

virus

BULLETIN

Covering the global threat landscape

VB100 COMPARATIVE REVIEW ON WINDOWS 7 PRO X64

INTRODUCTION

This month's VB100 is another desktop test, returning to the familiar territory of *Windows 7* after last month's visit to the still relatively new *Windows 10*, where we saw a fairly high level of stability issues. With most products having been finely tuned over the years to play nicely with *Windows 7*, we expected to see far fewer issues this time around, and with just shy of 40 products to put through our exhaustive set of tests, we certainly hoped for well-behaved, bug-free performances. Once again, in this report the products are split into business- and consumer-focused solutions, although several claim to be suitable for both market sectors.

PLATFORM AND TEST SETS

Windows 7 needs little introduction. With its predecessor, *Windows XP*, now largely a thing of the past (despite some lingering affection), and its successors still unable to push it off the top spot for distribution and uptake, *Windows 7* remains the world's most popular platform. With considerable past experience of the platform, the *VB* test team had little trouble setting up the environment on the testing machines, as usual installing a fairly basic set-up with a few common tools and a few extras such as browsers, music players and office tools added in to form part of our performance tests.

Sample sets were built using our standard approaches, with all detection sets compiled from new items last seen in the ten days prior to running each phase of testing. The certification sets included the latest WildList available on the test deadline of 17 August, version 4.031. The clean sets were also frozen on this date, after having been updated as usual with a raft of recent popular packages as well as trimmed of some older items.

BUSINESS PRODUCTS

CYREN Command Anti-Malware

Main version: 5.1.38

Update versions: 5.4.25

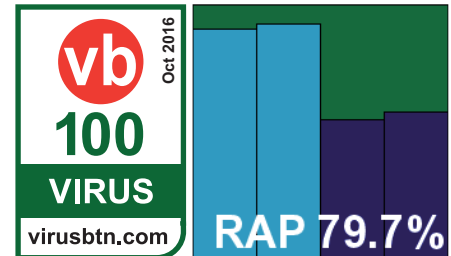
Last 6 tests: 5 passed, 0 failed, 1 no entry

Last 12 tests: 5 passed, 5 failed, 2 no entry

ItW on demand: 100.00% **ItW on access:** 100.00%

False positives: 0 **Stability:** Solid

CYREN has managed an impressive turnaround of late, with a clean sweep of passes in the last year after a spate of false



positive (FP) problems previously. This time stability was excellent and detection pretty strong with cloud access, and a little less so without. There was a fairly heavy slowdown when performing our set of common activities – the associated very low use of memory is averaged out over the rather long period of the test. A clean run through the certification sets earns *CYREN* a VB100 award.

ESTsoft ALYac

Main version: 3.0.1.1

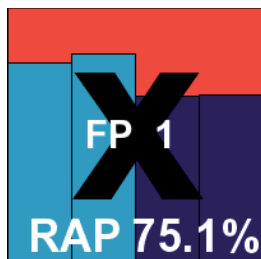
Update versions: 16.2.22.1/594617.2016081717/7.66871/7030820.20160817, 16.2.22.1/597726.2016090822/7.67140/6851647.20160908, 16.2.22.1/598986.2016092122/7.67314/7122272.20160921, 16.2.22.1/600448.2016092918/7.67404/7030820.20160817

ESTsoft ALYac contd.

Last 6 tests: 4 passed, 1 failed, 1 no entry
 Last 12 tests: 9 passed, 1 failed, 2 no entry

ItW on demand: 100.00% **ItW on access:** 100.00%
False positives: 1 **Stability:** Stable

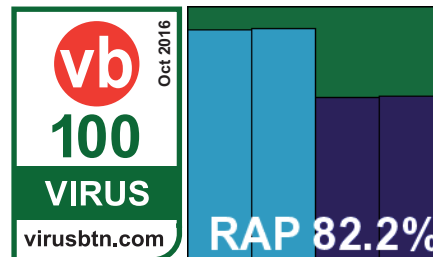
ESTsoft has been doing pretty well of late, helped by the *Bitdefender* engine that runs alongside the company's own technologies. This month we saw a single, rather heavy scan job crash out, but there were no other stability problems. Resource use was low, with a reasonable impact on system speed, while detection was strong as usual, and the WildList sets were covered well. Unfortunately, a single item popped up in the clean sets: an alert on part of *Intel's VTune* app, which was enough to deny *ESTsoft* a VB100 award this month, by a whisker.



Last 6 tests: 3 passed, 2 failed, 1 no entry
 Last 12 tests: 7 passed, 2 failed, 3 no entry

ItW on demand: 100.00% **ItW on access:** 100.00%
False positives: 0 **Stability:** Stable

Ikarus had some FP issues in the last test, but it has a decent pass rate over the last few years. This month there were a couple of scans that crashed out, but otherwise the product ran smoothly, detection was strong and performance impact not too obtrusive. The certification sets were dealt with nicely, and a VB100 award is earned by *Ikarus*.

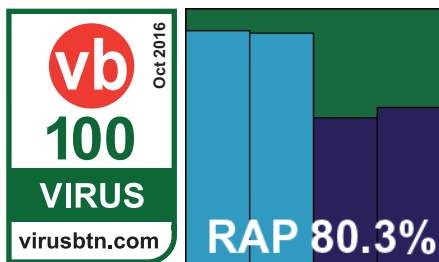


Fortinet FortiClient

Main version: 5.4.1.0840
 Update versions: 5.00233/36.00824, 39.00144, 39.00307, 39.00641
 Last 6 tests: 5 passed, 0 failed, 1 no entry
 Last 12 tests: 10 passed, 0 failed, 2 no entry

ItW on demand: 100.00% **ItW on access:** 100.00%
False positives: 0 **Stability:** Stable

Fortinet has had an impeccable run of passes in our *Windows* tests over the last couple of years. This month the product ran pretty smoothly, with only a small error during an update to dent its stability rating. Performance impact was pretty reasonable, detection decent too, and with no issues in the certification sets another VB100 award is easily earned.

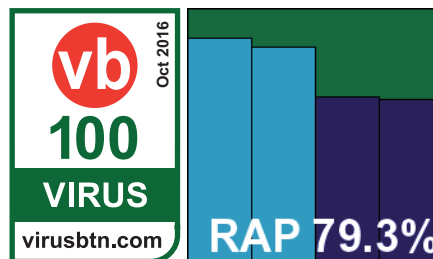


iSheriff Security from the Cloud

Main version: 5.87
 Update versions: 5.8.5.0000/3.71, 5.88, 5.8.5.0919, 5.8.5.0924
 Last 6 tests: 4 passed, 1 failed, 1 no entry
 Last 12 tests: 8 passed, 2 failed, 2 no entry

ItW on demand: 100.00% **ItW on access:** 100.00%
False positives: 0 **Stability:** Stable

The *iSheriff* product is another that uses the *Bitdefender* engine, and as such it generally performs strongly. Other than a minor update error, stability was good, detection also decent and performance impact pretty light, with very low resource usage. The certification sets presented no difficulties, and *iSheriff* picks up another VB100 award.



Kaspersky Small Office Security 5 Personal Computer

Main version: 17.0.0.611(a)
 Update versions: 17.0.0.611(a), 17.0.0.611(b)
 Last 6 tests: 3 passed, 0 failed, 3 no entry
 Last 12 tests: 8 passed, 0 failed, 4 no entry

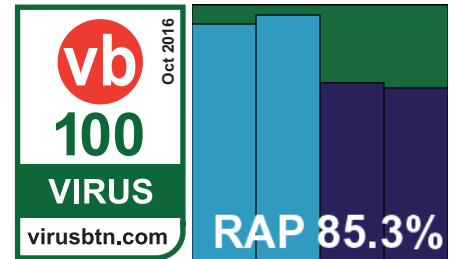
Kaspersky Small Office Security 5 Personal Computer contd.

ItW on demand: 100.00% **ItW on access:** 100.00%
False positives: 0 **Stability:** Solid

Kaspersky Lab entered two products once again this month, the first up being the company's small business offering. Stability was impeccable, impact on our set of tasks fairly heavy, but resource use quite reasonable. There are no RAP detection figures to report, but with another good run through the certification sets a VB100 award is easily earned.



excellent detection levels thanks to the product's dual-engine design, and a quite acceptable impact on system speeds. The certification sets were dealt with adeptly once again, earning *TrustPort* a VB100 award.

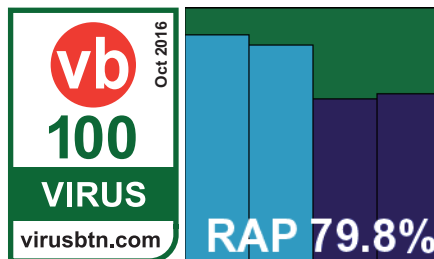


Quick Heal Seqrite Endpoint Security

Main version: 17.00(10.1.2.1) 64bit
 Update versions: N/A
 Last 6 tests: 4 passed, 0 failed, 2 no entry
 Last 12 tests: 7 passed, 0 failed, 5 no entry

ItW on demand: 100.00% **ItW on access:** 100.00%
False positives: 0 **Stability:** Solid

Quick Heal's business solution has appeared in most of our tests lately, with a good run of passes. This month it ran well with no bugs noted, showed good detection and a reasonable impact on system speed and resources. The WildList and clean sets were handled properly, earning *Quick Heal* a VB100 award.



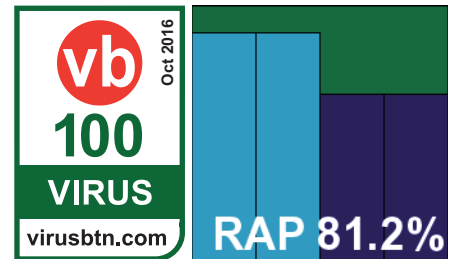
CONSUMER PRODUCTS

Arcabit AntiVirus

Main version: 2016.08.17
 Update versions: 2016.09.09, 2016.09.21, 2016.09.30
 Last 6 tests: 1 passed, 0 failed, 5 no entry
 Last 12 tests: 3 passed, 0 failed, 9 no entry

ItW on demand: 100.00% **ItW on access:** 100.00%
False positives: 0 **Stability:** Stable

A rather sporadic participant in our tests, this is *Arcabit's* first appearance in a year and only its third in the last few years, since the product's switch to that ever-popular *Bitdefender* engine. Stability was OK, with only a fairly trivial updating glitch, detection was decent and performance impact not too obtrusive. The core sets were handled well, and a VB100 award goes to *Arcabit* on its return to the test bench.



TrustPort Antivirus 2016 (Business)

Main version: 2016(16.0.0.5676)
 Update versions: 2016(16.0.0.5676), 2016(16.0.0.5698)
 Last 6 tests: 4 passed, 0 failed, 2 no entry
 Last 12 tests: 8 passed, 0 failed, 4 no entry

ItW on demand: 100.00% **ItW on access:** 100.00%
False positives: 0 **Stability:** Solid

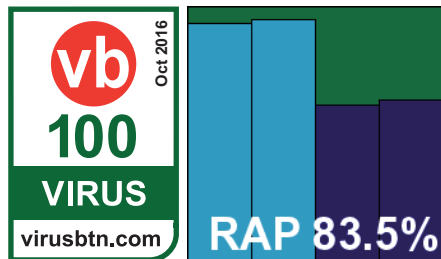
This is the first of two entries for *TrustPort* this month, although the two products are essentially identical. Business users can expect a robust product with solid stability,

Avast Free Antivirus

Main version: 12.3.2279 Build 12.3149.0
 Update versions: 160816-1, 12.3.2280 Build 12.3.3154.2/160905-0, 160912-0, 12.3.2280 Build 12.3.31546/160926-0
 Last 6 tests: 6 passed, 0 failed, 0 no entry
 Last 12 tests: 12 passed, 0 failed, 0 no entry

ItW on demand: 100.00% **ItW on access:** 100.00%
False positives: 0 **Stability:** Solid

The first of a cluster of very strong performers with a perfect record in the last two years of VB100 testing, *Avast* is always a



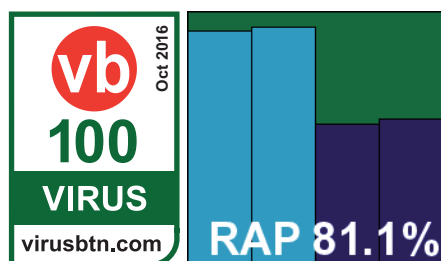
welcome sight on our test bench and once again performed admirably with no bugs to report. Performance impact was reasonable, detection also decent, and with no issues in the certification sets, that perfect VB100 record is maintained for another month.

AVG AntiVirus

Main version: 16.101.7752
 Update versions: 4647/12825, 4649/12947, 4649/13008, 4664/13087
 Last 6 tests: 6 passed, 0 failed, 0 no entry
 Last 12 tests: 12 passed, 0 failed, 0 no entry

ItW on demand: 100.00% **ItW on access:** 100.00%
False positives: 0 **Stability:** Solid

Another flawless performer of late, although one with a rather uncertain future thanks to its recent merger with rival *Avast*,



AVG also put in a wobble-free performance, with another decent set of detection stats and some reasonable speed impact numbers too. The core sets presented no problems, and a VB100 award is duly granted to *AVG*.

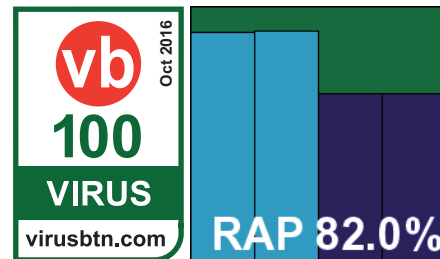
Bitdefender Endpoint Security

Main version: 6.2.9.799
 Update versions: 7.66872, 7.67140, 7.67316, 7.67395
 Last 6 tests: 6 passed, 0 failed, 0 no entry
 Last 12 tests: 12 passed, 0 failed, 0 no entry

ItW on demand: 100.00% **ItW on access:** 100.00%
False positives: 0 **Stability:** Solid

Bitdefender's engine appears in almost half of the products in our line-up this month, in one form or another, and

fortunately for everyone continues to perform excellently. Stability was once again perfect, detection was



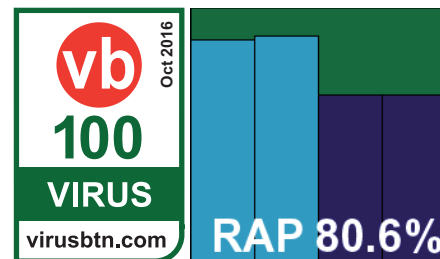
decent and system impact pretty light. The certification sets were handled as nicely as ever, adding another notch to *Bitdefender's* unbroken record of VB100 passes in the last few years.

BullGuard Antivirus

Main version: 16.0.322
 Update versions: 7.66870, 16.0.323/7.67142, 16.0.324/7.67316, 16.0.324/7.67395
 Last 6 tests: 4 passed, 0 failed, 2 no entry
 Last 12 tests: 7 passed, 0 failed, 5 no entry

ItW on demand: 100.00% **ItW on access:** 100.00%
False positives: 0 **Stability:** Solid

Another long-standing participant and another *Bitdefender* user, *BullGuard's* stability was as impeccable



as usual, and as expected detection was pretty decent too. System impact was light, and the certification sets were once again handled well, earning *BullGuard* another VB100 award.

Check Point ZoneAlarm PRO Antivirus + Firewall

Main version: 14.2.255.000
 Update versions: 8.6.1.51
 Last 6 tests: 3 passed, 0 failed, 3 no entry
 Last 12 tests: 6 passed, 0 failed, 6 no entry

ItW on demand: 100.00% **ItW on access:** 100.00%
False positives: 0 **Stability:** Solid

Another venerable name, and a regular VB100 participant for many years, *Check Point's ZoneAlarm* put in another decent showing this month. Stability was flawless, detection

was a little below par in the response sets and there is no proactive data available due to issues with the frozen installation created on the deadline day. Our set of activities showed some considerable slowdown, but the certification sets were dealt with nicely and a VB100 award is well earned.

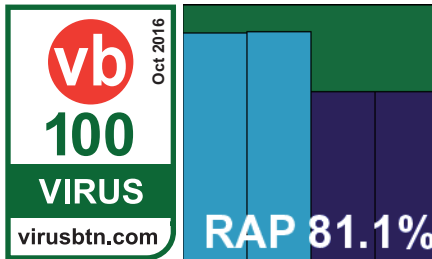


CompuClever Antivirus Plus

Main version: 19.6.0.326
 Update versions: 7.66871/7030820, 7.67141/6851820, 7.67316/7132507, 7.67395/7540056
 Last 6 tests: 3 passed, 0 failed, 3 no entry
 Last 12 tests: 4 passed, 0 failed, 8 no entry

ItW on demand: 100.00% **ItW on access:** 100.00%
False positives: 0 **Stability:** Solid

A rather newer name but with a few successful appearances already under its belt, *CompuClever* returns this month with another very



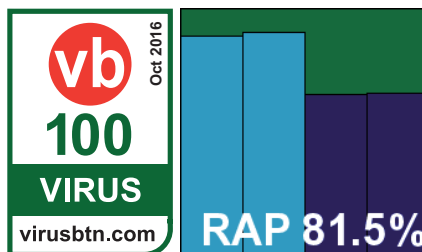
strong showing, earning some good detection levels thanks to the *Bitdefender* engine and recording pretty light system impact too. With a good run through the core certification sets, another VB100 award is collected by *CompuClever*.

Emsisoft Anti-Malware

Main version: 11.10.0.6563
 Update versions: N/A
 Last 6 tests: 5 passed, 0 failed, 1 no entry
 Last 12 tests: 10 passed, 0 failed, 2 no entry

ItW on demand: 100.00% **ItW on access:** 100.00%
False positives: 0 **Stability:** Fair

Emsisoft can boast a full house of VB100 passes in our recent *Windows* tests, and this month it produced some more good detection levels



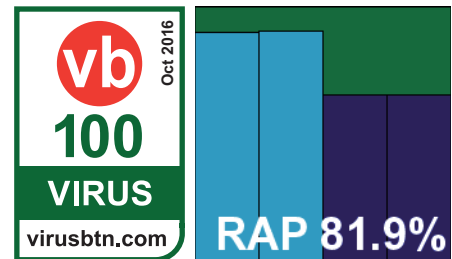
with low resource use and only minor impact on system speeds. Stability was somewhat dented by an unexpected restart at one point, but we were not able to reproduce the issue. The certification sets presented no problems, and another VB100 award is duly granted.

eScan Internet Security Suite for Windows

Main version: 14.0.1400.1920 DB
 Update versions: N/A
 Last 6 tests: 6 passed, 0 failed, 0 no entry
 Last 12 tests: 12 passed, 0 failed, 0 no entry

ItW on demand: 100.00% **ItW on access:** 100.00%
False positives: 0 **Stability:** Solid

Another member of the elite 12/12 club with passes in all VB100 comparatives in the last two years, *eScan* managed a ‘Solid’



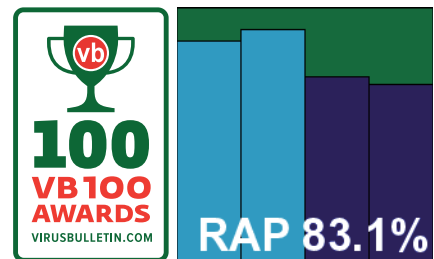
stability rating this month alongside some good detection levels, aided as usual by the *Bitdefender* engine, and a fairly light set of performance measures. With another flawless showing in the certification sets, that perfect record continues for another month.

ESET NOD32 Antivirus 9

Main version: 9.0.386.0
 Update versions: 13976, 9.0.402.0/14076, 14114, 14184
 Last 6 tests: 6 passed, 0 failed, 0 no entry
 Last 12 tests: 12 passed, 0 failed, 0 no entry

ItW on demand: 100.00% **ItW on access:** 100.00%
False positives: 0 **Stability:** Solid

ESET's record of passes in the VB100 scheme is unrivalled, with an unbroken run of passes stretching back an enormously long way.



Indeed, this month is something of a milestone as the vendor reaches its 100th successful VB100 test – a seriously impressive

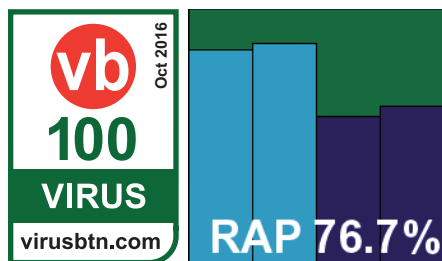
achievement. In this test there was another superb showing from the product, with impeccable stability and a reasonable system impact, although CPU usage was a little higher than most. Detection was especially strong, with excellent scores recorded in the proactive sets, and another flawless job in the certification sets earns *ESET* that long-awaited 100th VB100 pass.

Essentware PCKeeper Antivirus PRO

Main version: 8.3.40.132
 Update versions: 8.12.112.234, 8.3.40.158/8.12.116.106,
 8.3.40.180/8.12.120.100, 8.3.40.188/8.12.121.220
 Last 6 tests: 4 passed, 0 failed, 2 no entry
 Last 12 tests: 4 passed, 0 failed, 8 no entry

ItW on demand: 100.00% **ItW on access:** 100.00%
False positives: 0 **Stability:** Stable

PCKeeper has cropped up in our tests a few times over the years under various different owners, but seems to have settled down



with *Essentware* nicely, notching up a good run of passes in the past year. This time we saw a single instance of the interface freezing up during a large scan job but stability was otherwise reasonable. The *Avira* engine provided good detection levels, performance impact was a little higher than many this month but not too intrusive, and another good showing in the certification sets earns *Essentware* another VB100 award.

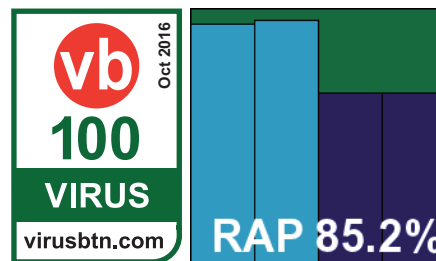
G Data Antivirus

Main version: 25.2.0.3
 Update versions: AVA 25.7908/GD 25.7513, AVA
 25.8194/GD 25.7679, AVA 25.8368/GD 25.7783, AVA
 25.8448/GD 25.7838
 Last 6 tests: 5 passed, 0 failed, 1 no entry
 Last 12 tests: 10 passed, 0 failed, 2 no entry

ItW on demand: 100.00% **ItW on access:** 100.00%
False positives: 0 **Stability:** Stable

G Data is another participant with a very strong history in our tests, and this month did well once again. Stability was almost perfect, dented only by a single instance where

opening a rather large log file caused the interface to lock up for quite some time. Performance impact was a touch on the heavy side, but detection as usual was superb. The certification sets were brushed aside effortlessly, earning *G Data* another VB100 award.

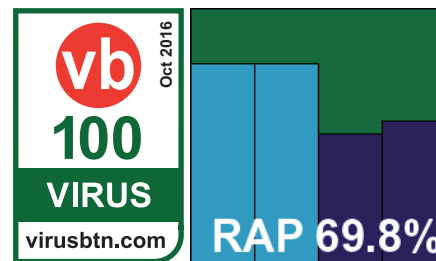


K7 Total Security

Main version: 15.1.0297
 Update versions: 9.237.20590, 9.238.20775,
 9.238.20844, 15.1.0299/9.239.20988
 Last 6 tests: 5 passed, 0 failed, 1 no entry
 Last 12 tests: 10 passed, 0 failed, 2 no entry

ItW on demand: 100.00% **ItW on access:** 100.00%
False positives: 0 **Stability:** Stable

K7 has gone through phases of regular participation in our tests, becoming a fixture in the last few years and racking up an excellent



string of passes. This month we noted a minor glitch with the updating process, which occasionally insisted there was no Internet connection, but quickly recovered without input. Detection was reasonable, performance impact pretty light with only a minor slowdown in our set of activities, and a good run through the certification sets earns *K7* another VB100 award.

Kaspersky Internet Security

Main version: 17.0.0.611 (a)
 Update versions: 17.0.0.611 (a), 17.0.0.611 (b)
 Last 6 tests: 4 passed, 0 failed, 2 no entry
 Last 12 tests: 8 passed, 0 failed, 4 no entry

ItW on demand: 100.00% **ItW on access:** 100.00%
False positives: 0 **Stability:** Solid

Kaspersky Lab's second entry this month is the company's flagship suite, another regular in the VB100 lately. It performed admirably, with a perfect showing for stability and, while performance impact was a touch on the heavy side, and there are no RAP figures to report, the certification sets were handled impeccably, earning *Kaspersky* another VB100 award.



up, but detection was good, closely matching that of the free version, and resource usage was only slightly higher. The core sets were covered nicely, earning *Lavasoft* another VB100 award.

Lavasoft Ad-Aware Free Antivirus +

Main version: 11.12.945.9202

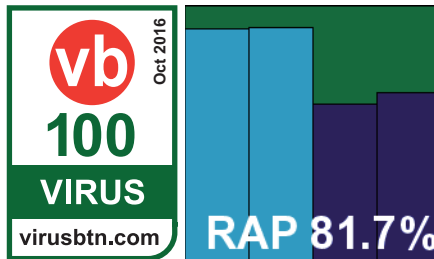
Update versions: N/A

Last 6 tests: 4 passed, 0 failed, 2 no entry

Last 12 tests: 7 passed, 0 failed, 5 no entry

ItW on demand: 100.00% **ItW on access:** 100.00%
False positives: 0 **Stability:** Fair

There were two submissions from *Lavasoft* this month, the free edition coming up first. Stability was shaken by a surprise reboot and a scan crashing out. However, detection (aided as usual by the *Bitdefender* engine) was decent, speed impact was fairly light and the core certification sets were dealt with properly, earning a VB100 award for *Lavasoft*.



MSecure DenyWall Antivirus

Main version: 98523

Update versions: 2016.10.17, 98583/2016.09.06,

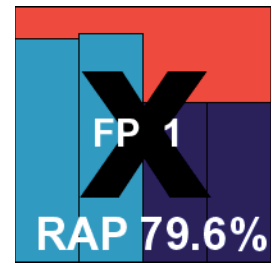
98604/2016.09.13, 98646/2016.09.26

Last 6 tests: 0 passed, 3 failed, 3 no entry

Last 12 tests: 0 passed, 3 failed, 9 no entry

ItW on demand: 100.00% **ItW on access:** 100.00%
False positives: 1 **Stability:** Stable

MSecure has been trying for a VB100 award for a while now, with mixed success after a fairly reliable start a few years ago. Some serious issues with extension lists seem to have been resolved in the latest version, and stability was decent, our rating dented by a few minor GUI errors and glitches and a couple of instances of logs failing to be generated properly. Detection was decent, speed impact pretty light, and the WildList sets were covered well. In the clean sets, however, we observed a cluster of detections, all resolving to a single file included multiple times in a package from *SAP*, which the product flagged as infected with the nasty Virut virus. So, a VB100 award is just denied, despite a generally decent performance.



Lavasoft Ad-Aware Pro Security

Main version: 11.12.945.9202

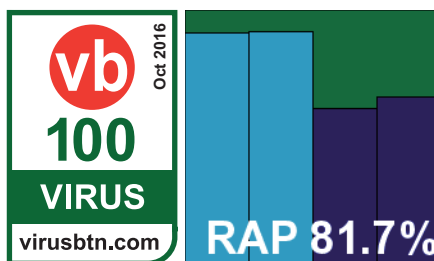
Update versions: N/A

Last 6 tests: 3 passed, 0 failed, 3 no entry

Last 12 tests: 3 passed, 0 failed, 9 no entry

ItW on demand: 100.00% **ItW on access:** 100.00%
False positives: 0 **Stability:** Fair

The 'Pro' edition of *Ad-Aware* comes with a range of extras, few of which are covered here. Once again stability was flawed with an unplanned restart and a scan job freezing



NANO Antivirus Pro

Main version: 1.0.38.75724

Update versions: 0.14.26.8026,

1.0.38.76151/0.14.26.8146, 1.0.38.76352/0.14.26.8187,

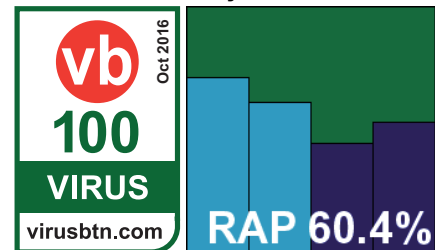
1.0.38.77153/0.14.26.8267

Last 6 tests: 3 passed, 1 failed, 2 no entry

Last 12 tests: 3 passed, 2 failed, 7 no entry

ItW on demand: 100.00% **ItW on access:** 100.00%
False positives: 0 **Stability:** Solid

NANO should be proud of its performance in our tests of late, picking up its first few passes and showing every



sign of becoming a solidly dependable product. Stability was flawless this month, with no issues noted. Detection remains a little below par but seems to improve month on month. Performance impact was reasonable, and another good showing in the certification sets earns *NANO* its third VB100 award in a row after only a few failed attempts.

Panda Endpoint Protection

Main version: 7.60.0

Update versions: 7.60.0, 7.61.0

Last 6 tests: 2 passed, 0 failed, 4 no entry

Last 12 tests: 7 passed, 0 failed, 5 no entry

ItW on demand: 100.00% **ItW on access:** 100.00%
False positives: 0 **Stability:** Solid

Panda's cloud-heavy solutions have been putting in some good performances of late, with a good number of passes for the consumer and business offerings. This month stability was perfect once again, resource usage very low, although our set of tasks took a little while to complete, and detection in our response sets was good, with no proactive data thanks to that reliance on the cloud. Another good job in the certification sets earns *Panda* a VB100 award to add to its collection.



PC Pitstop PC Matic Home Security

Main version: 2.0.0.5

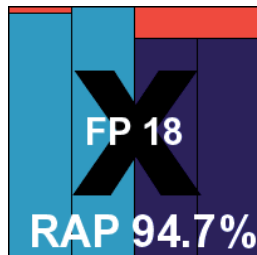
Update versions: N/A

Last 6 tests: 0 passed, 3 failed, 3 no entry

Last 12 tests: 1 passed, 6 failed, 5 no entry

ItW on demand: 99.81% **ItW on access:** 94.05%
False positives: 18 **Stability:** Buggy

PC Pitstop's unusual approach, balancing whitelisting with more traditional detection approaches, has proven not to fit too well with our testing requirements, and certification has been denied for some time thanks to a tendency to false alarms. There can be no denying the product's detection levels though, which once again proved superb even in the previously unseen proactive sample sets, and anyone willing to put up with a slightly higher than usual rate of false alarms will benefit hugely



from the heightened detection levels. Stability was a little shaky once again, with a number of crashes and freezes as the product tried to cope with our demanding sample sets. The WildList sets were almost perfectly covered with only a few items ignored. Even FPs weren't too high this month after the rather large numbers seen last time were temporarily removed from the clean sets – it still wasn't quite enough to meet the VB100 requirements but another very interesting showing.

PSafe TOTAL

Main version: 7.3.0.1049

Update versions: N/A

Last 6 tests: 0 passed, 1 failed, 5 no entry

Last 12 tests: 0 passed, 1 failed, 11 no entry

ItW on demand: 100.00% **ItW on access:** 100.00%
False positives: 13 **Stability:** Solid

A new name to our tests, *PSafe* hails from Brazil and put our team to the test with its Portuguese-language interface. Combining the *Avira* and *Qihoo* engines and provided as a free product, it proved pretty straightforward to operate and maintained excellent stability throughout testing. Performance stats were well within normal bounds and detection in the response sets was excellent, although sadly a late submission meant we could not collect proactive data. The WildList sets were covered nicely, but in the clean sets we did note a few clusters of false alarms, suggesting that the heuristics were set a little high; intriguingly, these were all in graphical and office tools, including *CorelDraw*, *OpenOffice*, *Adobe's Creative Cloud* and a CAD package. So, although not quite making the grade for a VB100 award this month, *PSafe* looks likely to be a strong contender in upcoming tests.

Qihoo 360

Main version: 5.0.0.6221

Update versions: 5.0.0.6221, 5.0.0.5104

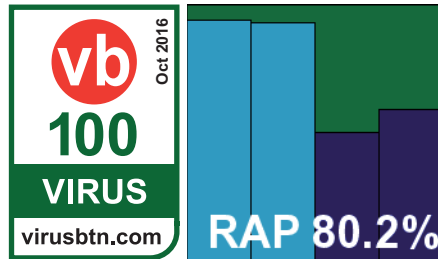
Last 6 tests: 4 passed, 0 failed, 2 no entry

Last 12 tests: 5 passed, 0 failed, 7 no entry

ItW on demand: 100.00% **ItW on access:** 100.00%
False positives: 0 **Stability:** Fair

Qihoo's 360 is another product which challenges the skills of our test team with its interface, this time Chinese language skills being required, although here a handy guide provided by the developers limited the amount of time spent deciphering unfamiliar text. There were some problems this month with the on-access component failing to perform in a couple of installs, but these were eventually resolved and

a full set of data gathered. Detection was pretty strong in the reactive sets, a little low in the proactive sets, and performance impact was



very low indeed, our set of tasks running through faster than the baseline measure with *Windows Defender* active. The certification sets were dealt with very tidily, earning *Qihoo* another VB100 award.

Quick Heal Total Security

Main version: 17.00/10.0.1.11 64Bit

Update versions: N/A

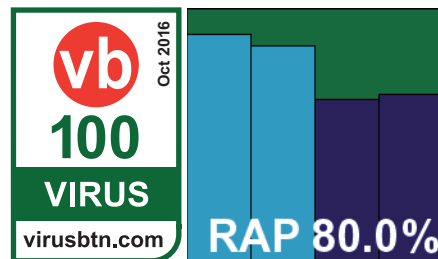
Last 6 tests: 4 passed, 0 failed, 2 no entry

Last 12 tests: 7 passed, 0 failed, 5 no entry

ItW on demand: 100.00% **ItW on access:** 100.00%

False positives: 0 **Stability:** Solid

Quick Heal's second product this month is the vendor's flagship '*Total*' suite, which once again put in an excellent performance. Stability was



unshaken by any of our heavy-duty tests, performance impact was a shade on the heavy side, but detection pretty strong and the core certification sets handled very nicely. All of this means that *Quick Heal* earns another VB100 award.

TeamViewer ITbrain Anti-Malware

Main version: 11.0.65452

Update versions: 1.0.61067, 11.0.66695

Last 6 tests: 2 passed, 0 failed, 4 no entry

Last 12 tests: 6 passed, 0 failed, 6 no entry

ItW on demand: 100.00% **ItW on access:** 100.00%

False positives: 0 **Stability:** Stable

The *ITbrain* product from *TeamViewer* is closely tied to the company's popular remote-access tools, and has shown up in our tests fairly frequently in the last couple

of years, scoring well thanks to that ubiquitous *Bitdefender* engine. This month there were a couple of minor stability problems – a failed update and an instance of the GUI going blank for a brief time – but otherwise things went smoothly. Detection was as decent as expected, although sadly our proactive measures are absent thanks to some set-up issues. Our set of standard activities ran through very quickly, with fairly high CPU use indicating some hard work going on. The certification sets were dealt with nicely, and *TeamViewer* earns another VB100 award.



Tencent PC Manager

Main version: 11.6.26265.901

Update versions: 11.6.26289.901, 11.6.26294.901, 11.6.26294.901

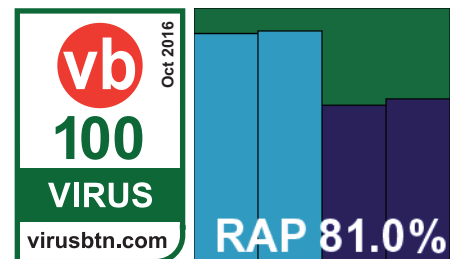
Last 6 tests: 5 passed, 0 failed, 1 no entry

Last 12 tests: 8 passed, 0 failed, 4 no entry

ItW on demand: 100.00% **ItW on access:** 100.00%

False positives: 0 **Stability:** Solid

Tencent's main product has been doing well of late, and this month merited another 'Solid' rating for stability after brushing aside the



strains of our testing workload with ease. Detection was good, performance hit not too heavy, and the certification sets presented no problems either, earning *Tencent* another VB100 award.

Tencent PC Manager – TAV edition

Main version: 11.6.26264.901

Update versions: 11.6.26280.901, 11.6.26288.901, 11.6.26295.901

Last 6 tests: 2 passed, 0 failed, 4 no entry

Last 12 tests: 2 passed, 0 failed, 10 no entry

ItW on demand: 100.00% **ItW on access:** 100.00%

False positives: 0 **Stability:** Solid

This version of *Tencent's* solution relies entirely on in-house

technology, and appears here for a second time. Stability was once again impeccable, performance impact very light, with detection figures absent at the request of the vendor. The certification sets were properly managed though, earning another VB100 award for *Tencent's TAV* version.

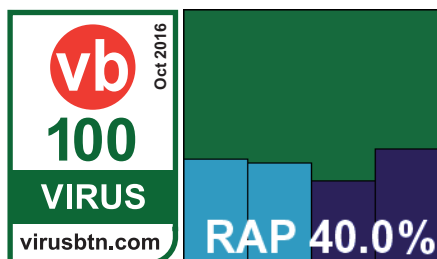


TG Soft VirIT eXplorer PRO

Main version: 8.2
 Update versions: 8.2.39, 8.2.52, 8.2.57, 8.2.66
 Last 6 tests: 1 passed, 1 failed, 4 no entry
 Last 12 tests: 1 passed, 1 failed, 10 no entry

ItW on demand: 100.00% **ItW on access:** 100.00%
False positives: 0 **Stability:** Solid

Italy's *TG Soft* has been around for a long time, and has cropped up in a few VB100 comparatives of late. This month the old-school interface



remained responsive throughout testing, earning our top rating for stability, and performance measures showed a fairly heavy impact on our set of tasks. Detection remains somewhat below expected standards, but the WildList sets were covered well, and with no issues in the clean sets either, *VirIT* earns its first VB100 award, and our congratulations.

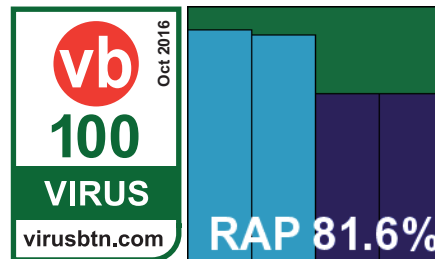
ThreatTrack VIPRE Internet Security Pro 2016

Main version: 9.3.6.3
 Update versions: 51646 - 7.66870, 52252 - 7.67196, 52494 - 7.67329, 52646 - 7.67397
 Last 6 tests: 3 passed, 0 failed, 3 no entry
 Last 12 tests: 6 passed, 0 failed, 6 no entry

ItW on demand: 100.00% **ItW on access:** 100.00%
False positives: 0 **Stability:** Solid

ThreatTrack's VIPRE has had a new lease of life thanks to the integration of the *Bitdefender* engine, and has put in some good showings in recent tests. This month it stood up to the rigours of the testing process well, with no stability

issues noted, and scored well for detection with fairly average performance hit. The certification sets were handled properly, and a VB100 award is earned by *VIPRE*.

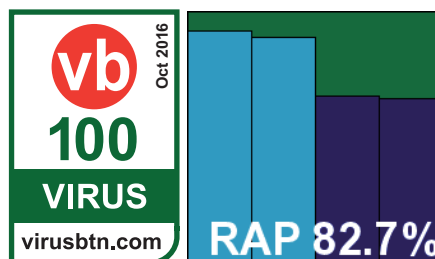


Total Defense Internet Security

Main version: 9.0.0.425/3.0.2.1015
 Update versions: 9.0.0.425, 9.0.0.422, 9.0.0.425
 Last 6 tests: 3 passed, 0 failed, 3 no entry
 Last 12 tests: 5 passed, 0 failed, 7 no entry

ItW on demand: 100.00% **ItW on access:** 100.00%
False positives: 0 **Stability:** Stable

Total Defense also integrates that *Bitdefender* engine, using it to good effect in the tests it appears in. This month a couple of minor errors occurred during initial activation and updating but otherwise things went smoothly, with strong detection and very light performance impact. A good run through the certification sets earns *Total Defense* another VB100 award.

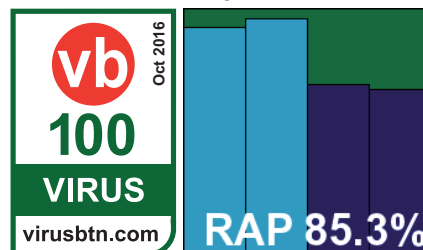


TrustPort Antivirus 2016 (Consumer)

Main version: 2016(16.0.0.5676)
 Update versions: 2016(16.0.0.5676), 2016(16.0.0.5698)
 Last 6 tests: 3 passed, 0 failed, 3 no entry
 Last 12 tests: 4 passed, 0 failed, 8 no entry

ItW on demand: 100.00% **ItW on access:** 100.00%
False positives: 0 **Stability:** Solid

The second appearance from *TrustPort* this month, this time in the consumer category but with a basically identical



product. It will come as little surprise that the product's performance was pretty similar, with the usual excellent detection rates and impeccable stability. Resource usage and speed impact were somewhat on the heavy side, and another good showing in the core sets earns *TrustPort* its second VB100 award this month.

Wontok SafeCentral Security Suite

Main version: 1.1.1251.0

Update versions: N/A

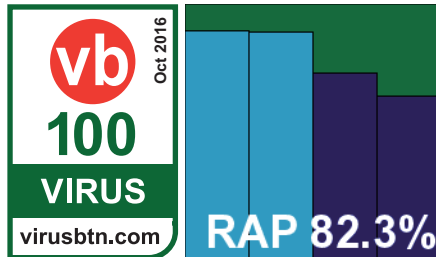
Last 6 tests: 2 passed, 0 failed, 4 no entry

Last 12 tests: 3 passed, 0 failed, 9 no entry

ItW on demand: 100.00% **ItW on access:** 100.00%

False positives: 0 **Stability:** Solid

Finally this month comes dual-engined *Wontok*, with a handful of passes already recorded and some splendid detection ratings



observed. This month things went very smoothly once again, detection was good if not quite as stellar as we might expect, and performance hit wasn't too severe. The certification sets were covered accurately, and *Wontok* earns another VB100 award.

UNTESTED PRODUCTS

This month a product from *Maya Technologies* was submitted for testing but found to be unsuitable for our test approach, so has been left out of this report.

CONCLUSIONS

Another *Windows 7* test, and as expected a pleasingly smooth run with a minimum of stability horrors. The bulk of the issues noted this month were fairly minor, thanks to many years of bug-hunting on the platform for most participants. Those who have taken the plunge and upgraded their systems to *Windows 10* will no doubt be hoping that a similar process of fixing and improving things will filter through to them soon.

There was also a pleasingly high pass rate, perhaps in part thanks to the improved stability. Those denied certification lost out mainly due to fairly small numbers of false alarms.

As ever, we endeavour to keep our clean set representative of the most widely deployed packages, avoiding the obscure and indeed the less critical software; in the new year we plan to switch to an entirely new set which we have been working on for some time, which should give us even more control over the content to track and adjust as required, with more focus on the significance of software to the user.

We are also looking at some fairly significant changes to the operation of the VB100 tests, but anticipate keeping the data we provide to our readers similarly detailed and useful. As ever, we invite readers to send comments, suggestions and queries to vbtest@virusbulletin.com.

Technical details

All tests were run on identical systems with AMD A6-3670K Quad Core 2.7GHz processors, 4GB DUAL DDR3 1600MHz RAM, dual 500GB and 1TB SATA hard drives and gigabit networking, running *Microsoft Windows 7*, x64 Pro edition.

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Certification tests - business products	On demand	On access	Clean sets		VB100
	Standard WildList	Standard WildList	FP	Warnings	
CYREN Command Anti-Malware	100.00%	100.00%			
ESTsoft ALYac	100.00%	100.00%	1		X
Fortinet FortiClient	100.00%	100.00%			
Ikarus anti.virus	100.00%	100.00%			
iSheriff Security from the Cloud	100.00%	100.00%			
Kaspersky Small Office Security 5 Personal Computer	100.00%	100.00%			
Quick Heal Seqrite Endpoint Security	100.00%	100.00%			
TrustPort Antivirus 2016 (Business)	100.00%	100.00%			








Product information - business products	Install time (m)*	Reboot required	Fully 64-bit	Third-party engine technology †	Stability score	Stability rating
CYREN Command Anti-Malware	5:45	√	X			Solid
ESTsoft ALYac	19:30	√	X	Bitdefender	1	<i>Stable</i>
Fortinet FortiClient	8:45	X	X		1	<i>Stable</i>
Ikarus anti.virus	2:00	X	X		1	<i>Stable</i>
iSheriff Security from the Cloud	12:30	√	X	Bitdefender	1	<i>Stable</i>
Kaspersky Small Office Security 5 Personal Computer	4:30	X	X			Solid
Quick Heal Seqrite Endpoint Security	22:00	√	X			Solid
TrustPort Antivirus 2016 (Business)	9:30	X	√	AVG, Bitdefender		Solid

0 = Solid 0.1 – 4.9 = Stable 5 – 14.9 = Fair 15 – 29.9 = Buggy 30+ = Flaky

* Install time includes initial updates and time to enable on-access protection (assuming reasonable typing speed and familiarity with product operation)

† Only records presence of third-party scanning engines, most products will include additional in-house technologies

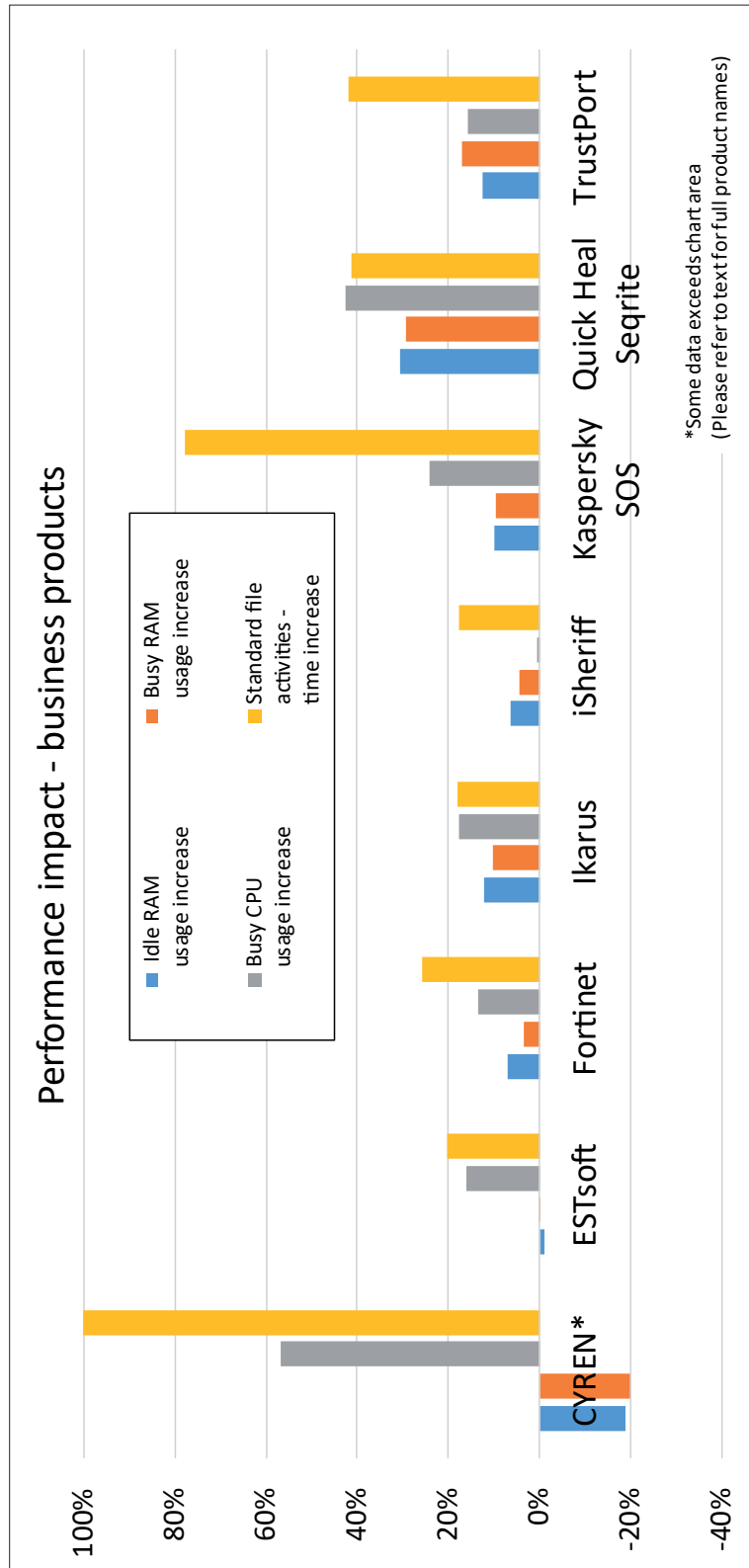
Performance measures - business products	Idle RAM usage increase	Busy RAM usage increase	Busy CPU usage increase	Standard activities - time increase
CYREN Command Anti-Malware	-19.02%	-19.88%	56.84%	286.82%
ESTsoft ALYac	-1.20%	0.30%	16.16%	20.22%
Fortinet FortiClient	6.93%	3.56%	13.48%	25.74%
Ikarus anti.virus	12.23%	10.24%	17.75%	18.11%
iSheriff Security from the Cloud	6.21%	4.48%	0.37%	17.79%
Kaspersky Small Office Security 5 Personal Computer	10.05%	9.58%	24.27%	77.83%
Quick Heal Seqrite Endpoint Security	30.51%	29.26%	42.57%	41.25%
TrustPort Antivirus 2016 (Business)	12.45%	17.07%	15.70%	41.99%

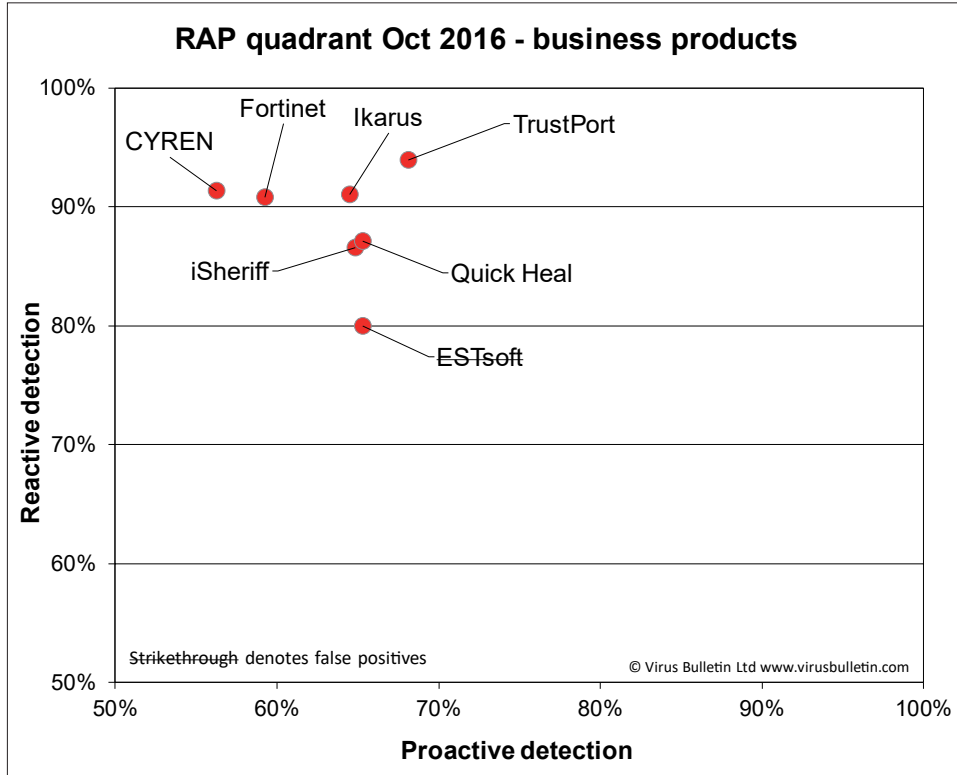
Reactive and Proactive (RAP) tests - business products	VB100	Reactive		Proactive		Reactive average	Proactive average	Weighted average [‡]
		Set -2 [*]	Set -1 [*]	Set +1 [†]	Set +2 [†]			
CYREN Command Anti-Malware		90.4%	92.3%	54.6%	57.9%	91.4%	56.3%	79.7%
ESTsoft ALYac	X	78.2%	81.6%	65.1%	65.6%	79.9%	65.3%	75.1%
Fortinet FortiClient		91.2%	90.3%	57.4%	61.1%	90.8%	59.2%	80.3%
Ikarus anti.virus		90.7%	91.4%	64.2%	64.8%	91.0%	64.5%	82.2%
iSheriff Security from the Cloud		88.2%	85.0%	65.2%	64.4%	86.6%	64.8%	79.3%
Kaspersky Small Office Security 5 Personal Computer		N/A	N/A	N/A	N/A	N/A	N/A	N/A
Quick Heal Seqrite Endpoint Security		89.1%	85.2%	64.3%	66.2%	87.1%	65.3%	79.8%
TrustPort Antivirus 2016 (Business)		92.4%	95.5%	69.1%	67.2%	93.9%	68.1%	85.3%

^{*}Set -1 = Samples discovered 1 to 5 days before testing; Set -2 = Samples discovered 6 to 10 days before testing.

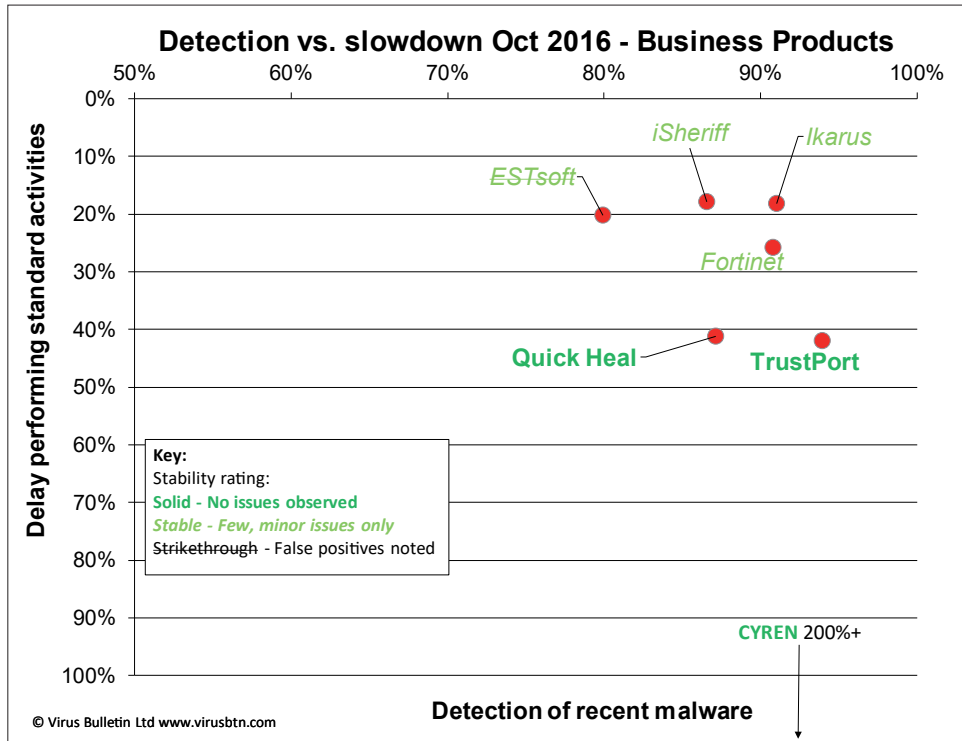
[†]Set +1 = Samples discovered 1 to 5 days after updates frozen; Set +2 = Samples discovered 6 to 10 days after updates frozen.

[‡]Weighted average gives equal emphasis to the two reactive weeks and the whole proactive part.

































(Please refer to text for full product names.)



(Please refer to text for full product names.)

Certification tests - consumer products	On demand	On access	Clean sets		VB100
	Standard WildList	Standard WildList	FP	Warnings	
Arcabit AntiVirus	100.00%	100.00%			
Avast Free Antivirus	100.00%	100.00%		30	
AVG AntiVirus	100.00%	100.00%		2	
Bitdefender Endpoint Security	100.00%	100.00%			
BullGuard Antivirus	100.00%	100.00%			
Check Point ZoneAlarm PRO Antivirus + Firewall	100.00%	100.00%			
CompuClever Antivirus Plus	100.00%	100.00%			
Emsisoft Anti-Malware	100.00%	100.00%			
eScan Internet Security Suite for Windows	100.00%	100.00%			
ESET NOD32 Antivirus 9	100.00%	100.00%			
Essentware PCKeeper Antivirus PRO	100.00%	100.00%			
G Data Antivirus	100.00%	100.00%			
K7 Total Security	100.00%	100.00%			
Kaspersky Internet Security	100.00%	100.00%			
Lavasoft Ad-Aware Free Antivirus +	100.00%	100.00%			
Lavasoft Ad-Aware Pro Security	100.00%	100.00%			
MSecure DenyWall Antivirus	100.00%	100.00%	1		X
NANO Antivirus Pro	100.00%	100.00%			
Panda Endpoint Protection	100.00%	100.00%			
PC Pitstop PC Matic Home Security	99.81%	94.05%	18		X
PSafe TOTAL	100.00%	100.00%	13		X
Qihoo 360	100.00%	100.00%			
Quick Heal Total Security	100.00%	100.00%			
TeamViewer ITbrain Anti-Malware	100.00%	100.00%			
Tencent PC Manager	100.00%	100.00%			
Tencent PC Manager – TAV edition	100.00%	100.00%			
TG Soft VirIT eXplorer PRO	100.00%	100.00%			
ThreatTrack VIPRE Internet Security Pro 2016	100.00%	100.00%			
Total Defense Internet Security	100.00%	100.00%			
TrustPort Antivirus 2016 (Consumer)	100.00%	100.00%			
Wontok SafeCentral Security Suite	100.00%	100.00%			

Product information - consumer products	Install time (m)*	Reboot required	Fully 64-bit	Third-party engine technology †	Stability score	Stability rating
Arcabit AntiVirus	5:15	√	X	Bitdefender	1	<i>Stable</i>
Avast Free Antivirus	5:30	√	√			Solid
AVG AntiVirus	4:15	X	X			Solid
Bitdefender Endpoint Security	6:15	√	X			Solid
BullGuard Antivirus	7:30	√	√	Bitdefender		Solid
Check Point ZoneAlarm PRO Antivirus + Firewall	14:30	√	√	Bitdefender		Solid
CompuClever Antivirus Plus	8:00	X	√	Kaspersky		Solid
Emsisoft Anti-Malware	4:45	√	√	Bitdefender	5	<i>Fair</i>
eScan Internet Security Suite for Windows	14:45	X	√	Bitdefender		Solid
ESET NOD32 Antivirus 9	6:00	√	√			Solid
Essentware PCKeeper Antivirus PRO	35:15	√	X	Avira	2	<i>Stable</i>
G Data Antivirus	11:15	X	√	Bitdefender	1	<i>Stable</i>
K7 Total Security	2:45	X	X		1	<i>Stable</i>
Kaspersky Internet Security	4:45	X	X			Solid
Lavasoft Ad-Aware Free Antivirus +	13:00	√	√	Bitdefender	7	<i>Fair</i>
Lavasoft Ad-Aware Pro Security	14:15	√	√	Bitdefender	6	<i>Fair</i>
MSecure DenyWall Antivirus	3:00	X	X	‡	3	<i>Stable</i>
NANO Antivirus Pro	17:00	X	X			Solid
Panda Endpoint Protection	7:30	X	X			Solid
PC Pitstop PC Matic Home Security	1:45	X	X		19	<i>Buggy</i>
PSafe TOTAL	1:45	X	X	Avira, Qihoo		Solid
Qihoo 360	6:30	√	X	Bitdefender	6	<i>Fair</i>
Quick Heal Total Security	22:00	√	X			Solid
TeamViewer ITbrain Anti-Malware	3:45	√	X	Bitdefender	3	<i>Stable</i>
Tencent PC Manager	10:00	X	X	Bitdefender		Solid
Tencent PC Manager – TAV edition	2:00	X	X			Solid
TG Soft VirIT eXplorer PRO	8:00	√	√			Solid
ThreatTrack VIPRE Internet Security Pro 2016	7:00	X	X	Bitdefender		Solid
Total Defense Internet Security	8:30	√	X	Bitdefender	2	<i>Stable</i>
TrustPort Antivirus 2016 (Consumer)	9:30	X	√	AVG, Bitdefender		Solid
Wontok SafeCentral Security Suite	39:00	X	X	Avira, Bitdefender		Solid

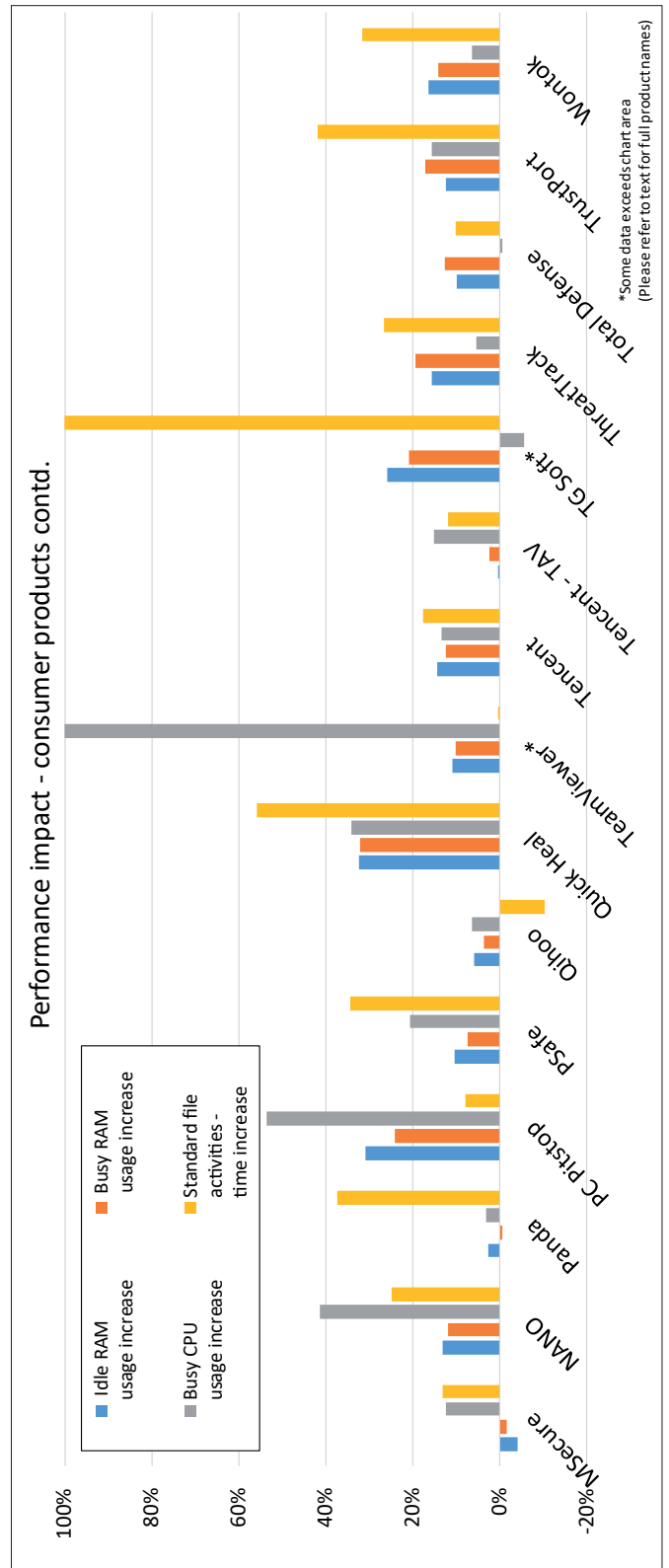
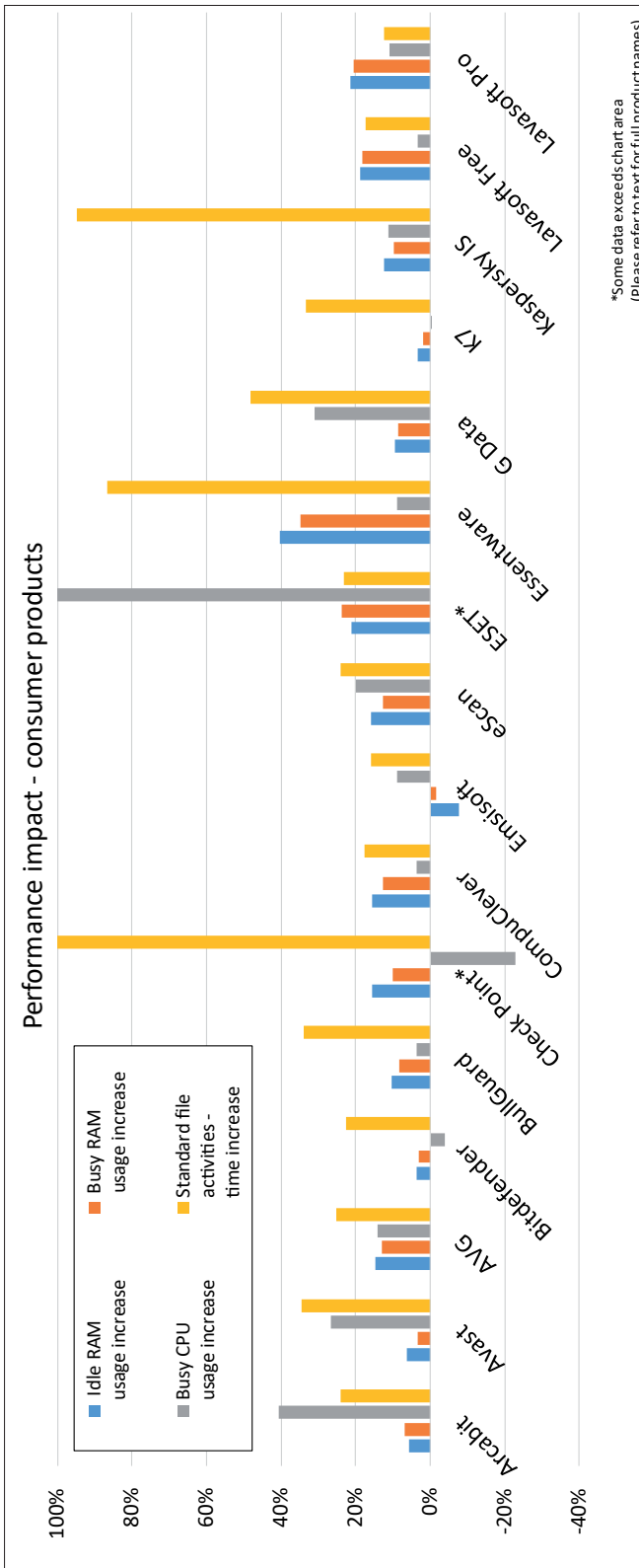
0 = Solid 0.1 – 4.9 = Stable 5 – 14.9 = Fair 15 – 29.9 = Buggy 30+ = Flaky

















* Install time includes initial updates and time to enable on-access protection (assuming reasonable typing speed and familiarity with product operation)

† Only records presence of third-party scanning engines, most products will include additional in-house technologies

‡ Identity of third-party engine withheld at vendor's request

Performance measures - consumer products	Idle RAM usage increase	Busy RAM usage increase	Busy CPU usage increase	Standard activities - time increase
Arcabit AntiVirus	5.78%	6.90%	40.52%	24.05%
Avast Free Antivirus	6.26%	3.37%	26.53%	34.66%
AVG AntiVirus	14.71%	12.91%	14.11%	25.29%
Bitdefender Endpoint Security	3.54%	3.06%	-4.01%	22.44%
BullGuard Antivirus	10.32%	8.41%	3.71%	34.03%
Check Point ZoneAlarm PRO Antivirus + Firewall	15.46%	10.17%	-22.88%	133.85%
CompuClever Antivirus Plus	15.53%	12.65%	3.79%	17.65%
Emsisoft Anti-Malware	-7.76%	-1.64%	8.75%	15.94%
eScan Internet Security Suite for Windows	15.85%	12.59%	20.09%	24.11%
ESET NOD32 Antivirus 9	21.27%	23.64%	143.83%	23.29%
Essentware PCKeeper Antivirus PRO	40.40%	34.93%	9.00%	86.71%
G Data Antivirus	9.43%	8.60%	30.99%	48.18%
K7 Total Security	3.48%	1.84%	-0.37%	33.46%
Kaspersky Internet Security	12.42%	9.71%	11.17%	94.80%
Lavasoft Ad-Aware Free Antivirus +	18.90%	18.15%	3.43%	17.32%
Lavasoft Ad-Aware Pro Security	21.52%	20.51%	10.85%	12.49%
MSecure DenyWall Antivirus	-4.10%	-1.57%	12.46%	13.15%
NANO Antivirus Pro	13.14%	11.85%	41.40%	24.89%
Panda Endpoint Protection	2.77%	-0.51%	3.17%	37.38%
PC Pitstop PC Matic Home Security	30.97%	24.22%	53.55%	7.99%
PSafe TOTAL	10.38%	7.49%	20.55%	34.40%
Qihoo 360	5.93%	3.70%	6.54%	-10.29%
Quick Heal Total Security	32.28%	32.21%	34.15%	55.73%
TeamViewer ITbrain Anti-Malware	10.81%	10.22%	114.30%	0.45%
Tencent PC Manager	14.43%	12.48%	13.43%	17.60%
Tencent PC Manager – TAV edition	0.43%	2.43%	15.17%	11.90%
TG Soft VirIT eXplorer PRO	25.98%	20.79%	-5.54%	130.65%
ThreatTrack VIPRE Internet Security Pro 2016	15.57%	19.42%	5.54%	26.66%
Total Defense Internet Security	9.91%	12.66%	-0.64%	10.14%
TrustPort Antivirus 2016 (Consumer)	12.45%	17.07%	15.70%	41.99%
Wontok SafeCentral Security Suite	16.42%	14.29%	6.44%	31.62%















Reactive and Proactive (RAP) tests - consumer products	VB100	Reactive		Proactive		Reactive average	Proactive average	Weighted average [‡]
		Set -2*	Set -1*	Set +1 [†]	Set +2 [†]			
Arcabit AntiVirus		89.1%	89.3%	65.3%	65.3%	89.2%	65.3%	81.2%
Avast Free Antivirus		93.4%	94.9%	61.1%	63.1%	94.1%	62.1%	83.5%
AVG AntiVirus		92.4%	93.9%	55.9%	57.8%	93.2%	56.9%	81.1%
Bitdefender Endpoint Security		89.8%	90.5%	65.8%	65.6%	90.1%	65.7%	82.0%
BullGuard Antivirus		87.3%	89.0%	65.7%	65.5%	88.1%	65.6%	80.6%
Check Point ZoneAlarm PRO Antivirus + Firewall		78.6%	78.4%	N/A	N/A	78.5%	N/A	N/A
CompuClever Antivirus Plus		88.7%	89.1%	65.7%	65.5%	88.9%	65.6%	81.1%
Emsisoft Anti-Malware		88.8%	90.2%	65.5%	65.5%	89.5%	65.5%	81.5%
eScan Internet Security Suite for Windows		89.9%	90.3%	65.4%	65.5%	90.1%	65.4%	81.9%
ESET NOD32 Antivirus 9		86.6%	91.3%	72.9%	69.9%	89.0%	71.4%	83.1%
Essentware PCKeeper Antivirus PRO		83.9%	86.4%	57.8%	62.0%	85.1%	59.9%	76.7%
G Data Antivirus		93.5%	95.3%	66.8%	66.6%	94.4%	66.7%	85.2%
K7 Total Security		78.1%	78.1%	50.7%	55.9%	78.1%	53.3%	69.8%
Kaspersky Internet Security		N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lavasoft Ad-Aware Free Antivirus +		90.5%	91.0%	61.4%	65.5%	90.8%	63.5%	81.7%
Lavasoft Ad-Aware Pro Security		90.5%	91.0%	61.4%	65.5%	90.8%	63.5%	81.7%

*Set -1 = Samples discovered 1 to 5 days before testing; Set -2 = Samples discovered 6 to 10 days before testing.

[†]Set +1 = Samples discovered 1 to 5 days after updates frozen; Set +2 = Samples discovered 6 to 10 days after updates frozen.

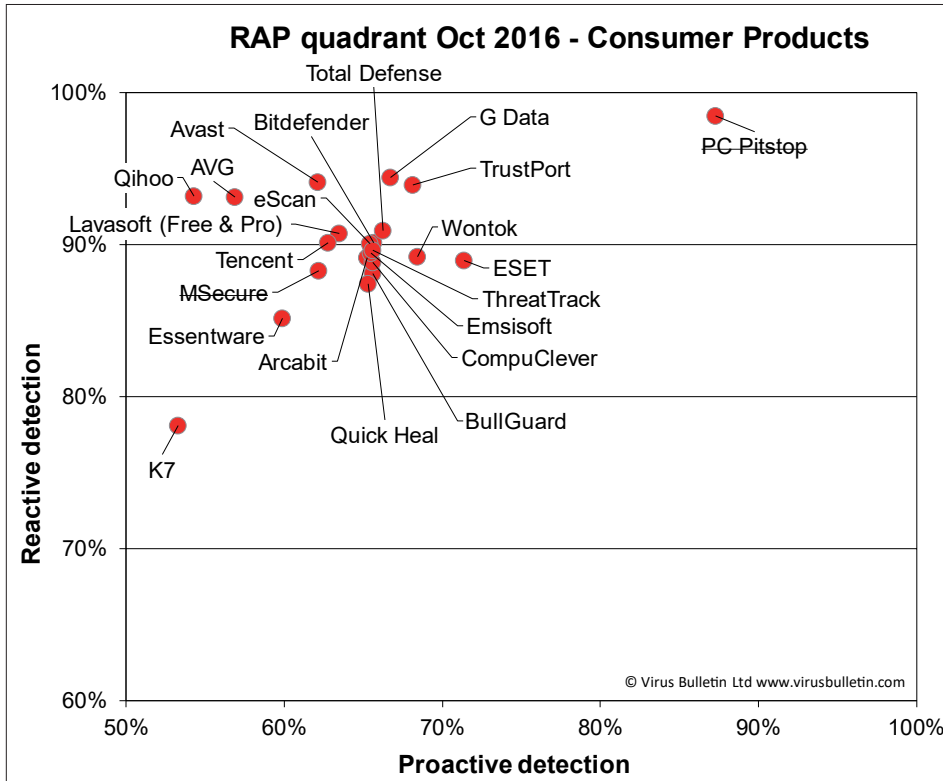
[‡]Weighted average gives equal emphasis to the two reactive weeks and the whole proactive part.

Reactive and Proactive (RAP) tests - consumer products	VB100	Reactive		Proactive		Reactive average	Proactive average	Weighted average [‡]
		Set -2*	Set -1*	Set +1 [†]	Set +2 [†]			
MSecure DenyWall Antivirus	X	87.3%	89.3%	62.1%	62.2%	88.3%	62.2%	79.6%
NANO Antivirus Pro		71.1%	61.3%	44.7%	53.0%	66.2%	48.8%	60.4%
Panda Endpoint Protection		86.5%	85.0%	N/A	N/A	85.7%	N/A	N/A
PC Pitstop PC Matic Home Security	X	97.4%	99.6%	87.3%	87.2%	98.5%	87.3%	94.7%
PSafe TOTAL	X	95.6%	97.0%	N/A	N/A	96.3%	N/A	N/A
Qihoo 360		93.6%	92.9%	49.6%	59.0%	93.2%	54.3%	80.2%
Quick Heal Total Security		89.6%	85.2%	64.3%	66.2%	87.4%	65.3%	80.0%
TeamViewer ITbrain Anti-Malware		89.8%	91.2%	N/A	N/A	90.5%	N/A	N/A
Tencent PC Manager		89.7%	90.6%	61.6%	64.0%	90.2%	62.8%	81.0%
Tencent PC Manager – TAV edition		N/A	N/A	N/A	N/A	N/A	N/A	N/A
TG Soft VirIT eXplorer PRO		41.1%	39.9%	32.7%	45.4%	40.5%	39.1%	40.0%
ThreatTrack VIPRE Internet Security Pro 2016		90.6%	88.7%	65.7%	65.5%	89.7%	65.6%	81.6%
Total Defense Internet Security		92.1%	89.8%	66.7%	65.8%	91.0%	66.3%	82.7%
TrustPort Antivirus 2016 (Consumer)		92.4%	95.5%	69.1%	67.2%	93.9%	68.1%	85.3%
Wontok SafeCentral Security Suite		89.5%	88.9%	72.9%	63.9%	89.2%	68.4%	82.3%

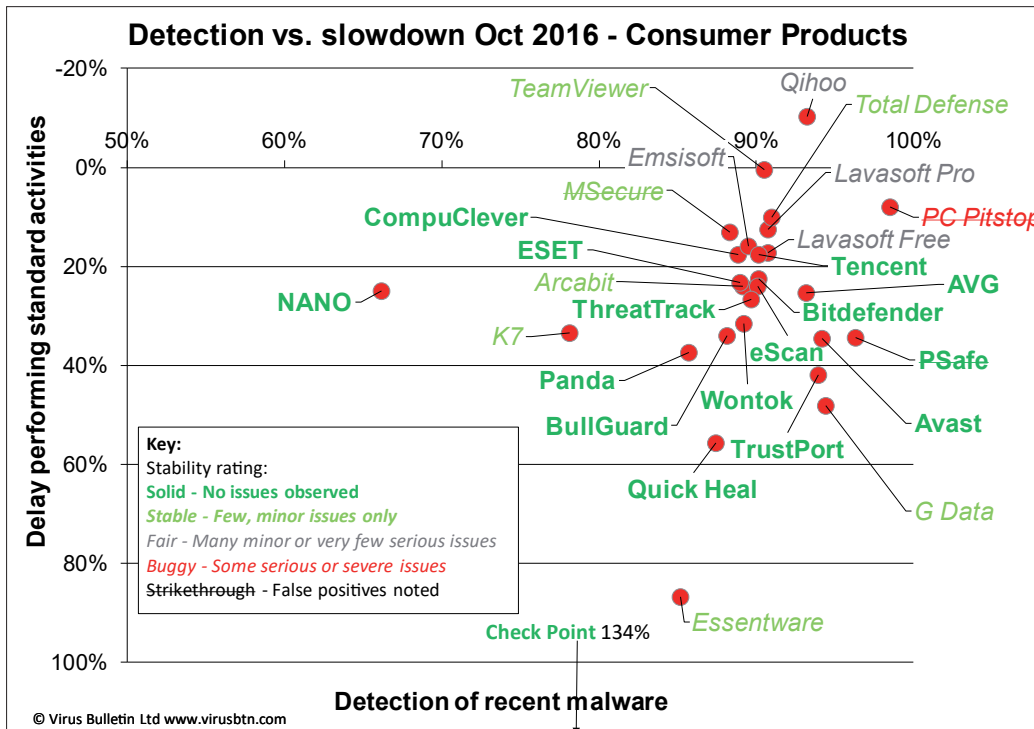
*Set -1 = Samples discovered 1 to 5 days before testing; Set -2 = Samples discovered 6 to 10 days before testing.

[†]Set +1 = Samples discovered 1 to 5 days after updates frozen; Set +2 = Samples discovered 6 to 10 days after updates frozen.

[‡]Weighted average gives equal emphasis to the two reactive weeks and the whole proactive part.



(Please refer to text for full product names.)



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