0.76	n/a
Trend Micro	Trend Micro Virusbuster 8	8.0.2064	9.850.1008/12.651.00
Trend Micro	Trend Micro Virusbuster 10	10.0.1265	9.850.1008/12.645.00
Trend Micro	Trend Micro Virusbuster 11	11.0.1102	9.895.1014/12.651.00