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# virus BULLETIN

Fighting malware and spam

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### VB100 CERTIFICATION ON WINDOWS VISTA

With another epic haul of 54 products to test this month, the VB test team could have done without the bad behaviour of a number of products: terrible product design, lack of accountability for activities, blatant false alarms in major software, numerous problems detecting the WildList set, and some horrendous instability under pressure. Happily, there were also some good performances to balance things out. John Hawes has the details.
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*'Over 40% [of computer users] think [that Macs are] only "somewhat" vulnerable.'*

**David Harley**
**ESET**

## APPLE PIE ORDER?

Back in the 1990s, when I was working for a medical research organization, I wrote a report on the virus landscape. For completeness, I included a section on Mac issues. A Mac specialist whom I was working with at the time remarked that he was quite impressed with the report generally, but he confidently informed me that there weren't any Mac viruses (there were, of course). Have things changed since then?

Last year, a survey carried out on behalf of *ESET*'s 'Securing our eCity' initiative found that many Mac (and PC) users in the US still assume that the Mac – or at any rate *OS X* – is a safe haven. More people own PCs than Macs, more people own both types of computer than own Macs alone, and 2.1% of users in the survey didn't know what kind of computer they own (perhaps they're the same 2.1% who think there are no PC vulnerabilities). Of all these groups, nearly 10% think that Macs aren't vulnerable at all, and over 40% think they're only 'somewhat vulnerable' – although it's not obvious what the survey respondents understood by the term 'vulnerable'.

According to the survey, no Mac user believes that PCs are safe from malware attacks, and only 1% of PC users do. (Perhaps that 1% accounts for the millions of machines that are still infected with Conficker, or are patiently broadcasting ancient mass-mailers.)

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I'd contend that while 'somewhat vulnerable' might be about right for systems/application vulnerabilities and exposure to current malware, the figures would be more alarming if the survey were more focused on the vulnerability of users rather than systems. Any computer user who believes his system is so safe that he doesn't have to care about security (i.e. not vulnerable at all) is prime material for exploitation by social engineering.

In fact, while the general decline of old-school viral malware is reflected in the Macintosh statistics, there's no shortage of other malicious code targeting *OS X*, including rootkits, fake codec trojans, DNS changers, fake AV, keyloggers and adware. Numerically, this is a fleabite compared to the many tens of thousands of unique malicious *Windows* binaries AV labs see on a daily basis, but 'safe haven' doesn't seem quite the right description.

The last time I pointed to user complacency as a risk here (see *VB*, August 2004, p.2) it was condescendingly explained to me that *Apple*'s security model saves their customers from themselves (see *VB*, October 2004, p.16). At one time, *Apple*'s security model led the way on patching, and it still includes many potentially useful defensive techniques, but they're generally more limited in implementation than is often assumed. This is certainly a far cry from the picture *Apple* has painted for so long where PC viruses are no threat at all (tell that one to the multi-platform enterprise administrator!) and your Mac is 'safe out of the box'. In fact, looking at *Apple*'s notorious security page while writing this piece, I see some small but significant changes from previous versions. The 'safe out of the box' claim has gone, and security is now achievable 'with virtually no effort on your part…' The disparity between protection on 32-bit and 64-bit apps is addressed, with some positive spin. There's even an admission that 'since no system can be 100 per cent immune from every threat, anti-virus software may offer additional protection.'

Indeed, there's probably no absolute need for anti-malware on many Macs at the moment (as if most Mac users are going to be persuaded otherwise, short of an Autostart-sized panic!). Mac users are similarly placed to *Windows* users in the late 1990s: if you're impervious to social engineering and can accept the risk from zero-day, self-launching exploits and cross-platform malware, fine – only don't assume that there is no Mac malware or that only viruses matter.

Of course, I haven't even mentioned iGadgets and the limitations of security based on whitelisting and restricted privilege. But you may not want to get me started on that...

# NEWS

## VB2010 CALL FOR LAST-MINUTE PAPERS

*VB* is inviting submissions from those wishing to present last-minute papers at VB2010 in Vancouver (29 September to 1 October). Those selected to present last-minute papers will receive a 50% discount on the conference registration fee. The deadline for submissions is 2 September 2010 (speakers will be notified no later than 18 days prior to the start of the conference). The full call for papers can be seen at http://www.virusbtn.com/conference/vb2010/call/.

## VB SEMINAR

With more than 20 successful years of running the annual international Virus Bulletin Conference under its belt, *VB* is now set to run a series of one-day seminars in London, UK.

The seminars, aimed at a corporate audience, will give IT professionals an opportunity to learn from and interact with security experts at the top of their field and take away invaluable advice and information on the latest threats, strategies and solutions for protecting their organizations.

The VB 'securing your organization in the age of cybercrime' seminar will be held 25 November 2010 in central London. A discounted early bird registration rate is available until 30 September 2010. Programme details and registration can be found online at http://www.virusbtn.com/seminar/2010/.

## ALL CHANGE

Israeli messaging and web security firm *Commtouch* announced last month that it is to acquire *Authentium*'s *Command Antivirus*. *Commtouch* will acquire the assets, products, licences and operations of *Authentium*'s anti-malware division and add anti-malware technology to its own range of solutions for inbound and outbound messaging and web security.

Also announced last month was the purchase by another messaging and web security firm, *GFI*, of *Sunbelt Software* and its *VIPRE* anti-malware technology. The purchase will allow *GFI* to enhance its range of email and web security products.

Meanwhile, *McAfee* has announced that it is to acquire mobile security firm *tenCube* – whose flagship product is anti-theft software *WaveSecure*. The purchase follows hot on the heels of *McAfee*'s acquisition of mobile security firm *Trust Digital* in June, with the vendor aiming to add a complete mobile security platform to its offerings.

### Prevalence Table – June 2010[1]

| Malware | Type | % |
|---|---|---|
| Autorun | Worm | 9.37% |
| Conficker/Downadup | Worm | 7.47% |
| VB | Worm | 5.36% |
| Agent | Trojan | 5.22% |
| FakeAlert/Renos | Rogue AV | 4.93% |
| Adware-misc | Adware | 4.53% |
| Downloader-misc | Trojan | 4.30% |
| OnlineGames | Trojan | 3.78% |
| Heuristic/generic | Trojan | 2.81% |
| Injector | Trojan | 2.79% |
| Mdrop | Trojan | 2.41% |
| Virut | Virus | 2.38% |
| Delf | Trojan | 2.29% |
| Exploit-misc | Exploit | 2.27% |
| AutoIt | Trojan | 2.17% |
| Alureon | Trojan | 2.08% |
| Heuristic/generic | Misc | 2.06% |
| Zbot | Trojan | 1.97% |
| Crypt | Trojan | 1.90% |
| Virtumonde/Vundo | Trojan | 1.85% |
| StartPage | Trojan | 1.75% |
| Small | Trojan | 1.44% |
| Hotbar | Adware | 1.43% |
| Kryptik | Trojan | 1.30% |
| Ircbot | Worm | 1.06% |
| Crack | PU | 1.04% |
| Sality | Virus | 1.03% |
| Tanatos | Worm | 0.98% |
| Koobface | Worm | 0.94% |
| Peerfrag/Palevo | Worm | 0.94% |
| Bancos | Trojan | 0.88% |
| Dropper-misc | Trojan | 0.87% |
| Others[2] | | 14.37% |
| **Total** | | **100.00%** |

[1] Figures compiled from desktop-level detections.

[2] Readers are reminded that a complete listing is posted at http://www.virusbtn.com/Prevalence/.

# TECHNICAL FEATURE

## ANTI-UNPACKER TRICKS – PART ELEVEN

*Peter Ferrie*
Microsoft, USA

New anti-unpacking tricks continue to be developed as older ones are constantly being defeated. Last year, a series of articles described some tricks that might become common in the future, along with some countermeasures [1–11]. Now, the series continues with a look at tricks that are specific to debuggers and emulators.

In this article we look at some more *OllyDbg* plug-ins.

Unless stated otherwise, all of the techniques described here were discovered and developed by the author.

## 1. OLLYDBG PLUG-INS

*OllyDbg* supports plug-ins. A number of packers have been written to detect *OllyDbg*, so plug-ins have been written to attempt to hide it from those packers. The following is a description of some of those plug-ins, along with the vulnerabilities that could be used to detect them.

### 1.1 Stealth64

The *Stealth64* plug-in was described in [7]. What follows are the changes from the previous version, and a description of behaviour that is specific to more recent versions of *Windows*.

*Stealth64* sets the debuggee's PEB->BeingDebugged to zero, in both the 32-bit and 64-bit PEBs. *Stealth64* sets the debuggee's PEB->NtGlobalFlag flags to zero, but only in the 32-bit PEB. The location of the NtGlobalFlag is different on the 64-bit version of *Windows Vista*. Since the 32-bit version is altered but the 64-bit version is not, the difference can be used to detect the presence of *Stealth64*.

Example code looks like this:

```
mov eax, fs:[30h] ;PEB
;NtGlobalFlag
mov ecx, [eax+68h]
;64-bit PEB follows 32-bit PEB
cmp [eax+10bch], ecx
jne being_debugged
```

*Stealth64* hooks the code in *OllyDbg* that is reached when a breakpoint exception occurs. It attempts to read the two bytes that exist three bytes before the current EIP value, and then checks for the 'CD2D' opcode ('INT 2D' instruction). If the opcode is seen, then *Stealth64* passes the exception to the debuggee instead of allowing *OllyDbg* to intercept it.

*Stealth64* changes to read/write the page attributes of the KUSER_SHARED_DATA. This change is allowed on 64-bit versions of *Windows*, and it has the effect of decoupling the page from its kernel-mode counterpart. The result is that the data in the page is no longer updated. This change affects APIs such as the kernel32 GetTickCount() function, which read their values from this page. The change causes the API to always return the same value to that process (other processes are not affected).

*Stealth64* changes the address in each of the debuggee's thread's TEB->Wow32Reserved field values, to point to a dynamically allocated block of memory. That field is undocumented, but it normally points into a function within the wow64cpu.dll, which orders the parameters for a 64-bit system call, and then falls into the wow64cpu TurboDispatchJumpAddressStart() function to perform the transition to kernel mode. By changing this field value, *Stealth64* creates a clean single point of interception for all system calls.

The block that *Stealth64* allocates contains code to watch for particular system table indexes. *Stealth64* knows the appropriate index values for *Windows XP*, *Windows Server 2003*, *Windows Server 2008*, *Windows Vista* and *Windows 7*. The indexes that are intercepted are: NtQueryInformationProcess, NtQuerySystemInformation, NtSetInformationThread, NtClose, NtOpenProcess, NtQueryObject, FindWindow, BlockInput, BuildHwndList, NtProtectVirtualMemory, NtQueryInformationProcess (again), GetForegroundWindow and GetWindowThreadProcessId. The duplication of the NtQueryInformationProcess index is a bug. It was intended to be the NtQueryVirtualMemory index.

If the NtQueryInformationProcess index is seen, then the hook calls the original TEB->Wow32Reserved pointer, and then exits if an error occurs, or if the handle does not refer to the debuggee. Otherwise, the hook checks the ProcessInformationClass parameter. If the ProcessDebugObjectHandle class is specified, then the hook zeroes the handle and then tries to return STATUS_PORT_NOT_SET (0xC0000353). However, there is a bug in this code, which results in the status always being STATUS_SUCCESS.

If the NtQuerySystemInformation index is seen, the ReturnLength is zero, the SystemInformationClass is the SystemProcessInformation class, and this is the first time that the index has been seen, then the block allocates some data and uses a Thread Local Storage slot to hold it. This is the correct method to hold private thread-specific data.

If the NtSetInformationThread index is seen, and the ThreadInformationClass is the HideThreadFromDebugger class, then the hook changes the class to the ThreadSwitchLegacyState class before calling the original TEB->Wow32Reserved pointer. This avoids the need to check the handle. The ThreadSwitchLegacyState class handler checks the handle, and if the handle is valid, then it simply sets a flag in the object before returning.

If the NtClose index is seen, then the hook calls the ntoskrnl NtQueryObject() function to verify that the handle is valid. If it is valid, then the hook calls the ntoskrnl NtClose() function. Otherwise, it returns STATUS_INVALID_HANDLE (0xC0000008). However, disabling the exception in this way, without reference to the 'HKLM\System\CurrentControlSet\Control\Session Manager\GlobalFlag' registry value, means that the absence of the exception might reveal the presence of *Stealth64*.

If the NtOpenProcess index is seen, then the hook checks that the ClientId parameter points to a valid memory location that is both readable and writable. If the memory location is valid, and if the request is for the *OllyDbg* process ID, then the hook changes the process ID to the parent of *OllyDbg*, before calling the original TEB->Wow32Reserved pointer.

If the NtQueryObject index is seen, then the hook calls the original TEB->Wow32Reserved pointer, and exits if an error occurs. Otherwise, the hook checks the ObjectInformationClass parameter. If the ObjectInformationClass is the ObjectAllTypesInformation class, then the hook searches the returned buffer for all objects whose length is 0x16 bytes and whose name is 'DebugObject'. If this is found, then the hook zeroes the object and handle counts.

If the BlockInput index is seen, then the hook checks if the new state is the same as the old state. If they are different, then the hook saves the new state and returns success. Otherwise, the hook returns a failure. This is the correct behaviour, since *Windows* behaves in an identical manner. It will not allow the input to be blocked twice, nor will it allow the input to be enabled twice.

If the NtProtectVirtualMemory index is seen, then the hook calls the original TEB->Wow32Reserved pointer, and then exits if an error occurs, or if the handle does not refer to the debuggee. Otherwise, the hook protects as read-write (that is, non-executable) any pages that were marked for DEP-breakpoint support. This could be considered a bug, since the original page protection might have been something other than read-write, which could lead to some unexpected behaviour.

If the NtQueryVirtualMemory index could be seen, then the hook would have checked the requested page before it called the original TEB->Wow32Reserved pointer, and then exited if an error occurred. There are two bugs in this code. The first is that the hook checks if the requested page exactly matches the first page that was marked for DEP-breakpoint support. The problem is that a region spanning multiple pages can be marked for DEP-breakpoint support. As a result, requesting information about the second or subsequent pages would result in the altered page protection being returned. The second bug is that the status is always set to STATUS_SUCCESS, even if an error occurs.

There is a further problem with that hook, which is that the pages that are marked for DEP-breakpoint support are assumed to retain their original protection forever. There is a single variable that holds the protection for the entire range. However, if an individual page is set to a different protection value, this change will not be visible, and the original protection will always be returned when requested.

If the GetForegroundWindow index is seen, then the hook calls the original TEB->Wow32Reserved pointer, and then exits if an error occurs. Otherwise, the hook checks if the foreground window belongs to *OllyDbg*. If it does, then the hook returns the desktop window instead.

If the GetWindowThreadProcessId index is seen, then the hook calls the original TEB->Wow32Reserved pointer, and then checks if the returned value matches the process ID of *OllyDbg*. If it does, then the hook returns the process ID of the parent process instead. However, there is a bug in this code, which is that the hook does not check which kind of information was requested. The same function can request either a process ID or a thread ID. Since these IDs are not unique across the system, it is possible to have a thread ID within one process that will match the process ID of *OllyDbg*. The result would be that the hook would return a possibly invalid ID, with unpredictable results. There is a second problem associated with this behaviour, which is that the hook does not protect against the main thread ID of *OllyDbg* being found. Since the thread ID can be found, the corresponding thread handle can be retrieved, and then the thread can be opened. Once the thread has been opened, it can be suspended, for example, which will cause the debugging session to halt.

The author of *Stealth64* is investigating the report.

## 1.2 Poison

*Poison* patches the debuggee's user32 BlockInput() function to simply return. This behaviour is a bug, since the return code is never set.

*Poison* sets to zero the PEB->BeingDebugged and the low byte of the PEB->NtGlobalFlag flags. It patches the debuggee's kernel32 CheckRemoteDebuggerPresent() function to always return zero.

It patches the debuggee's user32 FindWindowA() and FindWindowExA() functions to always return zero, irrespective of parameters that were passed to the functions. The user32 FindWindowW() and FindWindowExW() functions are not patched.

*Poison* patches the debuggee's kernel32 OutputDebugStringA() to always return success.

It sets the PEB->Heap->ForceFlags flags to zero, and sets the PEB->Heap->Flags flags to HEAP_GROWABLE.

*Poison* retrieves the heap information from PEB->NumberOfHeaps and PEB->ProcessHeaps. It applies the Heap->ForceFlags and Heap->Flags patch to each heap. It also zeroes the last four bytes of the first page of each heap. This last change is a serious bug, since the first page contains information about the heap itself. An off-by-one bug also exists, resulting in an attempt to apply the patch to a memory location that does not point to a heap. The value in that memory location is usually zero, but it can be changed by the debuggee, or the debuggee can allocate memory at virtual address zero. In either case, *Poison* would apply the patch to wherever the pointer points. This is possible because the plug-in does not run immediately. Instead, it requires user interaction in order to start, which means that the debuggee might have been executing for some time before the plug-in is executed manually.

*Poison* hooks the debuggee's ntdll NtSetInformationThread() function by replacing its first five bytes with a relative jump to a dynamically allocated block of memory. That block intercepts attempts to call the ntdll NtSetInformationThread() function with the HideThreadFromDebugger class, and then simply returns. This behaviour is a bug, since the return code is never set. There is another bug in this code, which is that if any other class is seen, then the hook calls the original handler, but using a hard-coded index value of 0xe5. This corresponds to the NtSetInformationThread index for *Windows XP SP3* only. On other platforms, the resulting behaviour is unpredictable.

*Poison* searches within the debuggee's ntdll NtQueryInformationProcess() function code for the 'FF12' opcode ('CALL [EDX]' instruction), and then replaces it with an 'E9' opcode ('JMP' instruction), to point to a dynamically allocated block of memory. *Poison* assumes that the first match is the correct one, even though it might be a constant portion of another instruction. The block intercepts attempts to call the ntdll NtQueryInformationProcess() function with the ProcessDebugPort class, and tries to return zero for the port in that case. The block also checks if the ntdll NtQueryInformationProcess() function was called with the ProcessBasicInformation class, and tries to replace the InheritedFromUniqueProcessId with the process ID of Explorer.exe. However, there is a bug in both codes, which is that there is no check that the ProcessInformation parameter points to a valid memory address, or that the entire ProcessInformationLength range is writable. If either the ProcessInformation pointer or the ProcessInformationLength is invalid for some reason, then *Poison* will cause an exception. *OllyDbg* will trap the exception, but the debugging session will be interrupted.

The correct behaviour would have been to zero the port, or perform the replacement, only if the function returned successfully, and only if the current process is specified. However, the current process can be specified in ways other than the pseudo-handle that is returned by the kernel32 GetCurrentProcess() function, and that must be taken into account. There is another bug in the code, which is that if any other class is specified, then the block simply returns without setting a return value, and does not call the original handler.

*Poison* patches the debuggee's ntdll DebugBreak() function to simply return. This behaviour is a bug because no exception will be raised if the function is called.

*Poison* hooks the debuggee's ntdll NtOpenProcess() function by replacing its first five bytes with a relative jump to a dynamically allocated block of memory. That block intercepts attempts to call the ntdll NtOpenProcess() function with the process ID of the debuggee, and then changes the process ID to zero before calling the original handler. The check for the process ID of the debuggee is probably a bug. The more sensible process ID for which to deny access would be that of *OllyDbg*. However, there is a definite bug in this code, which is that when the hook calls the original handler, it uses a hard-coded index value of 0x7a. This corresponds to the NtOpenProcess index for *Windows XP SP3* only. On other platforms, the resulting behaviour is unpredictable.

*Poison* patches the debuggee's kernel32 CreateThread() to simply return. This will obviously break any process which wants to create a thread.

*Poison* patches the debuggee's kernel32 GetTickCount() function in one of two ways. The first method zero-extends the low byte of the KUSER_SHARED_DATA->TickCountLowDeprecated field value into the returned dword and the undocumented extended dword. It then adds 0x431 to the returned dword. The result is a tick count that always has the form 00000abb, and where a is either 4 or 5. Thus, time appears to move very slowly. The second method simply returns a constant tick count of 0x50400.

*Poison* hooks the debuggee's ntdll KiRaiseUserExceptionDispatcher() function by replacing its first five bytes with a relative jump to a dynamically allocated block of memory. That block intercepts attempts to call the ntdll KiRaiseUserExceptionDispatcher() function with the EXCEPTION_INVALID_HANDLE (0xC0000008) value, and returns zero if so. However, there is a bug in this code, which is that if another exception value is seen, then the hook creates a stack frame and then uses a hard-coded branch directly into the middle of the original function. This obviously assumes that the stack frame size is correct, and that the layout of the function will never change. Otherwise, the destination of the branch instruction might be the middle of an instruction.

*Poison* patches the debuggee's ntdll NtYieldExecution() function to always return a status. This hides *OllyDbg* from the NtYieldExecution() detection method.

*Poison* patches the debuggee's kernel32 Process32NextW() function in one of two ways. The first method searches infinitely within the debuggee's kernel32 Process32NextW() function code for the 'C2080090' opcode ('RET 8' and 'NOP' instructions), and then replaces it with an 'E9' opcode ('JMP' instruction), to point to a dynamically allocated block of memory. *Poison* assumes that the first match is the correct one, even though it might be a constant portion of another instruction. It also checks only those four bytes, but overwrites them with a jump instruction that is five bytes long. The block examines the returned buffer for the process ID of either the debuggee or *OllyDbg*. If the process ID of the debuggee is seen, then the block replaces it with the process ID of Explorer.exe. If the process ID of *OllyDbg* is seen, then the block replaces it with zero. This has the effect of making the debuggee invisible to itself, which is a strange thing to do. The second method patches the debuggee's kernel32 Process32NextW() function to always return zero.

*Poison* patches the debuggee's kernel32 Module32NextW() and kernel32 EnumWindows() functions to always return zero.

*Poison* searches within the debuggee's ntdll NtQueryObject() function code for the 'FF12' opcode ('CALL [EDX]' instruction), and then replaces it with an 'E9' opcode ('JMP' instruction), to point to a dynamically allocated block of memory. *Poison* assumes that the first match is the correct one, even though it might be a constant portion of another instruction. The block intercepts attempts to call the ntdll NtQueryObject() function with the ObjectAllTypesInformation class, and tries to zero out the entire returned data. However, there is a bug in that code, which is that there is no check that the ObjectInformation parameter points to a valid memory address, or that the entire ObjectInformationLength range is writable. If either the ObjectInformation pointer or the ObjectInformationLength is invalid for some reason, then *Poison* will cause an exception. *OllyDbg* will trap the exception, but the debugging session will be interrupted. It would have been better to zero out the entire returned data only if the function returned successfully. The correct behaviour would be to parse the returned data to find the DebugObject, if it exists, and then zero out the individual handle counts, but only if the function returned successfully. This arbitrary erasure is an obvious sign that *Poison* is active.

*Poison* patches the debuggee's kernel32 QueryPerformanceFrequency(), ntdll NtQueryPerformanceFrequency(), kernel32 QueryPerformanceCounter() and ntdll NtQueryPerformanceCounter() functions to always return zero.

*Poison* patches a breakpoint handler in *OllyDbg* to always write a zero to the debuggee's PEB->BeingDebugged field.

*Poison* patches the FPU handler in *OllyDbg* from the 'DF38' opcode ('FISTP QWORD PTR [EAX]' instruction) to the 'DB38' opcode ('FSTP TBYTE PTR [EAX]' instruction). This causes the disassembly to be incorrect, including for values which would not have triggered the problem.

*Poison* patches some code in *OllyDbg* to zero out the start-up information that is used to load the debuggee. The effect is essentially to zero the flags and ShowWindow parameters, which could have been done in a far more elegant manner.

*Poison* changes the window caption in *OllyDbg* from 'OllyDbg' to 'POISON'. The name of the debuggee is removed, and the 'CPU' window caption is changed to '[Professional Edition]'.

The next part of this series will look at anti-unpacking tricks that are specific to a range of other debuggers including *HideToolz*, *Obsidian* and *Turbo Debug32*.

*The text of this paper was produced without reference to any Microsoft source code or personnel.*

## REFERENCES

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# TUTORIAL

## ADVANCED EXPLOIT FRAMEWORK LAB SET-UP

*Mark Davis, USA*

A myriad of exploit frameworks (kits) exist to support drive-by attacks in the wild. Popular kits include Eleonore, Fragus, Liberty and countless others. As identified in previous articles[1], behavioural testing of these kits can be tricky. However, it is possible to obtain select files and/or demonstration kits, allowing for more qualified and in-depth research than remote behavioural testing alone. Any researcher serious about regularly researching such threats needs a special lab set-up to work with the PHP, *MySQL* and web server components commonly found in such kits. This article documents how to create LAMP and WAMP servers and how to approach the study of such threats in a local lab.

### WHAT IS A LAMP/WAMP SERVER?

(L/W)AMP is an acronym for the operating system (*Linux* or *Windows*), *Apache* (web server), *MySQL* (database) and PHP (scripting language). Most kits use these components to install on a remote server. Some do not require *MySQL*, saving data to a text file instead. However, this method is inherently flawed since the file names can be predicted or found in configuration files or images posted by bad actors, making it easy for individuals to harvest such files remotely. *MySQL* is commonly used because it is fairly simple to include in a kit. A large number of examples of such implementations can be found in demonstration kits in the wild.

LAMP/WAMP server software is entirely free for both *Linux* and *Windows*. This makes such packages widely available with many implementations, lots of online support, and at the right price for financially motivated fraudsters. It is also priced attractively for tight-budgeted security experts performing in-depth research on such threats.

### WHY WAMP IS PREFERRED

A WAMP server is preferred for the evaluation of drive-by attacks. (A WAMP server set-up that is simple to install on a *Windows* computer will be revealed in detail later in this article.) Additionally, since it is *Windows*, you can easily navigate to the local kit (once configured) to trigger an attack on the same system. This enables rapid interaction with the kit and the ability to monitor how payloads and exploits work, and how the database populates once the system is triggered. If a LAMP server is used, a separate NAT'd *Windows* system must be implemented to perform the same actions. While this is not difficult, it is an additional step that can sometimes be troublesome in virtual environments that don't always work smoothly with networking protocols and configurations.

### WAMP SET-UP

*WampServer*[2] is a pre-compiled package that installs all components required for the server on a standard *Windows* computer. This is an outstanding resource since not all versions of the various components are compatible with one another. Pre-compiled packages are tested and known to work well together. Because it's an integrated installation package, the user simply clicks through a few screens to install the server.

If *WampServer* is not desired, a WAMP server can be configured manually by downloading packages from each respective software site for the various components of the server. Alternative servers can also be used, such as the *Abyss* web server[3]. Naturally, such installations require more time but also offer increased flexibility for customized lab requirements.

It is important to note that the tutorial below is based on a first-time installation of a WAMP server from WampServer.com. If an older version of a WAMP server exists on the system, data should be backed up, WAMP removed, and the upgrade then installed. *WampServer* also recommends that the WAMP directory be deleted prior to installation of the new package.

#### Step 1 – Download the software

Using a normal high-speed line, *WampServer* (~16MB) can be downloaded in a couple of minutes or less. The package used in this example (*WampServer 2.0i* [07/11/09]) includes the following components:

- *Apache 2.2.11*
- *MySQL 5.1.36*
- PHP 5.3.0

#### Step 2 – Run the installer

Click on the opening screen, accept the agreement, go with the default directory installation (c:\wamp), select additional icon options for Quick Launch and Desktop if desired, and click install.

#### Step 3 – Configurations

After the installer has run for a while the user selects the default browser to be used with the kit. I prefer to use

[1] See http://www.virusbtn.com/pdf/magazine/2010/201004.pdf and http://www.virusbtn.com/pdf/magazine/2010/201005.pdf

[2] http://www.wampserver.com/en/download.php

[3] http://www.aprelium.com/abyssws/

*Firefox* since various add-ons are available that can be used in the evaluation of exploit kits locally – these are not available in other browsers.

PHP mail parameters are also configured during installation. SMTP is set to localhost by default, with email at you@yourdomain. This can be configured if desired. A mail server can be configured or scripts utilized to perform local mail honeypot operations when interacting with a kit or payload. However, I generally leave this as a default since testing of email functionality is not usually required for the testing of exploit frameworks.

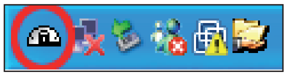
### Step 4 – Run WampServer

*WampServer* doesn't run automatically on its own – it must be run on demand, or configured to run with *Windows* startup or scheduled as a task. If using a virtual machine as a dedicated WAMP server, simply drop a shortcut for the *WampServer* (c:\wamp\wampmanager.exe) into the Startup folder.

## WAMPSERVER USAGE

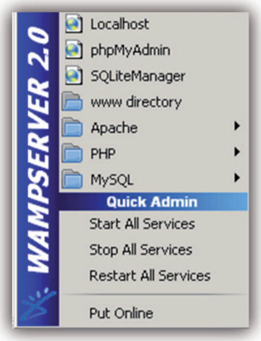
Now the WAMP server is installed correctly and running in memory. Congratulations, you have a web server, *MySQL* data, PHP scripting support, and the ability to install local web scripts and kits for testing in a lab!

Locate the *WampServer* icon and LEFT-click:



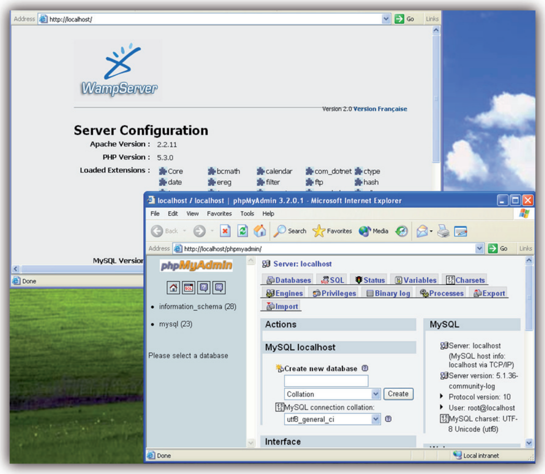
*WampServer icon (circled).*

This reveals a complete menu of choices:



*WampServer menu.*

Browse Localhost (your local web server space) and *phpMyAdmin* are the first two options in the *WampServer* set-up. Either can easily be pulled up using the default browser assigned during set-up.



http://localhost/

Server Configuration

Apache Version : 2.2.11

PHP Version : 5.3.0

Loaded Extensions : Core bcmath calendar com_dotnet ctype date ereg filter ftp hash

MySQL Version

http://localhost/phpmyadmin/

- information_schema (28)
- mysql (23)

Please select a database

Server: localhost

MySQL localhost

Create new database

Collation

MySQL connection collation: utf8_general_ci

Server: localhost (MySQL host info: localhost via TCP/IP)

Server version: 5.1.36-community-log

Protocol version: 10

User: root@localhost

MySQL charset: UTF-8 Unicode (utf8)

*Localhost and phpMyAdmin on a WampServer.*

These first two links are very helpful in a WAMP server testing environment. Localhost points to the www directory on the local machine for the *Apache* server installed. This is normally located at c:\wamp\www\ and contains index.php. Notice that one of the menu options is for the www directory, which is most handy for a security researcher. Simply left-click on the *WampServer*, select www directory, drag and drop a kit or script to test into the www space or sub-folder and it's on the local server.

Once a kit is copied to the www space, installation of the kit begins. This is covered in more detail at the end of this article. It involves configuring the database and users via *phpMyAdmin*. The rest of the *WampServer* options for configuring specific components of the installation are not normally required for evaluation of an exploitation framework.

Interested parties should visit the *WampServer* website for additional support. A forum exists, as well as other resources that are of great value for users having issues with installation or customization of the server.

## ADDITIONAL PACKAGES FOR WAMP

A WAMP server is very powerful but additional components are often required to fully analyse an exploit kit. The following is a brief outline of suggested tools:

- *Wireshark* – used to sniff local traffic when triggering the server via the local browser. This traffic can help identify obfuscation and string details within packets useful in both behavioural testing and netflow signature development.
- *Malzilla* – a useful tool for working with deobfuscation of scripts. A researcher can also model what a remote

website might look like if it hosts an exploit kit being tested locally.

- Specialized analysis tools – tools like *Trillix* for analysing *Flash* files and *djdec39* for analysis of Java files.
- *Cygwin* – brings the best of *Linux* to *Windows*, but with the price of a large number of files and disk space required for this unique package. *Cygwin* is a slick way to get your favourite *Linux* tools on *Windows*, such as 'file', along with Perl and Python (which always seem to work better in *Linux* than *Windows* – let the debate begin!). Such utilities are helpful when looking at embedded payloads and file obfuscation in a kit, using scripts to analyse exploit files (like PDF files for example), plus you have the factor of a dual OS system to help you leap tall buildings and impress others.
    - Didier Stevens' PDF analysis tools[4], written in Python, work well within a *Cygwin* environment on *Windows*.
- *OllyDbg* is great for debugging and some reverse engineering if a complete analysis is desired, and/or for interaction with payloads.

WAMP servers are not recommended for analysis of a payload. Snapshot tools and others are very time consuming – both within the *WampServer* and also within a *VMware* environment – due to the large number of unique files created within such a system. If payload analysis is needed, extract the payload and place into an environment uniquely designed for such analysis. The goal of a WAMP server involving a payload is to capture netflow data and/or interact with a kit to monitor how it populates a database based on how exploits are triggered.

Additional vulnerable packages may also be installed on the WAMP server in order to trigger common vectors of attack if a diverse set of behavioural triggers is desired. This can be very useful when tracking exploits against default numbers often assigned to specific vectors – such as MDAC, which is sometimes referred to within an exploit URI as '1' or some other number. Oldapps.com contains a host of vulnerable packages of which several versions of each may be required to properly trigger specific exploits of interest. Additionally, configurations within the kit or scripts may be required to limit global infection routines to trigger a specific vector of interest. Packages to include, likely as installers on demand with a core set installed in a snapshot, are listed below:

- *Adobe Reader*: http://oldapps.com/adobe_reader.php 8.x, 9.x, 9.2x (default), 10.x
- *Adobe Flash*: http://oldapps.com/flash_player.php 8.x, 9.x (default), 10.x
- Java: http://oldapps.com/java.php 6 update 10, 6 update 16 (default), Java 5 update 18
- *Internet Explorer*: http://oldapps.com/internet_explorer.php 8.x, 7.x, 6.x (default)
- *Firefox*: http://oldapps.com/firefox.php 3.6x, 3.0x (default)
- *WinZip*: http://oldapps.com/winzip.php 9.x (default)

(The default recommendations above are selected subjectively for common vectors of testing of current vectors in the wild.)

## LAMP SERVER

Select your favourite *nix solution to install the packages needed to build a LAMP server. *Ubuntu* was used in this instance due to the popularity of the system and ease of use for compatible installations and set-up. The *Synaptic* package manager and terminal-based solutions were used to perform a LAMP server installation. While slightly more complicated than a *WampServer*, which includes compatibility checks, LAMP servers can be created in less than an hour by an experienced *nix user.

*Synaptic* package manager installs:

- apache2 – *Apache* HTTP server metapackage
- apache2-doc
- php5 – server-side, HTML-embedded scripting language (metapackage)
- php5-sqlite
- php5-mysql
- php5-cgi
- phpmyadmin
- mysql-server

Sometimes *Synaptic* package manager installations don't go as planned. Restarting the system and reinstalling may be required to get it to work. If that fails, try to perform a complete removal, restart, and then reinstall.

Naturally, a host of additional packages may be useful in a *nix environment for testing exploit kits including Python tools like those of Didier Stevens. However, since it is based on *nix instead of *Windows*, a LAMP server is limited to the exploit files and the framework instead of behavioural testing and payloads on the same system. Thus, a hostile PDF can be analysed but the dropped file must be extracted manually or triggered on a remote *Windows* system to develop that side of research when working with a LAMP server.

## LOCAL KIT TESTING

Once a WAMP or LAMP server is set up properly, the following basic procedures are used to install a kit for testing.

[4] http://blog.didierstevens.com/programs/pdf-tools/

1. Configuring the kit:
   a. Change permissions on the kit directory if necessary to enable access/read/write. (This is not normally required but may be within a LAMP server.)
   b. Locate the configuration file and review for database credentials/set-up required.
      i. Use *phpMyAdmin* to create a user with admin rights to the database.
      ii. It's a good idea to create a universal login for both the database and the kit control panel, then change the configuration file instead of the *phpMyAdmin* and *MySQL* configurations each time. Making changes to a configuration file is trivial using *Notepad* or *Gedit* with admin/root rights (e.g. sudo gedit '/var/www/kit/config.php').
   c. Look for install.php or similar files that are used to install the kit.
      i. This file normally works with PHP to automatically create the database and appropriate tables used with the kit. Use *phpMyAdmin* to validate the creation of a new table once install.php is run.
      ii. Once a database is created you're ready to see if you can log in!
   d. Browse to the kit via pages like admin.php or statistics.php. Authentication is commonly required, so work from what you found or entered into the configuration page. Sometimes this can be a bit tricky if encoding is used, such as the SHA1 value of a password, etc.
2. Snapshots: Use snapshots within *VMware* to save loaded kits for faster referencing and update checks. For example, if you finally get a kit working after 50 minutes of work, snapshot it and save it and back up the images on the host. This enables the researcher to quickly load a kit for later update checks or evaluations.

## CONCLUDING REMARKS

Behavioural analysis of local exploit kits is clearly complex and difficult for some to accomplish. Fortunately, the WAMP server components highlighted in this article provide security researchers with a fairly simple method for properly installing and configuring such a server. Use of the system is much more complicated since so many dynamic analysis components are then available to the researcher. When properly used, WAMP servers have proven to be an excellent environment in which advanced exploit kit framework analysis may be completed. The next part of this series will provide a walk-through of how the set-up can be used to look at an exploit.

# FEATURE 1

## HTML STRUCTURE-BASED PROACTIVE PHISHING DETECTION

*Marius N. Tibeica*
BitDefender, Romania

Phishing can no longer be considered a new and emerging phenomenon that is easy to detect with basic filters. Fake websites impersonating national or global institutions are easily created using advanced methods that trick the traditional detection filters (e.g. using JavaScript encoding, images that replace words, *Flash* objects, frames, and even customized website distribution using GeoIP). What's more, the number of targeted phishing[1] attacks has increased in recent months, as information about potential victims can now easily be accessed on social networks or blogs. Bearing this in mind, this article will offer a possible solution for protection at browser level by providing an automated method for detecting phishing. The proposed method is based on the structure of the HTML and not the visible content. Our algorithm consists of creating signatures based on the tag structure of the HTML and comparing them with the signatures of web pages that we want to protect, as well as with recent phishing templates.

### INTRODUCTION

Most anti-phishing technologies check the URL against a list of known phishing web pages (a blacklist), most of which are available on the Internet. The problem with blacklists is that, in most cases, the time frame needed for a URL to become blacklisted worldwide overlaps with the time in which the phishing attack is most successful [1, 2].

Also, scanning URLs in the cloud in order to feed fresh phishing websites to blacklists can cause several detection issues including:

- A variable time frame from the moment at which a new phishing website is launched until the moment it is added to a blacklist.
- A variable length of time for hacked legitimate websites containing phishing pages to be removed from the blacklists once the phishing pages have been deleted from the legitimate domains.
- Different content served to visitors depending on their geographical location.
- Redirects or redirect loops.

[1] Targeted phishing is phishing that contains personal information in order to appear genuine.

- Web pages which require a login in order to view the bulk of the content.

Beside traditional blacklists, the *BitDefender* approach[2] consists of a method that detects the similarity of two web pages using the Jaccard distance[3]. This offers great protection against phishing web pages that mimic legitimate web-banking pages, but is not so efficient when encountering phishing sites that have little similarity to their legitimate correspondent or which contain just a few words – this is not enough for a confident content-based detection.

Our method consists of creating and maintaining a database of website templates extracted from legitimate institutions (banks, webmail providers, social networking websites and any other institution that requires phishing protection) and new and emerging phishing pages, together with a mathematical distance capable of measuring the similarity between new extracted templates and those in our database.

We will now explain how we created the specified templates, how we constructed our database, and also explore several distances in order to find the most suitable one for our purpose.

## THE SUMMARY

Each HTML tag has a specific function, whether it is used in rendering the layout (e.g. <b>, <center>, <h1>), creating links (<a>), images, tables and lists, styles, programming, breakers, forms or comments. To conduct our experiment we created multiple sets of tags that have the same function, and one different set for all the words that are not tags. For each HTML tag, we identified the set to which it belonged and added a corresponding marker (a letter) to a signature. We define a summary signature as the tag structure extracted using this method from any HTML document.

Table 1 contains an example of a sample web page and the generated summary signature.

The resulting summary signature of the 'Hello world' example is: OIIWWWiiOFWWfoo.

## THE SIMILARITY BETWEEN TWO SIGNATURES

The score obtained by the string distance between two signatures represents the similarity between two summaries.

| HTML | Summary |
|---|---|
| <html> | [O] Other start |
| <head> | [I] Info start |
| <title> | [I] Info start |
| A Small Hello | [WWW] 3 words |
| </title> | [i] Info end |
| </head> | [i] Info end |
| <body> | [O] Other start |
| <h1> | [F] Format start |
| Hello World | [WW] 2 words |
| </h1> | [f] Format end |
| </body> | [o] Other end |
| </html> | [o] Other end |

*Table 1: Summary generation.*

To choose the distance between two summaries we had to take into account the following factors, in the following order:

1. The false positive (FP) rate, which should be kept as low as possible.
2. The distance, which should not be affected by tag soup – a method we estimate phishers use quite often.
3. Speed – we should be able to calculate a great number of distances between the analysed HTML and all the stored signatures in real time.
4. The false negative rate, which should also be kept as low as possible.

The candidates for the best distance were: the Levenshtein[4] distance, the Damerau[5] distance, the Hamming[6] distance and the Jaccard distance.

To decide which edit distance to choose, we conducted an experiment as described below.

We created summaries from three groups:

- 50 HTMLs from the web-banking pages that we want to protect (the most phished brands according to both anti-phishing.org and our internal statistics)
- 24,199 other legitimate HTMLs
- 5,612 phishing HTMLs from 12 consecutive days.

[2] The *BitDefender* approach was presented in [3].
[3] Jaccard similarity uses word sets from the comparison instances to evaluate similarity.

[4] Levenshtein edit distance is a measure of similarity between two strings, which represents the number of deletions, insertions or substitutions required to transform one string into another.
[5] Damerau edit distance is identical to the Levenshtein edit distance, except that it also allows the operation of transposing (swapping) two adjacent characters at no cost.
[6] Hamming distance is the number of places in which two strings differ.

We considered that a signature *x* would match a signature *y* with a threshold *T* if:

$$d(x,y) < T \cdot \left( \frac{|x|}{2} + \frac{|y|}{2} \right)$$

We then measured how many of the phishing and legitimate summaries were matched by the protected summaries, with three thresholds: 0.5, 0.65 and 0.8. The detection and FP rates are presented in Table 2.

| | D% 0.5 | FP% 0.5 | D% 0.65 | FP% 0.65 | D% 0.8 | FP% 0.8 |
|---|---|---|---|---|---|---|
| Lev | 7.03 | 0.1116 | 5.40 | 0.0083 | 3.15 | 0.0041 |
| Dam | 7.05 | 0.1157 | 5.42 | 0.0083 | 3.15 | 0.0041 |
| Ham | 27.51 | 20.41 | 8.23 | 2.77 | 1.10 | 0.0537 |
| Jac | 30.40 | 25.76 | 15.73 | 11.12 | 1.98 | 1.22 |

*Table 2: Detection (D) and false positive (FP) rate.*

The results are easy to interpret on the following graphic (on a logarithmic scale):

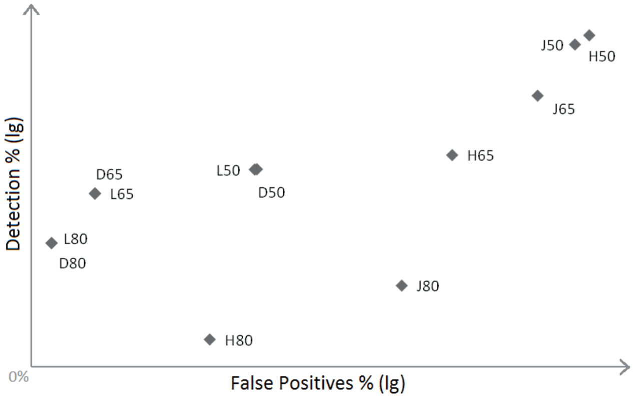


*Figure 1: Detection and FP rate.*

We observed that the Hamming and Jaccard distances have unacceptable FP rates.

Levenshtein and Damerau return almost the same result, which is understandable considering the fact that the algorithms are fairly similar. By increasing the threshold we get lower detection, but also a lower FP rate.

The best compromise seems to be either the Levenshtein or the Damerau distance with a threshold of 0.65, but this will be determined by conducting a more accurate experiment.

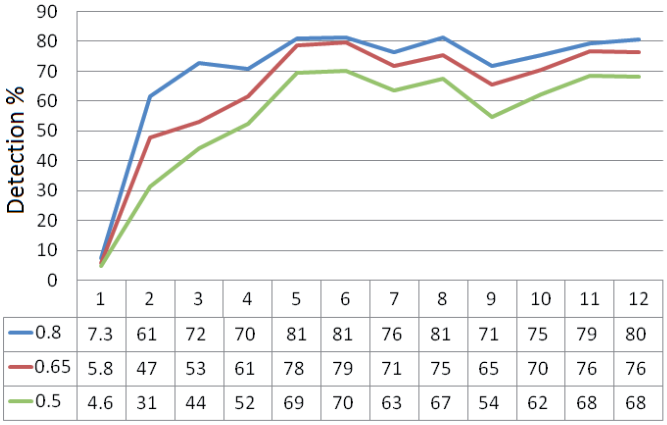
## THE DETECTION AND FP RATE

Analysis of our available phishing data shows that the number of phishing kits[7] is relatively small compared to the total number of phishing websites published during a month. By using the summary signatures of new phishing pages for detection, alongside the summaries of the web-banking pages, the proactive detection rate increases consistently.

In our second experiment we used as a test corpus the same data as in the first experiment, but this time we not only used the summaries of the protected institutions for detection, but also the summaries of phishing pages from the preceding weeks.

We considered the same three thresholds (0.5, 0.65 and 0.8), and the Levenshtein distance (the Damerau distance has the same results).

We obtained the following results:



| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.8 | 7.3 | 61 | 72 | 70 | 81 | 81 | 76 | 81 | 71 | 75 | 79 | 80 |
| 0.65 | 5.8 | 47 | 53 | 61 | 78 | 79 | 71 | 75 | 65 | 70 | 76 | 76 |
| 0.5 | 4.6 | 31 | 44 | 52 | 69 | 70 | 63 | 67 | 54 | 62 | 68 | 68 |

*Figure 2: Detection per week.*

It can be seen that using the phishing summaries beside the legitimate summaries greatly increases the proactive detection rate.

We also compared the same legitimate HTMLs with the summary signatures of the protected banks and of all the phishing HTMLs to determine the FP rate (Table 3).

| T | 0.80 | 0.65 | 0.50 |
|---|---|---|---|
| FP | 0.1901% | 0.0165% | 0.0083% |

*Table 3: FP rate with web-banking and phishing signatures.*

[7] A phishing kit is a collection of tools assembled to make it easy for people to launch a phishing exploit. The kit includes templates of phishing web pages.

We can conclude that each of the thresholds has its own advantages. The choice can be made with a small compromise: either the detection rate is slightly reduced or the FP rate is slightly increased.

## SPEED

Computing the Levenshtein distance between two strings is too time consuming[8] to be used to check whether a summary is matched by a large number of stored summaries in real time, which means that we need some improvements.

As a first optimization, we use this filter only if the HTML contains login information. However, this optimization alone is not sufficient, because users tend to browse several websites that require logging in each day.

For each signature, we compute each tag group's number of occurrences. When comparing two signatures, we calculate the sum of the number of tag groups that differ (for example, one summary might have more format tags and fewer table tags than another). A Levenshtein distance between the two signatures cannot be smaller than twice the sum. We call this the minimum difference, which can be computed fairly quickly[9].

For one signature to match another, the distance between them needs to be smaller than:

$$\max Dist = T \cdot \left( \frac{|x|}{2} + \frac{|y|}{2} \right)$$

If the computed minimum distance is higher than the maximum distance for a match, it is not necessary to go on and compute the Levenshtein distance, as a match cannot occur. Our data indicates that this optimization eliminates 95% of the distances that have to be computed.

## CONCLUSIONS

The proposed filter is easy to train, its sole prerequisite being the fact that the phishing web pages used to generate signatures should be genuine ones (not 404 or other server error pages).

Since this filter detects the similarity between legitimate websites and the fake ones, it is obvious that it will detect the legitimate websites as being 100% similar to themselves, which means that these URLs must be whitelisted.

The detection capabilities extend beyond the initial protected pages if summary signatures of available phishing web pages are used, but this can also cause future problems if the legitimate phished pages are not whitelisted.

The method showed good results both in lab testing and market testing, covering the gaps in detection caused by the evolution of phishing and the downside of blacklists.

## AREAS OF FURTHER STUDY AND LIMITATIONS

The accuracy of the proposed method can be significantly increased if we add CSS, keywords, relevant information inside the scripts, or other information to the summary signature.

## ACKNOWLEDGEMENT

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[8] The Levenshtein edit distance is found in O(mn) time (where m and n are the length of the measured strings).

[9] The minimum distance is calculated in O(m+n) time, which is one order less than the Levenshtein computing time.

# FEATURE 2

## WHAT'S THE DEAL WITH SENDER AUTHENTICATION? PART 3

*Terry Zink*
Microsoft, USA

In my previous article (see *VB*, July 2010, p.16), we saw how SPF can be used to authenticate messages from people that we want to hear from, and discard messages from senders who are merely *pretending* to be those people. Yet SPF has a drawback: visual cues that a regular person uses to identify who a message is from are not always addressed by SPF and can be exploited by spammers.

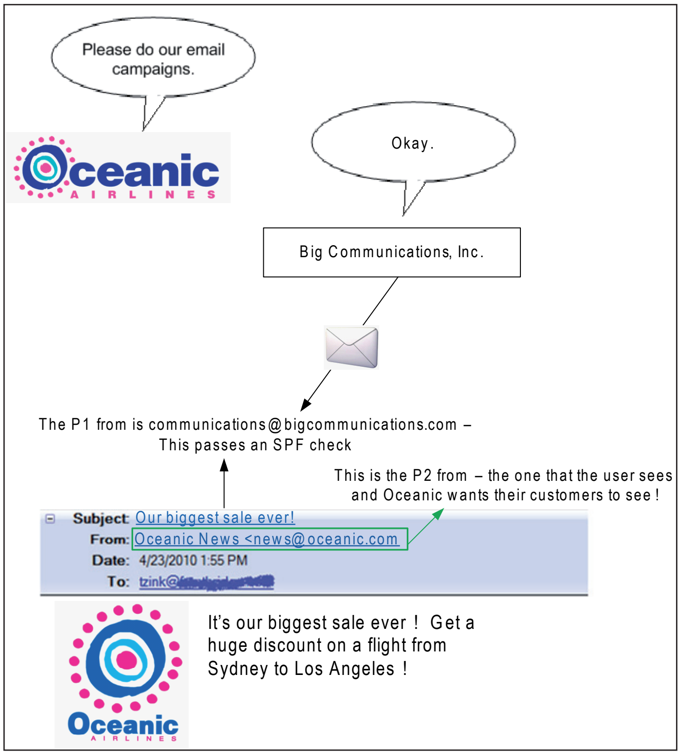
In email, there are usually two 'senders' of a message:

1. The sender, or from address, in the envelope sender. This is the MAIL FROM address specified in the SMTP transaction and is called the P1 From.
2. The sender, or from address, in the message headers. This is the From: address that you see in your email client and is called the P2 From. Sometimes there is a Sender: address in which case you might see a 'sent on behalf of' message displayed in your email client.

In many cases, the P1 and P2 Froms are the same. However, this is not always the case. When mail is sent on behalf of someone else, they can be different. For example, if a large company such as Oceanic Airlines wants to send out a communication to their subscriber list, they might use a third-party mailer to do it for them – for example, Big Communications, Inc. In this case, the email would have a P1 From of communications@bigcommunications.com, while the P2 From would be news@oceanic.com. To the end-user, it would appear that the message was from news@oceanic.com, the airline that they know and trust. Of course, the message didn't come from them, it came from Big Communications' mail servers.

An SPF check is done against the domain bigcommunications.com and the sending IP address is checked against it as well. Everything checks out alright, and everyone wins: the mail is authenticated, and the members of Oceanic's user base see the company's communications which have been outsourced to a large mailing company.

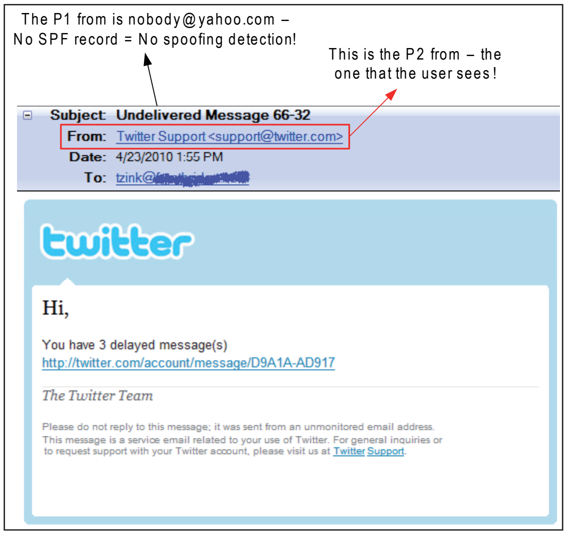
The problem arises when someone attempts to exploit how SPF works. What if a spammer were to put a domain in the P1 From that didn't have an SPF record? And what if they put a trusted domain into the P2 From? This way, the message would return an SPF check of neutral, and the user would see the trusted domain in their inbox.


Please do our email campaigns.
Oceanic AIRLINES
Okay.
Big Communications, Inc.
The P1 from is communications@bigcommunications.com – This passes an SPF check
This is the P2 from – the one that the user sees and Oceanic wants their customers to see !
Oceanic AIRLINES

Subject: Our biggest sale ever!
From: Oceanic News <news@oceanic.com
Date: 4/23/2010 1:55 PM
To: tzink@[redacted]

It's our biggest sale ever ! Get a huge discount on a flight from Sydney to Los Angeles !

*Figure 1: Oceanic outsources its email campaign to Big Communications Inc.*


The P1 from is nobody@yahoo.com – No SPF record = No spoofing detection!
This is the P2 from – the one that the user sees!
twitter

Subject: Undelivered Message 66-32
From: Twitter Support <support@twitter.com>
Date: 4/23/2010 1:55 PM
To: tzink@[redacted]

Hi,

You have 3 delayed message(s)
http://twitter.com/account/message/D9A1A-AD917

*The Twitter Team*

Please do not reply to this message; it was sent from an unmonitored email address.
This message is a service email related to your use of Twitter. For general inquiries or to request support with your Twitter account, please visit us at Twitter Support.

*Figure 2: The user sees the trusted domain in their inbox.*

In Figure 2, the email that the user sees is from *Twitter* support[1]. The P1 From, the one that an SPF check is performed on, is 'from' the domain @yahoo.com, which has

[1] This is from an actual phish I received.

no SPF records. The SPF check returns a none result and the message sails through to the user's inbox. The user sees that the message is 'from' *Twitter* and trusts it. The average email user doesn't know the difference between P1 and P2 Froms. For the most part, this doesn't matter because they are frequently the same. But when a spammer is spoofing a trusted domain, it absolutely does matter because the sender they see in their inbox is not the sender the anti-spoofing mechanism was analysing. The natural end-user assumption is that the message is legitimate – after all, wouldn't a filter have flagged this message as spam?

The scenario described above is one of the biggest concerns we encounter. SPF doesn't address this case.

## SENDERID

SenderID is a protocol advanced by *Microsoft* that deals with the problem of email authentication in a similar manner to SPF, but weighs more heavily against spoofing than SPF does. From *Microsoft* [1]:

> The Sender ID Framework is an email authentication technology protocol that helps address the problem of spoofing and phishing by verifying the domain name from which email messages are sent. Sender ID validates the origin of email messages by verifying the IP address of the sender against the alleged owner of the sending domain.

This is similar to SPF. SPF works to validate the origin of email messages by verifying the IP address of the sender against the authorized IPs that are allowed to send mail from the domain in the envelope sender. SenderID does this as well, but it can be implemented to work on *either* the envelope sender *or* another address in the message headers.

SenderID introduces the concept of a Purported Responsible Address (PRA). Acquisition of the PRA is described in RFC 4407 [2]. Briefly, PRA is obtained by examining the message headers and extracting one of the following fields:

1. Look for the first non-empty Resent-Sender header. If it exists, use the domain in this field. If not, proceed to step 2.
2. Look for the first non-empty Resent-From header. If it exists, use the domain in this field. If not, proceed to step 3.
3. Look for the Sender header. If it exists, use the domain in this field. If not, proceed to step 4.
4. Look for the From header (not to be confused with the MAIL FROM, or envelope header). If it exists, use the domain in this field. If not, the message is malformed and we cannot extract a PRA.

Most of the time, the PRA will turn out to be the email address in the From: field that shows up in the email client. It's also the one that is most useful to the end-user because that's the one they actually see. Anyhow, a SenderID check extracts the domain from the PRA and performs a check on it by looking at the domain's SenderID record and then performing the same actions as a regular SPF check (hard fail, soft fail, etc.).

However, things are a bit more complicated than this. Not only does SenderID introduce the concept of PRA, it also introduces new syntax for SPF records.

SenderID records begin with a version identifier (2.0) and may also include a scope upon which the SenderID check may be applied. The rest of the syntax is the same as SPF. A domain that explicitly specifies SenderID-compliant records could use the following syntax:

Example 1

```
spf2.0/mfrom,pra mx ip4:192.168.0.100 -all
```

This defines an SPF record that can be used for either MAIL FROM or PRA checks. If the IP is in the domain's MX record or is 192.168.0.100, return a pass. Otherwise, return a hard fail.

Example 2

```
spf2.0/pra mx ip4:192.168.0.100 ~all
```

This defines an SPF record that can be used only for PRA checks. If the IP is in the domain's MX record or is 192.168.0.100, return a pass. Otherwise, return a soft fail.

Example 3

```
spf2.0/mfrom mx ip4:192.168.0.100 ?all
```

This defines an SPF record that can be used only for MAIL FROM checks. If the IP is in the domain's MX record or is 192.168.0.100, return a pass. Otherwise, return a neutral.

Thus, the SenderID record indicates whether to check against the domain in the MAIL FROM, PRA, both or neither. The question naturally arises: how do we know whether to extract and check the domain in the PRA or the domain in the MAIL FROM? The answer is that it depends on how you want to implement it.

Example 1

Suppose you are running an email service and you want to implement SenderID on the PRA only. That means you will extract the domain in the PRA and *not* extract the domain in the envelope sender (the MAIL FROM). You look up the domain's TXT[2] record, which is the following:

```
spf2.0/mfrom,pra mx ip4:192.168.0.100 -all
```

First, we see that this domain supports SenderID. Success! Second, the record indicates that the TXT record can

[2] Both SenderID and SPF records are stored in a domain's TXT record. Only the syntax is different.

be used to verify either the domain in the MAIL FROM *or* the domain in the PRA. If the transmitting IP is 192.168.0.100 or is the reverse DNS of the domain's MX record, then we have a SenderID pass. Otherwise return a hard fail.

Example 2

From the example above, suppose that the TXT record instead was the following:

```
spf2.0/mfrom mx ip4:192.168.0.100 -all
```

This record *only* specifies the IPs in the MAIL FROM domain that are authorized to send mail. It says *nothing* about which IPs in the PRA are permitted. Therefore, since we are checking the domain from the PRA, the result of this SenderID check is a none.

SenderID allows the implementer the flexibility to protect either the envelope sender or sender in the message headers (usually the From: address). However, the standard does not specify which one should be checked so it is up to the implementer (the email receiver) to decide how to do it. In the real world it is most commonly done on the PRA.

## HOW SENDERID INTERPRETS SPF RECORDS

A major difference between SenderID and SPF is that SenderID allows the spam filter to check TXT records of the envelope sender or the PRA. However, SPF requires that they are checked on the envelope sender.

- If a spam filter extracts the domain in the envelope sender and performs an SPF check, then when it queries DNS it must find a v=spf1 record in order to do an SPF check. If it does not, it returns SPF none.
- If a spam filter extracts the domain in the PRA and performs an SPF check, then when it queries DNS it can do a check on a v=spf2.0 record *or* a v=spf1 record. Section 3.4 of RFC 4406 says the following:

  > In order to provide compatibility for these domains, Sender ID implementations SHOULD interpret the version prefix 'v=spf1' as equivalent to 'spf2.0/mfrom,pra', provided no record starting with 'spf2.0' exists.

In other words, if you have a SenderID implementation that checks the envelope sender (i.e. just like SPF), this will function exactly like regular SPF. On the other hand, if you have a SenderID implementation that checks the PRA (which is much more likely to be the case), but no SenderID record exists, then default back to use the SPF record instead to check the PRA. Thus, the recommended behaviour of your SenderID implementation is that existing SPF records should protect either the MAIL FROM or PRA.

The RFC goes on to say the following:

| Feature | SPF | SenderID |
|---|---|---|
| **DNS records** | v=spf1 | v=spf2.0 |
| **Domain that it works on** | Envelope sender (P1) | PRA (P2 – much more common) or envelope sender (much less common) |
| **How does it treat SPF records?** | Works as normal | Treats it like a SenderID record if the SenderID record does not exist |
| **How does it treat SenderID records?** | Ignores it | Works as normal |
| **Strengths** | - Can stop some phishing, good for some whitelisting<br>- Can prevent backscatter by only sending bounces to messages that pass an SPF check<br>- Can reject some messages in SMTP before accepting any data | - Better at stopping phishing (or spoofing) that tricks the user visually<br>- The PRA derives from actual Resent-* headers and Sender and From headers; this makes validation on forwarded mail theoretically possible |
| **Weaknesses** | - Doesn't catch phishing when the P1 From is neutral or none and the PRA is spoofed<br>- Doesn't work on forwarded mail | - Prone to false positives when mail is sent on behalf of another<br>- Doesn't work on forwarded mail |

*Table 1: Comparison of SPF and SenderID features.*

> Administrators who have already published 'v=spf1' records SHOULD review these records to determine whether they are also valid for use with PRA checks. If the information in a 'v=spf1' record is not correct for a PRA check, administrators SHOULD publish either an 'spf2.0/pra' record with correct information or an 'spf2.0/pra ?all' record indicating that the result of a PRA check is explicitly inconclusive.

The reason this warning is given is because it's possible that the behaviour of the envelope sender could be different from PRA. Because SPF was designed to be used to protect the MAIL FROM, it is not necessarily true that the PRA will behave the same way. As the warning above states, to prevent any confusion, domain administrators should explicitly publish SenderID records that do not explicitly say one way or the other whether the PRA is protected (i.e. return neutral).

Why does this matter? It matters because while most of the time the MAIL FROM and PRA are the same, many times they are not. The most common occurrence of this is newsletters. Let's revisit our previous example. Oceanic Airlines has contracted Big Communications, Inc. to send its mail campaigns.

`MAIL FROM: communications@bigcommunications.com` → *This is what an SPF check is performed on*

`bigcommunications.com v=spf1  292.14.15.0/24  -all`

`From: news@oceanic.com` → *This is the PRA and it is what the SenderID check is performed on*

`oceanic.com v=spf1 258.14.15.0/24 -all`

From this, if Big Communications, Inc. sends a message from 292.14.15.75, this would pass an SPF check because it is in the range of 292.14.15.0/24. However, SenderID performs a check on oceanic.com, sees that the sending IP is *not* in the range 258.14.15.0/24 and assigns a SenderID fail. This is incorrect because neither Oceanic Airlines nor Big Communications, Inc. meant for the domain in the PRA to be extracted. They both published SPF records, not SenderID records. SenderID assumes that the PRA can be done against an SPF v1 record, but neither Oceanic nor Big Communications has made that explicit and in this case it has caused a false positive. Thus, the trade-off when performing a SenderID check on an SPF record is that you catch more spoofed spam, but introduce more false positives.

## FORWARDED MAIL

Email forwarding is a major issue with SPF and SenderID. There is no official standard on how email is to be forwarded (in terms of rewriting the headers). Suppose that Mail Server A sends a message and everything complies with SenderID or SPF – the envelope sender is correct, the domain has its SPF or SenderID records set up correctly, and so forth. The message goes through some internal routing, but then is subsequently forwarded by another outside mail server with no change to the email headers. Or, consider the case of receiving mail at one mail host on your network which then relays it to a central mail server.

What happens?

Since the last hop of the message router is the transmitting IP from which the receiving email server receives the message, it uses that IP and checks it against the SPF/SenderID record for the domain in the envelope sender/PRA. Since nothing has been rewritten in the message headers, this will fail a sender authentication.

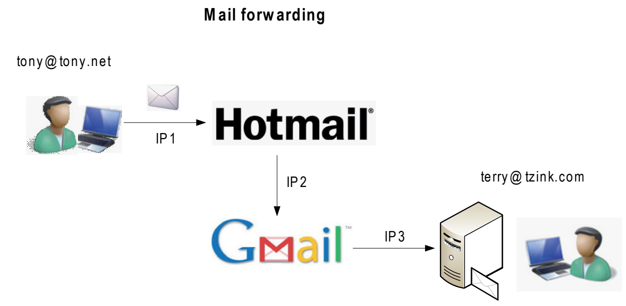


*Figure 3: Tony's mail is forwarded from my Hotmail account to my Gmail account, to my personal server.*

In the above diagram, Tony sends a mail to my *Hotmail* account, which forwards to my *Gmail* account, which forwards to my personal mail server. My personal mail server performs an SPF check on IP3, *Gmail*'s outbound IP, which is not in Tony's SPF record and therefore will generate an SPF/SenderID failure.

The creators of SPF admit [3] that this is a problem and suggest whitelisting the IP as a possible workaround.

## A BETTER WORKAROUND

The reality is that the whitelisting of mail servers has a very long tail – you will be forever finding new mail servers that you have to whitelist. When you think you've found one forwarder, another one pops up.

One technique is to tweak the recommended implementation. Instead of rejecting mail that fails an authentication test (as recommended by SPF and SenderID), score it aggressively. For example, if we have a spamminess scale based upon probability that runs from 1 to 10, with 1 being non-spam and 10 being spam, assume that if a message scores higher than 5, it is considered spam. The recommendations for SPF and SenderID are to reject mail based on a test failure, so their probability grades would be 10. Even if, combined with other elements in the mail that reduce its spamminess, it's unlikely that the score will fall beneath the spam threshold. Instead, an authentication failure can be scored at a weight of 4.8 – nearly enough to get the message over the spam threshold, but not quite.

Most spam contains elements that mark it somewhat spammy anyhow, while non-spam contains elements that make it non-spammy. A message with an authentication failure will often have other elements that will push it over the spam threshold, while a non-spam message with a failure will usually be able to be kept under the threshold. Of course, there are times when spam will stay under (false negatives) and non-spam gets pushed over (false positives), but it is generally better to err on the side of reduced false positives.

Thus, rather than rejecting on a hard SPF failure, for most people, using it as a heavier weight makes more sense. Some receivers want to automatically reject mail that fails SenderID or SPF checks but this implementation is not right for everyone.

## HOW SPAMMERS EVADE SPF

How would a spammer get around SPF? One way is the method used by Spammer-X in his book *Inside the Spam Cartel*. Spammer-X is a retired spammer and reveals a lot of the details of his former career in his book. According to Spammer-X, SPF stops novice spammers but not the professionals. The best way to beat SPF is to join it.

1. First, Joe Spammer rents a dedicated spam host in a spammer-friendly location, such as Russia.
2. Next, he registers 100 domain names, each of which is registered under a fake name and address.
3. Next, DNS entries for each of the hosts are set up, including a valid pointer record (PTR), an MX record and reverse DNS entries for each domain.

In other words, spammers do everything that owners of legitimate domains do when they set up a domain (although owners of legitimate domains don't use fake names and addresses, of course).

Next, a self-published SPF record is appended to each domain's DNS entry, identifying the host as a valid, self-created SPF host that is responsible for any email coming from its domain. An example for superspammer.com might be the following:

```
v=spf1 mx ptr a:spammerplayground.superspammer.com
-all
```

Reading this, we see that the permitted IPs that can send mail for this domain are any IP in the domain's MX record (i.e. get the MX record of the domain in the envelope sender) if the sender ends in superspammer.com, or if the IP of the A-record of spammerplayground.superspammer.com is sending mail.

With all of these set up, a spammer can send mail from any of these 100 domains and they will all happily pass SPF checks because the IPs are authorized to send mail.

What if the spammer did this:

```
v=spf1 mx ptr a:spammerplayground.superspammer.com
?all
```

This is yet another evasion technique: even if the mail is not authenticated it falls back to a neutral. In other words, if the domain is spoofed, a spam filter should not treat it as such and should accept the mail.

The flaw in this theory is that Spammer-X goes on to say that the majority of spam filters will treat email with an SPF pass with a higher level of legitimacy. My own internal statistics suggest that SPF-authenticated mail is still marked as spam around 15% of the time. So, mail that is verified by SPF is by no means guaranteed to be valid. Mail that is verified by SPF *and* comes from a source that you trust *is* treated with a higher level of legitimacy, but not all on its own.

Secondly, even if a domain with valid SPF checks were found to be sending spam, it could get blacklisted very quickly. Spam filters could use such domains to build a reputation list.

Spammer-X does have a point, however; a flaw in SPF is that there is no external third-party verification of SPF records – anyone can sign up for it. *VeriSign*, for example, goes out and verifies websites to make sure that they are secure when their owners sign up for SSL. If it isn't a good website, it won't get a 'Verified by VeriSign' stamp. However, there is no equivalent 'Signed by SPF' authority that makes sure that whoever signs up for it truly deserves to get it.

## THE BOTTOM LINE

SenderID and SPF both have their strengths and weaknesses. They are similar, but are different enough that the employment of one will yield trade-offs that don't exist had you used the other. Here are some guidelines for the implementation of both:

- *Do not use SPF records that end with +all.* This provides no protection at all – it means that if anyone spoofs your domain, a receiver should accept mail from it. ?all also provides little protection. In this case, a ?all is meant to authenticate a sender's domain; they are implicitly saying that SPF/SenderID should not be used to detect spoofing.

- *Do not include PTR records in your SPF record.* While permissible by the standard, *Hotmail* does not support the use of records with a PTR. Such inclusion may induce fails and result in mail being junked and/or deleted. The inclusion of a PTR within an SPF record will create unnecessary DNS traffic, be more prone to errors and will not function in implementations where SPF records are cached on local servers.
- *Use ~all when you don't control all IPs that use your domain to send mail.* Some mobile employees send email from hotels or other 'guest' email servers when working remotely. The best option in this case is for mobile users to send email over a VPN connection or by using a web-based email client. This way their email flows through your regular email servers and you don't need to make any changes to your SPF record.

  This isn't always possible, in which case, you may wish to include a ~all in your SPF/SenderID records. Their mail will still fail a check, but it tells the receiver not to reject the mail. Instead, assign a lighter weight to it and use it as a consideration as part of a spam filter.

There really is no elegant workaround in the absence of webmail because there's no guarantee that a hotel will be SenderID or SPF-compliant. There isn't an elegant workaround to the problem of forwarded mail, either.

We've now seen SPF and SenderID and how they work to authenticate mail and detect spoofing. They are relatively simple protocols and while that's an advantage, it is also a drawback. It ties IP addresses to domains. IPs change and have to be updated. Isn't there a better way? And can we get around the issue of forwarded mail?

That's a subject for my next article.

## REFERENCES

[1] http://www.microsoft.com/mscorp/safety/technologies/senderid/default.mspx.

[2] http://www.ietf.org/rfc/rfc4407.txt?number=4407.

[3] http://www.openspf.org/FAQ/Common_receiver_mistakes.

# COMPARATIVE REVIEW

## VB100 – WINDOWS VISTA BUSINESS EDITION SERVICE PACK 2

*John Hawes*

Yes, I know. *Windows Vista*. Not the most lovable of platforms. It was released to a barrage of bad press, faced all kinds of criticisms, from slowness to insecurity to downright ugliness, and wasn't really considered reliable until the release of service pack 2 – by which time *Windows 7* was on the horizon promising more of the same only better. The *VB* test team had entertained vague hopes that, once *Windows 7* was out, we might be spared the trauma of another *Vista* test, but considering the surprisingly large user base still maintained by the now outmoded operating system (estimates are that it still runs on over 20% of systems), it seemed a little premature to give up on it entirely. So, this may be one last hurrah for a platform that has caused us much grief and aggravation in the past.

After the massive popularity of the last desktop comparative (see *VB*, April 2010, p.23) we expected another monster haul of products, and sure enough the submissions came flooding in. Although not quite breaking the record, this month's selection of products is still remarkably large and diverse, with the majority of the familiar old names taking part and a sprinkling of newcomers to provide some extra interest. Given what seems like a new, much higher baseline, we may have to consider revising our rules for free entry to these tests – as the situation currently stands, any vendor may submit up to two products to any single test without charge, and a small fee is levied on third and subsequent entries. This month only one vendor chose to submit more than two products, but in future it may become necessary to impose charges on any vendor submitting more than one product – which would at least provide us with extra funds for hardware and other resources involved in running these tests, and possibly allow us some time and space to work on new, more advanced testing.

### PLATFORM AND TEST SETS

Setting up of *Vista* is actually a fairly painless process these days, with the install media used including SP2 from the off and thus skirting round some of the problems encountered in our first few exposures to the platform. The installation process is reasonably simple, with just a little disk partitioning and so on required to fit in with our needs. Once up and running, no additional drivers were required to work with our new batch of test systems; after installing a few handy tools such as archivers and PDF viewers, and setting the networking and desktop layouts to our liking, images were taken and the machines were ready to go.

Several of the products entered this month required Internet access to update or activate. These were installed in advance, allowed to go online to do their business, and then fresh images were taken for later use. Test sets were then copied to the test machines.

This month's core certification set was synchronized with the June 2010 WildList, which was released a few days prior to our official test set deadline of 24 July. The list was once again fairly unspectacular, with the bulk of the contents made up of social networking and online gaming data stealers. Of most note, perhaps, were three new strains of W32/Virut, the complex polymorphic virus which has been the bane of many a product over the last few years. These three were replicated in reasonably large numbers to ensure a thorough workout for the products' detection routines; one of the three proved more tricky to replicate than the others, and credit is due to the lab team for getting our prototype automated replication system running in a way which could persuade it to infect a large enough set of samples for our needs. Including a few thousand samples of each polymorphic virus on the list, the WildList test set contained some 9,118 unique samples.

The other side of the certification requirements, the clean set, was updated and expanded as usual, with large swathes of new packages and package versions gathered from the most popular items on leading download sites, as well as additional items from CDs, DVDs and other media obtained by the lab in recent months. Among the items added were a number of tools related to television and other media-viewing hardware, and also quite a lot of items connected to document manipulation. In all, after a purging of some older and less relevant items, the clean set came in at close to 400,000 unique files.

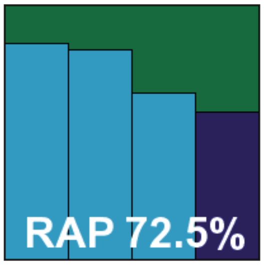
The speed sets were left pretty much unchanged from previous tests, and the measures of RAM and CPU usage we have been reporting recently were recorded as before. The other detection test sets were compiled as usual, with the RAP sets put together from significant items gathered in the three weeks leading up to the 24 July product deadline and the week following, and the trojans and worms & bots sets bulked up with new items received in the month or so between RAP sets. With further expansion of our sample-gathering efforts the initial numbers were fairly high, but every effort was made to classify and validate as much as possible prior to the start of testing, to keep scan times to a minimum. Further validation continued during testing and items not meeting our requirements were struck from the sets; in the end, the weekly RAP sets contained around 10,000 samples per week, with just over 70,000 in the trojans set and 15,000 in the worms and bots set. The polymorphic set remained largely the same as in previous tests, with the main addition being some older Virut strains which have fallen off the WildList of late, in expanded numbers.

One other addition was made, to the set of samples used to measure archive scanning. This was enlarged slightly to include zipx format, a new and improved version of zip archiving used by the latest version of *WinZip*. We also included self-extracting executable archives compressed using the rar format. These samples are produced by adding the Eicar test file and a clean control file to an archive of each type. The first level archives are then added, along with another clean control file, to another archive of the same type to make the level 2 sample, and so on. The purpose of these is to provide some insight into how deeply each product analyses various types of compressed files, to help with comprehension of the speed results we report. Thus, if a product has a slow scanning speed but delves deeply into a wide range of archive types, its times and lags should not be directly compared with a product which analyses files less deeply. Another copy of the Eicar file is included in the test set uncompressed but with a randomly selected, non-executable extension, to show which products are relying on extension lists to determine what is scanned. This may have some effect on speeds over the other speed sets, notably the 'media & documents' and 'other file types' sets, which may include many files without standard executable extensions.

With all this copied to the secondary hard drives of the lab systems, we were ready to get down to some testing.

## Agnitum Outpost Security Suite Pro 7.0.1 (3376.514.1234)

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 89.73% |
| **ItW (o/a)** | 100.00% | **Trojans** | 82.07% |
| **Worms & bots** | 91.12% | **False positives** | 0 |



vb 100 VIRUS virusbtn.com Aug 2010

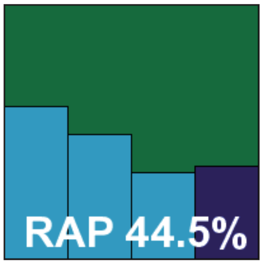
*Agnitum*'s *Outpost* is a fairly thorough suite solution which includes the company's renowned firewall, an anti-malware component based around the *VirusBuster* detection engine, some proactive protection, web content filtering, spam blocking and more. Of course, only a subset of the protection provided by the suite is properly measured here. As a result of the defence in depth offered, running the 99MB pre-updated install package leads to an installation process which has rather more than the usual number of steps and takes a few minutes to get through; at the end a reboot is required to get everything settled into place, and on initial boot-up the system took a little longer than usual to return control as the various components were activated.

When we finally got access to the main interface we noted it looked slightly refreshed, with a more curvy and shiny feel, though much of this could have been the impact of *Vista*'s own shininess. We have long been fans of the simple and businesslike design and layout of the *Agnitum* GUI and it has lost none of its efficiency and solidity. With so many components here to control, the anti-malware configuration is fairly basic but offers the standard options in a lucid and logical style. Some caching of data meant that scanning of previously checked files was very speedy and although initial scanning speeds were medium, the 'warm' measures were much more impressive. RAM usage remained fairly steady – at the upper end of the middle of the scale – regardless of whether file access was taking place, with CPU usage similarly placed against other products in this month's test.

We noted that the product appeared not to be looking inside the new zipx format archives, though it was not clear whether this was down to a lack of ability to decompress the format or the product merely not yet recognizing the extension as an archive type. Detection rates across the standard sets were respectable, and RAP scores started fairly respectably for older items, falling off fairly sharply in the newer sets. No problems were encountered in the clean or WildList sets, and *Agnitum* gets this month's comparative off to a good start with a well-earned VB100 award.

## AhnLab V3 Internet Security 8.0.3.7 build 372

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 99.84% |
| **ItW (o/a)** | 100.00% | **Trojans** | 63.71% |
| **Worms & bots** | 78.54% | **False positives** | 0 |



vb 100 VIRUS virusbtn.com Aug 2010

*AhnLab* also provided an installer with the latest updates included, measuring just over 96MB, but this time the installation process was much faster and simpler. Only the basic

| On-demand tests | WildList | | Worms & bots | | Polymorphic viruses | | Trojans | | Clean sets | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Missed | % | Missed | % | Missed | % | Missed | % | FP | Susp. |
| Agnitum Outpost | 0 | 100.00% | 1452 | 91.12% | 192 | 89.73% | 12789 | 82.07% | | 11 |
| AhnLab V3 | 0 | 100.00% | 3508 | 78.54% | 7 | 99.84% | 25893 | 63.71% | | |
| Avast! Free | 0 | 100.00% | 539 | 96.70% | 522 | 93.71% | 3896 | 94.54% | | 1 |
| AVG IS | 0 | 100.00% | 1008 | 93.83% | 53 | 97.86% | 1781 | 97.50% | | |
| Avira AntiVir | 0 | 100.00% | 215 | 98.68% | 0 | 100.00% | 1833 | 97.43% | | |
| BitDefender | 0 | 100.00% | 249 | 98.48% | 0 | 100.00% | 13303 | 81.35% | 15 | |
| Bkis Gateway | 0 | 100.00% | 6205 | 62.04% | 1601 | 64.53% | 46176 | 35.28% | | |
| Bkis Home | 0 | 100.00% | 6204 | 62.05% | 3362 | 56.10% | 46176 | 35.28% | | |
| Bkis Pro | 0 | 100.00% | 6204 | 62.05% | 1601 | 64.53% | 46176 | 35.28% | | |
| CA ISS Plus | 5 | 99.18% | 2227 | 86.38% | 3469 | 92.58% | 21493 | 69.87% | | 1 |
| CA Threat Manager | 1 | 99.84% | 3891 | 76.20% | 3469 | 92.58% | 32219 | 54.84% | | |
| Central Command Vexira | 0 | 100.00% | 1293 | 92.09% | 192 | 89.73% | 12173 | 82.94% | | |
| Check Point Zone Alarm | 0 | 100.00% | 731 | 95.53% | 0 | 100.00% | 6238 | 91.26% | | |
| Coranti Multicore | 0 | 100.00% | 82 | 99.50% | 0 | 100.00% | 380 | 99.47% | 15 | |
| Defenx Security Suite | 0 | 100.00% | 1318 | 91.94% | 192 | 89.73% | 12128 | 83.00% | | 11 |
| Digital Defender | 1 | 99.84% | 1889 | 88.44% | 192 | 89.73% | 13764 | 80.71% | | |
| eEye Blink | 0 | 100.00% | 2396 | 85.34% | 290 | 84.55% | 21385 | 70.02% | 1 | |
| Emsisoft Anti-Malware | 0 | 100.00% | 198 | 98.79% | 1371 | 79.99% | 5528 | 92.25% | | 1 |
| eScan ISS | 1 | 99.84% | 268 | 98.36% | 0 | 100.00% | 1894 | 97.35% | | |
| ESET NOD32 | 0 | 100.00% | 204 | 98.75% | 0 | 100.00% | 3964 | 94.44% | | |
| Filseclab Twister | 3191 | 98.48% | 2290 | 85.99% | 14087 | 41.76% | 9827 | 86.23% | 3 | |
| Fortinet FortiClient | 0 | 100.00% | 2778 | 83.01% | 30 | 99.36% | 28320 | 60.30% | | |
| Frisk F-PROT | 0 | 100.00% | 1736 | 89.38% | 0 | 100.00% | 15482 | 78.30% | | |
| F-Secure Client Security | 0 | 100.00% | 218 | 98.67% | 0 | 100.00% | 1835 | 97.43% | | |
| F-Secure PSB | 0 | 100.00% | 360 | 97.80% | 0 | 100.00% | 2512 | 96.48% | | |
| G DATA | 0 | 100.00% | 298 | 98.18% | 0 | 100.00% | 1410 | 98.02% | 15 | |
| Ikarus virus.utilities | 0 | 100.00% | 212 | 98.70% | 1371 | 79.99% | 6879 | 90.36% | | 1 |

*(Please refer to text for full product names)*

steps of EULA, licensing, location and component selection were required, and within 30 seconds it was all up and running with no reboot necessary.

The interface seemed to have had some work done on it, looking quite pleasant in the glitzy surroundings of *Vista*, and with configuration controls easier to find and clustered in a more rational and logical fashion. Again, several additional components are provided besides the anti-malware basics, including modules labelled 'network protection', 'content filtering', 'email protection' and 'system tuning'. One notable feature of the redesign is an end to the separation of scans for malware and spyware, although these continue to be logged separately.

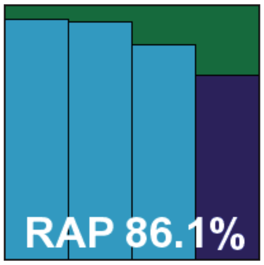
Running through the performance test took some time, as the on-demand scanner has pretty thorough default settings; scan times were not unreasonable, but a lack of caching of results meant that repeat scans took as long as the first run. RAM usage was fairly low, and CPU drain not too heavy either, even under heavy stress, but lag times to access files were perhaps just a shade above average. The detection tests also proved somewhat drawn out: the initial on-access run suffered no problems but subsequent on-demand scans were hampered by the repeated appearance of on-access alerts, comprising the last thousand or so detections from the on-access test. These appeared every few minutes, over and over again even after rebooting the system, and were appended repeatedly to logs as well. The heavy toll of this odd behaviour may have contributed to a crash which occurred during one of the main test set scans, and also to the rather long wait for the logging system to export results.

In the end, however, full results were obtained, and the crashing problem was not repeated. We found fairly decent scores in the main test sets, and while *AhnLab*'s scores won't trouble the leaders on the RAP quadrant, they were close to the main pack. Checking the scan results, we were worried at first that a handful of files in the WildList set had been missed on access, but looking more closely at the product's logs showed that the items in question had in fact been detected and logged by the anti-spyware component. This claimed to have blocked access to them but had clearly not done so as thoroughly as the full anti-malware module would have done, as our opener tool was able to access and take details of the files in question. However, as the VB100 rules require only detection and not full blocking of malicious files this did not count against *AhnLab*, and with no false alarms in the clean sets, a VB100 award is duly earned.

## Avast Software avast! Free Antivirus 5.0.545

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 93.71% |
| **ItW (o/a)** | 100.00% | **Trojans** | 94.54% |
| **Worms & bots** | 96.70% | **False positives** | 0 |

Enough time has been spent in these pages drooling over the beauty of *Avast*'s latest version; suffice to say that after several appearances in our tests it has lost none of its lustre. The installer, a mere 51MB with all updates included, runs through in a handful of steps, one of which is the offer to install *Google*'s *Chrome* browser, and is all done in a few seconds with no need to reboot.



vb 100 VIRUS virusbtn.com Aug 2010

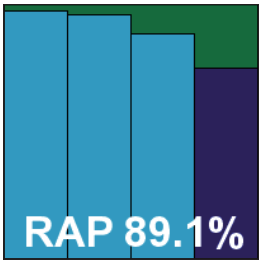
The change in the company name is clearly still filtering through, with some of the folders used for the install still bearing the old '*Alwil*' name, but the main interface remains glistening, smooth and solid as a rock. On-demand scanning speeds were lightning fast, with no indication of any speed-up in the 'warm' scans but not much room for improvement over the cold times anyway. With feather-light impact on file access, and fairly sparing use of both memory and processor cycles, *Avast* does well in all the performance measures this month.

Detection rates across the sets were also pretty superb, and the WildList and clean sets presented no problems to the product, which brushed everything aside with aplomb. With extra kudos for prettiness, reliability and ease of testing, *Avast* comfortably wins another VB100 award.

## AVG Internet Security 9.0.837

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 97.86% |
| **ItW (o/a)** | 100.00% | **Trojans** | 97.50% |
| **Worms & bots** | 93.83% | **False positives** | 0 |

*AVG*'s current flagship suite was also provided pre-updated, the installer measuring a fairly hefty 109MB. As another multi-faceted suite the installation process had several stages, including the offer of a *Yahoo!* toolbar, but was completed within a couple of minutes, ending with information on sending detection data back to base and an 'optimization scan', which was over in a minute or two; no reboot was required.



vb 100 VIRUS virusbtn.com Aug 2010

The product's main interface has a fairly standard layout, which is a little cluttered thanks to the many modules, several of which are not covered by our standard tests. With some pretty thorough default settings on demand, initial scans took quite some time to complete, but judicious ignoring of previously scanned files – of certain types at least – made for some much faster 'warm' runs. File access slowdown was not too heavy, and RAM usage was well below that of the more draining products seen this month, while CPU usage was towards the middle of the scale.

Running through the detection tests was also a mix of fast and slow. One run – in which the scan priority was bumped up to get through the infected sets faster – zipped merrily to what appeared to be the end of the job, then lingered at 'finishing' for several more hours, while the number of

| On-demand tests contd. | WildList | | Worms & bots | | Polymorphic viruses | | Trojans | | Clean sets | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Missed | % | Missed | % | Missed | % | Missed | % | FP | Susp. |
| K7 Total Security | 0 | 100.00% | 1012 | 93.81% | 0 | 100.00% | 10121 | 85.81% | | |
| Kaspersky Anti-Virus 6.0 | 0 | 100.00% | 375 | 97.71% | 0 | 100.00% | 4427 | 93.79% | | |
| Kaspersky IS 2011 | 0 | 100.00% | 562 | 96.56% | 0 | 100.00% | 6533 | 90.84% | | |
| Keniu Antivirus | 0 | 100.00% | 568 | 96.53% | 0 | 100.00% | 6297 | 91.17% | | 1 |
| Kingsoft IS Advanced | 8 | 99.999% | 8554 | 47.67% | 4828 | 58.88% | 60603 | 15.05% | | |
| Kingsoft IS Standard | 8 | 99.999% | 9063 | 44.56% | 4828 | 58.88% | 62622 | 12.22% | | |
| Lavasoft Ad-Aware Professional | 0 | 100.00% | 310 | 98.10% | 1054 | 73.53% | 3637 | 94.90% | | |
| Lavasoft Ad-Aware Total Security | 0 | 100.00% | 288 | 98.24% | 0 | 100.00% | 1276 | 98.21% | 1 | |
| McAfee Total Protection | 5 | 99.9997% | 870 | 94.68% | 1 | 99.999% | 9138 | 87.19% | | 1 |
| McAfee VirusScan | 5 | 99.9997% | 1287 | 92.13% | 1 | 99.999% | 14153 | 80.16% | | |
| Microsoft Security Essentials | 0 | 100.00% | 272 | 98.34% | 0 | 100.00% | 4075 | 94.29% | | |
| Nifty Security24 | 0 | 100.00% | 687 | 95.80% | 0 | 100.00% | 8703 | 87.80% | | 5 |
| Norman Security Suite | 0 | 100.00% | 2413 | 85.24% | 295 | 84.02% | 21513 | 69.85% | 1 | |
| PC Tools IS | 0 | 100.00% | 1816 | 88.89% | 0 | 100.00% | 14063 | 80.29% | | |
| PC Tools Spyware Doctor | 0 | 100.00% | 1816 | 88.89% | 0 | 100.00% | 14063 | 80.29% | | |
| Preventon Antivirus | 1 | 99.84% | 1889 | 88.44% | 192 | 89.73% | 13764 | 80.71% | | 11 |
| Proland Protector Plus | 0 | 100.00% | 1444 | 91.17% | 192 | 89.73% | 13639 | 80.88% | | |
| Qihoo 360 | 0 | 100.00% | 240 | 98.53% | 0 | 100.00% | 1584 | 97.78% | 15 | |
| Quick Heal AntiVirus | 0 | 100.00% | 1620 | 90.09% | 2 | 99.94% | 12971 | 81.82% | | |
| Returnil RVS | 0 | 100.00% | 1613 | 90.13% | 0 | 100.00% | 14621 | 79.51% | | 1 |
| Rising IS | 0 | 100.00% | 5958 | 63.55% | 3576 | 70.87% | 32096 | 55.01% | 2 | |
| Sophos Endpoint | 0 | 100.00% | 1859 | 88.63% | 0 | 100.00% | 8139 | 88.59% | | 4 |
| SPAMfighter VIRUSfighter | 1 | 99.84% | 1891 | 88.43% | 192 | 89.73% | 13782 | 80.68% | | 11 |
| Sunbelt VIPRE | 0 | 100.00% | 355 | 97.83% | 1054 | 73.53% | 6775 | 90.50% | | |
| Symantec Endpoint Security | 0 | 100.00% | 2217 | 86.44% | 0 | 100.00% | 16121 | 77.40% | | |
| Trustport AntiVirus | 0 | 100.00% | 214 | 98.69% | 0 | 100.00% | 1180 | 98.35% | | |
| VirusBuster Professional | 0 | 100.00% | 2868 | 82.46% | 192 | 89.73% | 15291 | 78.57% | | |

*(Please refer to text for full product names)*

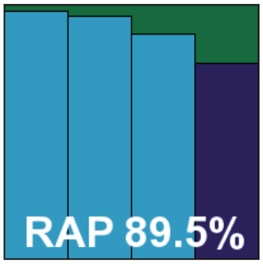
detections continued to rise; it gave the impression that the 'fast scan' option simply sped up the progress bar, and not the actual scan time at all.

Despite this minor (and rather specialist) issue, everything completed safely and reliably, with some splendid detection rates across the sets, and RAP scores were particularly impressive once again. The WildList and clean sets were handled impeccably, and *AVG* also earns another VB100 award.

## Avira AntiVir Professional 10.0.0.918

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 100.00% |
| **ItW (o/a)** | 100.00% | **Trojans** | 97.43% |
| **Worms & bots** | 98.68% | **False positives** | 0 |

The paid-for version of *Avira*'s *AntiVir* came as a standard installer package of 46MB with additional updates weighing in at a smidgen under 35MB. The installation process is



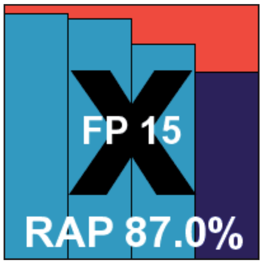
made up of the standard selection of stages, plus a screen advising users that they might as well disable *Microsoft*'s *Windows Defender* (although this action is not performed for you). The whole job was done in under a minute and no reboot was needed.

The main interface was another which seemed to have had a bit of a facelift, making it a little slicker-looking than previous versions, although some of the controls remain a little clunky and unintuitive, to us at least. The configuration system offers an 'expert mode' for more advanced users, which more than satisfied our rather demanding requirements, with a wealth of options covering every possible eventuality.

Speed tests tripped through in good time, with no sign of speeding up in the 'warm' scans but little need for it really, and performance measures showed fairly low use of both memory and CPU, with a pretty light touch on access too. Detection rates were as top-notch as ever, with excellent scores across all sets, RAP scores being especially noteworthy. No issues were observed in the WildList or the clean set, and a VB100 award is easily earned.

## BitDefender Business Client 11.0.22

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 100.00% |
| **ItW (o/a)** | 100.00% | **Trojans** | 81.35% |
| **Worms & bots** | 98.48% | **False positives** | 15 |



*BitDefender*'s latest corporate solution was delivered to us as a 122MB installer, which ran through the standard set of stages plus a step to disable both *Windows Defender* and the *Windows Firewall* in favour of the product's own protection. The process was pretty speedy, although a reboot was required at the end to fully implement protection.

The interface – making its debut on our test bench – was plain and unflashy, with basic controls on the main start page and an advanced set-up area providing an excellent degree of configurability as befits the more demanding business environment. It all seemed well laid out and simple to navigate, with everything where it might be expected to be.

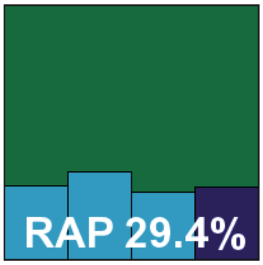
Running through some tests, however, showed that there may still be a few minor bugs that need ironing out. The heavy load of the detection tests brought up error messages warning that the 'Threat monitor' component had stopped working. By breaking the tests down into smaller sections we managed to get to the end though, and this problem is unlikely to affect most real-world users who are not in the unfortunate position of being bombarded with tens of thousands of malicious files in a short space of time.

Slightly more frustrating was an apparent problem with the on-demand scan set-up. This allowed multiple folders to be selected for a single scan; on several occasions it reached the end of the scan and reported results, but seemed only to have covered the first folder on the selected list. Again, re-running the tests in smaller chunks got around this issue quite simply.

On-demand scanning speeds were good, although in some of the scans hints of incomplete scanning were again apparent; the media & documents sets were run through in a few seconds, time and time again, but re-scanning different sub-sections produced notably different results, with one top-level folder taking more than two minutes to complete. On-access speeds were pretty fast, while RAM usage was tiny and CPU drain barely noticeable – several of the measures coming in below our baselines taken on unprotected systems. Meanwhile, detection rates were consistently high, with some splendid scores in the RAP sets. With the WildList dealt with satisfactorily, only the clean sets stood between *BitDefender* and another VB100 award. Here, however, things took an unexpected turn, with a handful of PDF files included in a technical design package from leading development house *Corel* flagged as containing JavaScript exploits. These false alarms were enough to deny *BitDefender* an award this month, and did not bode well for the many other products that incorporate the popular engine.

## Bkis BKAV Gateway Scan 2910

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 64.53% |
| **ItW (o/a)** | 100.00% | **Trojans** | 35.28% |
| **Worms & bots** | 62.04% | **False positives** | 0 |



Once again *Bkis* submitted a selection of products for testing, chasing that elusive first VB100 after some close

| On-access tests | WildList | | Worms & bots | | Polymorphic viruses | | Trojans | |
|---|---|---|---|---|---|---|---|---|
| | Missed | % | Missed | % | Missed | % | Missed | % |
| Agnitum Outpost | 0 | 100.00% | 1519 | 90.71% | 192 | 89.73% | 14405 | 79.81% |
| AhnLab V3 | 0 | 100.00% | 3606 | 77.94% | 7 | 99.84% | 26573 | 62.75% |
| Avast! Free | 0 | 100.00% | 360 | 97.80% | 522 | 93.71% | 3160 | 95.57% |
| AVG IS | 0 | 100.00% | 1269 | 92.24% | 53 | 97.86% | 4279 | 94.00% |
| Avira AntiVir | 0 | 100.00% | 355 | 97.83% | 0 | 100.00% | 2677 | 96.25% |
| BitDefender | 0 | 100.00% | 394 | 97.59% | 0 | 100.00% | 3153 | 95.58% |
| Bkis Gateway | 0 | 100.00% | 6577 | 59.77% | 1601 | 64.53% | 46555 | 34.74% |
| Bkis Home | 0 | 100.00% | 8736 | 46.56% | 3362 | 56.10% | 46613 | 34.66% |
| Bkis Pro | 0 | 100.00% | 6204 | 62.05% | 1601 | 64.53% | 46464 | 34.87% |
| CA Internet Security Suite Plus | 5 | 99.18% | 2226 | 86.38% | 3469 | 92.58% | 21465 | 69.91% |
| CA Threat Manager | 1 | 99.84% | 3904 | 76.12% | 3469 | 92.58% | 32287 | 54.74% |
| Central Command Vexira | 0 | 100.00% | 1522 | 90.69% | 192 | 89.73% | 14472 | 79.71% |
| Check Point Zone Alarm | 0 | 100.00% | 1001 | 93.88% | 0 | 100.00% | 12606 | 82.33% |
| Coranti Multicore | 7 | 98.85% | 193 | 98.82% | 0 | 100.00% | 951 | 98.67% |
| Defenx Security Suite | 0 | 100.00% | 2730 | 83.30% | 192 | 89.73% | 15354 | 78.48% |
| Digital Defender | 1 | 99.84% | 2065 | 87.37% | 192 | 89.73% | 15841 | 77.80% |
| eEye Blink | 0 | 100.00% | 2845 | 82.60% | 343 | 82.89% | 23229 | 67.44% |
| Emsisoft Anti-Malware | 0 | 100.00% | 456 | 97.21% | 1371 | 79.99% | 8278 | 88.40% |
| eScan ISS | 1 | 99.84% | 413 | 97.47% | 0 | 100.00% | 2619 | 96.33% |
| ESET NOD32 | 0 | 100.00% | 870 | 94.68% | 0 | 100.00% | 6690 | 90.62% |
| Filseclab Twister | 3191 | 98.48% | 2523 | 84.57% | 14085 | 41.76% | 11098 | 84.44% |
| Fortinet FortiClient | 0 | 100.00% | 2778 | 83.01% | 30 | 99.36% | 28327 | 60.29% |
| Frisk F-PROT | 0 | 100.00% | 1860 | 88.62% | 0 | 100.00% | 17607 | 75.32% |
| F-Secure Client Security | 0 | 100.00% | 369 | 97.74% | 0 | 100.00% | 2576 | 96.39% |
| F-Secure PSB | 0 | 100.00% | 369 | 97.74% | 0 | 100.00% | 2596 | 96.36% |
| G DATA | 0 | 100.00% | 111 | 99.32% | 0 | 100.00% | 721 | 98.99% |
| Ikarus virus.utilities | 0 | 100.00% | 212 | 98.70% | 1371 | 79.99% | 6879 | 90.36% |

*(Please refer to text for full product names)*

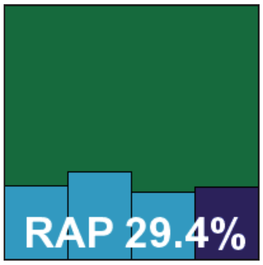
calls in recent tests. The first product on test is the *Gateway Scan* version, which came as a 165MB package including all required updates. The installation process is remarkably short and simple, with a single welcome screen before the lightning fast set-up, which even with the required reboot got the system protected less than half a minute after first firing up the installer. The main GUI is unchanged and familiar from previous entries, with a simple layout providing a basic selection of options.

On-demand speeds were fairly sluggish compared to the rest of the field, and the option to scan compressed files added heavily to the archive scanning time despite only activating scanning one layer deep within nested archives. This time was included in our graphs, in a slight tweak to standard protocol. File access times were very slow as well, and CPU and RAM usage well above average.

In the on-demand scans scores were a little weaker than desirable, with RAP results also fairly disappointing, but the WildList seemed to be handled properly. On-access tests were a little more tricky, with the test system repeatedly suffering a blue screen and needing a restart; this problem was eventually pinned down to a file in the worms & bots set, which seemed to be causing an error somewhere when scanned. The WildList set was handled smoothly, although initial checking seemed to show several Virut samples not logged; further probing showed that this was down to an issue with the logging sub-system trying to pump out too much information too quickly, and retrying brought together a full set of data showing complete coverage. On its third attempt, *Bkis* becomes this month's first new member of the elite circle of VB100 award holders.

### Bkis BKAV Home Edition 2910

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 56.10% |
| **ItW (o/a)** | 100.00% | **Trojans** | 35.28% |
| **Worms & bots** | 62.05% | **False positives** | 0 |



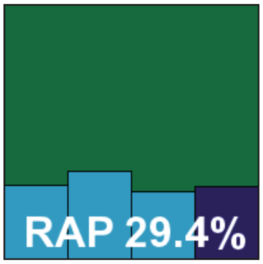
vb 100 VIRUS virusbtn.com Aug 2010

The home version of *BKAV* resembles the *Gateway Scan* solution in many respects, with another 250MB installer and a similarly rapid and simple set-up process. The interface is also difficult to tell apart, except for the colour scheme which seemed to be a slightly different shade of orange from the *Gateway* product.

Also similar were the slowish speeds both on demand and on access, with pretty heavy resource consumption. The problem with the on-access tests of the worms & bots set also recurred, although in this case we only observed the product crashing out rather than the whole system going down. Once again, logging issues were noted on-access, which were easily resolved by performing multiple runs. The logging system was added by the developers to fit in with our requirements, and real-world users would simply rely on the default auto-clean system. Scores were found to be generally close to those of the *Gateway* product, although with slightly poorer coverage of older and more obscure polymorphic viruses; the WildList and clean sets were handled very nicely, and a second VB100 is earned by *Bkis*.

### Bkis BKAV Pro 2910

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 64.53% |
| **ItW (o/a)** | 100.00% | **Trojans** | 35.28% |
| **Worms & bots** | 62.05% | **False positives** | 0 |



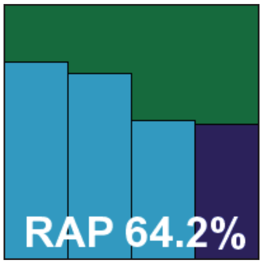
vb 100 VIRUS virusbtn.com Aug 2010

The third of this month's entries from *Bkis* is a 'professional' edition, but once again few differences were discernable in the install package or set-up process, the interface design, layout or the performance.

Scores – when put together avoiding problems with the logs – showed similar if not identical rates to the *Gateway* solution, and with an identical showing in the core certification sets *Bkis* makes it a clean sweep, earning a hat-trick of VB100 awards in a single go – surely some kind of record.

### CA Internet Security Suite Plus 6.0.0.285

| | | | |
|---|---|---|---|
| **ItW** | 99.18% | **Polymorphic** | 92.58% |
| **ItW (o/a)** | 99.18% | **Trojans** | 69.87% |
| **Worms & bots** | 86.38% | **False positives** | 0 |



*CA*'s home-user product was provided as a 157MB installer package needing further online updates; the initial set-up process was fairly straightforward, with a handful of standard steps including a EULA, plus an optional 'Advanced' section offering options on which components to install. After a reboot, a quick check showed it had yet to update, so this was initiated manually. There were a few moments of confusion between two sections of the slick and futuristic interface – one, labelled 'Update settings', turned out to provide settings to be updated, while another, in a section marked 'Settings' and labelled 'Update options', provided the required controls for the updates. The update itself took a little over half an hour, at the end of which a second update was required.

The interface has a rather unusual look and feel and is at first a little tricky to navigate, but with some familiarity – mostly gained by playing with the spinning-around animated main screen – it soon becomes reasonably usable. With some sensible defaults, and a few basic options provided too, zipping through the tests proved fairly pleasant, with some remarkable speed improvements in the 'warm' scans on demand and a reasonable footprint on

| On-access tests contd. | WildList | | Worms & bots | | Polymorphic viruses | | Trojans | |
|---|---|---|---|---|---|---|---|---|
| | Missed | % | Missed | % | Missed | % | Missed | % |
| K7 Total Security | 0 | 100.00% | 1225 | 92.51% | 0 | 100.00% | 12496 | 82.48% |
| Kaspersky Anti-Virus 6.0 | 0 | 100.00% | 587 | 96.41% | 0 | 100.00% | 5240 | 92.66% |
| Kaspersky IS 2011 | 0 | 100.00% | 711 | 95.65% | 0 | 100.00% | 9178 | 87.14% |
| Keniu Antivirus | 0 | 100.00% | 568 | 96.53% | 0 | 100.00% | 6297 | 91.17% |
| Kingsoft IS Advanced | 8 | 99.999% | 8666 | 46.99% | 4828 | 58.88% | 61082 | 14.38% |
| Kingsoft IS Standard | 8 | 99.999% | 9174 | 43.88% | 4828 | 58.88% | 63435 | 11.08% |
| Lavasoft Ad-Aware Professional | 0 | 100.00% | 572 | 96.50% | 1054 | 73.53% | 4384 | 93.85% |
| Lavasoft Ad-Aware Total Security | 0 | 100.00% | 111 | 99.32% | 0 | 100.00% | 733 | 98.97% |
| McAfee Total Protection | 5 | 99.9997% | 1012 | 93.81% | 1 | 99.999% | 9754 | 86.33% |
| McAfee VirusScan | 5 | 99.9997% | 1290 | 92.11% | 1 | 99.999% | 14157 | 80.16% |
| Microsoft Security Essentials | 0 | 100.00% | 688 | 95.79% | 0 | 100.00% | 5720 | 91.98% |
| Nifty Security24 | 0 | 100.00% | 687 | 95.80% | 0 | 100.00% | 8703 | 87.80% |
| Norman Security Suite | 0 | 100.00% | 2845 | 82.60% | 343 | 82.89% | 23230 | 67.44% |
| PC Tools IS | 0 | 100.00% | 1865 | 88.59% | 0 | 100.00% | 14549 | 79.61% |
| PC Tools Spyware Doctor | 0 | 100.00% | 1865 | 88.59% | 0 | 100.00% | 14445 | 79.75% |
| Preventon Antivirus | 1 | 99.84% | 2065 | 87.37% | 192 | 89.73% | 15841 | 77.80% |
| Proland Protector Plus | 0 | 100.00% | 1434 | 91.23% | 192 | 89.73% | 13737 | 80.74% |
| Qihoo 360 | 0 | 100.00% | 433 | 97.35% | 0 | 100.00% | 2790 | 96.09% |
| Quick Heal AntiVirus | 0 | 100.00% | 4505 | 72.44% | 43 | 96.86% | 30659 | 57.03% |
| Returnil RVS | 0 | 100.00% | 1911 | 88.31% | 0 | 100.00% | 17413 | 75.59% |
| Rising IS | 0 | 100.00% | 7216 | 55.86% | 3576 | 70.87% | 36444 | 48.92% |
| Sophos Endpoint | 0 | 100.00% | 602 | 96.32% | 0 | 100.00% | 6295 | 91.18% |
| SPAMfighter VIRUSfighter | 1 | 99.84% | 2063 | 87.38% | 192 | 89.73% | 15776 | 77.89% |
| Sunbelt VIPRE | 0 | 100.00% | 355 | 97.83% | 1054 | 73.53% | 6186 | 91.33% |
| Symantec Endpoint Security | 0 | 100.00% | 2036 | 87.55% | 0 | 100.00% | 15827 | 77.82% |
| Trustport AntiVirus | 0 | 100.00% | 161 | 99.02% | 0 | 100.00% | 1015 | 98.58% |
| VirusBuster Professional | 0 | 100.00% | 1522 | 90.69% | 192 | 89.73% | 14462 | 79.73% |

*(Please refer to text for full product names)*

access. RAM usage while the system was idle was notably high, hinting at some activity going on when nothing else requires resources, but this effect was much less noticeable when the system was busy.

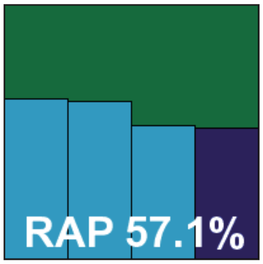
Detection tests brought up no major issues until an attempt to display the results of one particularly lengthy scan caused the GUI to grey out and refuse to respond – not entirely unreasonable, given the unlikelihood of any real-world user experiencing such large numbers of infections on a single system. Re-running scans in smaller chunks easily yielded results, which proved no more than reasonable across the sets.

In the clean sets, a single item from *Sun Microsystems* was flagged as potential adware, which is perhaps permissible under the VB100 rules, but in the WildList set a handful of items added to the most recent list were not detected, either on demand or on access, and *CA*'s home suite does not make the grade for a VB100 award this month.

### CA Threat Manager 8.1.660.0

| | | | |
|---|---|---|---|
| **ItW** | 99.84% | **Polymorphic** | 92.58% |
| **ItW (o/a)** | 99.84% | **Trojans** | 54.84% |
| **Worms & bots** | 76.20% | **False positives** | 0 |

The business-oriented offering from *CA* is considerably less funky and modern than its home-user sibling, having remained more or less identical since as long ago as 2006. The installer – which we have kept on file for several years – is in an archive of a complete installation CD which covers numerous other components including management utilities and thus measures several hundred MB. It runs through fairly quickly now with the benefit of much practice, but includes a number of stages including several different EULAs to scroll through. A reboot is needed to complete.

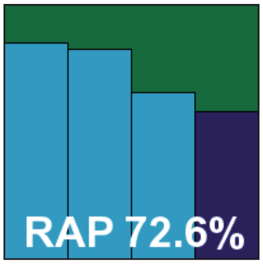


Once set up and ready, the interface is displayed by the browser and suffers a little from some suspect design decisions, with many of the options ephemeral and subject to frequent resetting. Buttons and tabs can be slow to respond, and the logging system is both awkward to navigate and easily overwhelmed by large amounts of information. However, scanning speeds are as impressive as ever, with low drain on resources and minimal slowdown on accessing files. Behaviour was generally good throughout, with no problems with stability or loss of connection to the controls. Detection results were somewhat poorer than the home-user product in some sets, however, and with a single WildList file missed *CA* fails to earn any VB100 awards this month.

### Central Command Vexira 6.2.54

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 89.73% |
| **ItW (o/a)** | 100.00% | **Trojans** | 82.94% |
| **Worms & bots** | 92.09% | **False positives** | 0 |

*Vexira* was provided this month as a 55MB installer accompanied by a 66MB update bundle. The set-up process seemed to run through quite a number of steps but they were all fairly standard and didn't require much thought to get through; with no reboot needed, protection was in place in under a minute. On firing up the interface, we recoiled slightly from the fiery red colour scheme, glowing brightly against the glittery *Vista* desktop, but its design and layout is familiar from the *VirusBuster* product on which it is closely modelled and we soon found ample and fairly accessible controls. Set-up of on-demand scans is perhaps a little fiddly, but after some practice the process soon became second nature.



vb
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100
VIRUS
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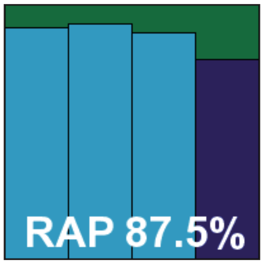
Scanning speeds were pretty decent, especially in the archive set, with most archive types being scanned to some depth by default, although the new zipx format seemed to be ignored. On-access speeds were average overall, and rather slow in some types of files, but resource usage was generally fairly low. Detection rates were fairly decent across the sets, with a reasonable showing in the RAP sets, and with no problems in the WildList or clean sets *Vexira* makes it safely to another VB100 pass.

### Check Point Zone Alarm Security Suite 9.1.57.000

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 100.00% |
| **ItW (o/a)** | 100.00% | **Trojans** | 91.26% |
| **Worms & bots** | 95.53% | **False positives** | 0 |

*Check Point* submitted its mid-range suite for this test, which was provided as a 133MB installer with an additional 68MB of updates in a fairly raw state for simply dropping into place. The installation process went through several steps, including the standard EULA and warnings about clashing with other products, as well as the offer of a browser toolbar and some set-up for the 'auto-learn' mode. On completion a reboot is required and a quick scan is run without asking the user. The design and layout are sober, serious and fairly easy to find one's way around, and ample controls were provided, rendering testing fairly easy. Scanning speeds were excellent with the default settings – which are fairly light – and still fairly decent with deeper and more thorough scanning enabled. Resource consumption was not too high, and file access times not bad either.



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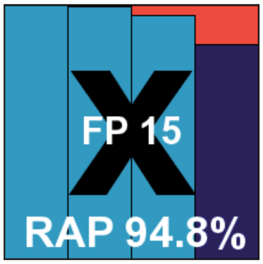
| **Archive type handling** | | ACE | CAB | EXE-RAR | EXE-ZIP | JAR | LZH | RAR | TGZ | ZIP | ZIPX | EXT* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agnitum Outpost | OD | 2 | √ | √ | √ | √ | X | √ | √ | √ | X | √ |
| | OA | X | X | X | X | X | X | X | X | X | X | √ |
| AhnLab V3 | OD | X | √ | X/√ | X/√ | X | √ | √ | X | √ | X | √ |
| | OA | X | X | X | X | X | X | X | X | X | X | √ |
| Avast Free | OD | X/√ | X/√ | √ | √ | X/√ | X/√ | X/√ | X/√ | X/√ | X/√ | X/√ |
| | OA | X/√ | X/√ | √ | √ | X/√ | X/√ | X/√ | X/√ | X/√ | X/√ | √ |
| AVG IS | OD | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | X/√ |
| | OA | X | X | X | X | X | X | X | X | X | X | X/√ |
| Avira AntiVir | OD | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ |
| | OA | X/√ | X/√ | X/√ | X/√ | X/√ | X/√ | X/√ | X/√ | X/√ | X/√ | √ |
| BitDefender | OD | √ | √ | 8 | 8 | √ | √ | √ | 8 | √ | √ | √ |
| | OA | X/√ | X/√ | X/8 | X/8 | X/√ | X/√ | X/√ | X/8 | 1/√ | 1/√ | √ |
| Bkis Gateway | OD | X | X | X/1 | X/1 | X/1 | X | X/1 | X/1 | X/1 | X/1 | √ |
| | OA | X | X | X | X | X | X | X | X | X | X | √ |
| Bkis Home | OD | X | X | X/1 | X/1 | X/1 | X | X/1 | X/1 | X/1 | X/1 | √ |
| | OA | X | X | X | X | X | X | X | X | X | X | √ |
| Bkis Pro | OD | X | X | X/1 | X/1 | X/1 | X | X/1 | X/1 | X/1 | X/1 | √ |
| | OA | X | X | X | X | X | X | X | X | X | X | √ |
| CA ISS Plus | OD | X | √ | X | X | √ | √ | √ | √ | √ | X | √ |
| | OA | X | X | X | X | 1 | X | X | X | 1 | X | √ |
| CA Threat Manager | OD | X | √ | X | X | √ | √ | √ | √ | √ | X | √ |
| | OA | X | X | X | X | 1 | X | X | X | 1 | X | √ |
| Central Command Vexira | OD | 2 | √ | √ | √ | X | X | √ | √ | √ | X | X/√ |
| | OA | X | X | X | X | X | X | X | X | X | X | X/√ |
| Check Point Zone Alarm | OD | X/√ | X/√ | 1/√ | 1/√ | X/√ | X/√ | X/√ | X/√ | X/√ | X/√ | X/√ |
| | OA | X | X | X | X | X | X | X | X | X | X | X/√ |
| Coranti Multicore | OD | √ | √ | 8 | 8 | √ | √ | √ | 8 | √ | √ | √ |
| | OA | X/1 | X | X | X | X/√ | X | X | X | X/1 | X/1 | X/√ |
| Defenx Security Suite | OD | 2 | √ | √ | √ | √ | X | √ | √ | √ | X | √ |
| | OA | X | X | X | X | X | X | X | X | X | X | √ |
| Digital Defender | OD | 1 | 1 | 1 | 1 | 1 | X | 1 | X | 1 | 1 | √ |
| | OA | 1 | 1 | X | X | X | X | 1 | X | 1 | X | √ |
| eEye Blink | OD | X | 4/√ | 3/√ | 1 | 4/√ | 4/√ | 4/√ | 4/√ | 2/√ | 1 | √ |
| | OA | X | X/√ | X/√ | X | X/√ | X/√ | X/√ | X/√ | X/√ | X/1 | √ |
| Emsisoft Anti-Malware | OD | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | √ |
| | OA | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | √ |

Key: X - Archive not scanned; X/√ - Default settings/thorough settings; √ - Archives scanned to depth of 10 or more levels; [1-9] - Archives scanned to limited depth; EXT* - Eicar test file with random extension; All others - detection of Eicar test file embedded in archive nested up to 10 levels. *(Please refer to text for full product names)*

In the detection sets we encountered a single issue where a scan seemed to hang. When trying to reboot the system to recover from this, another hang occurred at the logout screen, and the machine needed a hard restart. The problem did not recur though, and results were soon obtained, showing the usual excellent detection rates across the sets, with a pretty decent showing in the RAP sets. With no issues in the WildList or clean sets, *Check Point* comfortably regains its VB100 certified status.

## Coranti 2010 1.000.00042

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 100.00% |
| **ItW (o/a)** | 98.85% | **Trojans** | 99.47% |
| **Worms & bots** | 99.50% | **False positives** | 15 |



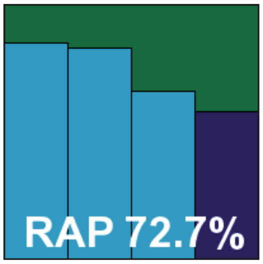
*Coranti*’s multi-engine approach makes for a fairly hefty set-up/install process, with an initial installer weighing in at 45MB replaced with a whole new one of similar bulk as soon as it was run. With that done, online updating was required, and with an additional 270MB of data to pull down this took quite a lot longer to complete. Once this had finished, the actual install process was fairly fast and simple, but did require a reboot at the end.

Once up and running, we found the main interface reassuringly complete and serious-looking, with a thorough set of controls for the most demanding of users well laid out and simple to operate. Scanning speeds were rather slow, as might be expected from a solution that combines three separate engines, with long delays to access files, but usage of RAM and CPU cycles was lighter than expected.

The multi-engine technique pays off in the detection rates of course, with some scorching scores across the test sets, and the RAP sets particularly thoroughly demolished. The flip side is the risk of false positives, and this proved to be *Coranti*’s Achilles’ heel this month, with that handful of PDFs from *Corel* flagged by one of the engines as containing JavaScript exploits, thus denying the firm a VB100 award. This was made doubly sure by the fact that certain file extensions commonly used by spreading malware were not analysed on access.

## Defenx Security Suite 2010 3063.454.0728

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 89.73% |
| **ItW (o/a)** | 100.00% | **Trojans** | 83.00% |
| **Worms & bots** | 91.94% | **False positives** | 0 |

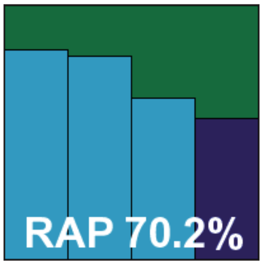


*Defenx* is based in Switzerland and provides a range of tools tuned for the needs of the company’s local markets. The *Security Suite* is an adaptation of *Agnitum*’s *Outpost*, combining the Russian company’s well-regarded firewall technology with anti-malware centred around the *VirusBuster* engine. Despite the multiple functions, the installer is a reasonably lightweight 92MB with all updates included, but as might be expected it goes through a number of stages in the set-up process, many of which are associated with the firewall components. Nevertheless, with some quick choices the full process is completed in under a minute, and no reboot is required.

Controls are clearly labelled and easy to use, and tests ran through swiftly, aided by some nifty improvement in scanning times after initial familiarization with files. On-access speeds were not outstanding at first but also improved greatly, and resource consumption was fairly low. Detection rates in the main sets were decent, with the scan of the clean set producing a number of warnings of packed files but no more serious alerts; the WildList was handled without problems, and a VB100 is duly earned by *Defenx*.

## Digital Defender AntiVirus 2.0.43

| | | | |
|---|---|---|---|
| **ItW** | 99.84% | **Polymorphic** | 89.73% |
| **ItW (o/a)** | 99.84% | **Trojans** | 80.71% |
| **Worms & bots** | 88.44% | **False positives** | 0 |



Making its third consecutive appearance on the VB100 test bench, *Digital Defender*’s 47MB installer runs through the standard series of steps and needs no reboot to complete, the whole business taking just a few moments. The interface is clean and clear, providing an impressive degree of control for what appears on the surface to be a pared-down product. The product ran just as cleanly, causing no upsets through the tests and recording some respectable scanning speeds with a solid regularity but no indication of smart filtering of

| **Archive type handling contd.** | | ACE | CAB | EXE-RAR | EXE-ZIP | JAR | LZH | RAR | TGZ | ZIP | ZIPX | EXT* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| eScan ISS | OD | 9 | 5 | 4 | 3 | 5 | 5 | 5 | 4 | 5 | 8 | √ |
| | OA | X/√ | X/√ | X/8 | X/8 | X/√ | X/√ | X/√ | X/8 | X/√ | X/√ | √ |
| ESET NOD32 | OD | √ | √ | √ | √ | √ | √ | √ | 5 | √ | √ | √ |
| | OA | X | X | X | X | X | X | X | X | X | X | √ |
| Filseclab Twister | OD | X/√ | X/√ | X/√ | X/√ | X/√ | X/√ | 1/√ | X | 2/√ | X | X/√ |
| | OA | X | X | X | 1 | X | X | 1 | X | X | X | X |
| Fortinet FortiClient | OD | X | √ | √ | √ | √ | √ | √ | √ | 4 | 1 | √ |
| | OA | X | √ | √ | √ | √ | √ | √ | √ | 4 | 1 | √ |
| Frisk F-PROT | OD | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ |
| | OA | X | X | X | 2 | X | X | X | X | 2 | 2 | √ |
| F-Secure Client Security | OD | X/√ | √ | √ | √ | √ | √ | √ | 8 | √ | X/√ | X/√ |
| | OA | X | X | X | X | X | X | X | X | X | X | X |
| F-Secure PSB | OD | X | √ | √ | √ | √ | √ | √ | 2 | √ | X/√ | X/√ |
| | OA | X | X | X | X | X | X | X | X | X | X | X |
| G DATA | OD | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ |
| | OA | √ | √ | 3/√ | 4/√ | √ | √ | √ | 8/√ | √ | √ | √ |
| Ikarus virus.utilities | OD | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 2 | 2 | √ |
| | OA | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | √ |
| K7 Total Security | OD | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ |
| | OA | X | X | X | 1 | 1 | X | X | X | 1 | 1 | √ |
| Kaspersky Anti-Virus 6.0 | OD | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ |
| | OA | X | X | X | X | X | X | X | X | X | X | √ |
| Kaspersky IS 2011 | OD | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ |
| | OA | X | X | 1 | 1 | X | X | X | X | X | X | √ |
| Keniu Antivirus | OD | √ | √ | X | X | √ | √ | √ | √ | √ | √ | √ |
| | OA | X | X | 1 | 1 | X | X | X | X | X | X | √ |
| Kingsoft IS Advanced | OD | X | √ | √ | 1 | √ | √ | √ | √ | √ | 1 | √ |
| | OA | X | X | X | X | X | X | X | X | X | X | √ |
| Kingsoft IS Standard | OD | X | √ | √ | X | √ | √ | √ | √ | √ | 1 | √ |
| | OA | X | X | X | X | X | X | X | X | X | X | √ |
| Lavasoft Ad-Aware Professional | OD | X | X | √ | √ | X | X | 1 | X | √ | 1 | √ |
| | OA | X | X | √ | √ | X | X | X | X | X | X | X |
| Lavasoft Ad-Aware Total Security | OD | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ |
| | OA | √ | √ | 3 | 4 | √ | √ | √ | 8 | 8 | √ | √ |
| McAfee Total Protection | OD | 2 | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ |
| | OA | X | X | X | X | X | X | X | X | X | X | √ |

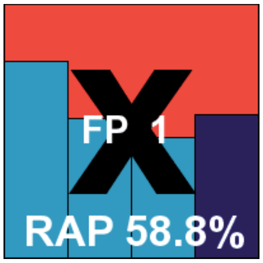
Key: X - Archive not scanned; X/√ - Default settings/thorough settings; √ - Archives scanned to depth of 10 or more levels; [1-9] - Archives scanned to limited depth; EXT* - Eicar test file with random extension; All others - detection of Eicar test file embedded in archive nested up to 10 levels. *(Please refer to text for full product names)*

previously scanned items. File access lags were fairly low, and RAM usage notably minimal.

Detection rates were fairly decent in general, with no problems in the clean set, but in the WildList set a single sample of a W32/Ircbot variant was not detected, which came as a surprise, given the clean sheets of other products based on the same (*VirusBuster*) technology. *Digital Defender* thus misses out on a VB100 award this month.

### eEye Digital Security Blink 4.6.6

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 84.55% |
| **ItW (o/a)** | 100.00% | **Trojans** | 70.02% |
| **Worms & bots** | 85.34% | **False positives** | 1 |

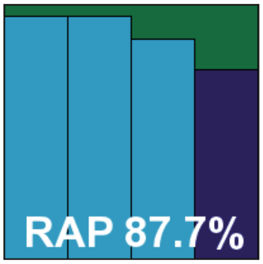


*Blink* has long been a popular entrant in our comparatives, with its clean, neat design and interesting extras – notably the vulnerability monitoring which is its major selling point. The installation process has a few extras in addition to the standard steps, including the option to password-protect the product settings, which is 'highly recommended' by the developers for added security. An initial configuration wizard follows the install, with no reboot needed, which sets up the additional components such as a firewall (disabled by default), HIPS and 'system protection' features, many of which are not covered by our tests. The interface, like the set-up process, is displayed in a pleasant pastelly peach tone, and as usual we found it slick, smooth and clearly laid out.

Running through the speed tests proved rather a test of endurance, with the sandbox facility adding some serious time onto the on-demand scans – not so much 'blink and you'll miss it' as 'take forty winks while you wait for it to finish'. On-access times were just as sluggish, although RAM usage was no higher than many other entrants this month. In the infected sets detection rates were generally pretty decent. In the WildList set all was well, after some problems with W32/Virut in recent comparatives, but luck was not on *eEye*'s side, with a single sample in the clean set – part of a DVD authoring suite from major developer *Roxio* – labelled as a Swizzor trojan, and once again *Blink* is denied a VB100 despite a generally decent showing.

### Emsisoft Anti-Malware 5.0..060

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 79.99% |
| **ItW (o/a)** | 100.00% | **Trojans** | 92.25% |
| **Worms & bots** | 98.79% | **False positives** | 0 |



vb 100 VIRUS virusbtn.com Aug 2010

Having rebranded itself slightly to drop its former 'A-Squared' name in favour of a more directly relevant title, *Emsisoft*'s product has grown in slickness and clarity from test to test. The product was provided as a 103MB installer package, which we updated and activated online prior to commencing testing, although a fully updated package of roughly the same size was also provided later. The initial phase of the set-up followed the standard path, but some post-install set-up included activation options ranging from a completely free trial, via a longer trial process requiring submission of contact information, to fully paid licensing. An impressive range of languages were also offered. On completing installation, with no need for a reboot, the product offered to 'clean your computer', by which it meant perform a scan. On looking over the installed items, we noted the old 'a$^2$' references still lurking in some paths, as is common in the early stages of a rebranding.

Initial testing was somewhat hampered by odd responses to our testing tools; some tweaking of settings made the product operate more in line with our needs, but it still disrupted the gathering of performance data, and we had to disable the behaviour blocker to get our scripts to run successfully. At one point during the simple opening of clean files and snapshotting of system performance information, the whole system locked up badly and had to be restarted using the power reset button. Eventually, however, we got some results which showed some very heavy on-access overheads on first visit. Scanning speeds increased massively in the 'warm' scans, and very little RAM but a lot of CPU cycles were used. On-demand speeds were fairly sedate in some sets, but reasonable in others, notably the media & documents set.

In the infected sets, scores were truly splendid across the board. The clean sets yielded a couple of alerts, one noting that the popular IRC tool *MIRC* is indeed an IRC tool, and the other pointing out that a tool for converting PDFs to *Word* documents – recommended by the editors of a popular download site in recent months – could be labelled a 'PDF cracker' and thus qualified as riskware. Both these alerts were comfortably allowed as only 'suspicious' under the VB100 rules, and *Emsisoft* only required a clean run through the WildList set to qualify for its first VB100 award. After an initial scare when some items appeared not to be spotted, rechecking of logs showed full coverage,

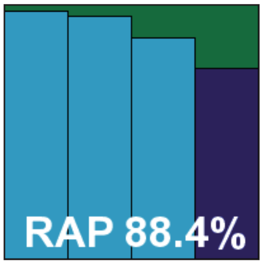
| **Archive type handling contd.** | | ACE | CAB | EXE-RAR | EXE-ZIP | JAR | LZH | RAR | TGZ | ZIP | ZIPX | EXT* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| McAfee VirusScan | OD | X/2 | X/√ | X/√ | X/√ | X/√ | X/√ | X/√ | X/√ | X/√ | X/√ | √ |
| | OA | X/2 | X/√ | X/√ | X/√ | X/√ | X/√ | X/√ | X/√ | X/√ | X | √ |
| Microsoft Security Essentials | OD | √ | √ | √ | √ | 2 | 2 | 2 | √ | √ | √ | √ |
| | OA | X | X | X | X | X | X | X | X | X | X | √ |
| Nifty Security24 | OD | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ |
| | OA | X | X | X | X | X | X | X | X | X | X | √ |
| Norman Security Suite | OD | X | √ | √ | 1 | √ | √ | √ | √ | √ | 1 | √ |
| | OA | X | X | X | X | X | X | X | X | X | X | √ |
| PC Tools IS | OD | 2 | √ | √ | √ | √ | X | √ | √ | √ | X | √ |
| | OA | X | X | √ | √ | X | X | X | X | X | X | X |
| PC Tools Spyware Doctor | OD | 2 | √ | √ | √ | √ | √ | √ | √ | √ | X | √ |
| | OA | X | X | √ | √ | X | X | X | X | X | X | X |
| Preventon Antivirus | OD | 1 | 1 | 1 | 1 | 1 | X | 1 | X | 1 | X | √ |
| | OA | 1 | 1 | 1 | 1 | 1 | X | 1 | X | 1 | X | X/√ |
| Proland Protector Plus | OD | X | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ |
| | OA | X | X | X | X | X | X | X | X | X | X | X/√ |
| Qihoo 360 | OD | √ | √ | 8 | 8 | √ | √ | √ | √ | √ | √ | √ |
| | OA | X | X | X | X | X | X | X | X | X | X | X |
| Quick Heal AntiVirus | OD | X/2 | X/5 | X | X | 2/5 | X | 2/5 | X/1 | 2/5 | X | X/√ |
| | OA | 2 | X | X | X | 1 | X | X | X | 1 | X | √ |
| Returnil RVS | OD | 5 | 5 | 5 | 5 | 5 | √ | 5 | 5 | 5 | 5 | √ |
| | OA | X | X | X | X | X | X | X | X | X | X | √ |
| Rising IS | OD | X | X | 9 | 9 | 9 | 9 | 9 | √ | 9 | 9 | √ |
| | OA | X | X | √ | √ | X | X | X | X | X | X | √ |
| Sophos Endpoint | OD | X | X/5 | X/5 | X/5 | X/5 | X/5 | X/5 | X/5 | X/5 | X/5 | X/√ |
| | OA | X | X/5 | X/5 | X/5 | X/5 | X/5 | X/5 | X/5 | X/5 | X/5 | X/√ |
| SPAMfighter VIRUSfighter | OD | 1 | 1 | 1 | 1 | 1 | X | 1 | X | 1 | X | √ |
| | OA | X/1 | X/1 | X | X | X | X | X/1 | X | X/1 | X | X/√ |
| Sunbelt VIPRE | OD | X | X | √ | √ | X/√ | X | X/√ | X | X/√ | X/1 | √ |
| | OA | X | X | X | X | X | X | X | X | X | X | √ |
| Symantec Endpoint Security | OD | 3/√ | 3/√ | 3/√ | 3/√ | 3/√ | 3/√ | 3/√ | 1/5 | 3/√ | 3/√ | √ |
| | OA | X | X | X | X | X | X | X | X | X | X | √ |
| Trustport Antivirus | OD | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ |
| | OA | X/√ | X/√ | X/√ | X/√ | √ | X/√ | X/√ | X/√ | 1/√ | 1/√ | X/√ |
| VirusBuster Professional | OD | 2 | √ | √ | √ | X/√ | X | √ | √ | √ | X/√ | X/√ |
| | OA | X | X | X | X | X | X | X | X | X | X | X/√ |

Key: X - Archive not scanned; X/√ - Default settings/thorough settings; √ - Archives scanned to depth of 10 or more levels; [1-9] - Archives scanned to limited depth; EXT* - Eicar test file with random extension; All others - detection of Eicar test file embedded in archive nested up to 10 levels. *(Please refer to text for full product names)*

and Emsisoft's product joins the ranks of VB100 certified solutions, with our congratulations.

### eScan Internet Security Suite 11.0.1111.735

| | | | |
|---|---|---|---|
| **ItW** | 99.84% | **Polymorphic** | 100.00% |
| **ItW (o/a)** | 99.84% | **Trojans** | 97.35% |
| **Worms & bots** | 98.36% | **False positives** | 0 |

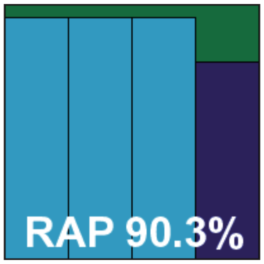


The latest offering from VB100 regular *eScan* has a pretty nifty set-up process from its sizeable 127MB install package, which is slowed down by the installation of some additional libraries, and includes a quick scan of vital areas during the process. Once up and running, the main interface is a delight to behold, with a series of icons along the bottom which enlarge when rolled over like the task panel on a *Mac*. This encouraged much playing among the lab team.

Having tired of this little pleasure, testing proceeded apace, helped by the ample configuration controls provided beneath the silky smooth front end. On-demand speeds were rather on the slow side, speeding up greatly on second viewing of known files, and on-access lags also seemed to benefit from familiarity, while RAM usage was surprisingly low. Detection rates, meanwhile, were very decent, with nothing to complain about in any of the main or RAP sets. The clean set scan included a few alerts on files marked as 'Null:Corrupted', which was no problem, but in the WildList set a single sample of W32/Koobface was missed, thus denying *eScan* a VB100 award this month.

### ESET NOD32 Antivirus 4.2.40.0

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 100.00% |
| **ItW (o/a)** | 100.00% | **Trojans** | 94.44% |
| **Worms & bots** | 98.75% | **False positives** | 0 |



vb 100 VIRUS Aug 2010 virusbtn.com

*ESET* provided its current product, with all updates rolled in, as a very compact 40MB package. Installing ran as per usual, with information and options presented regarding taking part in the ThreatSense.net intelligence system, and the company's trademark insistence on a decision regarding the detection of 'potentially unwanted' items. No reboot was needed to finish off, and the whole job was done in a minute or so.

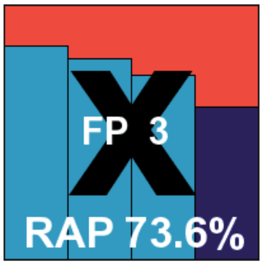
Once installed, the familiar and much admired interface provided a great abundance of fine-tuning options in its many advanced set-up pages, with a good balance between simplicity on the surface and more technical completeness beneath. Once again, however, we noted that, despite what appeared to be options to enable it, we were unable to persuade the product to unpack archive files on access.

Generally, the product ran through the tests pretty solidly, but we did observe a few minor issues with the interface, with a number of scans reaching 99% and remaining there without ever reaching the end. A check of the logs showed that the scans had actually finished but hadn't quite managed to display this fact properly. Also, in the most stressful portions of the on-access tests we saw some messages warning that the scanner had stopped working, but it appeared to be still running OK and no gap in protection was discernable.

Scanning speeds were pretty decent, especially given the thorough defaults on demand, and there were some reasonable and reassuringly stable file access times. Memory usage was among the lowest in this month's comparative, with CPU drain not breaking the bank either. Detection rates were as excellent as ever, with some superb RAP scores; no issues emerged in the WildList or clean sets, and *ESET* continues its monster unbroken run of VB100 passes.

### Filseclab Twister V7 R3 (version 7.3.4.9985)

| | | | |
|---|---|---|---|
| **ItW** | 98.48% | **Polymorphic** | 41.76% |
| **ItW (o/a)** | 98.48% | **Trojans** | 86.23% |
| **Worms & bots** | 85.99% | **False positives** | 3 |



*Twister* has become a fairly familiar face in our comparatives, edging ever closer to that precious first VB100 award. The installer, 52MB with 26MB of updates, runs through quickly and easily with no surprises, ending with a call for a reboot. The interface is slick and serious-looking, with lots of controls, buttons, options and dialogs, but remains fairly simple to navigate after a little initial exploration.

Scanning speeds and on-access overheads were a bit of a mixed bag, with some fast times and some slower ones,

| **On-demand throughput (MB/s)** | Archive files | | | Binaries and system files | | | Media and documents | | | Other file types | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Default (cold) | Default (warm) | All files | Default (cold) | Default (warm) | All files | Default (cold) | Default (warm) | All files | Default (cold) | Default (warm) | All files |
| Agnitum Outpost | 1.67 | 22.06 | 1.67 | 21.72 | 230.72 | 21.72 | 8.89 | 27.74 | 8.89 | 8.82 | 297.03 | 23.69 |
| AhnLab V3 | 3.01 | 2.94 | 2.05 | 37.83 | 37.04 | 5.52 | 15.71 | 15.92 | 15.92 | 14.14 | 39.79 | 24.32 |
| Avast! Free | 396.04 | 437.73 | 13.66 | 91.98 | 90.22 | 73.30 | 46.80 | 52.12 | 43.27 | 64.49 | 189.02 | 95.60 |
| AVG IS | 0.67 | 332.67 | 0.67 | 17.18 | 27.76 | 17.18 | 5.78 | 5.85 | 5.49 | 5.52 | 15.01 | 11.32 |
| Avira AntiVir | 7.47 | 7.46 | 7.47 | 73.30 | 74.46 | 73.30 | 30.57 | 31.56 | 30.57 | 27.15 | 74.93 | 72.95 |
| BitDefender | 19.66 | 21.38 | 19.66 | 23.81 | 23.89 | 23.81 | 286.64 | 362.07 | 286.64 | 6.14 | 16.80 | 16.50 |
| Bkis Gateway | 89.43 | 91.39 | 0.63 | 3.71 | 4.12 | 3.68 | 4.55 | 4.53 | 3.75 | 3.29 | 9.06 | 7.66 |
| Bkis Home | 89.43 | 91.39 | 0.88 | 4.14 | 4.16 | 4.04 | 4.51 | 4.58 | 3.91 | 3.56 | 8.92 | 7.97 |
| Bkis Pro | 89.43 | 93.45 | 0.86 | 4.13 | 4.10 | 4.07 | 4.62 | 4.55 | 2.69 | 3.46 | 9.05 | 9.03 |
| CA ISS Plus | 2.12 | 2079.20 | 2.12 | 39.76 | 740.72 | 39.76 | 24.14 | 143.32 | 24.14 | 13.06 | 297.03 | 35.09 |
| CA Threat Manager | 3.34 | 3.29 | 3.34 | 49.91 | 49.91 | 49.91 | 37.59 | 33.89 | 37.59 | 18.43 | 44.24 | 49.50 |
| Central Command Vexira | 10.91 | 11.06 | 3.37 | 31.48 | 31.91 | 29.14 | 23.16 | 23.97 | 17.78 | 10.42 | 28.29 | 22.18 |
| Check Point Zone Alarm | 308.03 | 286.79 | 2.56 | 27.43 | 118.27 | 23.69 | 60.35 | 63.11 | 13.33 | 257.97 | 1386.14 | 22.36 |
| Coranti Multicore | 2.71 | 2.71 | 2.71 | 6.73 | 6.76 | 6.73 | 3.96 | 3.99 | 3.96 | 3.18 | 8.50 | 8.53 |
| Defenx Security Suite | 1.69 | 21.27 | 1.69 | 17.77 | 223.39 | 17.77 | 9.25 | 28.78 | 9.25 | 4.16 | 231.02 | 11.18 |
| Digital Defender | 4.79 | 4.83 | 4.79 | 15.53 | 15.57 | 15.53 | 18.80 | 18.90 | 18.80 | 10.53 | 28.39 | 28.29 |
| eEye Blink | 1.43 | 1.43 | 1.34 | 2.02 | 2.02 | 2.02 | 0.87 | 0.86 | 0.87 | 0.62 | 0.62 | 0.62 |
| Emsisoft Anti-Malware | 6.13 | 7.01 | 6.13 | 9.88 | 9.81 | 9.88 | 17.91 | 13.45 | 17.91 | 12.00 | 32.24 | 32.24 |
| eScan ISS | 10.46 | 286.79 | 10.46 | 4.21 | 13.72 | 4.21 | 3.25 | 36.59 | 3.25 | 2.61 | 90.40 | 7.02 |
| ESET NOD32 | 4.06 | 4.12 | 4.06 | 57.92 | 58.64 | 57.92 | 14.89 | 15.02 | 14.89 | 15.40 | 41.58 | 41.38 |
| Filseclab Twister | 41.38 | 41.38 | 0.97 | 43.84 | 43.71 | 13.10 | 7.45 | 6.18 | 6.16 | 3.79 | 9.63 | 9.66 |
| Fortinet FortiClient | 6.52 | 6.60 | 6.52 | 8.47 | 8.71 | 8.47 | 6.27 | 6.23 | 6.27 | 11.34 | 30.46 | 30.46 |
| Frisk F-PROT | 9.83 | 9.84 | 9.83 | 17.70 | 17.95 | 17.70 | 48.79 | 43.54 | 48.79 | 36.85 | 87.55 | 99.01 |
| F-Secure Client Security | 10.66 | 10.62 | 1.99 | 26.50 | 26.65 | 23.93 | 18.95 | 18.15 | 14.61 | 93.81 | 231.02 | 22.54 |
| F-Secure PSB | 10.42 | 10.38 | 10.42 | 23.22 | 24.31 | 23.22 | 17.78 | 17.50 | 17.78 | 79.38 | 231.02 | 213.25 |
| G DATA | 4.02 | 2772.27 | 4.02 | 28.78 | 740.72 | 28.78 | 15.29 | 116.60 | 15.29 | 14.33 | 244.61 | 38.50 |
| Ikarus virus.utilities | 29.81 | 29.39 | 29.18 | 18.62 | 18.82 | 18.62 | 23.89 | 23.01 | 23.89 | 10.98 | 29.81 | 29.49 |

*(Please refer to text for full product names)*

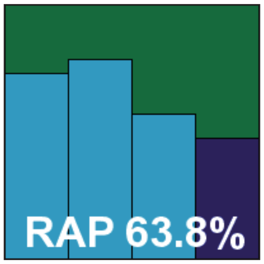
depending on file types. Meanwhile, performance measures showed some very high memory consumption but not too much pressure on the CPU.

On-access scanning does not offer the option simply to block access to infected files, and logging seems only to function once files have been 'cleaned' – so we had to let the product romp through our sets, destroying as it went, which took quite some time. On-demand scans were much easier and more cooperative, and in the end some pretty decent scores were noted across the sets, with a solid showing in the RAP sets, declining slowly through the reactive weeks but with a steepish drop into week +1.

A couple of false alarms were produced in the clean sets, with the popular VLC video client being labelled as a TDSS trojan. The WildList set highlighted some problems with the complex Virut polymorphic samples, with a fair number missed, alongside a handful of the static worms and bots in the set. For now, that first VB100 award remains just out of reach for *Filseclab*.

## Fortinet FortiClient Endpoint Security 4.1.3.143

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 99.36% |
| **ItW (o/a)** | 100.00% | **Trojans** | 60.30% |
| **Worms & bots** | 83.01% | **False positives** | 0 |



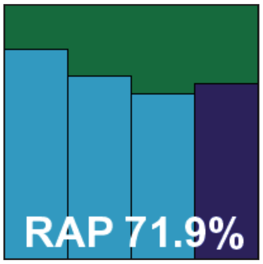
*Fortinet*'s product came as a slender 9.8MB main package with an additional 150MB of updates. The set-up process was fairly routine, enlivened by noticing the full 'endpoint security' nomenclature (not mentioned elsewhere in the main product), and once again the option to install the full paid product or a free edition. Not having been provided with activation codes, we went for the free version, which seemed to meet our needs adequately. The set-up process had fairly few steps to go through and didn't require a reboot to complete.

The product's interface has remained pretty much unchanged for some time, and we have always found it fairly clearly laid out and intuitive. In the performance tests some fairly sluggish scanning times were not improved by faster 'warm' performances. Access lag times were pretty hefty, while use of system resources was on the heavy side too. Scans of infected sets proved even slower: a series of scheduled jobs set to run over a weekend overlapped each other despite what we assumed would be large amounts of extra time given to each scan. Returning after the weekend we found two of the scans still running, which eventually finished a day or two later. Another oddity observed was that the update package provided seemed to disable detection of the Eicar test file, which is used in our measures of depth of archive scanning. The sample file was detected with the original definitions in the base product however, so the data on compressed files was gathered prior to updating.

In the end we obtained a full set of data, showing some fairly respectable scores in most sets, with a good start to the RAP sets declining sharply in the more recent weeks. The WildList and clean sets presented no problems for the product, and a VB100 award is duly granted.

## Frisk F-PROT Antivirus for Windows 6.0.9.3

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 100.00% |
| **ItW (o/a)** | 100.00% | **Trojans** | 78.30% |
| **Worms & bots** | 89.38% | **False positives** | 0 |



*Frisk*'s installer comes as a 25MB package, with an extra 48MB of updates. In offline situations these are applied simply by dropping the file into place after the installation process – which is fast and simple – and prior to the required reboot. Once the machine was back up after the reboot we quickly observed that the product remains the same icy white, pared-down minimalist thing it has long been.

The basic set of configuration options simplified testing somewhat, and with reasonable speeds in the scanning tests (impressively fast in the archive sets given the thorough defaults), lag times also around the middle of the field, and fairly low use of RAM but average CPU drain when busy, we quickly got to the end without problems. As in many previous tests, error messages were presented during lengthy scans of infected items warning that the program had encountered an error, but this didn't seem to affect either scanning or protection.

Detection rates were pretty decent across the sets, with just a single suspicious alert in the clean sets and no problems in the WildList; *Frisk* thus earns another VB100 award.

## F-Secure Client Security 9.01 build 122

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 100.00% |
| **ItW (o/a)** | 100.00% | **Trojans** | 97.43% |
| **Worms & bots** | 98.67% | **False positives** | 0 |

*F-Secure* once again submitted two fairly similar products to this test. The first, *Client Security*, came as a 58MB installer with an additional updater measuring a little under 100MB. Installation was a fairly unremarkable process, following the standard path of welcome, EULA, install location, and going on to offer centralized or local install methods – implying that this is intended as a business product for installing in large networks. It all completed

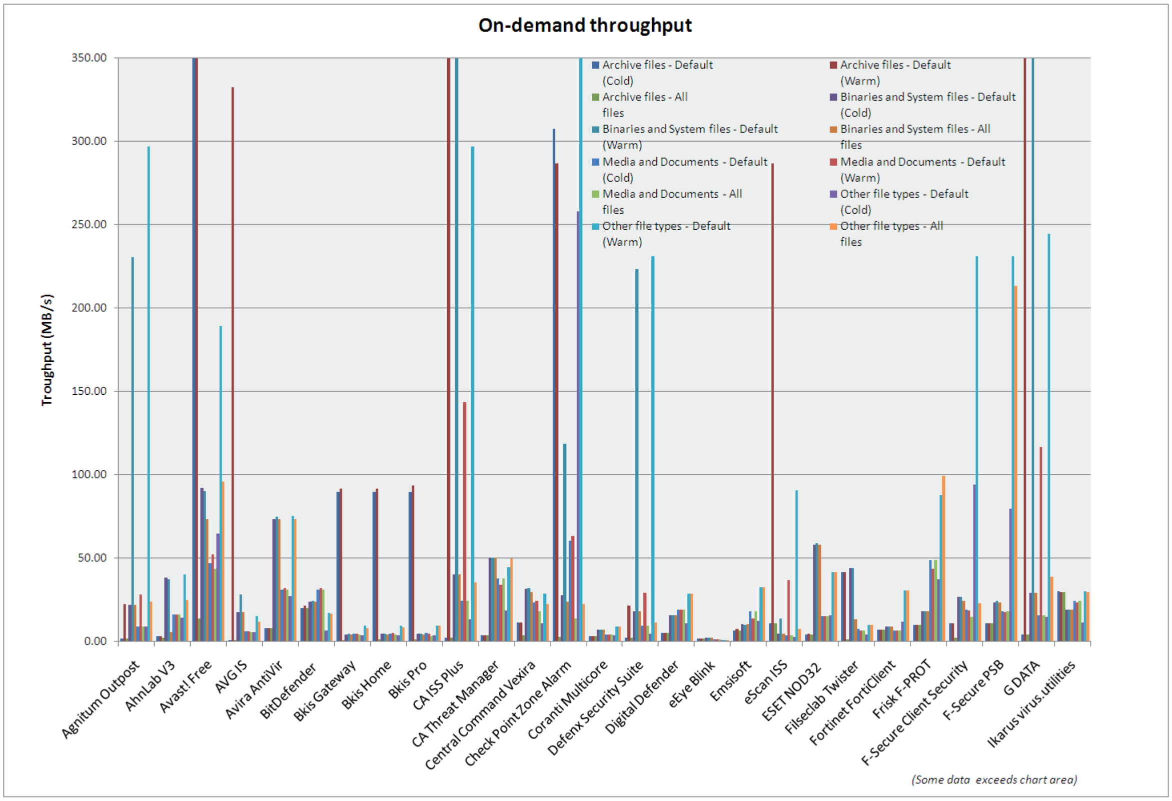
| **On-demand throughput (MB/s) contd.** | Archive files | | | Binaries and system files | | | Media and documents | | | Other file types | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Default (cold) | Default (warm) | All files | Default (cold) | Default (warm) | All files | Default (cold) | Default (warm) | All files | Default (cold) | Default (warm) | All files |
| K7 Total Security | 9.87 | 9.89 | 9.87 | 14.57 | 14.57 | 14.57 | 32.30 | 37.59 | 32.30 | 7.07 | 19.08 | 18.99 |
| Kaspersky AV 6.0 | 6.34 | 2772.27 | 6.34 | 55.85 | 2345.61 | 55.85 | 26.36 | 382.19 | 26.36 | 16.92 | 756.07 | 45.45 |
| Kaspersky IS 2011 | 5.15 | 756.07 | 5.15 | 173.75 | 287.22 | 173.75 | 163.79 | 167.79 | 163.79 | 171.98 | 519.80 | 462.05 |
| Keniu Antivirus 1.0 | 2.14 | 489.22 | 2.14 | 16.69 | 42.65 | 16.69 | 7.72 | 26.87 | 7.72 | 6.03 | 40.97 | 16.21 |
| Kingsoft IS Advanced | 2.32 | 2.33 | 2.32 | 38.45 | 38.45 | 38.45 | 9.10 | 9.09 | 9.10 | 21.95 | 59.83 | 58.98 |
| Kingsoft IS Standard | 2.32 | 2.33 | 2.32 | 40.44 | 40.21 | 40.44 | 9.14 | 9.15 | 9.14 | 19.11 | 60.27 | 51.34 |
| Lavasoft Ad-Aware Pro | 86.63 | 86.63 | NA | 15.28 | 15.41 | 15.28 | 2.53 | 2.27 | 2.53 | 2.81 | 7.51 | 7.55 |
| Lavasoft Ad-Aware TS | 4.11 | 2772.27 | 4.11 | 22.34 | 879.60 | 22.34 | 13.57 | 105.84 | 13.57 | 7.48 | 101.42 | 20.09 |
| McAfee TP | 2.38 | 3.50 | 2.38 | 20.40 | 108.26 | 20.40 | 12.53 | 70.20 | 12.53 | 6.33 | 44.24 | 17.01 |
| McAfee VirusScan | 132.01 | 129.95 | 2.75 | 19.63 | 19.82 | 18.04 | 11.19 | 11.22 | 11.02 | 7.59 | 20.38 | 20.09 |
| MS Security Essentials | 3.85 | 3.83 | 3.85 | 18.84 | 18.97 | 18.84 | 25.77 | 26.77 | 25.77 | 9.64 | 26.57 | 25.91 |
| Nifty Security24 | 3.03 | 1386.14 | 3.03 | 26.65 | 351.84 | 26.65 | 11.08 | 61.98 | 11.08 | 6.22 | 132.01 | 16.70 |
| Norman Security Suite | 1.06 | 1.06 | 1.06 | 3.10 | 3.10 | 3.10 | 5.81 | 5.73 | 5.81 | 3.97 | 10.56 | 10.66 |
| PC Tools IS | 3.02 | 3.16 | 3.02 | 60.14 | 69.67 | 60.14 | 11.76 | 11.90 | 11.76 | 7.53 | 20.24 | 20.24 |
| PC Tools SD | 3.49 | 3.63 | 0.96 | 72.17 | 73.30 | 14.48 | 12.96 | 13.00 | 12.88 | 11.22 | 30.13 | 30.13 |
| Preventon Antivirus | 4.66 | 4.65 | 4.66 | 15.80 | 15.87 | 15.80 | 19.11 | 18.69 | 19.11 | 16.12 | 42.87 | 43.32 |
| Proland Protector Plus | 8.13 | 8.14 | 8.13 | 28.96 | 29.02 | 28.96 | 7.93 | 7.94 | 7.93 | 5.49 | 14.44 | 14.75 |
| Qihoo 360 | 3.00 | 2.98 | 3.00 | 22.13 | 22.02 | 22.13 | 12.67 | 12.60 | 12.67 | 7.53 | 20.09 | 20.24 |
| Quick Heal AntiVirus | 3.18 | 3.13 | 2.07 | 60.92 | 60.40 | 58.64 | 11.94 | 11.86 | 11.76 | 12.14 | 32.49 | 28.58 |
| Returnil RVS | 7.02 | 7.35 | 7.02 | 15.04 | 15.23 | 15.04 | 8.65 | 8.77 | 8.65 | 13.76 | 38.68 | 36.96 |
| Rising IS | 1.90 | 1.97 | 1.90 | 11.04 | 11.82 | 11.04 | 5.57 | 5.94 | 5.57 | 5.80 | 18.04 | 15.57 |
| Sophos Endpoint | 173.27 | 277.23 | 2.61 | 15.23 | 15.53 | 15.23 | 21.43 | 20.47 | 17.24 | 7.88 | 19.80 | 16.21 |
| SPAMfighter VIRUSfighter | 4.49 | 4.44 | NA | 15.13 | 15.26 | 15.13 | 15.60 | 17.55 | 15.60 | 8.97 | 21.00 | 24.11 |
| Sunbelt VIPRE | 154.02 | 154.02 | 2.85 | 25.22 | 25.04 | 24.82 | 2.38 | 2.37 | 2.38 | 2.80 | 7.21 | 7.43 |
| Symantec ES | 3.77 | 3.77 | 3.46 | 32.13 | 31.56 | 30.46 | 17.91 | 18.06 | 17.78 | 14.95 | 43.32 | 40.18 |
| Trustport AntiVirus | 2.34 | 2.36 | 2.34 | 13.40 | 16.12 | 13.40 | 8.99 | 9.06 | 8.99 | 4.47 | 12.36 | 12.00 |
| VirusBuster Pro | 10.75 | 10.79 | 3.35 | 31.27 | 31.00 | 28.26 | 22.48 | 22.78 | 17.11 | 18.76 | 51.66 | 42.65 |

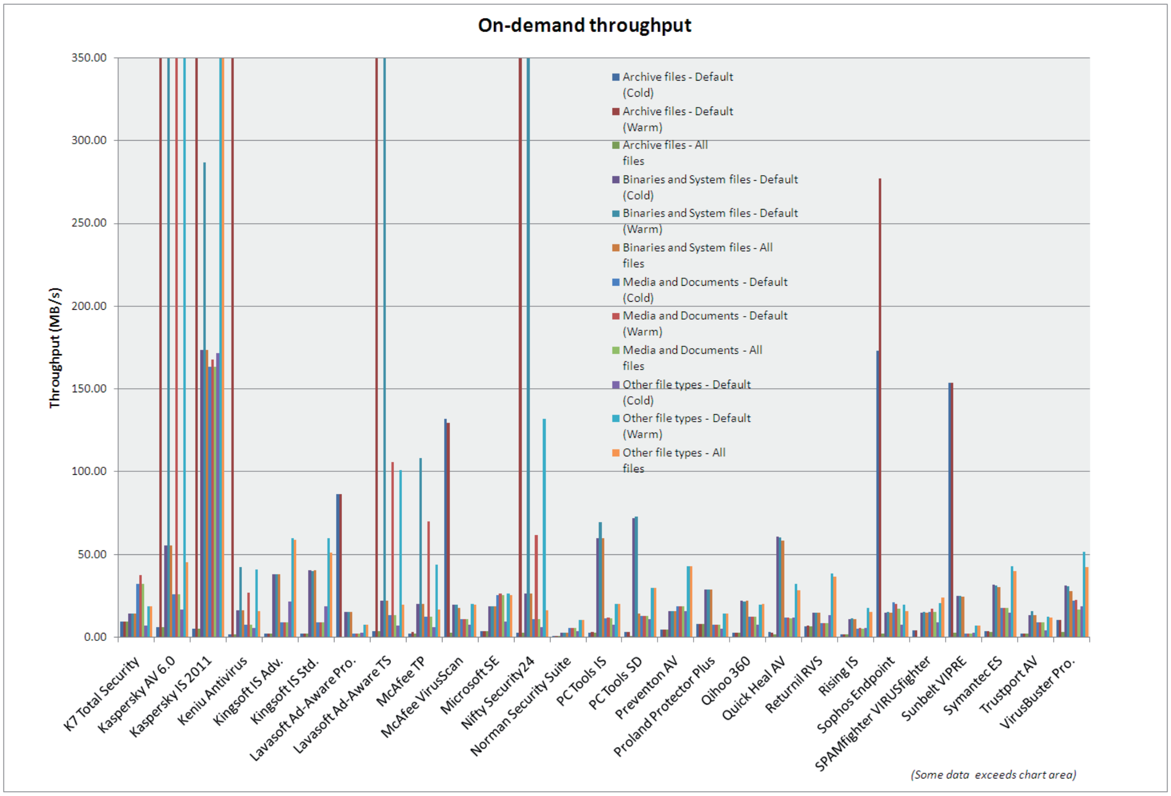
*(Please refer to text for full product names)*

fairly quickly but required a reboot of the system to finish off.

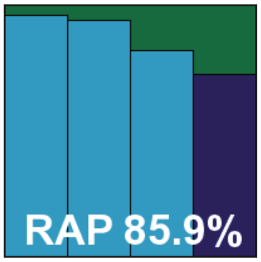
The main interface is a little unusual, being mainly focused on providing status information, with the few controls relegated to a minor position at the bottom of the main window. For a corporate product it seems rather short on options. For example, it appears to be impossible to check any more than the standard list of file extensions on access – but it is possible that some additional controls may be available via some central management system.

Given our past experiences of the unreliable logging system, all large scans were run using the integrated command-line scanner. Nevertheless, we found the GUI fairly flaky under pressure, with the on-access tests against large infected sets leaving the product in something of a state, and on-demand scan options apparently left completely unresponsive until





*(Please refer to text for full product names)*

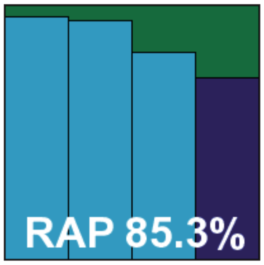


after a reboot. The scans of clean sets also appeared to be reporting rather small numbers of files being scanned, implying that perhaps large numbers were being skipped for some reason (possibly due to the limited extension list). On access, however, some impressive speeding up of checking known files was observed, hinting that the product may indeed be as fast and efficient as it seemed. Resource usage measures were fairly light.

Of course, many of the tests we run present considerably more stress than would be expected in a normal situation, but it is not unreasonable to expect a little more stability in a corporate-focused product. These issues aside, we managed to get to the end of testing without any major difficulty, and scanning speeds seemed fairly decent (if they can be trusted). Detection rates were unexceptionable though, with impressive scores across the board, and with no problems in the WildList or clean sets *F-Secure* earns another VB100 award.

## F-Secure PSB Workstation Security 9.00 build 149

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 100.00% |
| **ItW (o/a)** | 100.00% | **Trojans** | 96.48% |
| **Worms & bots** | 97.80% | **False positives** | 0 |

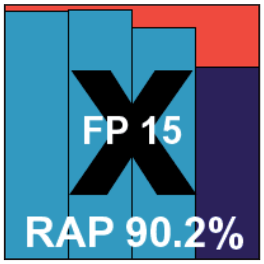


The second of *F-Secure*'s products this month has a slightly larger installer, at 69MB, but uses the same updater and has a pretty similar set-up process and user interface. Speeds on demand were also similar, although on-access times were noticeably faster and resource usage considerably heavier – to the extent that we had to double-check the results columns hadn't been misaligned with different products. Once again the main detection tests were run with a command-line scanner for fear of the logging issues noted in previous tests.

Detection rates were just as solid as the other product, with an excellent showing and no problems in the core certification sets, earning *F-Secure* a second VB100 pass this month.

## G DATA AntiVirus 2011 21.0.2.1

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 100.00% |
| **ItW (o/a)** | 100.00% | **Trojans** | 98.02% |
| **Worms & bots** | 98.18% | **False positives** | 15 |



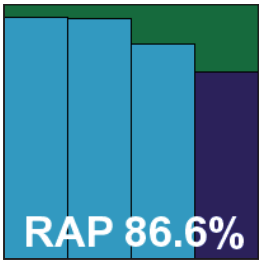
*G DATA*'s latest version, fresh and ready for next year, came as a sizeable 211MB installer, including all required updates. The installation process went through quite a few steps, including details of a 'feedback initiative' and settings for automatic updating and scheduled scanning. A reboot was needed at the end.

The new version looks pretty good, with a simple and slick design which met with general approval from the lab team. Indeed we could find very little to criticize at all, although some delving into the comprehensive configuration system did yield the information that the on-access scanner ignores archives over 300KB by default (a fairly sensible compromise, which is most likely responsible for some samples in our archive depth test being skipped). At the end of a scan, the GUI insisted on us clicking the 'apply action' button, despite us having set the default action to 'log only', and it wouldn't let us close the window until we had done this.

Scanning speeds were not too bad in the 'cold' run, and powered through in remarkable time once files had become familiar. Similar improvements were noted on access, with fairly slow initial checks balanced by lightning fast release of files once known to be safe, and resource usage was fairly sizeable but remained pretty steady through the various measures. Of course, detection rates were superb as always, with very little missed in the main sets and a stunning showing in the RAP sets. With everything looking so good, we were quite upset to observe a handful of rare false alarms in the clean sets – the same PDFs alerted on by one of the engine providers' own products – which denied *G DATA* a VB100 award this month despite an otherwise awesome performance.

## Ikarus virus.utilities 1.0.214

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 79.99% |
| **ItW (o/a)** | 100.00% | **Trojans** | 90.36% |
| **Worms & bots** | 98.70% | **False positives** | 0 |



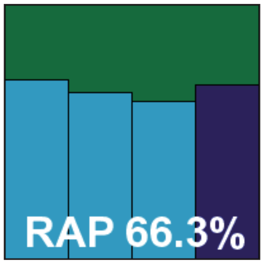
*Ikarus* returns to the VB100 test bench hoping for its first pass after a number of showings that have been marred by minor issues. The product was provided as usual as an ISO image of a CD installer, weighing in at a hefty 200MB with an additional 77MB of updates, but the initial set-up process is fast and simple. Post-install, with no reboot required, a few further set-up steps are needed, including configuring network settings and licensing, but nevertheless things are all up and running in short order. The .NET-style interface remains fairly simplistic, with few options and very little at all related to the main anti-malware functions, logging and updating taking up much of the controls.

Tests zipped through fairly nicely, with good speeds on demand but on-access times were a little on the slower side, and while CPU drain was above average, RAM usage was fairly low. As usual, the interface developed some odd behaviours during intense activity (on-demand scans provided no indication of progress, and our jobs could only be monitored by whether or not the GUI flickered and spasmed as a sign of activity). However, detection rates were solid and hugely impressive, as in several previous tests, with a particularly stunning showing in the RAP tests, and the WildList was handled impeccably despite the large numbers of polymorphic samples which have proven problematic in the past. The clean sets brought up a single alert, but as this warned that a popular IRC package was an IRC package and thus might prove a security risk, this was not a problem under the VB100 rules. After many sterling attempts, *Ikarus* thus finally earns its first VB100 certification – many congratulations are in order.

## K7 Total Security 10.0.0040

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 100.00% |
| **ItW (o/a)** | 100.00% | **Trojans** | 85.81% |
| **Worms & bots** | 93.81% | **False positives** | 0 |

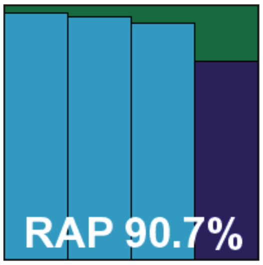
*K7*'s compact 52MB installer package runs through its business in double-quick time, with only a few basic steps and no reboot needed. Its interface is clear, simple and easy to navigate with a logical grouping of its various components, plenty of information and a pleasing burnt orange hue. Stability was generally solid, although the interface displayed some tendency to 'go funny' after more demanding scans – however, it recovered quickly and displayed no interruption in protection.



Scanning speeds were fairly average, and access lag fairly low, with very low resource usage. Detection rates in the main sets were pretty solid. RAP scores were slightly less impressive but still more than decent, and with no problems in the WildList and no false alarms in the clean set, another VB100 award heads *K7*'s way.

## Kaspersky Anti-Virus 6.0 for Windows Workstations 6.0.4.1212

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 100.00% |
| **ItW (o/a)** | 100.00% | **Trojans** | 93.79% |
| **Worms & bots** | 97.71% | **False positives** | 0 |



*Kaspersky* once again submitted a pair of products this month, with version 6 being the more business-focused of the two. The MSI installer package weighed in at a mere 63MB, although a multi-purpose install bundle was considerably larger, and installed fairly quickly and simply. A reboot and some additional set-up stages – mainly related to the firewall components – added to the preparation time.

Testing tripped along merrily for the most part, with some excellent speed improvements in the 'warm' scans, and on-access times were in the mid-range, with some very low RAM usage and slightly higher use of CPU cycles when busy. After large on-demand scans, logging proved something of an issue – large logs were clearly displayed in the well-designed and lucid GUI, but apparently impossible to export; a progress dialog lurked a small way in for several hours before we gave up on it and retried all the scans in smaller chunks to ensure usable results. These scores in the end proved thoroughly decent across the board, with no issues encountered in handling the required certification sets, and a VB100 award is granted to *Kaspersky Lab*'s version 6.

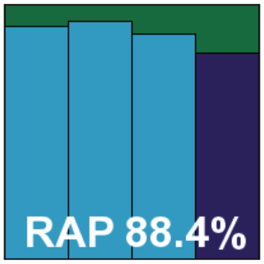
| File access lag time (s/MB) | Archive files | | | Binaries and system files | | | Media and documents | | | Other file types | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Default (cold) | Default (warm) | All files | Default (cold) | Default (warm) | All files | Default (cold) | Default (warm) | All files | Default (cold) | Default (warm) | All files |
| Agnitum Outpost | 11.21 | 0.10 | NA | 40.66 | 1.17 | 40.66 | 99.61 | 14.08 | 99.61 | 109.79 | 3.40 | 109.79 |
| AhnLab V3 | 13.78 | 13.83 | NA | 24.06 | 23.74 | 24.06 | 56.28 | 55.96 | 56.28 | 54.40 | 53.91 | 54.40 |
| Avast! Free | 5.86 | 0.05 | 77.96 | 11.70 | 0.00 | 14.91 | 19.75 | 0.00 | 25.06 | 19.27 | 0.00 | 22.87 |
| AVG IS | 2.33 | 1.25 | 8.04 | 43.66 | 8.75 | 4.81 | 65.76 | 33.40 | 29.67 | 91.19 | 32.44 | 37.69 |
| Avira AntiVir | 5.30 | 2.11 | 31.33 | 12.07 | 0.14 | 13.40 | 28.83 | 17.97 | 31.07 | 30.81 | 29.72 | 32.04 |
| BitDefender | 5.22 | 0.24 | 121.75 | 25.36 | 0.00 | 36.41 | 6.43 | 1.54 | 6.36 | 65.34 | 62.62 | 64.48 |
| Bkis Gateway | 7.36 | 7.22 | NA | 178.23 | 177.12 | 178.23 | 117.43 | 117.36 | 117.43 | 159.60 | 159.50 | 159.60 |
| Bkis Home | 7.16 | 7.15 | NA | 179.69 | 187.01 | 179.69 | 116.64 | 116.44 | 116.64 | 158.01 | 156.13 | 158.01 |
| Bkis Pro | 7.08 | 7.15 | NA | 177.74 | 178.23 | 177.74 | 119.61 | 118.72 | 119.61 | 223.35 | 222.49 | 223.35 |
| CA ISS Plus | 7.40 | 7.43 | NA | 22.92 | 22.24 | 22.92 | 38.49 | 34.45 | 38.49 | 26.23 | 19.58 | 26.23 |
| CA TM | 6.82 | 6.77 | NA | 18.90 | 21.01 | 18.65 | 26.39 | 26.60 | 26.15 | 47.49 | 45.62 | 45.91 |
| Central Command Vexira | 2.73 | 2.72 | 7.18 | 33.63 | 32.55 | 31.46 | 39.01 | 37.29 | 48.16 | 118.71 | 118.71 | 127.19 |
| Check Point Zone Alarm | 4.13 | 0.00 | NA | 21.78 | 0.93 | 21.78 | 57.86 | 57.67 | 57.86 | 79.14 | 77.17 | 79.14 |
| Coranti Multicore | 14.54 | 14.53 | 24.72 | 140.72 | 136.09 | 135.27 | 214.62 | 213.11 | 241.21 | 249.95 | 247.74 | 293.14 |
| Defenx Security Suite | 11.59 | 0.00 | NA | 43.33 | 0.49 | 42.90 | 110.36 | 11.07 | 107.50 | 158.44 | 46.29 | 154.34 |
| Digital Defender | 2.72 | 2.74 | 58.26 | 65.80 | 65.40 | 64.76 | 4.24 | 4.17 | 33.28 | 39.44 | 38.57 | 89.09 |
| eEye Blink | 4.92 | 4.72 | 491.12 | 60.61 | 58.66 | 59.96 | 161.07 | 161.12 | 160.76 | 192.09 | 192.33 | 190.70 |
| Emsisoft Anti-Malware | 162.63 | 0.00 | NA | 386.15 | 0.07 | 386.15 | 2464.83 | 0.31 | 2464.83 | 4697.43 | 0.00 | 4697.43 |
| eScan ISS | 2.51 | 0.00 | 130.22 | 27.80 | 0.00 | 29.05 | 47.86 | 0.00 | 21.94 | 11.08 | 0.00 | 26.74 |
| ESET NOD32 | 2.03 | 2.03 | NA | 7.05 | 7.05 | 7.05 | 62.23 | 62.01 | 62.23 | 44.43 | 44.18 | 44.43 |
| Filseclab Twister | 3.12 | 2.49 | NA | 59.50 | 56.75 | NA | 86.40 | 84.19 | NA | 83.45 | 82.69 | NA |
| Fortinet FortiClient | 11.38 | 9.09 | 11.38 | 106.24 | 104.08 | 106.24 | 242.74 | 250.52 | 242.74 | 208.10 | 207.24 | 208.10 |
| Frisk F-PROT | 8.17 | 8.30 | NA | 22.90 | 22.91 | 22.90 | 126.45 | 125.59 | 126.45 | 120.42 | 120.24 | 120.42 |
| F-Secure Client Security | 131.88 | 0.75 | NA | 98.81 | 0.62 | NA | 63.96 | 2.73 | NA | 95.86 | 0.00 | NA |
| F-Secure PSB | 5.31 | 5.52 | NA | 51.37 | 51.49 | NA | 14.94 | 14.90 | NA | 15.36 | 14.83 | NA |
| G DATA | 61.25 | 0.68 | 416.69 | 58.69 | 2.45 | 67.99 | 108.89 | 9.30 | 117.22 | 143.95 | 3.52 | 146.55 |
| Ikarus virus.utilities | 33.63 | 33.12 | NA | 51.47 | 49.97 | 51.47 | 35.03 | 33.36 | 35.03 | 81.03 | 78.77 | 81.03 |

*(Please refer to text for full product names)*

## Kaspersky Internet Security 2011 11.0..400

| | | | |
|---|---|---|---|
| **ItW** | 100.0% | **Polymorphic** | 100.00% |
| **ItW (o/a)** | 100.00% | **Trojans** | 90.84% |
| **Worms & bots** | 96.56% | **False positives** | 0 |

Excited to see the 2011 edition of *Kaspersky*'s product, we quickly started work on the 103MB installer, with its own similarly large update bundle, which tripped along quickly with no need to reboot. The new interface sports a rather sickly pale-green hue and has some quirks, but is mostly well thought out and simple to use once it has become familiar.

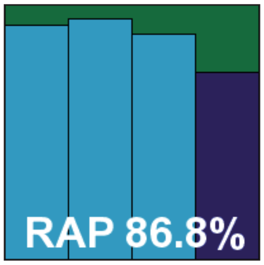


vb 100 VIRUS virusbtn.com Aug 2010

Again scanning speeds were helped by excellent caching of known results – slightly slower initially than the version 6 product and with not quite as remarkable speed-ups on second viewing of files, but on-access times were fairly similar, and in the performance measures CPU use had decreased notably at the expense of a small increase in memory use. In the infected sets some considerable wobbliness was observed, with whiting-out and crashing of the interface during scanning and once again some difficulties saving logs. Detection scores were superb however, with very little missed, and with no problems in the core sets *Kaspersky* earns a second VB100 award this month.

## Keniu Antivirus 1.0.0.1062

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 100.00% |
| **ItW (o/a)** | 100.00% | **Trojans** | 91.17% |
| **Worms & bots** | 96.53% | **False positives** | 0 |



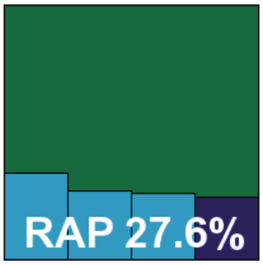
vb 100 VIRUS virusbtn.com Aug 2010

Another newcomer to our tests, Chinese developer *Keniu* provided version 1 of its product. An install package labelled ‘beta’ and some as yet untranslated areas of the interface (notably the EULA) hinted that the product is at a fairly early stage of development. Based on the *Kaspersky* engine, the product was provided as a 76MB install package, which ran through simply and, despite a 20-second pause to ‘analyse the system’, was all done in under a minute, no reboot required.

The interface is simple, bright and breezy, with large buttons marking the major functions and a limited but easy-to-use set of options. On-demand speeds were fairly slow, but on-access times not bad at all, while performance measures were fairly hefty. In the detection sets we had a few issues, with logs trimmed to miss off the ends of longer file paths, despite the GUI claiming to have exported logs ‘completely’. In the on-access tests we noticed the product getting heavily bogged down if left going for too long. Files seemed to be being processed extremely slowly after being left over a weekend and detection had clearly stopped working some time and several thousand samples before we eventually gave up on it. By re-running this in smaller chunks, and piecing logs back together based on unique elements in the paths, we were able to obtain some pretty decent results, as expected from the quality engine underlying things. Without any problems in the clean sets and with a clear run through the WildList, *Keniu* earns its first VB100 award despite some teething problems when the product is put under heavy stress.

## Kingsoft Internet Security 2011 Advanced 2008.11.6.63

| | | | |
|---|---|---|---|
| **ItW** | 99.99% | **Polymorphic** | 58.88% |
| **ItW (o/a)** | 99.99% | **Trojans** | 15.05% |
| **Worms & bots** | 47.67% | **False positives** | 0 |



*Kingsoft* returns to the fray with its usual pair of near-identical products. The ‘Advanced’ edition was provided fully updated as a 51MB installer package, which zipped through quickly and simply and needed no reboot to complete. Controls are similarly simple and quick to navigate and operate, and what the product lacks in glossy design it usually makes up for in generally good behaviour. Speed tests were no more than reasonable, with no sign of advanced caching of known results; RAM usage was fairly low though, and CPU use even lower, with some fairly light impact on file accessing too. On a few occasions some dents in the smooth veneer were observed, notably when scanning the system drive, it seemed to get stuck scanning a constantly growing log, and a single file in the RAP sets seemed to trip the product up too, bringing scan runs to an abrupt halt with no notification or information.

Detection rates were generally fairly meagre, and although there were no false positives in the clean set, some of the many replicated samples of W32/Virut in the WildList set proved too much, and with a fair number of misses representing one strain *Kingsoft*’s ‘Advanced’ edition is denied a VB100 award this month.

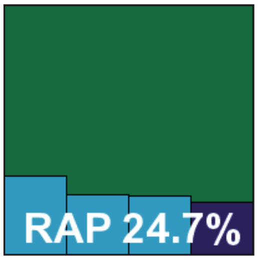
## Kingsoft Internet Security 2011 Standard 2008.11.6.63

| | | | |
|---|---|---|---|
| **ItW** | 99.99% | **Polymorphic** | 58.88% |
| **ItW (o/a)** | 99.99% | **Trojans** | 12.22% |
| **Worms & bots** | 44.56% | **False positives** | 0 |

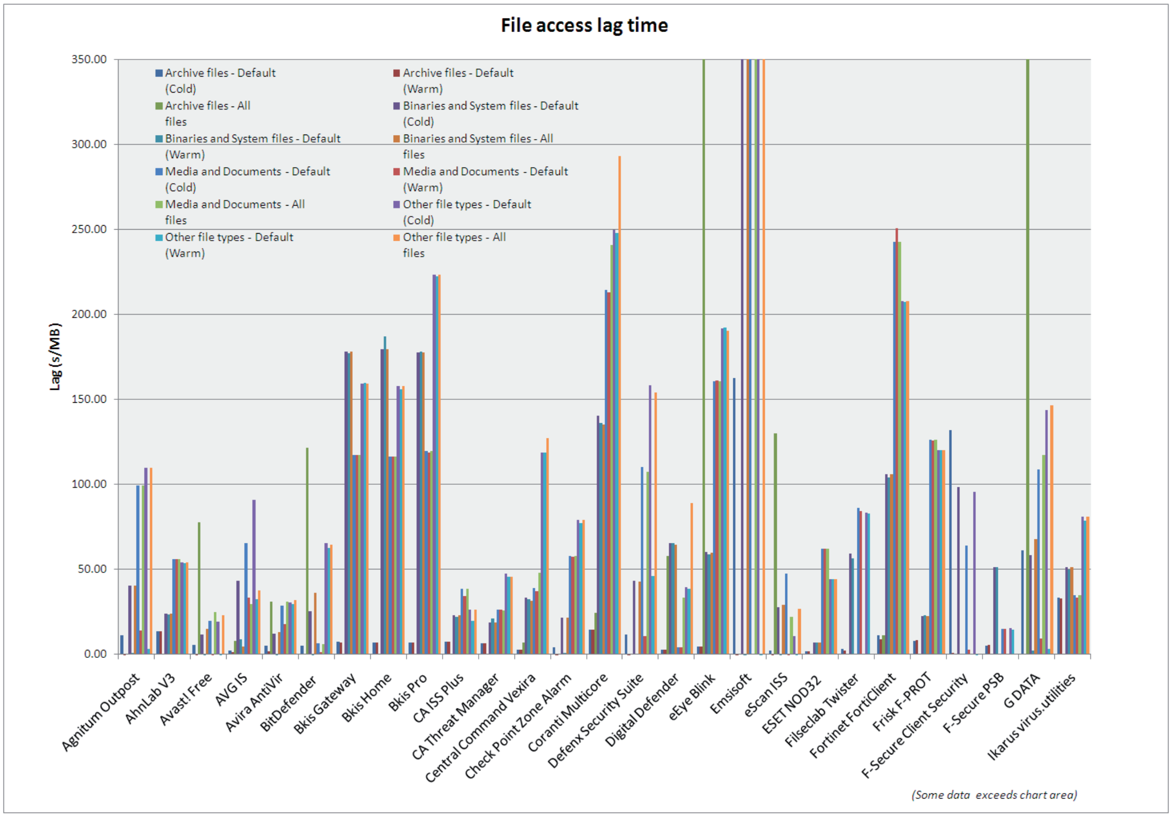
| File access lag time (s/MB) contd. | Archive files | | | Binaries and system files | | | Media and documents | | | Other file types | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Default (cold) | Default (warm) | All files | Default (cold) | Default (warm) | All files | Default (cold) | Default (warm) | All files | Default (cold) | Default (warm) | All files |
| K7 Total Security | 14.26 | 0.56 | NA | 57.98 | 0.45 | 57.98 | 27.00 | 3.04 | 27.00 | 92.89 | 40.22 | 92.89 |
| Kaspersky AV 6.0 | 3.91 | 0.49 | NA | 35.98 | 0.97 | 35.98 | 64.18 | 4.62 | 64.18 | 94.34 | 0.00 | 94.34 |
| Kaspersky IS 2011 | 4.74 | 0.67 | 26.23 | 34.68 | 0.57 | 34.12 | 67.57 | 3.02 | 70.66 | 96.17 | 0.00 | 100.97 |
| Keniu Antivirus | 6.74 | 1.27 | NA | 33.48 | 3.07 | 33.48 | 83.43 | 17.41 | 83.43 | 115.71 | 12.82 | 115.71 |
| Kingsoft IS Adv. | 4.86 | 2.63 | NA | 24.30 | 2.15 | 24.30 | 106.02 | 4.30 | 106.02 | 34.98 | 0.00 | 34.98 |
| Kingsoft IS Std. | 2.74 | -0.35 | NA | 21.29 | 0.16 | 21.29 | 104.41 | 0.58 | 104.41 | 34.35 | 0.00 | 34.35 |
| Lavasoft Ad-Aware Pro | 0.99 | 0.85 | NA | 64.24 | 44.12 | NA | 3.79 | 3.58 | NA | 281.63 | 111.43 | NA |
| Lavasoft Ad-Aware TS | 64.95 | 0.68 | 410.19 | 61.24 | 2.60 | 65.35 | 120.76 | 7.57 | 121.83 | 220.60 | 55.63 | 212.42 |
| McAfee TP | 3.46 | 0.34 | NA | 34.39 | 1.27 | 34.39 | 18.62 | 3.31 | 18.62 | 127.02 | 0.00 | 127.02 |
| McAfee VirusScan | 3.62 | 2.13 | 339.90 | 50.04 | 22.14 | 50.74 | 91.54 | 44.26 | 93.10 | 134.49 | 61.46 | 135.35 |
| Microsoft Security Essentials | 3.77 | 0.48 | NA | 51.38 | 0.57 | 51.38 | 29.79 | 2.38 | 29.79 | 93.67 | 56.64 | 93.67 |
| Nifty Security24 | 5.84 | 0.19 | NA | 30.69 | 1.13 | 30.69 | 75.42 | 7.77 | 75.42 | 135.62 | 35.92 | 135.62 |
| Norman Security Suite | 5.38 | 5.31 | NA | 63.16 | 63.14 | 63.16 | 168.88 | 167.21 | 168.88 | 199.88 | 199.67 | 199.88 |
| PC Tools IS | 2.89 | 1.55 | NA | 76.45 | 21.72 | NA | 104.59 | 104.65 | NA | 149.94 | 149.24 | NA |
| PC Tools SD | 3.24 | 1.84 | NA | 73.27 | 21.12 | NA | 100.78 | 100.60 | NA | 113.07 | 111.74 | NA |
| Preventon Antivirus | 2.36 | 2.35 | 59.70 | 64.10 | 64.02 | 64.82 | 2.93 | 2.49 | 32.30 | 3.24 | 3.01 | 56.16 |
| Proland Protector Plus | 1.11 | 0.65 | 3.55 | 31.19 | 7.84 | 31.89 | 11.26 | 10.47 | 55.89 | 63.72 | 63.57 | 134.17 |
| Qihoo 360 | 2.56 | 1.84 | NA | 2.14 | 0.68 | NA | 4.58 | 2.43 | NA | 53.64 | 45.80 | NA |
| Quick Heal AV | 42.87 | 43.54 | NA | 15.44 | 15.61 | 15.44 | 73.22 | 74.88 | 73.22 | 71.55 | 71.43 | 71.55 |
| Returnil RVS | 21.79 | 21.72 | NA | 57.28 | 56.81 | 57.28 | 122.12 | 119.89 | 122.12 | 48.83 | 49.13 | 48.83 |
| Rising IS | 9.69 | 11.04 | NA | 81.90 | 54.12 | 81.90 | 163.75 | 164.08 | 163.75 | 142.56 | 143.01 | 142.56 |
| Sophos Endpoint | 2.39 | 2.44 | 5.58 | 65.10 | 64.79 | 64.70 | 5.07 | 4.65 | 32.21 | 70.46 | 69.74 | 114.20 |
| SPAMfighter VIRUSfighter | 1.87 | 1.99 | 345.95 | 61.53 | 100.46 | 65.87 | 27.47 | 26.91 | 34.63 | 118.34 | 117.60 | 127.88 |
| Sunbelt VIPRE | 3.13 | 2.65 | NA | 32.94 | 6.05 | 32.94 | 320.56 | 11.97 | 320.56 | 272.94 | 73.75 | 272.94 |
| Symantec Endpoint Security | 6.45 | 5.30 | NA | 63.44 | 62.42 | 63.44 | 63.78 | 60.62 | 63.78 | 58.37 | 55.28 | 58.37 |
| Trustport AntiVirus | 17.45 | 1.24 | 714.86 | 83.09 | 2.55 | 99.73 | 136.62 | 34.36 | 158.64 | 269.10 | 69.89 | 303.66 |
| VirusBuster Pro | 2.33 | 2.38 | 4.88 | 31.47 | 31.48 | 31.42 | 35.98 | 35.99 | 49.28 | 55.57 | 55.83 | 67.85 |

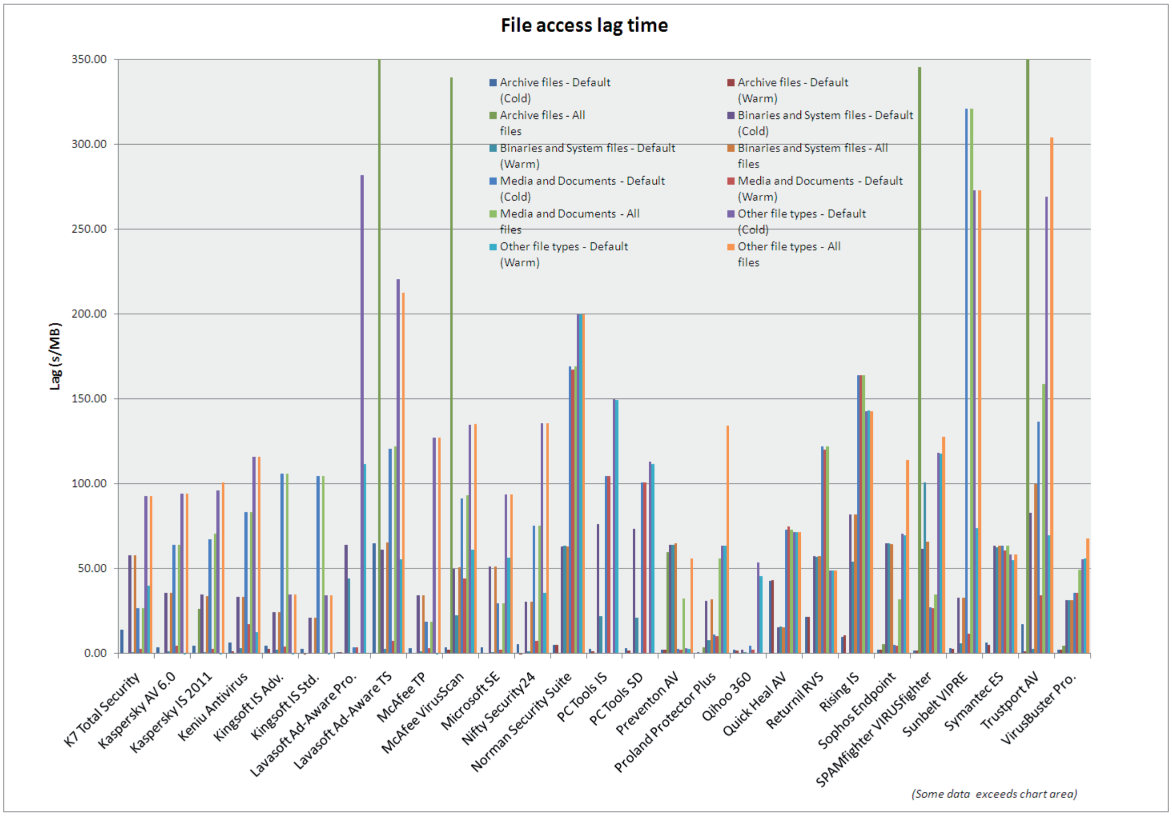
*(Please refer to text for full product names)*

With identical versioning and appearance, but a slightly smaller installer (at 46MB), *Kingsoft*'s Standard edition is pretty hard to tell apart from the Advanced version. The set-up process, user experience and scanning speeds were all-but-identical to those of its sibling; performance measures were closely matched too.



Detection rates were similarly on the low side, with the same issues in the system drive and RAP sets. Once again, there were no false positives generated in the clean set, but again a handful of Virut samples went undetected in the WildList set, meaning that no VB100 award can be granted.

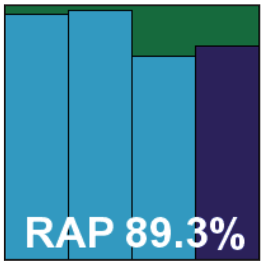




*(Please refer to text for full product names)*

## Lavasoft Ad-Aware Professional Internet Security 8.3.0

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 73.53% |
| **ItW (o/a)** | 100.00% | **Trojans** | 94.90% |
| **Worms & bots** | 98.10% | **False positives** | 0 |



vb Aug 2010 100 VIRUS virusbtn.com

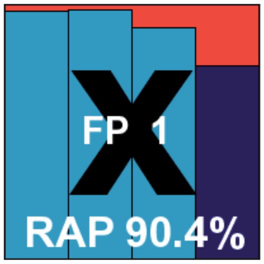
The first of a pair of products from *Lavasoft*, this one is the company's standard product, closely resembling those entered in a few previous comparatives. The fairly large 137MB installer came with all required updates and installed fairly rapidly, although one of the screens passed through along the way seemed to be entirely gibberish. It also offered to install *Google*'s *Chrome* browser, but skipping this step got the whole install completed in under a minute, including the required restart.

The interface was more or less unchanged from when we have encountered it on previous occasions – like several others this month it is starting to look a little plain and old-fashioned in the glitzy surroundings of a trendy modern desktop environment. However, it proved reasonably simple to navigate, providing a bare minimum of options and with a rather complex process for setting up custom scans; most users will be satisfied with the standard presets provided.

Some reasonable speeds were recorded in the clean sets, with fairly slow scan times and above average resource use, while the light on-access overheads can in part be explained by the limited range of items being checked. In the infected sets things were a little more troublesome, with scans repeatedly stopping silently with no error messages, the GUI simply disappearing as soon as we turned our backs. Fortunately, details of progress were being kept in a log entitled 'RunningScanLog.log', and after making numerous, ever-smaller runs over portions of our sets we eventually gathered a pretty much complete picture. Piecing this back together, we found no issues in the clean sets, and the WildList was handled well on demand. Running through again on access, however, we saw a handful of items being allowed to be opened by our testing tool. Investigating this oddity more closely, we found that these items had been noted in the product log, and promptly deleted when the product was set to auto-clean, thus making for a clean showing and earning *Lavasoft* its first VB100 award, despite a few lingering issues with stability under heavy stress.

## Lavasoft Ad-Aware Total Security 21.1.0.28

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 100.00% |
| **ItW (o/a)** | 100.00% | **Trojans** | 98.21% |
| **Worms & bots** | 98.24% | **False positives** | 1 |



The second of *Lavasoft*'s offerings this month came as something of a surprise, the bulky 397MB installer marking it out immediately as a somewhat different kettle of fish from the standard solution. The set-up runs through a large number of steps, including an initial check for newer versions and the option to add in some extras, including parental controls and a secure file shredder, which are not included by default. A reboot is needed to complete, and then it spends a few moments 'initializing' at first login.

All of this had a vaguely familiar air to it, and once the interface appeared a brief look around soon confirmed our suspicions, with the GUI clearly based on that of *G DATA* – even down to the *G DATA* name appearing in a few of the folders used by the product. Testing zipped through, helped as expected by some very impressive speed improvements over previously scanned items; the only thing slowing us down was a rather long pause opening the browser window for on-demand scans, but as regular users wouldn't be running lots of small scans one after the other from the interface this is unlikely even to be noticed by the average user.

Detection rates are more important though, and the product stormed through our sets leaving an awesome trail of destruction. However, once again those pesky PDF files from *Corel* were alerted on in the clean set, and this stroke of bad luck keeps *Lavasoft* from picking up a second VB100 this month.

## McAfee Total Protection 10.5 (610.5.178)

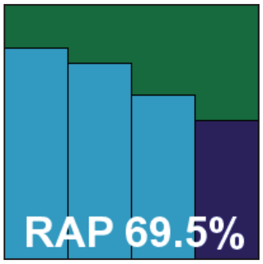
| | | | |
|---|---|---|---|
| **ItW** | 99.99% | **Polymorphic** | 99.99% |
| **ItW (o/a)** | 99.99% | **Trojans** | 87.19% |
| **Worms & bots** | 94.68% | **False positives** | 0 |

*McAfee*'s home-user product has taken part in a few comparatives of late, but familiarity hasn't made it any more popular with the lab team. The installation process is entirely online, with a tiny 2.9MB starter file pulling down all the required components from the web. This amounted to some 116MB and took a good five minutes to pull down; it installed with reasonable promptness and without

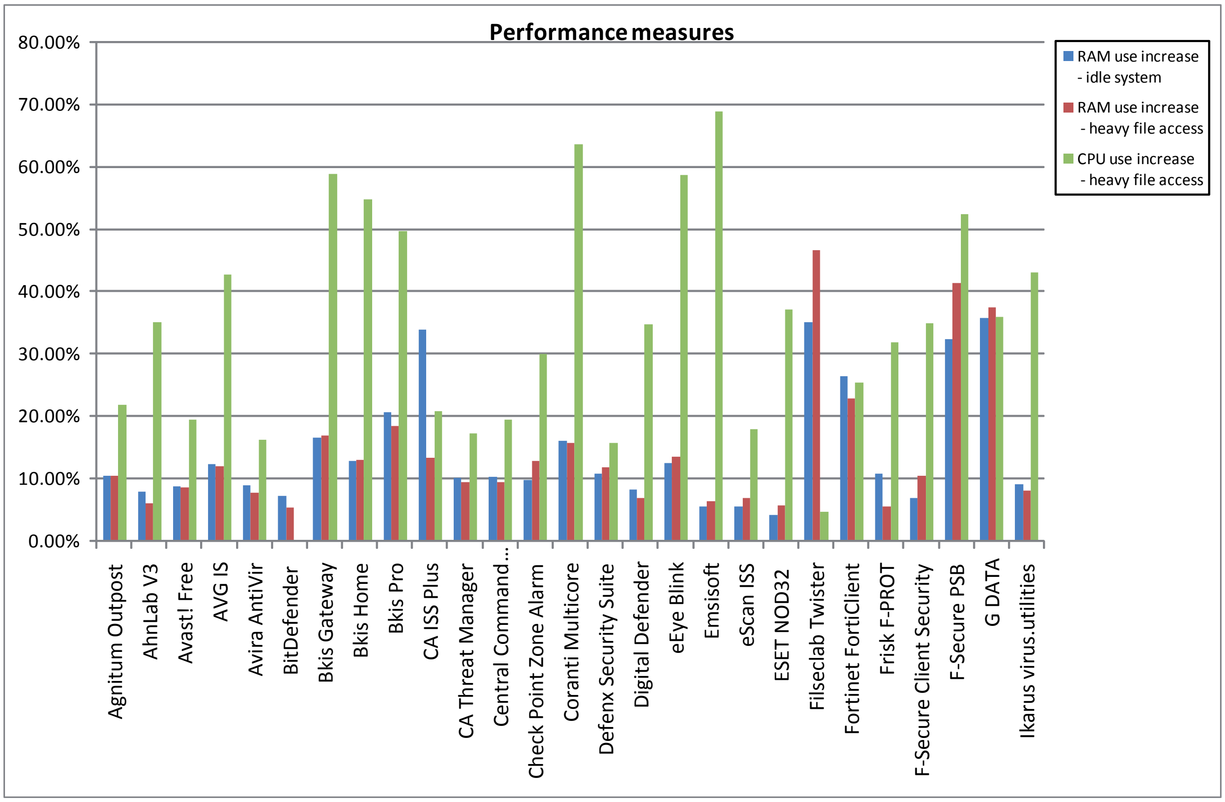
| Product | RAM use increase - idle system | RAM use increase - heavy file access | CPU use increase - heavy file access |
|---|---|---|---|
| Agnitum Outpost | 10.42% | 10.43% | 21.76% |
| AhnLab V3 | 7.88% | 5.87% | 34.95% |
| Avast! Free | 8.74% | 8.55% | 19.44% |
| AVG IS | 12.28% | 11.96% | 42.62% |
| Avira AntiVir | 8.77% | 7.57% | 16.14% |
| BitDefender | 7.11% | 5.29% | 0.02% |
| Bkis Gateway | 16.49% | 16.75% | 58.70% |
| Bkis Home | 12.79% | 12.95% | 54.78% |
| Bkis Pro | 20.53% | 18.40% | 49.69% |
| CA ISS Plus | 33.80% | 13.18% | 20.81% |
| CA Threat Manager | 9.96% | 9.31% | 17.26% |
| Central Command Vexira | 10.14% | 9.35% | 19.30% |
| Check Point Zone Alarm | 9.69% | 12.72% | 29.95% |
| Coranti Multicore | 15.99% | 15.66% | 63.56% |
| Defenx Security Suite | 10.75% | 11.68% | 15.61% |
| Digital Defender | 8.20% | 6.73% | 34.73% |
| eEye Blink | 12.34% | 13.37% | 58.59% |
| Emsisoft Anti-Malware | 5.45% | 6.32% | 68.87% |
| eScan ISS 11 | 5.45% | 6.73% | 17.86% |
| ESET NOD32 | 4.15% | 5.62% | 37.12% |
| Filseclab Twister | 35.05% | 46.55% | 4.60% |
| Fortinet FortiClient | 26.28% | 22.75% | 25.32% |
| Frisk F-PROT | 10.76% | 5.41% | 31.75% |
| F-Secure Client Security | 6.88% | 10.34% | 34.86% |
| F-Secure PSB | 32.19% | 41.26% | 52.27% |
| G DATA | 35.67% | 37.39% | 35.84% |
| Ikarus virus.utilities | 9.06% | 8.01% | 42.95% |
| K7 Total Security | 6.39% | 5.71% | 7.91% |
| Kaspersky AV 6.0 | 4.13% | 4.88% | 29.62% |
| Kaspersky IS 2011 | 11.20% | 11.27% | 16.71% |
| Keniu Antivirus | 29.72% | 33.64% | 32.99% |
| Kingsoft IS Adv. | 11.39% | 10.80% | 7.90% |
| Kingsoft IS Std. | 9.27% | 9.71% | 12.24% |
| Lavasoft A-A Pro | 13.45% | 16.43% | 30.71% |
| Lavasoft A-A TS | 9.60% | 10.95% | 40.91% |
| McAfee TP | 10.93% | 10.82% | 17.73% |
| McAfee VirusScan | 8.24% | 8.77% | 38.80% |
| Microsoft SE | 31.37% | 18.15% | 38.90% |
| Nifty Security24 | 11.02% | 10.06% | 22.57% |
| Norman SS | 8.95% | 8.12% | 57.67% |
| PC Tools IS | 17.29% | 16.28% | 48.40% |
| PC Tools SD | 11.83% | 9.93% | 47.35% |
| Preventon AV | 8.60% | 7.45% | 38.06% |
| Proland | 8.10% | 6.58% | 1.60% |
| Qihoo 360 | 3.14% | 5.89% | 1.18% |
| Quick Heal AV | 13.21% | 15.38% | 47.32% |
| Returnil RVS | 5.93% | 5.80% | 50.71% |
| Rising IS | 5.79% | 4.21% | 46.51% |
| Sophos Endpoint | 10.66% | 9.65% | 6.96% |
| SPAMfighter VIRUSfighter | 5.97% | 4.80% | 27.20% |
| Sunbelt VIPRE | 3.60% | 4.13% | 27.10% |
| Symantec ES | 13.35% | 12.68% | 0.64% |
| Trustport AntiVirus | 8.79% | 9.84% | 18.48% |
| VirusBuster Pro | 14.54% | 30.96% | 30.74% |

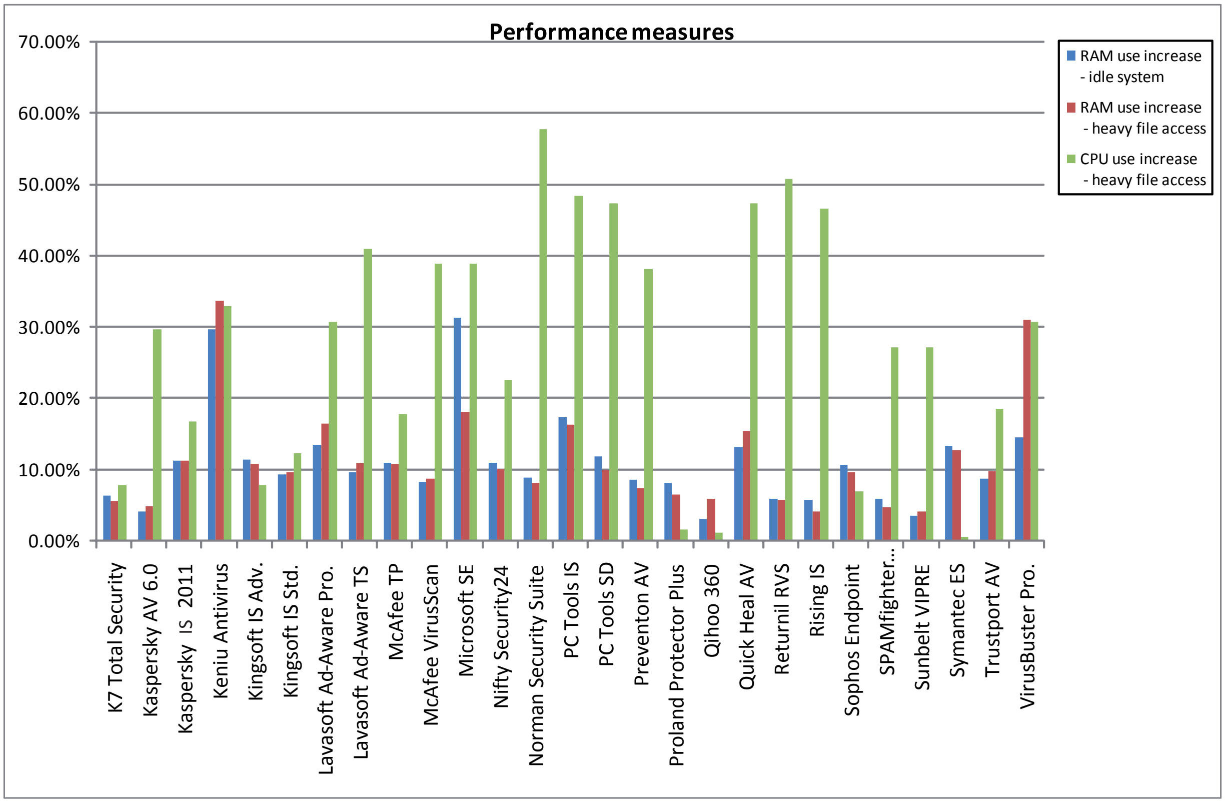
*(Please refer to text for full product names)*

too much effort. No reboot was needed to get protection in place. The interface manages to be ugly and awkward to operate, heavily text-based and strangely laid out. Messaging was somewhat confusing, with some areas of the interface seeming to imply that on-access protection was disabled, while others claimed it was fully operational.



Very few options are provided for the user, and those that are available are hard to find, so our few simple needs (including recording details of the changes made to our system by the product) had to be implemented by means of adjustments in the registry. The ‘custom’ option for the on-demand scanner only provided options to scan whole drives or system areas, so our on-demand speed measures





*(Please refer to text for full product names)*

were taken using right-click scanning. Scanning speeds proved fairly reasonable, with some signs of improvement when scanning previously checked items, while on-access speeds seemed fairly zippy and resource usage was quite light.

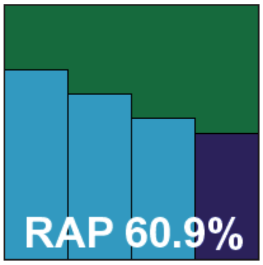
The product crashed out after some of the larger scans of infected sets, leaving no information as to why, and of course having overwritten its own logs. We also noted that some *Windows* settings seemed to have been reset – notably the hiding of file extensions, which is one of the first things we tweak when setting up a new system. On several occasions this was found to have reverted to the default of hiding extensions, which is not only a security risk but also an activity exhibited by some malware.

In the clean sets a VNC client was correctly identified as a VNC client, and in the infected sets scores were generally pretty decent – this would most likely be improved by the product's online lookup system, which is not available during the test runs. In the WildList set, however, a selection of Virut samples were not detected, and as a result no VB100 award can be granted to *McAfee*'s home-user offering this month.

## McAfee VirusScan Enterprise 8.7.0i

| | | | |
|---|---|---|---|
| **ItW** | 99.99% | **Polymorphic** | 99.99% |
| **ItW (o/a)** | 99.99% | **Trojans** | 80.16% |
| **Worms & bots** | 92.13% | **False positives** | 0 |

Leaving these troubles behind with some relief, we come to *McAfee*'s corporate product which has long been popular with the lab team for its dependability, sensible design and solidity. It kicks off its installer with an offer to disable *Microsoft*'s *Windows Defender*, which worried us a little with its lack of details on the source of the offer. The rest of the installation process, running from a 26MB installer and a 77MB update file, was fast and easy, with a message at the end stating that a reboot was only required for some components, the core protection parts being operational from the off. The GUI remains grey and drab but easy to use, logically laid out and oozing trustworthiness, providing a splendid depth of configuration (ideal for a business environment).

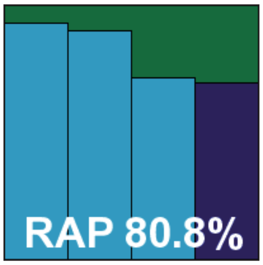


Scanning speeds were decent with the default settings and not bad with more thorough scanning enabled, while on-access times also went from very fast to not bad when turned up to the max. RAM usage was reasonable too, with CPU use no higher than most this month. Detection rates were generally good, with some fairly decent RAP scores, and the clean sets were handled without issue, but again that small handful of W32/Virut samples were not detected and *McAfee*'s business solution also misses out on a VB100 award this month.

## Microsoft Security Essentials 1.0.1961.0

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 100.00% |
| **ItW (o/a)** | 100.00% | **Trojans** | 94.29% |
| **Worms & bots** | 98.34% | **False positives** | 0 |

*Microsoft*'s free solution was provided as a tiny 7MB installer with an impressively slim 55MB of updates, and installs rapidly and easily, in a process only enlivened by the requirements of the 'Windows Genuine Advantage' programme. No reboot is needed, and with the clear and usable interface providing only basic controls, testing progressed nicely. Scanning speeds were unremarkable, with some slowish measurements on demand but fairly decent file access lags, while resource usage seemed rather on the high side. Detection rates were strong as ever, with a good showing in the RAP sets.



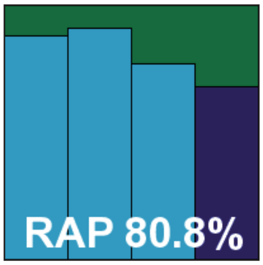
vb 100 VIRUS virusbtn.com Aug 2010

With no problems in the WildList or clean sets, *Microsoft* earns another VB100 award with ease.

## Nifty Corporation Security24

| | | | |
|---|---|---|---|
| **ItW** | 100.0% | **Polymorphic** | 100.00% |
| **ItW (o/a)** | 100.00% | **Trojans** | 87.80% |
| **Worms & bots** | 95.80% | **False positives** | 0 |

*Nifty* returns to the VB100 line-up to test our testing skills to the extreme. Once again untranslated from its native Japanese, and with much of the script on the interface rendered as



vb 100 VIRUS virusbtn.com Aug 2010

meaningless blocks and question marks in our version of *Windows*, navigation has never been simple, and is not helped by a somewhat eccentric interface layout.

Installation of the 178MB package (which included the latest updates) was not too tricky, with what seemed to be the standard set of stages for which the 'next' button was easy to spot. One screen was rather baffling however, consisting of a number of check boxes marked only with question marks, except for the words 'Windows Update'. We soon had things up and running though, after an enforced reboot and, aided by previous experience and some tips from the developers, got through the test suite fairly painlessly.

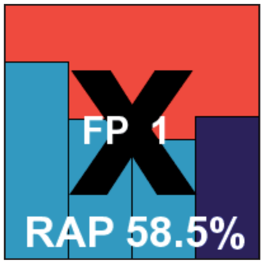
Scanning speeds were pretty decent, helped out by the zippy 'warm' scans which are a trademark of the *Kaspersky* technology underlying the product, while resource usage was fairly average. The on-access detection tests went pretty smoothly, but the on-demand scans of infected sets took rather a long time. Logging seemed only to be available from the *Windows* event viewer, which of course had to be set not to abandon useful information after only a few minutes of scanning. Over time, large scans of infected sets seemed to slow down to a snail's pace, and with time pressing, RAP scores could only be gathered on access. This may result in some slightly lower scores than the product is truly capable of, with additional heuristics likely to come into play on demand to explain the slowdown, but when less than a third of the sets had been completed after five days, it seemed best to provide at least some data rather than continue waiting.

Eventually results were gathered for the main sets, which showed the expected solid coverage, with no more to report in the clean sets than a couple of 'suspicious' items (the usual VNC and IRC packages alerted on as potential security risks). The WildList was handled without issues either, and *Nifty* comfortably adds to its growing tally of VB100 passes.

## Norman Security Suite (NVC 8.00.00)

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 84.02% |
| **ItW (o/a)** | 100.00% | **Trojans** | 69.85% |
| **Worms & bots** | 85.24% | **False positives** | 1 |

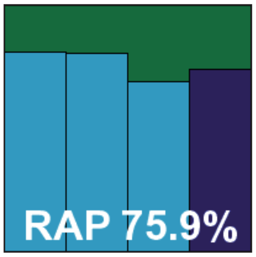
*Norman*'s suite came as a 77MB package with all updates included, and only took a few steps and a reboot to get working, although some further set-up was needed after installation. The interface provides a basic range of options, and does so in a rather fiddly and uncomfortable manner for our tastes, but is generally well behaved and usable. On-demand scanning speeds were distinctly slow compared to the rest of the field – presumably thanks to the sandbox component's thorough investigation of the behaviour of unfamiliar executables. Similar slowness was noted in the on-access measures, matched by high use of CPU cycles, although RAM use was not excessive.



Running the high-stress tests over the infected sets caused some problems with the GUI, which lost its links to the on-demand and scheduled scanning controls several times, denying they were installed despite them continuing to run jobs. Protection seemed to remain solid however, and detection was reasonable across the board, but in the clean set a false alarm appeared, with part of *Roxio*'s DVD authoring suite once again being labelled as a Swizzor trojan, thus denying *Norman* a VB100 once again.

## PC Tools Internet Security 7.0.0.545

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 100.00% |
| **ItW (o/a)** | 100.00% | **Trojans** | 80.29% |
| **Worms & bots** | 88.89% | **False positives** | 0 |



vb 100 VIRUS virusbtn.com Aug 2010

*PC Tools* provided its full suite solution as a 134MB installation package, which runs through with reasonable speed and simplicity, warning at the end that a reboot may be required in a few minutes. After restarting, the interface is its usual self, looking somewhat drab and flat against the glossy backdrop of *Vista*'s Aero desktop. The layout is somewhat different from the norm, with a large number of sub-divisions to the scanning and protection, and in a quick scan of the system partition it was the only product to raise an alert – reporting a number of cookies found (each machine paid a brief visit to MSN.com to check connectivity prior to activation of the operating system, and presumably the cookies were picked up at this point).

Having grown familiar with the product during the process of a standalone review recently (see *VB*, July 2010, p.21), we suddenly found the layout a little confusing once again, failing to find some useful options and ending up having to let the product delete, disinfect and quarantine its way through the sets. Nevertheless, results were obtained without serious problems, and scanning speeds proved

| Reactive and Proactive (RAP) detection scores | | Reactive | | | Reactive average | Proactive | Overall average |
|---|---|---|---|---|---|---|---|
| | | week -3 | week -2 | week -1 | | week +1 | |
| Agnitum Outpost | VIRUS 100 | 84.68% | 82.22% | 65.20% | 77.37% | 57.68% | 72.45% |
| AhnLab V3 | VIRUS 100 | 59.64% | 48.70% | 33.58% | 47.31% | 36.18% | 44.53% |
| Avast! Free | VIRUS 100 | 94.17% | 93.25% | 84.39% | 90.60% | 72.43% | 86.06% |
| AVG IS | VIRUS 100 | 97.18% | 95.92% | 88.50% | 93.87% | 74.75% | 89.09% |
| Avira AntiVir | VIRUS 100 | 97.46% | 95.42% | 88.38% | 93.75% | 76.63% | 89.47% |
| BitDefender | | 96.07% | 94.40% | 84.19% | 91.55% | 73.12% | 86.95% |
| Bkis Gateway | VIRUS 100 | 28.88% | 34.32% | 26.06% | 29.75% | 28.30% | 29.39% |
| Bkis Home | VIRUS 100 | 28.88% | 34.32% | 26.06% | 29.75% | 28.30% | 29.39% |
| Bkis Pro | VIRUS 100 | 28.88% | 34.32% | 26.06% | 29.75% | 28.30% | 29.39% |
| CA Internet Security Suite Plus | | 77.15% | 72.94% | 54.15% | 68.08% | 52.56% | 64.20% |
| CA Threat Manager | | 62.92% | 61.61% | 52.30% | 58.94% | 51.45% | 57.07% |
| Central Command Vexira | VIRUS 100 | 84.84% | 82.46% | 65.40% | 77.57% | 57.53% | 72.56% |
| Check Point Zone Alarm | VIRUS 100 | 90.68% | 92.14% | 88.99% | 90.60% | 78.28% | 87.52% |
| Coranti Multicore | | 99.91% | 99.35% | 95.63% | 98.30% | 84.37% | 94.82% |
| Defenx Security Suite | VIRUS 100 | 84.95% | 82.59% | 65.58% | 77.71% | 57.80% | 72.73% |
| Digital Defender | | 82.42% | 79.92% | 63.03% | 75.12% | 55.45% | 70.21% |
| eEye Blink | | 77.23% | 54.75% | 47.19% | 59.72% | 56.16% | 58.83% |
| Emsisoft Anti-Malware | VIRUS 100 | 95.23% | 95.08% | 86.02% | 92.11% | 74.44% | 87.69% |
| eScan ISS | | 97.42% | 95.11% | 86.65% | 93.06% | 74.53% | 88.42% |
| ESET NOD32 | VIRUS 100 | 94.77% | 94.58% | 94.63% | 94.66% | 77.29% | 90.32% |
| Filseclab Twister | | 83.80% | 79.00% | 72.11% | 78.30% | 59.56% | 73.62% |
| Fortinet FortiClient | VIRUS 100 | 72.66% | 78.44% | 56.68% | 69.26% | 47.45% | 63.81% |
| Frisk F-PROT | VIRUS 100 | 82.19% | 71.79% | 64.97% | 72.98% | 68.62% | 71.89% |
| F-Secure Client Security | VIRUS 100 | 95.93% | 93.98% | 81.70% | 90.54% | 72.04% | 85.91% |
| F-Secure PSB | VIRUS 100 | 95.41% | 93.71% | 81.07% | 90.07% | 71.06% | 85.31% |
| G DATA | | 97.23% | 97.80% | 90.51% | 95.18% | 75.34% | 90.22% |
| Ikarus virus.utilities | VIRUS 100 | 94.65% | 94.24% | 84.09% | 90.99% | 73.35% | 86.58% |

*(Please refer to text for full product names)*

fairly average but fast over the important executables sets, with similarly lightish times in the on-access speed measures and reasonably high use of RAM and CPU cycles.

Detection rates were solid, with a very steady rate in the RAP sets, and with no issues handling the clean or WildList sets *PC Tools* earns a VB100 award without difficulty.

## PC Tools Spyware Doctor with Anti-virus 7.0.0.545

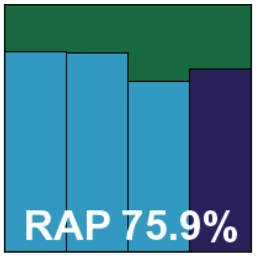
| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 100.00% |
| **ItW (o/a)** | 100.00% | **Trojans** | 80.29% |
| **Worms & bots** | 88.89% | **False positives** | 0 |

The second of *PC Tools*' offerings this month was pretty

| Reactive and Proactive (RAP) detection scores contd. | | Reactive | | | Reactive average | Proactive | Overall average |
|---|---|---|---|---|---|---|---|
| | | week -3 | week -2 | week -1 | | week +1 | |
| K7 Total Security | VIRUS 100 | 70.07% | 65.42% | 61.53% | 65.68% | 68.03% | 66.26% |
| Kaspersky Anti-Virus 6.0 | VIRUS 100 | 96.78% | 95.21% | 92.70% | 94.89% | 77.94% | 90.66% |
| Kaspersky Internet Security 2011 | VIRUS 100 | 91.29% | 93.22% | 88.23% | 90.91% | 80.85% | 88.40% |
| Keniu Antivirus | VIRUS 100 | 91.56% | 94.30% | 88.30% | 91.38% | 73.16% | 86.83% |
| Kingsoft IS Advanced | | 33.79% | 26.58% | 25.87% | 28.75% | 24.18% | 27.60% |
| Kingsoft IS Standard | | 31.25% | 23.52% | 23.39% | 26.05% | 20.55% | 24.68% |
| Lavasoft Ad-Aware Professional | VIRUS 100 | 96.02% | 97.56% | 80.00% | 91.19% | 83.41% | 89.25% |
| Lavasoft Ad-Aware Total Security | | 97.38% | 97.92% | 90.79% | 95.36% | 75.59% | 90.42% |
| McAfee Total Protection | | 82.96% | 76.69% | 64.36% | 74.67% | 54.06% | 69.52% |
| McAfee VirusScan | | 74.10% | 64.96% | 55.42% | 64.83% | 49.25% | 60.93% |
| Microsoft Security Essentials | VIRUS 100 | 92.62% | 89.86% | 71.42% | 84.64% | 69.33% | 80.81% |
| Nifty Security24 | VIRUS 100 | 87.71% | 90.75% | 76.89% | 85.12% | 67.95% | 80.83% |
| Norman Security Suite | | 77.22% | 54.52% | 46.60% | 59.45% | 55.78% | 58.53% |
| PC Tools IS | VIRUS 100 | 80.65% | 80.39% | 69.00% | 76.68% | 73.72% | 75.94% |
| PC Tools Spyware Doctor | VIRUS 100 | 80.65% | 80.39% | 68.99% | 76.68% | 73.72% | 75.94% |
| Preventon Antivirus | | 82.42% | 79.92% | 63.03% | 75.12% | 55.45% | 70.21% |
| Proland Protector Plus | VIRUS 100 | 83.25% | 83.32% | 71.13% | 79.23% | 70.36% | 77.01% |
| Qihoo 360 | | 96.33% | 94.84% | 86.92% | 92.69% | 73.97% | 88.01% |
| Quick Heal AntiVirus | VIRUS 100 | 74.21% | 76.31% | 58.39% | 69.64% | 51.18% | 65.02% |
| Returnil RVS | VIRUS 100 | 80.65% | 69.36% | 67.46% | 72.49% | 69.86% | 71.83% |
| Rising IS | | 60.82% | 51.33% | 56.04% | 56.06% | 39.55% | 51.94% |
| Sophos Endpoint | VIRUS 100 | 85.03% | 82.13% | 77.89% | 81.68% | 70.43% | 78.87% |
| SPAMfighter VIRUSfighter | | 82.25% | 79.05% | 59.45% | 73.58% | 54.18% | 68.73% |
| Sunbelt VIPRE | VIRUS 100 | 95.86% | 97.46% | 70.51% | 87.95% | 83.19% | 86.76% |
| Symantec Endpoint Security | VIRUS 100 | 77.42% | 75.89% | 57.16% | 70.16% | 53.76% | 66.06% |
| Trustport AntiVirus | VIRUS 100 | 97.74% | 98.33% | 97.14% | 97.74% | 80.91% | 93.53% |
| VirusBuster Professional | VIRUS 100 | 79.74% | 76.95% | 58.46% | 71.71% | 53.02% | 67.04% |

*(Please refer to text for full product names)*

similar to the first, but lacked a firewall and some other functions, and notably had some components of the multi-faceted 'Intelli-guard' system disabled in the free trial mode. The core parts, including standard filesystem anti-malware protection, were fully functional however. The installer was thus slightly smaller at 129MB, but the set-up process was similarly quick and to-the-point, with no restart needed this time.



vb Aug 2010 100 VIRUS virusbtn.com

The interface proved no problem to navigate – perhaps thanks to practice gained testing the previous product.

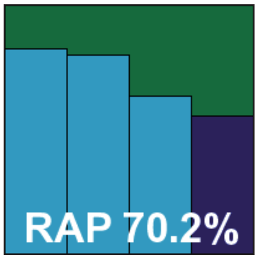
We felt that a little was left to be desired in the area of in-depth options but everything we needed was to hand. Having become rather exhausted by the unending barrage of products by this point, we welcomed a little light relief in the form of the product's cartoon logo – in which we have noted before that the 'Doctor' actually resembles a large glass of cold beer more than anything. One other quirk of the product is that in order for it to keep its detection logs intact it needs to be disconnected from any networks, otherwise it tries to send them out into space for feedback purposes.

The tests tripped along merrily without upset or any sign of instability even under heavy pressure, and again performance measurements were fairly decent if not exceptional. Likewise, detection rates were solid and reliable without being flashy. With no problems in the core certification areas, a second VB100 goes to *PC Tools* this month, along with our gratitude for a relatively painless testing experience.

## Preventon Antivirus 4.2.37

| | | | |
|---|---|---|---|
| **ItW** | 99.84% | **Polymorphic** | 89.73% |
| **ItW (o/a)** | 99.84% | **Trojans** | 80.71% |
| **Worms & bots** | 88.44% | **False positives** | 0 |

*Preventon*'s compact 48MB installer zips along rapidly, a highlight being the extensive list of available languages including Danish and Dutch. No reboot is needed to get things up and working. The now-familiar interface is delightfully simple and packs a good level of controls into a small area, although much of this is available only to 'pro' users, with a fully licensed product.

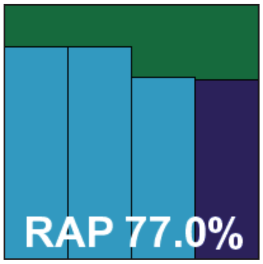


On-demand speeds were somewhat mediocre, but file access lag times were not too intrusive, while RAM use was medium and CPU slightly above average. Detection rates were decent in general, with no false alarms; however, a single Ircbot sample in the WildList set was not detected, and *Preventon* therefore misses out on a VB100 award this month.

## Proland Protector Plus 9.1.006

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 89.73% |
| **ItW (o/a)** | 100.00% | **Trojans** | 80.88% |
| **Worms & bots** | 91.17% | **False positives** | 0 |

*Proland*'s 69MB install package goes about its business in a short and sweet fashion, the brief set-up process enlivened by the unusual but thoughtful offer to add a support contact to the *Windows* address book. Protection is in place in short order with no reboot required, and the main interface is bright and brisk with a nice simple layout that makes for easy use.

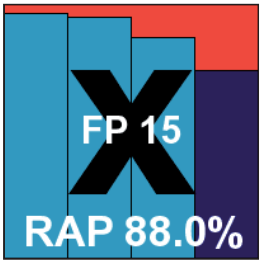


Scanning speeds were reasonable, with decent on-access speeds and remarkably low resource usage, with CPU drain barely registering. Detection rates were similarly decent, closely matching those of other products based on the *VirusBuster* engine. With the clean set handled nicely and no issues with the WildList item which upset a few fellow users of the *VirusBuster* engine, *Protector Plus* proves worthy of another VB100 award.

## Qihoo 360Security 1.1.0.1309

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 100.00% |
| **ItW (o/a)** | 100.00% | **Trojans** | 97.78% |
| **Worms & bots** | 98.53% | **False positives** | 15 |

*Qihoo* has had a clean run in its first couple of VB100 entries, and returns this month hoping for a third award. The product, kindly translated into English after an initial entry which only supported the company's native Chinese, came as a 91MB install package with all updates included, and was set up in no time, with a bare minimum of steps, few options to tax the brain and no reboot needed. On opening the interface, options to make use of online 'cloud' protection and to join a feedback system are offered. Users are also urged to install '360 Security Guard' for additional protection.

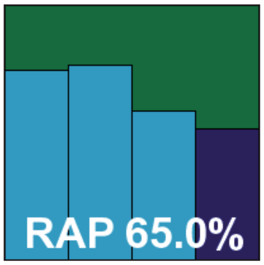


The interface itself is smooth and simple with a sensible, logical layout, and provides a good level of configuration controls. Scanning speeds were not hugely impressive, but at least consistent, but on-access times were very swift and resource consumption very low. By default, the product only monitors 'applications' on access, and despite enabling an option to scan all files we saw no detection of the Eicar test file with a randomly chosen extension. Detection rates were solid across the board, with some excellent RAP scores, and the WildList caused no problems, but in the clean sets once again a selection of items, all contained in a single install package from *Corel*, were flagged as containing PDF exploits, spoiling *Qihoo*'s run of good fortune and denying the vendor a VB100 award this month.

## Quick Heal AntiVirus 2010 11.00 (4.0.0.3)

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 99.94% |
| **ItW (o/a)** | 100.00% | **Trojans** | 81.82% |
| **Worms & bots** | 90.09% | **False positives** | 0 |

*Quick Heal*'s solution has grown from once minimal size to a mid-range 105MB, including all updates, but still zips into place with only simple, unchallenging queries and no reboot needed. The interface is a little confusing in places, but generally fairly easy to navigate. Scanning speeds, once remarkable, were this month no more than decent, with file access lags and resource consumption higher than expected, and some serious delays were imposed when trying to export larger scan logs.



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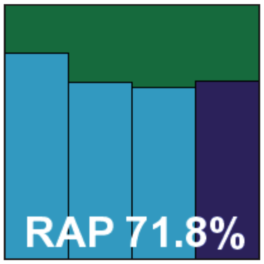
Results showed some decent scores, with on-demand detection rates notably better than on access, and RAP scores were not bad either; no issues cropped up in the WildList set or clean sets, and a VB100 award is duly granted to *Quick Heal*.

## Returnil Virtual System 2010 3.2.9467.5334-RC0

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 100.00% |
| **ItW (o/a)** | 100.00% | **Trojans** | 79.51% |
| **Worms & bots** | 90.13% | **False positives** | 0 |

*Returnil* has been working up to inclusion in a VB100 comparative review for a few months now, and we've looked forward to finally welcoming the vendor to the fold. The product, as hinted at by its title, is based on a virtualization system which allows the user to revert the system to a clean state at the click of a button – an interesting and unusual offering which we look forward to looking at in more depth in due course. For now, we mainly looked at the anti-malware component included as an extra, which is based on the *Frisk* engine.



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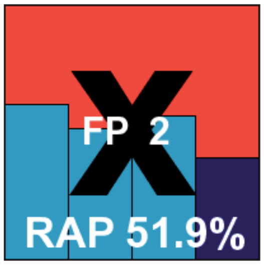
The installer is 36MB, with an additional 22MB of updates, and runs through quite simply, with just a few simple steps and a reboot to complete. Once in place, a button lurks on the desktop to control the virtualization component. The anti-malware component is provided with a few basic options, which proved ample for our needs. It is attractive, lucid and well designed, and seemed to maintain a good level of stability during our stressful tests – although at one point in a large scan of the infected sets a crash was observed, with a warning that the Data Execution Prevention sub-system had prevented some unwanted activity; the machine had to be restarted to get things back to normal.

Pushing on with the tests, we witnessed some reasonable scanning speeds in the on-demand tests, and file access lags and CPU use were a little on the high side, though memory use was no more than average. In the infected sets, scores were generally pretty decent, with a remarkably steady rate in the later three weeks of the RAP sets. No problems were seen in the WildList or clean sets, and *Returnil*'s interesting and unusual product proves worthy of a VB100 award.

## Rising Internet Security 22.00.04.20

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 70.87% |
| **ItW (o/a)** | 100.00% | **Trojans** | 55.01% |
| **Worms & bots** | 63.55% | **False positives** | 2 |

*Rising* has had a rather sporadic and unpredictable history in VB100 testing over the past few years, with an on-off pattern of entries and a similarly up-and-down record of passes and fails. The latest product came as a mid-sized 84MB package, and installation was reasonably painless, with a few standard steps plus questions about allowing *Windows* services to access the local network. After a reboot, some further configuration is provided in wizard format, with a choice of skin for the GUI notable among the options (the team selected 'Polar Dust', a pleasant black-and-blue design).

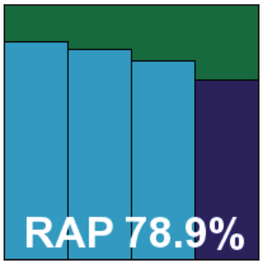


Scanning speeds were fairly mediocre, on-access lag times were heavy and CPU use was also high, although memory was not overused. A few issues were encountered in the infected sets, with a message appearing during the biggest scan warning that ‘ravmond’ had stopped working – this did not appear to have affected the running scan however, and protection seemed to still be in place (or at least to have come back on again by the time we checked). When running the highly stressful on-access scan over the infected sets another issue emerged, with the whole window system turning milky white and refusing to respond; a hard reboot was needed to recover. Also adding to our problems, blocking of access does not operate in the standard manner, and the logs had to be checked to measure detection of items which our tools had been allowed to open.

Looking over the results, scores were not hugely impressive in most sets, though fairly even at least in the reactive portions of the RAP sets. In the WildList a handful of items were missed (oddly, different ones in on-demand and on-access checks). In the clean sets, a pair of false alarms were also noted, with ‘Generic Trojan’ alerts raised against the rather obscure software packages named *Photoshop* and *Acrobat*. *Rising* is thus denied a VB100 award this month.

### Sophos Endpoint Security and Control 9.5.0

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 100.00% |
| **ItW (o/a)** | 100.00% | **Trojans** | 88.59% |
| **Worms & bots** | 88.63% | **False positives** | 0 |



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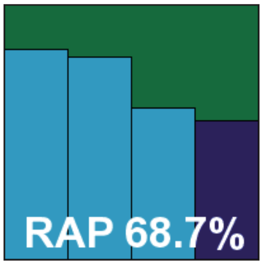
*Sophos* provided its latest version just in time for this test, with additional components in this version including ‘cloud’-based scanning and much else not covered by our current testing regime. The 81MB installer was accompanied by only 4MB of updates, and ran through in decent time, a moment of interest being the offer to remove ‘third-party’ (meaning competitor) products. No reboot was needed to get going, and initial tests sped through rapidly, with excellent on-demand scan times only dented by turning up archive scanning. Similarly rapid results were obtained in the on-access tests, with pretty low resource usage.

Scanning the infected sets proved considerably slower than previous experiences, but this was easily remedied by fully disabling the ‘live’ component and resultant online lookups. Detection rates were pretty decent, and only a few ‘suspicious’ items were flagged in the clean sets. This, combined with a clean sweep of the WildList set, means that *Sophos* qualifies for another VB100 award this month.

### SPAMfighter VIRUSfighter 6.102.3

| | | | |
|---|---|---|---|
| **ItW** | 99.84% | **Polymorphic** | 89.73% |
| **ItW (o/a)** | 99.84% | **Trojans** | 80.68% |
| **Worms & bots** | 88.43% | **False positives** | 0 |



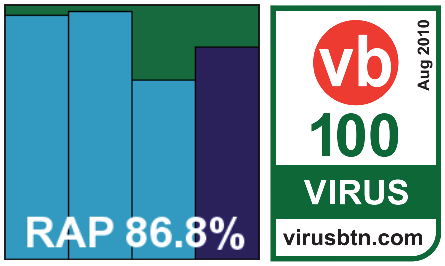
*SPAMfighter*’s product is provided as a slender 49MB package and gets itself into place rapidly and easily, with just a few steps and no restart required. The GUI is adorned with an army helmet to emphasize its defensive nature, and is bright and friendly with a reasonably sensible layout providing some basic options but nothing too complex or demanding.

Having checked these out we rebooted the system as standard, and found on restart that the login process was rather slow; watching it for a few minutes, we saw the desktop appear but trying to click an icon made it white out, and it remained in this state for a long time. A hard reboot was needed, but after that no further problems were observed, and testing proceeded apace. On-demand speeds were not bad, while on-access lag times were fairly noticeable, with average memory consumption and not too much CPU use. Detection rates were pretty decent, with a good start in the RAP sets falling off sharply in the later weeks. The clean sets were handled nicely, but in the WildList a single Ircbot was once again missed, as with other products using the same engine, and *SPAMfighter* is denied a VB100 award this month.

### Sunbelt VIPRE 4.0.3295

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 73.53% |
| **ItW (o/a)** | 100.00% | **Trojans** | 90.50% |
| **Worms & bots** | 97.83% | **False positives** | 0 |

*Sunbelt*’s marketing campaigns regularly boast of *VIPRE*’s lightness of weight and lack of bloat, and these assertions are certainly supported by the product’s wafer-thin 16MB installer, supplemented by a mere 66MB of updates, available to download as a standalone package from the company’s website. The set-up process is short and sweet too, taking only a few seconds to complete – with no reboot needed, the process was over in less than half a minute.



Once the interface is opened for the first time, a few set-up steps are required, including integration with mail clients, the joining of an online feedback system, and the offer of a demo video hosted online.

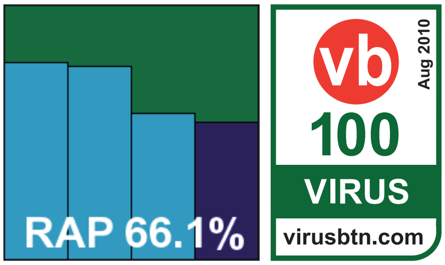
The interface has a pleasant and fairly simple-to-navigate design. Running through the speed tests was reasonably fast, with impressive speeds in the sets of executables and other binaries – where other products are usually slowest – but notably slower than most in the documents & media set. On-access measures reflected this pattern, and while CPU use when busy was on a par with others, RAM consumption was notably low at all times.

In the infected sets, a problem emerged during an overnight scan. On returning the next morning we found the scan to have snagged somewhere in the RAP sets – while the interface showed a moving progress bar, the duration timer and 'current file' entries remained static, and we decided to give up on it and try again in smaller chunks. This proved no easy matter, as similar problems were encountered many times, sometimes getting close to the end of a batch only to display a message saying 'your scan has failed – if this persists please contact Technical Support'. Logging appears not to be written until a scan has successfully completed, so hours and then days were wasted in waiting for a freeze or an error message. Eventually enough data had been gathered, showing some very respectable scores in all the sets, with the rate for the trojans set slightly lower than it could perhaps have been, thanks to having to skip some folders where crashes seemed unavoidable.

The on-access test also hit a snag when all detection seemed to cease 90% of the way through the sets, and a reboot was needed to get protection back online. Again several smaller retries were needed and some sections of the trojans set had to be skipped. The clean set was handled without problems, and the WildList covered flawlessly on demand; on access the same dozen items missed by another product based on the *VIPRE* engine this month were not blocked, but checking the somewhat ephemeral logs, and retrying with deletion enabled, showed that everything was being detected, and *Sunbelt* earns another VB100 award despite having made us work extra hard and caused not inconsiderable frustration in the process.

### Symantec Endpoint Security 11.0.5002.333

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 100.00% |
| **ItW (o/a)** | 100.00% | **Trojans** | 77.40% |
| **Worms & bots** | 86.44% | **False positives** | 0 |



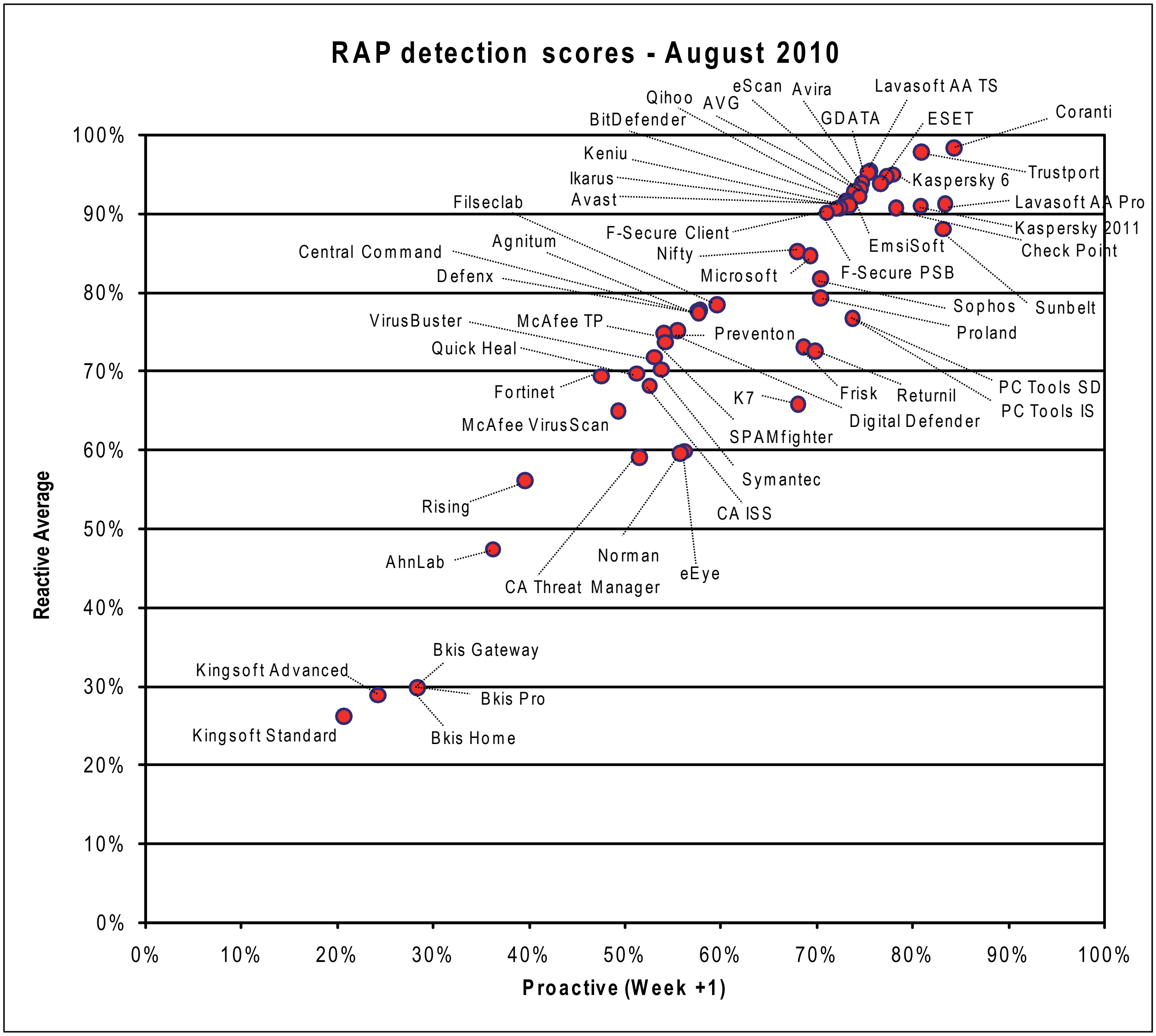
*Symantec*'s developers entered only their corporate solution for this test, and provided it as usual as a sizeable install package. The package included numerous additional components such as management agents and so on, making the 522MB zip file impossible to compare with others. 66MB of updates were also provided. One of the installation steps is the option to run the product as a centrally managed client or as a standalone product. Everything is clear and well described, making for a simple and problem-free set-up. A reboot is needed to complete things.

The interface is glossy and slick, with a splendid level of configuration as one might expect from a proper enterprise-grade solution, and everything is easy to find and use. Scanning speeds were not bad on demand, and overheads fairly notable on access, with no sign of the expected caching of good results – much of this work may have been moved into the 'cloud'. In the resource use tests, memory consumption was perhaps a little above average, but processor use barely registered.

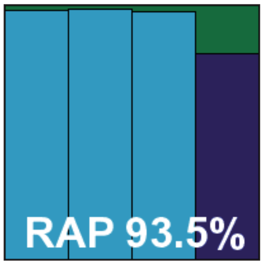
In the infected sets, we noted some rather odd behaviour with a long weekend scan, which seemed to run in fits and starts, spending most of the day on Sunday on only a few files, but clocking up tens of thousands over the following night. Checking through results, we saw the usual pretty solid scores in the main sets. Decent detection levels were displayed in the early RAP sets, declining fairly rapidly in the later weeks; additional detection components not covered by our tests should improve things in real-world use. The WildList set presented no problems, and with no issues in the clean sets either a VB100 is comfortably earned by *Symantec*.

### Trustport AntiVirus 2010 5.0.0.4129

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 100.00% |
| **ItW (o/a)** | 100.00% | **Trojans** | 98.35% |
| **Worms & bots** | 98.69% | **False positives** | 0 |



*Trustport*'s dual-engine approach justifies its above-average 174MB installer, which requires a fairly standard number of 'next' clicks and a reboot to get itself in place. The interface seems mainly designed to be operated via the system tray menu, but does provide a proper central configuration system with plenty of fine-tuning options. Scanning speeds were somewhat slow, thanks to the dual engine approach, but on access some excellent speed-up was observed in the 'warm' measures, and resource usage was impressively low as well.



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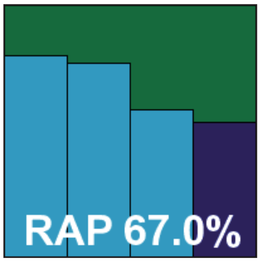
Detection rates, as usual, were almost unfailingly splendid, with very little missed anywhere, and with no false alarms to counterbalance the excellent scores. The WildList was swept mercilessly aside, and *Trustport* storms its way to another VB100 award.

### VirusBuster Professional 6.2.54

| | | | |
|---|---|---|---|
| **ItW** | 100.00% | **Polymorphic** | 89.73% |
| **ItW (o/a)** | 100.00% | **Trojans** | 78.57% |
| **Worms & bots** | 82.46% | **False positives** | 0 |



The *VirusBuster* engine has already appeared a phenomenal number of times in this month's comparative. The company's own version of the scanner came as a 57MB installer with 66MB of updates, and took a fair number of unchallenging steps but no reboot to get in place. The interface itself has also been seen before this month; it is fairly clear in general, if a little fiddly to operate in places, and while its styling may leave something to be desired it remains remarkably solid and well behaved.

Scanning speeds and detection rates alike were solid and decent, if not particularly exceptional, but resource usage seemed surprisingly high compared to others with near-identical set-ups; regrettably no time was available to retest. With no issues in the WildList or clean sets, another solid performance earns *VirusBuster* a clean VB100 award, bringing another epic comparative to a satisfying conclusion.

## CONCLUSIONS

Well it has been quite a month. With half of the lab team out of action for much of the month due to serious illness, an epic haul of products to work through and heat building up in the lab thanks to major expansion of the hardware in use, things were never going to be easy. As time went on and more and more products caused problems, it may be that the comments in this month's write-up became less kind than they may usually be. We saw some real howlers this month: some terrible product design, lack of accountability for activities, blatant false alarms in major software, numerous problems detecting the WildList set, but most of all some horrendous instability under pressure.

Some may argue that we put products under stresses they would never be expected to withstand in normal everyday use, but 'flaky' is probably the last word you would want to associate with software meant to keep you safe. If a solution can be brought to its knees, or worse still, bring an entire system to a standstill simply by having to detect and block the things it is designed to detect and block in higher than usual numbers, many would find it a less than reassuring barrier against attack. We are seriously considering adding some stipulations to the VB100 rules that would disqualify any product which causes a serious crash or which repeatedly ceases to operate.

This month has not had any shortage of failing products, with swathes of false alarms, most of them in software which could not in any way be considered obscure or insignificant, and a larger than usual number of misses in the WildList set too. The WildList is regularly decried as being too limited and easy a selection of samples to use as the basis for certification. This month has made it clear that this is far from a formality, presenting a real challenge to products which ought to be covering the WildList effortlessly from the moment the list is made available. This is not a test of complete in-depth coverage of the entire malware threatscape, merely a measure of regularity, reliability and attention to detail. Perhaps this is a little harsh on those who failed due to problems with W32/Virut samples, as these strains are notoriously complex and difficult to detect, but even here labs should be working hard to make sure they cover all strains impeccably.

The month hasn't been without its happier moments, though, with several newcomers appearing and at least one long-time entrant finally earning its first, much deserved VB100 award. For many, however, this month will hopefully be a salutary lesson that quality cannot be taken for granted but is something that must be worked at constantly. QA departments are one of the most vital parts of any software business, and proper, in-depth internal testing is a must for software aiming to provide reliable, trustworthy protection. We can only hope that this lesson will be taken to heart, and that our next comparative will prove a smoother, less stressful ride.

**Technical details:**

Test environment: All tests were performed on identical systems with *AMD Phenom II x2* 550 processors at 3.11 GHz, 4 GB RAM, and dual 80GB and 1TB *SATA* hard drives, running *Microsoft Windows Vista Business Edition SP2* (x32).

Any developers interested in submitting products for *VB*'s comparative reviews should contact john.hawes@virusbtn.com. The current schedule for the publication of VB comparative reviews can be found at http://www.virusbtn.com/vb100/about/schedule.xml.

# END NOTES & NEWS

**The 19th USENIX Security Symposium will take place 11–13 August 2010 in Washington, DC, USA**. For more details see http://usenix.org/.

**RSA Conference Japan will be held 9–10 September 2010 in Akasaka, Japan**. For details see http://www.smj.co.jp/rsaconference2010/english/index.html.

**The 8th German Anti Spam Summit takes place 15–16 September 2010 in Wiesbaden, Germany**. The event – covering a number of spam and other Internet-related topics – will be held mainly in English. Participation is free of charge, but registration is required. See http://www.eco.de/veranstaltungen/7752.htm.

**SOURCE Barcelona will take place 21–22 September 2010 in Barcelona, Spain**. See http://www.sourceconference.com/.

**VB2010 will take place 29 September to 1 October 2010 in Vancouver, Canada**. For the full conference programme including abstracts for all papers and online registration, see http://www.virusbtn.com/conference/vb2010/.

**A Mastering Computer Forensics masterclass will take place 4–5 October 2010 in Jakarta, Indonesia**. For more information see http://www.machtvantage.com/computerforensics.html.

**MAAWG 20th General Meeting takes place 4–6 October 2010 in Washington, DC, USA**. MAAWG meetings are open to members and invited guests. For invite requests see http://www.maawg.org/contact_form.

**Hacker Halted USA takes place 9–15 October 2010 in Miami, FL, USA**. For more information see http://www.hackerhalted.com/.

**HITBSecConf Malaysia takes place 11–14 October 2010 in Kuala Lumpur, Malaysia**. For more information see http://conference.hackinthebox.org/hitbsecconf2010kul/.

**RSA Conference Europe will take place 12–14 October 2010 in London, UK**. For details see http://www.rsaconference.com/2010/europe/index.htm.

**The fifth annual APWG eCrime Researchers Summit will take place 18–20 October 2010 in Dallas, TX, USA**. For more information see http://www.ecrimeresearch.org/.

**Malware 2010, The 5th International Conference on Malicious and Unwanted Software, will be held 20–21 October 2010 in Nancy, France**. This year's event will pay particular attention to the topic of 'Malware and Cloud Computing'. For more information see http://www.malware2010.org/.

**CSI 2010, takes place 26–29 October 2010 in National Harbor, MD, USA**. For details see http://www.csiannual.com/.

**Infosecurity Russia takes place 17–19 November 2010 in Moscow, Russia**. See http://www.infosecurityrussia.ru/.

**AVAR 2010 will be held 17–19 November 2010 in Nusa Dua, Bali, Indonesia**. See http://www.aavar.org/avar2010/.

**The VB 'Securing Your Organization in the Age of Cybercrime' Seminar takes place 25 November 2010 in London, UK**. The seminar gives IT professionals an opportunity to learn from and interact with security experts at the top of their field and take away invaluable advice and information on the latest threats, strategies and solutions for protecting their organizations. For programme details and to book online see http://www.virusbtn.com/seminar/.

**The 6th International Conference on IT Security Incident Management & IT Forensics will be held 10–12 May 2011 in Stuttgart, Germany**. See http://www.imf-conference.org/.

**SOURCE Seattle 2011 will be held 16–17 June 2011 in Seattle, WA, USA**. For more details see http://www.sourceconference.com/.

**VB2011 will take place 5–7 October 2011 in Barcelona, Spain**. More details will be announced in due course at http://www.virusbtn.com/conference/vb2011/.

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Virus Bulletin Ltd, The Pentagon, Abingdon Science Park, Abingdon, Oxfordshire OX14 3YP, England
Tel: +44 (0)1235 555139 Fax: +44 (0)1865 543153
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