

## VB100 COMPARATIVE REVIEW – DECEMBER 2017

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The need for IT security has grown considerably in the past decade. If you are responsible for IT security within your organization, this is no doubt something you have noticed in your daily work – but the plus side of the situation is that there are plenty of security solutions available to help mitigate the issues you and your organization are facing and to make your work easier.

While there exist a handful of well established products and brands, the majority of these solutions are produced by lesser known vendors, and you may, quite rightly, wonder: ‘How can I be sure that the solution I am considering buying satisfies at least some minimum expectations?’

*Virus Bulletin’s* certification tests in general, and the VB100 certification for anti-malware/endpoint security solutions in particular, can help provide an answer to this question. For those with purchasing power, we recommend looking for products that pass the VB100 test regularly. At the same time, we also encourage the reading of tests by other testing organizations that focus on other aspects of protection.

At the end of this, the last VB100 test of 2017, 31 products from 27 vendors were able to add a VB100 award to their tallies.

## WILDLIST, CLEAN SET AND RAP

With hundreds of thousands of new malicious files being discovered every single day, you will probably not be surprised to learn that many such files are not strictly malicious: they may be broken versions of known malware, or files that simply engage in behaviour similar to that shown by malware. In quite a few cases, the maliciousness of a file depends on the availability of a remote server that

delivers a payload and that may have been taken offline at the time of execution.

For a testing organization like *Virus Bulletin* this matters, as we can only expect security products to detect files that are proven to be malicious. Hence, for many years, we have based part of our certification requirements on full detection of the WildList, a regularly updated and strictly vetted list of malware known to have been seen in the wild.

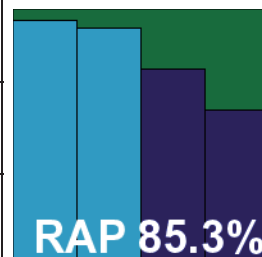
We are equally strict, albeit in a different way, with our own ‘clean set’ – a set of clean files used to measure whether a product generates false positives. Here, we require files in the test set to be widely used in the real world and not to engage in any malicious or otherwise deceptive behaviour.

In order to provide some extra detail on the performance of the products in our tests, the VB100 reports have, for almost a decade, included the ‘Reactive and Proactive’ (‘RAP’) test – a test which measures how quickly products detect new malware. The RAP scores give a good indication as to how quickly a product catches up when it comes to detecting new malware statically.

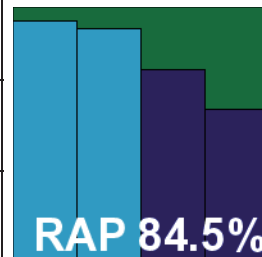
## RESULTS

In the results on the following pages, the RAP images display an average of the RAP scores across the two test platforms.

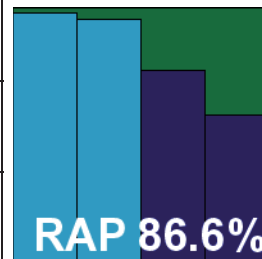
| ad-aware antivirus pro |                |                |
|------------------------|----------------|----------------|
|                        | Windows 7      | Windows 10     |
| Main version           | 12.2.876.11542 | 12.2.876.11542 |
| ItW catch rate         | 100.00%        | 100.00%        |
| False positives        | 0              | 0              |



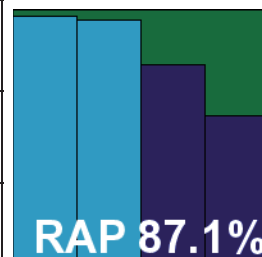
| Arcabit AntiVirus |            |            |
|-------------------|------------|------------|
|                   | Windows 7  | Windows 10 |
| Main version      | 2017.11.02 | 2017.11.02 |
| ItW catch rate    | 100.00%    | 100.00%    |
| False positives   | 0          | 0          |



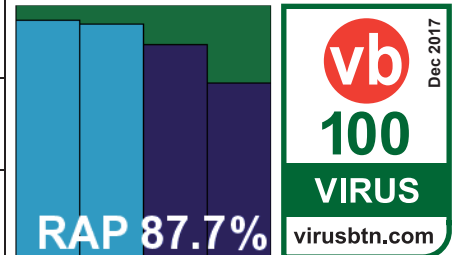
| Avast Free Antivirus |           |            |
|----------------------|-----------|------------|
|                      | Windows 7 | Windows 10 |
| Main version         | 17.7.2314 | 17.7.2314  |
| ItW catch rate       | 100.00%   | 100.00%    |
| False positives      | 0         | 0          |



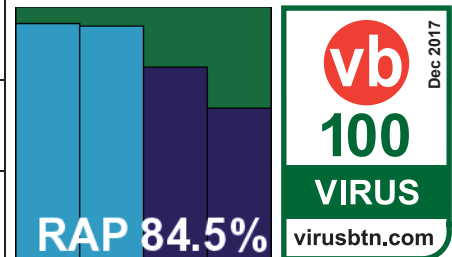
| AVG Internet Security |               |               |
|-----------------------|---------------|---------------|
|                       | Windows 7     | Windows 10    |
| Main version          | 1.211.3.13021 | 1.211.3.13021 |
| ItW catch rate        | 100.00%       | 100.00%       |
| False positives       | 0             | 0             |



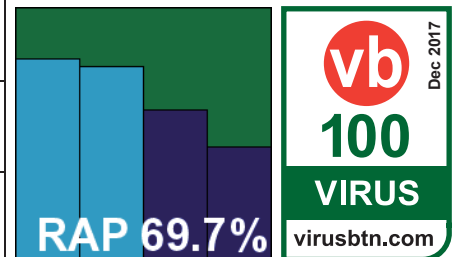
| Bitdefender Endpoint Security |            |            |
|-------------------------------|------------|------------|
|                               | Windows 7  | Windows 10 |
| Main version                  | 6.2.25.953 | 6.2.25.953 |
| ItW catch rate                | 100.00%    | 100.00%    |
| False positives               | 0          | 0          |



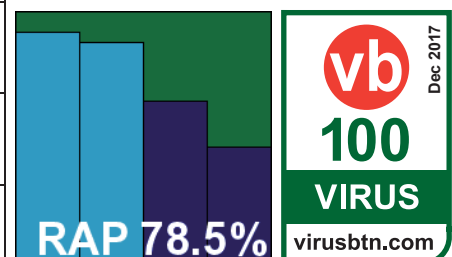
| CompuClever Antivirus PLUS |            |            |
|----------------------------|------------|------------|
|                            | Windows 7  | Windows 10 |
| Main version               | 19.6.0.326 | 19.6.0.326 |
| ItW catch rate             | 100.00%    | 100.00%    |
| False positives            | 0          | 0          |



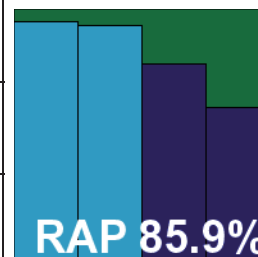
| Cyren Command Anti-Malware |           |            |
|----------------------------|-----------|------------|
|                            | Windows 7 | Windows 10 |
| Main version               | 5.1.38    | 5.1.38     |
| ItW catch rate             | 100.00%   | 100.00%    |
| False positives            | 0         | 0          |



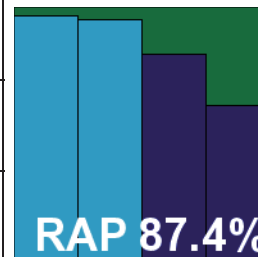
| Defenx Security Suite |           |            |
|-----------------------|-----------|------------|
|                       | Windows 7 | Windows 10 |
| Main version          | 15.1.0108 | 15.1.0108  |
| ItW catch rate        | 100.00%   | 100.00%    |
| False positives       | 0         | 0          |



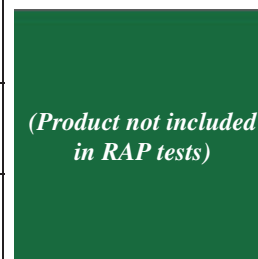
| Emsisoft Anti-Malware |                |                |
|-----------------------|----------------|----------------|
|                       | Windows 7      | Windows 10     |
| Main version          | 2017.10.1.8165 | 2017.10.1.8165 |
| ItW catch rate        | 100.00%        | 100.00%        |
| False positives       | 0              | 0              |



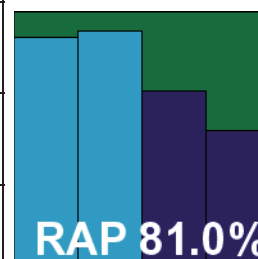
| eScan Internet Security Suite for Windows |                |                   |
|-------------------------------------------|----------------|-------------------|
|                                           | Windows 7      | Windows 10        |
| Main version                              | 14.0.1400.1979 | 14.0.1400.1979 DB |
| ItW catch rate                            | 100.00%        | 100.00%           |
| False positives                           | 0              | 0                 |



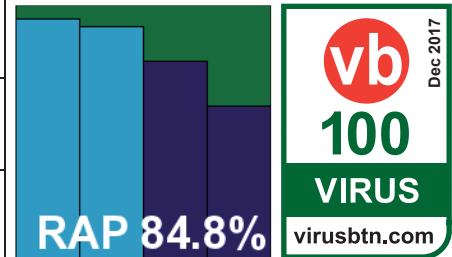
| ESET Internet Security |            |            |
|------------------------|------------|------------|
|                        | Windows 7  | Windows 10 |
| Main version           | 10.1.235.0 | 10.1.235.0 |
| ItW catch rate         | 100.00%    | 100.00%    |
| False positives        | 0          | 0          |



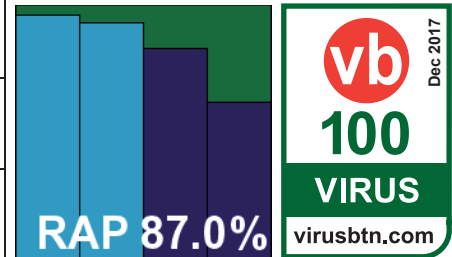
| Essentware PCKeeper Antivirus PRO |           |            |
|-----------------------------------|-----------|------------|
|                                   | Windows 7 | Windows 10 |
| Main version                      | 8.3.48.80 | 8.3.48.80  |
| ItW catch rate                    | 100.00%   | 100.00%    |
| False positives                   | 0         | 0          |



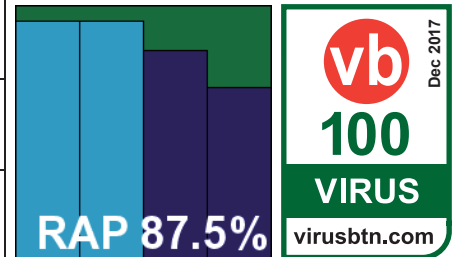
| ESTsecurity ALYac |           |            |
|-------------------|-----------|------------|
|                   | Windows 7 | Windows 10 |
| Main version      | 3.0.1.3   | 3.0.1.3    |
| ItW catch rate    | 100.00%   | 100.00%    |
| False positives   | 0         | 0          |



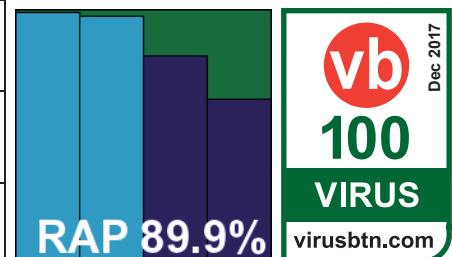
| Faronics Anti-Virus |               |               |
|---------------------|---------------|---------------|
|                     | Windows 7     | Windows 10    |
| Main version        | 4.12.3102.398 | 4.12.3102.398 |
| ItW catch rate      | 100.00%       | 100.00%       |
| False positives     | 0             | 0             |



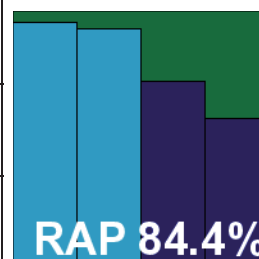
| Fortinet FortiClient |            |            |
|----------------------|------------|------------|
|                      | Windows 7  | Windows 10 |
| Main version         | 5.4.1.0840 | 5.4.1.0840 |
| ItW catch rate       | 100.00%    | 100.00%    |
| False positives      | 0          | 0          |



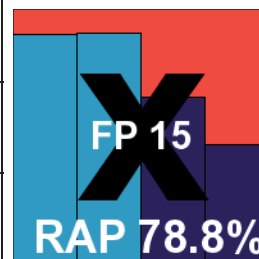
| G DATA Antivirus |           |            |
|------------------|-----------|------------|
|                  | Windows 7 | Windows 10 |
| Main version     | 25.4.0.2  | 25.4.0.2   |
| ItW catch rate   | 100.00%   | 100.00%    |
| False positives  | 0         | 0          |



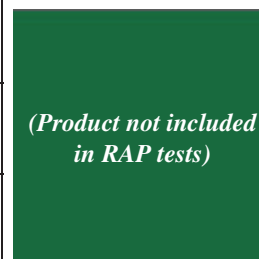
| IKARUS anti.virus |           |            |
|-------------------|-----------|------------|
|                   | Windows 7 | Windows 10 |
| Main version      | 2.16.15   | 2.16.15    |
| ItW catch rate    | 100.00%   | 100.00%    |
| False positives   | 0         | 0          |



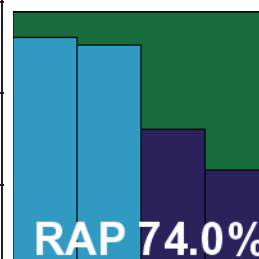
| K7 Total Security |           |            |
|-------------------|-----------|------------|
|                   | Windows 7 | Windows 10 |
| Main version      | 15.1.0318 | 15.1.0318  |
| ItW catch rate    | 100.00%   | 100.00%    |
| False positives   | 15        | 0          |



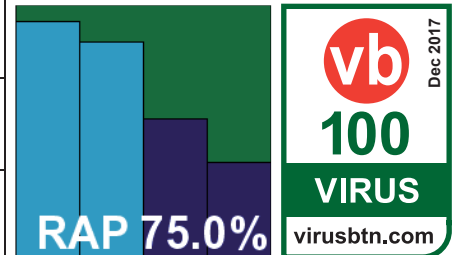
| Kaspersky Endpoint Security 10 for Windows |             |                    |
|--------------------------------------------|-------------|--------------------|
|                                            | Windows 7   | Windows 10         |
| Main version                               | 10.3.0.6294 | 10.3.0.6294 AES256 |
| ItW catch rate                             | 100.00%     | 100.00%            |
| False positives                            | 0           | 0                  |



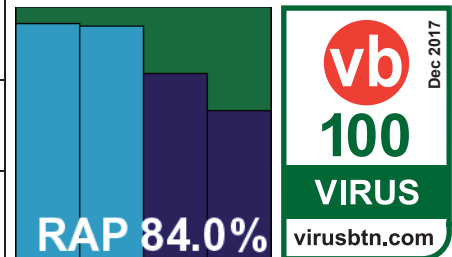
| Panda Endpoint Protection Plus |           |            |
|--------------------------------|-----------|------------|
|                                | Windows 7 | Windows 10 |
| Main version                   | 7.70.0    | 7.70.0     |
| ItW catch rate                 | 100.00%   | 100.00%    |
| False positives                | 0         | 0          |



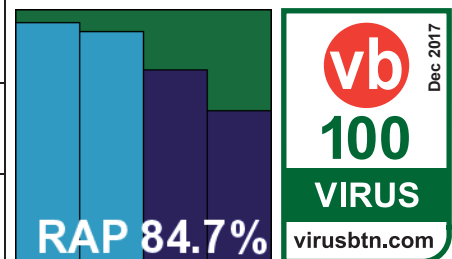
| Panda Free Antivirus |           |            |
|----------------------|-----------|------------|
|                      | Windows 7 | Windows 10 |
| Main version         | 18.03.00  | 18.01.00   |
| ItW catch rate       | 100.00%   | 100.00%    |
| False positives      | 0         | 0          |



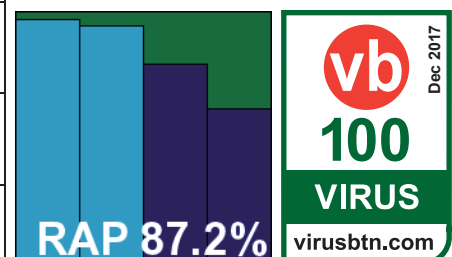
| TACHYON Endpoint Security |           |            |
|---------------------------|-----------|------------|
|                           | Windows 7 | Windows 10 |
| Main version              | 5.0.0.0   | 5.0.0.0    |
| ItW catch rate            | 100.00%   | 100.00%    |
| False positives           | 0         | 0          |



| TeamViewer ITbrain Anti-Malware |           |            |
|---------------------------------|-----------|------------|
|                                 | Windows 7 | Windows 10 |
| Main version                    | 1.0.76588 | 1.0.76588  |
| ItW catch rate                  | 100.00%   | 100.00%    |
| False positives                 | 0         | 0          |



| Tencent PC Manager |                |                |
|--------------------|----------------|----------------|
|                    | Windows 7      | Windows 10     |
| Main version       | 12.3.26502.901 | 12.3.26502.901 |
| ItW catch rate     | 100.00%        | 100.00%        |
| False positives    | 0              | 0              |

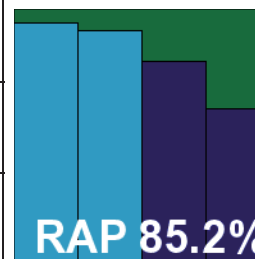


| Tencent PC Manager – TAV |                |                |
|--------------------------|----------------|----------------|
|                          | Windows 7      | Windows 10     |
| Main version             | 12.3.26499.901 | 12.3.26499.901 |
| ItW catch rate           | 100.00%        | 100.00%        |
| False positives          | 0              | 0              |

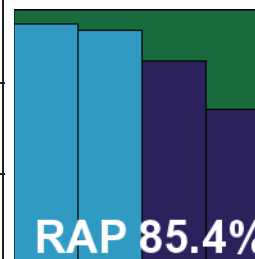
(Product not included  
in RAP tests)



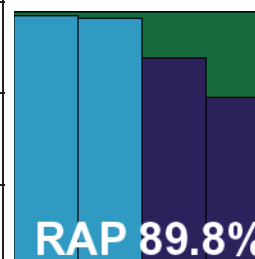
| Total Defense Internet Security |           |            |
|---------------------------------|-----------|------------|
|                                 | Windows 7 | Windows 10 |
| Main version                    | 9.0.0.645 | 9.0.0.747  |
| ItW catch rate                  | 100.00%   | 100.00%    |
| False positives                 | 0         | 0          |



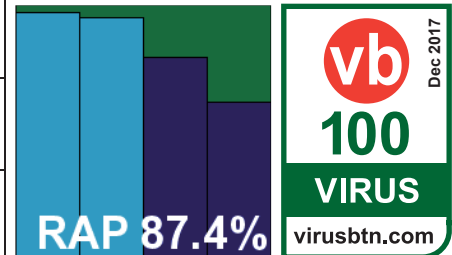
| Total Defense Premium |           |            |
|-----------------------|-----------|------------|
|                       | Windows 7 | Windows 10 |
| Main version          | 9.0.0.747 | 9.0.0.747  |
| ItW catch rate        | 100.00%   | 100.00%    |
| False positives       | 0         | 0          |



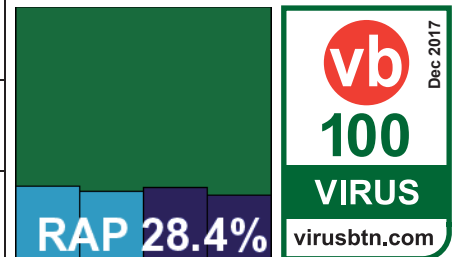
| TrustPort Antivirus Sphere |             |             |
|----------------------------|-------------|-------------|
|                            | Windows 7   | Windows 10  |
| Main version               | 17.0.2.7025 | 17.0.2.7025 |
| ItW catch rate             | 100.00%     | 100.00%     |
| False positives            | 0           | 0           |



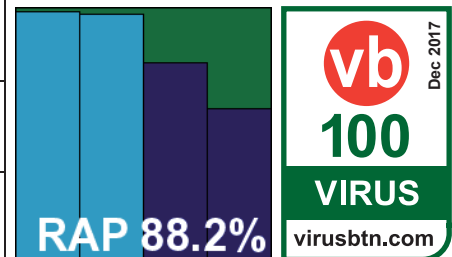
| VIPRE Advanced Security |           |            |
|-------------------------|-----------|------------|
|                         | Windows 7 | Windows 10 |
| Main version            | 10.1.4.33 | 10.1.4.33  |
| ItW catch rate          | 100.00%   | 100.00%    |
| False positives         | 0         | 0          |



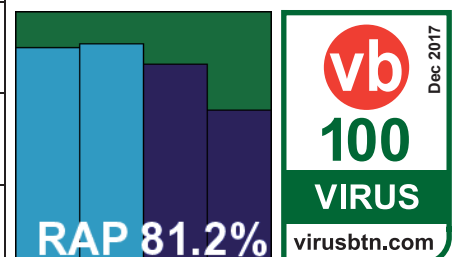
| VirIT eXplorer PRO |           |            |
|--------------------|-----------|------------|
|                    | Windows 7 | Windows 10 |
| Main version       | 8.5.43    | 8.5.43     |
| ItW catch rate     | 100.00%   | 100.00%    |
| False positives    | 0         | 0          |



| Wontok SafeCentral Security Suite |           |            |
|-----------------------------------|-----------|------------|
|                                   | Windows 7 | Windows 10 |
| Main version                      | 2.0.1318  | 2.0.1318   |
| ItW catch rate                    | 100.00%   | 100.00%    |
| False positives                   | 0         | 0          |



| Zemana Endpoint Security |            |            |
|--------------------------|------------|------------|
|                          | Windows 7  | Windows 10 |
| Main version             | 6.2.18.885 | 6.2.18.885 |
| ItW catch rate           | 100.00%    | 100.00%    |
| False positives          | 0          | 0          |



| Certification tests                       | Windows 7 |         |                 |                     | Windows 10 |         |                 |                     | VB100                                                                                 |
|-------------------------------------------|-----------|---------|-----------------|---------------------|------------|---------|-----------------|---------------------|---------------------------------------------------------------------------------------|
|                                           | FPs       | FP rate | WildList misses | WildList catch rate | FPs        | FP rate | WildList misses | WildList catch rate |                                                                                       |
| ad-aware antivirus pro                    | 0         | 0.00%   | 0               | 100.00%             | 0          | 0.00%   | 0               | 100.00%             |    |
| Arcabit AntiVirus                         | 0         | 0.00%   | 0               | 100.00%             | 0          | 0.00%   | 0               | 100.00%             |    |
| Avast Free Antivirus                      | 0         | 0.00%   | 0               | 100.00%             | 0          | 0.00%   | 0               | 100.00%             |    |
| AVG Internet Security                     | 0         | 0.00%   | 0               | 100.00%             | 0          | 0.00%   | 0               | 100.00%             |    |
| Bitdefender Endpoint Security             | 0         | 0.00%   | 0               | 100.00%             | 0          | 0.00%   | 0               | 100.00%             |    |
| CompuClever Antivirus PLUS                | 0         | 0.00%   | 0               | 100.00%             | 0          | 0.00%   | 0               | 100.00%             |    |
| Cyren Command Anti-Malware                | 0         | 0.00%   | 0               | 100.00%             | 0          | 0.00%   | 0               | 100.00%             |  |
| Defenx Security Suite                     | 0         | 0.00%   | 0               | 100.00%             | 0          | 0.00%   | 0               | 100.00%             |  |
| Emsisoft Anti-Malware                     | 0         | 0.00%   | 0               | 100.00%             | 0          | 0.00%   | 0               | 100.00%             |  |
| eScan Internet Security Suite for Windows | 0         | 0.00%   | 0               | 100.00%             | 0          | 0.00%   | 0               | 100.00%             |  |
| ESET Internet Security                    | 0         | 0.00%   | 0               | 100.00%             | 0          | 0.00%   | 0               | 100.00%             |  |
| Essentware PCKeeper Antivirus PRO         | 0         | 0.00%   | 0               | 100.00%             | 0          | 0.00%   | 0               | 100.00%             |  |
| ESTsecurity ALYac                         | 0         | 0.00%   | 0               | 100.00%             | 0          | 0.00%   | 0               | 100.00%             |  |
| Faronics Anti-Virus                       | 0         | 0.00%   | 0               | 100.00%             | 0          | 0.00%   | 0               | 100.00%             |  |
| Fortinet FortiClient                      | 0         | 0.00%   | 0               | 100.00%             | 0          | 0.00%   | 0               | 100.00%             |  |
| G DATA Antivirus                          | 0         | 0.00%   | 0               | 100.00%             | 0          | 0.00%   | 0               | 100.00%             |  |

| Certification tests contd.                 | Windows 7 |         |                 |                     | Windows 10 |         |                 |                     | VB100                                                                                 |
|--------------------------------------------|-----------|---------|-----------------|---------------------|------------|---------|-----------------|---------------------|---------------------------------------------------------------------------------------|
|                                            | FPs       | FP rate | WildList misses | WildList catch rate | FPs        | FP rate | WildList misses | WildList catch rate |                                                                                       |
| IKARUS anti.virus                          | 0         | 0.00%   | 0               | 100.00%             | 0          | 0.00%   | 0               | 100.00%             |    |
| K7 Total Security                          | 15        | 0.004%  | 0               | 100.00%             | 0          | 0.00%   | 0               | 100.00%             | X                                                                                     |
| Kaspersky Endpoint Security 10 for Windows | 0         | 0.00%   | 0               | 100.00%             | 0          | 0.00%   | 0               | 100.00%             |    |
| Panda Endpoint Protection Plus             | 0         | 0.00%   | 0               | 100.00%             | 0          | 0.00%   | 0               | 100.00%             |    |
| Panda Free Antivirus                       | 0         | 0.00%   | 0               | 100.00%             | 0          | 0.00%   | 0               | 100.00%             |    |
| TACHYON Endpoint Security                  | 0         | 0.00%   | 0               | 100.00%             | 0          | 0.00%   | 0               | 100.00%             |    |
| TeamViewer ITbrain Anti-Malware            | 0         | 0.00%   | 0               | 100.00%             | 0          | 0.00%   | 0               | 100.00%             |  |
| Tencent PC Manager                         | 0         | 0.00%   | 0               | 100.00%             | 0          | 0.00%   | 0               | 100.00%             |  |
| Tencent PC Manager – TAV                   | 0         | 0.00%   | 0               | 100.00%             | 0          | 0.00%   | 0               | 100.00%             |  |
| Total Defense Internet Security            | 0         | 0.00%   | 0               | 100.00%             | 0          | 0.00%   | 0               | 100.00%             |  |
| Total Defense Premium                      | 0         | 0.00%   | 0               | 100.00%             | 0          | 0.00%   | 0               | 100.00%             |  |
| TrustPort Antivirus Sphere                 | 0         | 0.00%   | 0               | 100.00%             | 0          | 0.00%   | 0               | 100.00%             |  |
| VIPRE Advanced Security                    | 0         | 0.00%   | 0               | 100.00%             | 0          | 0.00%   | 0               | 100.00%             |  |
| VirIT eXplorer PRO                         | 0         | 0.00%   | 0               | 100.00%             | 0          | 0.00%   | 0               | 100.00%             |  |
| Wontok SafeCentral Security Suite          | 0         | 0.00%   | 0               | 100.00%             | 0          | 0.00%   | 0               | 100.00%             |  |
| Zemana Endpoint Security                   | 0         | 0.00%   | 0               | 100.00%             | 0          | 0.00%   | 0               | 100.00%             |  |

| RAP (Reactive And Proactive) tests – Windows 7 | Reactive            |                     | Reactive average | Proactive           |                     | Proactive average | RAP weighted average <sup>‡</sup> |
|------------------------------------------------|---------------------|---------------------|------------------|---------------------|---------------------|-------------------|-----------------------------------|
|                                                | Set -2 <sup>*</sup> | Set -1 <sup>*</sup> |                  | Set +1 <sup>†</sup> | Set +2 <sup>†</sup> |                   |                                   |
| ad-aware antivirus pro                         | 94.67%              | 91.94%              | 93.31%           | 76.39%              | 60.11%              | 68.25%            | 84.95%                            |
| Arcabit AntiVirus                              | 94.48%              | 91.41%              | 92.94%           | 75.42%              | 59.92%              | 67.67%            | 84.52%                            |
| Avast Free Antivirus                           | 97.93%              | 95.27%              | 96.60%           | 75.32%              | 57.71%              | 66.51%            | 86.57%                            |
| AVG Internet Security                          | 97.80%              | 95.23%              | 96.52%           | 75.18%              | 57.67%              | 66.43%            | 86.49%                            |
| Bitdefender Endpoint Security                  | 92.93%              | 91.76%              | 92.34%           | 83.42%              | 69.15%              | 76.29%            | 86.99%                            |
| CompuClever Antivirus PLUS                     | 91.88%              | 92.47%              | 92.18%           | 76.33%              | 60.07%              | 68.20%            | 84.18%                            |
| Cyren Command Anti-Malware                     | 80.39%              | 76.47%              | 78.43%           | 59.57%              | 45.13%              | 52.35%            | 69.74%                            |
| Defenx Security Suite                          | 91.62%              | 87.91%              | 89.77%           | 65.09%              | 46.90%              | 56.00%            | 78.51%                            |
| Emsisoft Anti-Malware                          | 95.27%              | 92.67%              | 93.97%           | 78.19%              | 61.02%              | 69.60%            | 85.85%                            |
| eScan Internet Security Suite for Windows      | 96.33%              | 94.00%              | 95.16%           | 79.10%              | 61.02%              | 70.06%            | 86.79%                            |
| Essentware PCKeeper Antivirus PRO              | 88.76%              | 91.89%              | 90.33%           | 68.69%              | 53.16%              | 60.92%            | 80.52%                            |
| ESTsecurity ALYac                              | 94.20%              | 90.84%              | 92.52%           | 79.61%              | 60.62%              | 70.11%            | 85.05%                            |
| Faronics Anti-Virus                            | 95.18%              | 90.64%              | 92.91%           | 82.88%              | 61.95%              | 72.41%            | 86.08%                            |
| Fortinet FortiClient                           | 93.94%              | 93.90%              | 93.92%           | 82.45%              | 67.72%              | 75.09%            | 87.64%                            |
| G DATA Antivirus                               | 99.24%              | 97.77%              | 98.51%           | 81.94%              | 64.64%              | 73.29%            | 90.10%                            |
| IKARUS anti.virus                              | 95.33%              | 92.75%              | 94.04%           | 72.28%              | 57.82%              | 65.05%            | 84.37%                            |
| K7 Total Security                              | 90.07%              | 89.65%              | 89.86%           | 65.17%              | 46.90%              | 56.04%            | 78.59%                            |
| Panda Endpoint Protection Plus                 | 86.74%              | 82.64%              | 84.69%           | 53.50%              | 37.53%              | 45.51%            | 71.63%                            |
| Panda Free Antivirus                           | 92.51%              | 87.77%              | 90.14%           | 56.37%              | 38.87%              | 47.62%            | 75.97%                            |
| TACHYON Endpoint Security                      | 93.50%              | 92.11%              | 92.80%           | 73.76%              | 59.08%              | 66.42%            | 84.01%                            |
| TeamViewer ITbrain Anti-Malware                | 94.60%              | 91.40%              | 93.00%           | 76.36%              | 60.09%              | 68.23%            | 84.74%                            |
| Tencent PC Manager                             | 96.41%              | 94.60%              | 95.51%           | 79.18%              | 61.61%              | 70.39%            | 87.14%                            |
| Total Defense Internet Security                | 94.50%              | 91.32%              | 92.91%           | 78.88%              | 60.45%              | 69.67%            | 85.16%                            |
| Total Defense Premium                          | 93.78%              | 92.29%              | 93.04%           | 79.47%              | 60.58%              | 70.03%            | 85.37%                            |
| TrustPort Antivirus Sphere                     | 98.12%              | 97.38%              | 97.75%           | 82.02%              | 66.39%              | 74.21%            | 89.90%                            |
| VIPRE Advanced Security                        | 96.90%              | 94.62%              | 95.76%           | 79.39%              | 61.67%              | 70.53%            | 87.35%                            |
| VirIT eXplorer PRO                             | 29.81%              | 27.66%              | 28.74%           | 29.06%              | 26.49%              | 27.77%            | 28.42%                            |
| Wontok SafeCentral Security Suite              | 98.26%              | 97.03%              | 97.65%           | 80.25%              | 60.75%              | 70.50%            | 88.60%                            |
| Zemana Endpoint Security                       | 75.48%              | 78.93%              | 77.21%           | 79.23%              | 61.34%              | 70.28%            | 74.90%                            |

<sup>\*</sup>Set -1 = Samples discovered 1 to 5 days before testing; Set -2 = Samples discovered 6 to 10 days before testing.

<sup>†</sup>Set +1 = Samples discovered 1 to 5 days after updates frozen; Set +2 = Samples discovered 6 to 10 days after updates frozen.

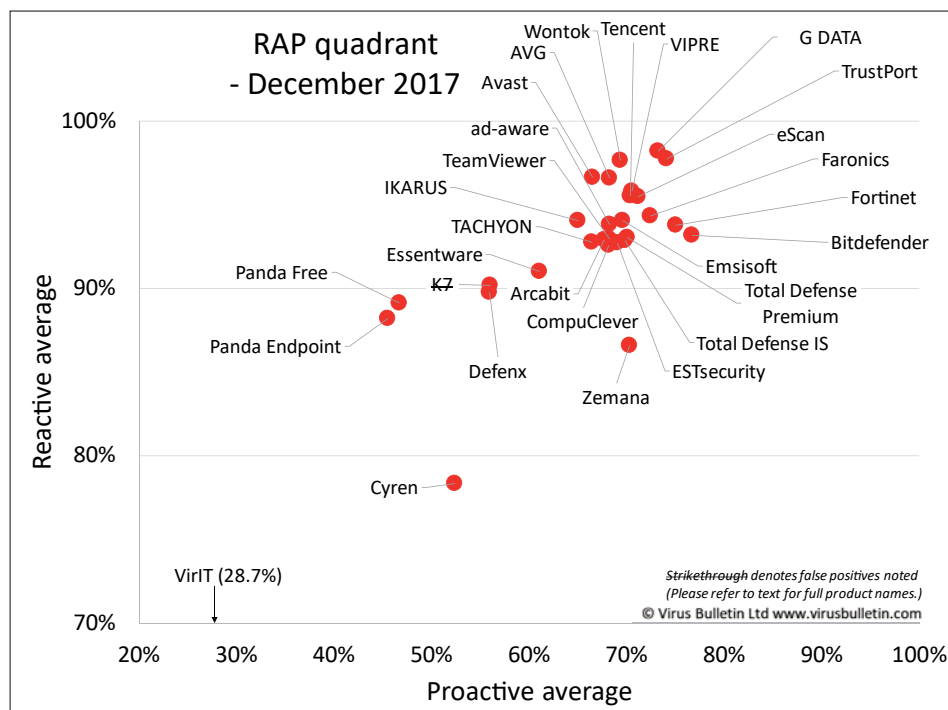
<sup>‡</sup>Weighted average gives equal emphasis to the two reactive weeks and the whole proactive part.

| RAP (Reactive And Proactive) tests – Windows 10 | Reactive |         | Reactive average | Proactive           |                     | Proactive average | RAP weighted average <sup>‡</sup> |
|-------------------------------------------------|----------|---------|------------------|---------------------|---------------------|-------------------|-----------------------------------|
|                                                 | Set -2*  | Set -1* |                  | Set +1 <sup>†</sup> | Set +2 <sup>‡</sup> |                   |                                   |
| ad-aware antivirus pro                          | 95.66%   | 93.01%  | 94.33%           | 76.39%              | 60.11%              | 68.25%            | 85.64%                            |
| Arcabit AntiVirus                               | 94.30%   | 91.46%  | 92.88%           | 75.42%              | 59.97%              | 67.69%            | 84.49%                            |
| Avast Free Antivirus                            | 97.93%   | 95.31%  | 96.62%           | 75.32%              | 57.71%              | 66.51%            | 86.58%                            |
| AVG Internet Security                           | 97.12%   | 96.13%  | 96.62%           | 81.19%              | 59.02%              | 70.10%            | 87.78%                            |
| Bitdefender Endpoint Security                   | 94.77%   | 93.19%  | 93.98%           | 84.92%              | 69.45%              | 77.18%            | 88.38%                            |
| CompuClever Antivirus PLUS                      | 94.44%   | 91.56%  | 93.00%           | 76.33%              | 60.07%              | 68.20%            | 84.73%                            |
| Cyren Command Anti-Malware                      | 79.49%   | 76.95%  | 78.22%           | 59.57%              | 45.13%              | 52.35%            | 69.60%                            |
| Defenx Security Suite                           | 91.61%   | 87.91%  | 89.76%           | 64.66%              | 46.97%              | 55.81%            | 78.45%                            |
| Emsisoft Anti-Malware                           | 94.72%   | 93.62%  | 94.17%           | 78.19%              | 61.02%              | 69.60%            | 85.98%                            |
| eScan Internet Security Suite for Windows       | 95.74%   | 95.91%  | 95.82%           | 83.07%              | 61.65%              | 72.36%            | 88.00%                            |
| Essentware PCKeeper Antivirus PRO               | 91.15%   | 92.21%  | 91.68%           | 69.06%              | 53.31%              | 61.19%            | 81.51%                            |
| ESTsecurity ALYac                               | 94.29%   | 91.47%  | 92.88%           | 75.83%              | 60.01%              | 67.92%            | 84.56%                            |
| Faronics Anti-Virus                             | 96.33%   | 95.13%  | 95.73%           | 82.88%              | 61.95%              | 72.41%            | 87.96%                            |
| Fortinet FortiClient                            | 93.15%   | 94.07%  | 93.61%           | 82.37%              | 67.68%              | 75.02%            | 87.42%                            |
| G DATA Antivirus                                | 98.67%   | 97.16%  | 97.91%           | 81.73%              | 64.56%              | 73.14%            | 89.66%                            |
| IKARUS anti.virus                               | 95.33%   | 92.75%  | 94.04%           | 72.28%              | 57.82%              | 65.05%            | 84.37%                            |
| K7 Total Security                               | 89.72%   | 91.20%  | 90.46%           | 65.09%              | 46.90%              | 56.00%            | 78.97%                            |
| Panda Endpoint Protection Plus                  | 92.54%   | 90.83%  | 91.68%           | 53.56%              | 37.53%              | 45.54%            | 76.30%                            |
| Panda Free Antivirus                            | 94.01%   | 82.24%  | 88.12%           | 53.77%              | 37.84%              | 45.81%            | 74.02%                            |
| TACHYON Endpoint Security                       | 93.32%   | 92.07%  | 92.69%           | 73.79%              | 59.08%              | 66.43%            | 83.94%                            |
| TeamViewer ITbrain Anti-Malware                 | 94.45%   | 91.40%  | 92.93%           | 76.36%              | 60.09%              | 68.23%            | 84.69%                            |
| Tencent PC Manager                              | 96.74%   | 94.38%  | 95.56%           | 79.26%              | 61.63%              | 70.45%            | 87.19%                            |
| Total Defense Internet Security                 | 94.33%   | 91.31%  | 92.82%           | 79.47%              | 60.58%              | 70.03%            | 85.22%                            |
| Total Defense Premium                           | 94.53%   | 91.45%  | 92.99%           | 79.72%              | 60.60%              | 70.16%            | 85.38%                            |
| TrustPort Antivirus Sphere                      | 98.28%   | 97.09%  | 97.68%           | 81.57%              | 66.31%              | 73.94%            | 89.77%                            |
| VIPRE Advanced Security                         | 96.99%   | 94.66%  | 95.83%           | 79.39%              | 61.67%              | 70.53%            | 87.39%                            |
| VirIT eXplorer PRO                              | 29.79%   | 27.55%  | 28.67%           | 29.06%              | 26.49%              | 27.77%            | 28.37%                            |
| Wontok SafeCentral Security Suite               | 98.28%   | 97.04%  | 97.66%           | 76.39%              | 60.11%              | 68.25%            | 87.86%                            |
| Zemana Endpoint Security                        | 96.26%   | 95.65%  | 95.95%           | 79.23%              | 61.34%              | 70.28%            | 87.40%                            |

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

<sup>†</sup>Set +1 = Samples discovered 1 to 5 days after updates frozen; Set +2 = Samples discovered 6 to 10 days after updates frozen.

<sup>‡</sup>Weighted average gives equal emphasis to the two reactive weeks and the whole proactive part.



## APPENDIX: THE TEST SET-UP

The main test on each platform was run in three parts, over three consecutive weeks. Products were installed on clean installations of both *Windows 7* and *Windows 10*. At the beginning of each part of the test we made sure the latest updates were downloaded, while throughout the test, products were connected to the Internet, thus allowing for real-time cloud look-ups.

The products as we tested them are available to the general public. However, in a few instances we have allowed vendors to make modifications to the product to adapt to our specific test scenario. None of these modifications would have an impact on the real-world performance of the affected products.

For each part of the test, we used the most recent version of the WildList, together with one third of our constantly updated collection of widely used legitimate software. Using a shared drive, the files were copied onto the client machine and we recorded whether (and how) files were blocked by the anti-malware product.

If files weren't blocked, a custom-built tool was used to open the file, thus triggering AV detection by products that don't (always) scan files on being copied.

A product passed the test if, and only if, *on both platforms* it blocked all files from the WildList, and didn't generate any false positives (i.e. incorrect detections) when scanning the full clean set.

The clean set consists of more than 450,000 files, all widely used programs, with any files that show suspicious behaviour being excluded from the set.

For the 'RAP' (reactive and proactive) test, the same set-up was used, but for the proactive part of the test products were not connected to the Internet. This allowed us to measure their proactive detection abilities by having a 'frozen' version of each product scan two sets of malware files: those seen in the wild between one day and five days after the product 'freeze' date, and those seen in the wild between six and 10 days after this date.

*Note: A slightly different approach when it comes to tidying up the set of malware, as well as a different approach to testing, means the individual RAP scores should not be compared with those seen in tests prior to April 2017.*

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