COMPARATIVE REVIEW

Prescribing the Right DOS

This month's Comparative Review comprises the annual peek at the most elementary of anti-virus species, the command-line DOS scanner.

The line-up of products is fairly small compared to the sixteen featured in the last DOS Comparative (see *VB*, January 1999, p.10). With the continued increase in the *Windows 9x* monoculture, the priority given to DOS scanners has diminished remarkably. Some of the products submitted (notably those of *Computer Associates* and *Symantec*) are the 'emergency' scanners supplied as part of the *Windows* product package. Nonetheless, such products provide the same detection capability as those on other platforms, and have been tested as usual.

Test-Sets and Procedures

The customary *VB* test-sets were used for testing – Standard, Macro, Polymorphic and In the Wild (ItW) sets. Importantly, the ItW set (both Boot and file virus components) was aligned to the October 1999 WildList (see http://www.wildlist.org/WildList/199910.htm).

The product submission deadline was 1 November 1999, a couple of weeks after the announcement of the WildList. Products which successfully detected all the ItW file and Boot virus samples have been awarded the now familiar VB 100% award.

The usage of DOS anti-virus scanners is far removed from that of their *Windows* brethren. They are typically used to perform scheduled on-demand scans, or for incident recovery. To reflect this, two important changes to the VB 100% criteria were introduced for this Comparative (and *only* this Comparative). Firstly, each product was set to scan all files even if this setting was not the default mode. Secondly, since the DOS scanners are designed for on-demand scanning from the command-line, the need for complete on-access ItW detection was removed.

Additions have been made to each of the test-sets since the last round of testing, (see *VB*, November 1999, p.16). Additions to the Polymorphic set include samples of the Win95/SK virus (see *VB*, January 2000, p.7) as well as samples of the E and F variants of W97M/AntiSocial (October 1999, p.6).

Recent months have seen the discovery of numerous *Windows*-specific file infectors, a selection of which have been added to the Standard set. Such samples include Win32/Oporto, the B and C variants of Win32/Bolzano and the *NT*-specific WinNT/Infis. A large number of macro viruses were introduced to the Macro test-set – samples include recent variants of W97M/Melissa, O97M/Tristate, W97M/Wazzu X97M/Vcx and W97M/Chack. Complete listings of the contents of each test-set can be found at the URL specified in the technical details section at the end of this review.

All the detection tests were conducted on identical machines, with the test-set stored in a read-only directory on a *NetWare* server. The scanners were run from the command-line whenever possible, as opposed to the menu-driven interface that some of the products offer. Importantly, each of the scanners was set to employ heuristics if available, the sensitivity of which was set to the lowest setting (irrespective of the default setting).

The speed of each of the scanners was tested by scanning the traditional *VB* executable and OLE2 Clean file sets. These tests also double as false positive tests, since no viruses should be detected in either. The speed test scans were performed with the products in identical configurations to those used for the detection tests – that is, scanning all files, with heuristics employed if available.

Alwil LGuard v7.70.34 (01/11/99)

ItW Boot	100.0%	Macro	96.3%
ItW File	99.8%	Standard	98.9%
ItW Overall	99.8%	Polymorphic	91.6%

The usual solid performance from *Alwil's* DOS scanner was marred slightly by its failure to detect three *PowerPoint* files infected with O97M/Tristate.C in the ItW set. It therefore missed out on a VB 100% award.

This lack of attention to files in *PowerPoint* format (the analysis of which was introduced some months ago in *Alwil's Windows* product) is responsible for some of the misses in the Macro set. Here, files infected with other Tristate variants, P97M/Vic.A, P97M/ShapeShifter and P97M/ShapeMaster were also missed.

PE samples infected with Win32/Oporto were, unfortunately, missed from the Standard set, as were three variants of VBS/First in both their VBS and JS incaranations. Misses in the Polymorphic set included the E and F variants of W97M/AntiSocial and the complex Win95/SK.8044. A selection of macro viruses, predominantly *Word*-based, were missed from the Macro set.

LGuard scooted happily through the executable Clean set, delivering a throughput of over 2000 KB/s and positioning the product at the speedy end of the field. Performance was slightly poorer in the OLE2 set, the throughput dropping to approximately 500 KB/s – at the other end of the field. No false positives were recorded in either set.

On-demand tests	ItW File		ItW Overall	Macro		Polymorphic		Standard	
	Missed	%	%	Missed	%	Missed	%	Missed	%
Alwil LGuard	3	99.8%	99.8%	123	96.3%	91	91.6%	11	98.9%
CA Vet Anti-Virus	0	100.0%	100.0%	60	98.4%	264	94.4%	1	99.9%
Command AntiVirus	0	100.0%	100.0%	3	99.8%	62	97.1%	0	100.0%
Data Fellows FSAV	3	99.8%	99.8%	30	99.1%	0	100.0%	2	99.9%
Dialogue Science DrWeb	0	100.0%	99.9%	11	99.6%	0	100.0%	6	99.7%
Eset NOD32	0	100.0%	100.0%	60	98.3%	21	97.2%	8	99.7%
GeCAD RAV	23	96.3%	97.0%	92	97.2%	8792	43.3%	236	85.0%
Grisoft AVG	0	100.0%	100.0%	52	98.4%	355	86.1%	90	96.4%
Kaspersky Lab AVP	0	100.0%	100.0%	19	99.3%	0	100.0%	0	100.0%
NAI VirusScan	0	100.0%	100.0%	12	99.6%	17	97.7%	0	100.0%
Norman Virus Control	0	100.0%	100.0%	11	99.7%	195	94.4%	6	99.7%
Sophos Anti-Virus	0	100.0%	100.0%	73	97.7%	191	94.9%	18	99.3%
Symantec Norton AntiVirus	0	100.0%	100.0%	34	98.9%	305	88.8%	1	99.7%

CA Vet Anti-Virus (01/11/99)

ItW Boot	100.0%	Macro	98.4%
ItW File	100.0%	Standard	99.9%
ItW Overall	100.0%	Polymorphic	94.4%

Currently, *Vet Anti-Virus* is not shipped as a standalone DOS product – instead a command-line program is supplied as standard with the other product packages. Nonetheless, the command-line scanner (RESCUE.EXE) has all the detection capabilities of the other *CA Vet* products.

Detection rates were as high as we have come to expect from *Vet*. Once again, all the ItW file and Boot sector viruses were successfully detected, earning *Vet* its third consecutive VB 100% award. A single sample remained undetected in the Standard set – one of the five PE files infected with the polymorphic Win32/Parvo (one of the first viruses to utilize socket communication in order to propagate itself). The bulk of the remaining misses were against the Macro test-set, where a variety of *Excel* and *Word* macro viruses were missed.

According to percentages, the poorest performance is against the Polymorphic set. This was due to *Vet's* failure to detect both the A and the B variants of ACG. However, on the upside, *Vet* was one of only four products to detect all the samples of the newcomer, Win95/SK.8044, thus deserving some credit irrespective of the percentages.

The scanning speeds observed were perhaps not as high as those typified by *Vet* in previous Comparatives, although they were sufficient for *Vet* to remain amongst the faster of the products tested.

Command AntiVirus v4.57.4 (31/10/99)

ItW Boot	100.0%	Macro	99.8%
ItW File	100.0%	Standard	100.0%
ItW Overall	100.0%	Polymorphic	97.1%

After picking up their first VB 100% award for more than 12 months back in November (in the *Windows 98* Comparative), the developers at *Command* will be pleased to see their DOS product reproducing the achievement this time round.

The clean sheet earned in the ItW sets was maintained throughout the Standard set, and was only lost thanks to misses in the Macro and Polymorphic sets. Three *Word* documents infected with W97M/Astia.Y account for the misses in the former, and samples infected with ACG.A and Win95/SK.8044 those in the latter. The detection of these polymorphics has been implemented in the product since a proportion of each of the sample collections was detected. However, the results suggest that further work is needed in order to detect all the samples – whether their detection is implemented more successfully in the next product version, time, and the next Comparative, will tell.

	Floppy Diskette Scanning speed		Hard Disk Scanning Speed					
	Clean	Infected	Executables			OLE2 files		
	Throughput (kB/s)	Throughput (kB/s)	Time (min:sec)	Throughput (kB/s)	FPs [susp]	Time (min:sec)	Throughput (kB/s)	FPs [susp]
Alwil LGuard	15.6	11.5	4:18	2119.9	0	2:25	547.1	0
CA Vet Anti-Virus	24.9	14.7	4:32	2010.8	0	0:54	1469.1	0
Command AntiVirus	19.5	24.9	7:31	1212.7	0	0:23	3449.3	0
Data Fellows FSAV	23.2	23.7	5:12	1753.0	[2]	1:02	1279.6	0
Dialogue Science DrWeb	15.1	12.3	19:06	477.3	1 + [17]	1:30	881.5	[1]
Eset NOD32	32.2	25.6	2:02	4483.1	0	0:20	3966.7	0
GeCAD RAV	14.7	13.8	31:08	292.8	1	1:09	1149.8	1
Grisoft AVG	11.3	19.9	2:31	3622.1	0	0:23	3449.3	0
Kaspersky Lab AVP	16.1	23.7	5:13	1747.4	0	1:19	1004.2	0
NAI VirusScan	20.3	14.4	8:24	1085.2	0	1:04	1239.6	0
Norman Virus Control	20.8	19.9	3:57	2307.7	0	0:24	3305.6	0
Sophos Anti-Virus	19.2	14.9	7:52	1158.8	0	1:09	1149.8	0
Symantec Norton AntiVirus	21.7	18.8	5:55	1540.7	0	1:15	1057.8	0

Command AntiVirus sped through the OLE2 Clean set at a rate far removed from that observed in the executable set. Happily, no false positives were observed in either set.

Data Fellows FSAV v3.0 (31/10/99)

ItW Boot	100.0%	Macro	99.1%
ItW File	99.8%	Standard	99.9%
ItW Overall	99.8%	Polymorphic	100.0%

As reported in last month's *VB*, the *Data Fellows Corporation* have recently changed their company name to *F-Secure Corporation* – a name more in tune with that of their anti-virus product line. However, since the product for this Comparative was submitted prior to this name change, it is referred to as *Data Fellows F-Secure Anti-Virus* (*FSAV*) throughout this review.

The *FSAV* incarnations for *Windows* have traditionally achieved high detection rates, thanks partly to the product's use of two engines, those of *F-Prot* and *AVP*. The DOS product submitted to this review only featured one engine – that of the latter. In fact, the product was an *F-Secure* badged version of *AVP Lite*, the stripped down DOS scanner from *Kaspersky Labs*.

Despite not utilizing the *F-Prot* engine, *FSAV* still returned high detection rates across all test-sets. Thanks to the Russian virus engine it was one of only three products to detect all of the samples of Win95/SK.8044 in the Polymorphic set successfully – a worthy feat in itself. In fact, the only non-Russian product to achieve the same result was *Computer Associates' Vet Anti-Virus*.

Unfortunately, VB 100% award glory was prevented due to the failure of *AVP Lite* to cope with *PowerPoint* files. Thus, three samples infected with O97M/Tristate.C were missed in the ItW set, and a host of others in the Macro set.

The effect of *FSAV* only using one virus engine is perhaps most notable in terms of scanning speed, a field in which, traditionally, the product has not excelled in the past. The speeds observed during testing put *FSAV* somewhere in the middle of the pack when scanning both the executable and OLE2 Clean sets.

Dialogue Science DrWeb v4.14 (26/10/99)

ItW Boot	100.0%	Macro	99.6%
ItW File	100.0%	Standard	99.7%
ItW Overall	100.0%	Polymorphic	100.0%

As has been noted in previous Comparatives, one of the main strengths of *Dialogue Science's DrWeb* has traditionally been its detection of polymorphic file infectors. This was in evidence once more during this review – *DrWeb* being one of only three products to cope successfully with the entire contents of the Polymorphic set.

Unfortunately, a minor bug in the product (evident when the 'continuous running' – /GO – switch was employed) led to *DrWeb* attempting to disinfect certain infected files, despite the fact that the 'no disinfection' switches had been included on the command-line.

Initial results suggested that *DrWeb* had missed the extensionless O97M/Tristate samples, thereby missing out on the VB 100% award. However re-running the scans without the command-line *.* mask resulted in such files being scanned and detected as infected. Performance elsewhere was impressive, with misses few and far between. In fact, the average detection rate (across all the test-sets) was second only to *Kaspersky Lab's AVP*.

As ever, the overkeen *DrWeb* heuristics triggered on a few innocent files during the speed tests. In the executable set, one file was triggered as infected and 17 as suspicious. In the OLE2 set, no definitive false positives were registered, although one *Word* global template was reported as possibly infected. With the introduction of a 'no false positive' criterion into the VB 100% award requirement, it will be interesting to watch *Dialogue Science* re-tune the detection of their product to eliminate false positives, while maintaining (or at least minimizing the sacrifice in) detection rates.

Eset NOD32 v1.27 (29/10/99)

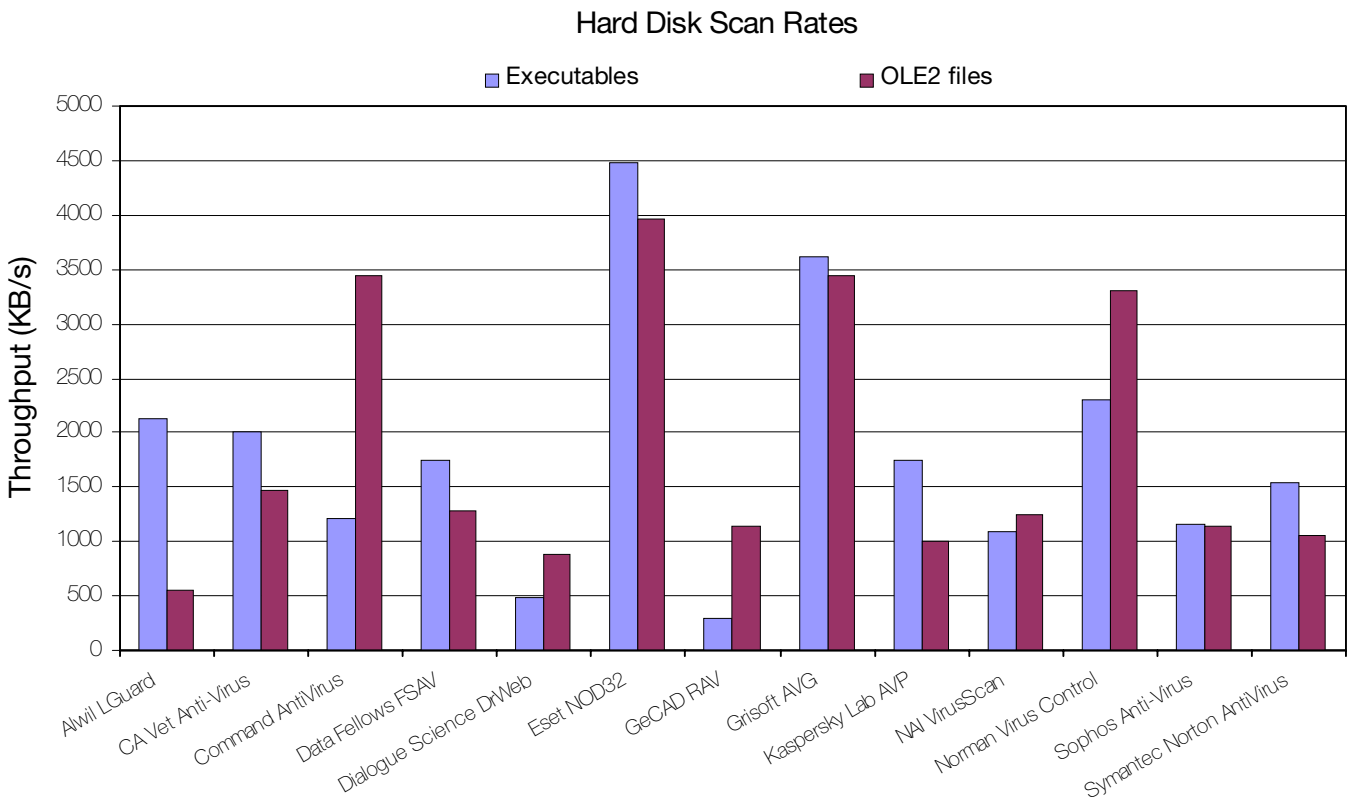
ItW Boot	100.0%	Macro	98.3%
ItW File	100.0%	Standard	99.7%
ItW Overall	100.0%	Polymorphic	97.2%

Eset's NOD32 starts the new year as it ended the last – in fine fettle, earning yet another VB 100% award. As it happens, *NOD* has earned a VB 100% award in each and every Comparative to which it has been submitted (since March 1998) except for those on *NetWare*.

The bulk of the missed samples were in the Macro set, where samples infected with XM/Soldier, W97M/Astia.Y, W97M/Marker.Y and the L, M, U and V variants of W97M/Melissa were missed (amongst others). Complete detection of the Standard and Polymorphic sets was prevented by eight DNA.1206 samples in the former, and all the samples of Win95/SK.8044 in the latter.

The observant reader may notice that *NOD32* missed some samples that it has detected successfully in previous Comparatives. This is due to the fact that this Comparative was run with each product's heuristics in their lowest setting. Had the product been run with its default level of heuristics, then a number of the missed samples listed here would have been flagged as possibly infected.

To round off a fine performance, the Slovakian offering also delivered the greatest throughputs during scanning of the Clean sets and floppy diskettes, returning scan rates of 4000 and 25 KB/s, respectively.



GeCAD RAV v7.50

ItW Boot	100.0%	Macro	97.2%
ItW File	96.3%	Standard	85.0%
ItW Overall	97.0%	Polymorphic	43.3%

GeCAD's Romanian Anti-Virus (*RAV*) has set some high standards in the last few Comparatives. In fact, it has received the VB 100% award in the last two reviews. Unfortunately, this success has been short-lived, and not repeated this time round.

The detection rates observed are significantly lower than have come to be expected – a factor attributable to a bug in the DOS4GW extender. Despite the developers at *GeCAD* suggesting that the bug would only manifest itself on a machine without HIMEM and EMM386 installed, this was not the case during testing. The resulting detection rate was the same for all DOS configurations upon which the test was repeated.

Grisoft AVG v6.087 (database 47)

ItW Boot	100.0%	Macro	98.4%
ItW File	100.0%	Standard	96.4%
ItW Overall	100.0%	Polymorphic	86.1%

While never awarded the VB 100%, *Grisoft's AVG* has put in strong performances of late. The Czech developers will no doubt be delighted to see that complete detection of both the ItW file and boot virus samples has managed to earn *AVG* the VB 100% award this time around, however. Detection rates in the other test-sets were slightly lower, especially in the Polymorphic set where *AVG* failed to detect samples infected with Win95/SK.8044, ACG.B and the E and F variants of W97M/AntiSocial.

Kaspersky Lab AVP v3.0.132 (23/10/99)

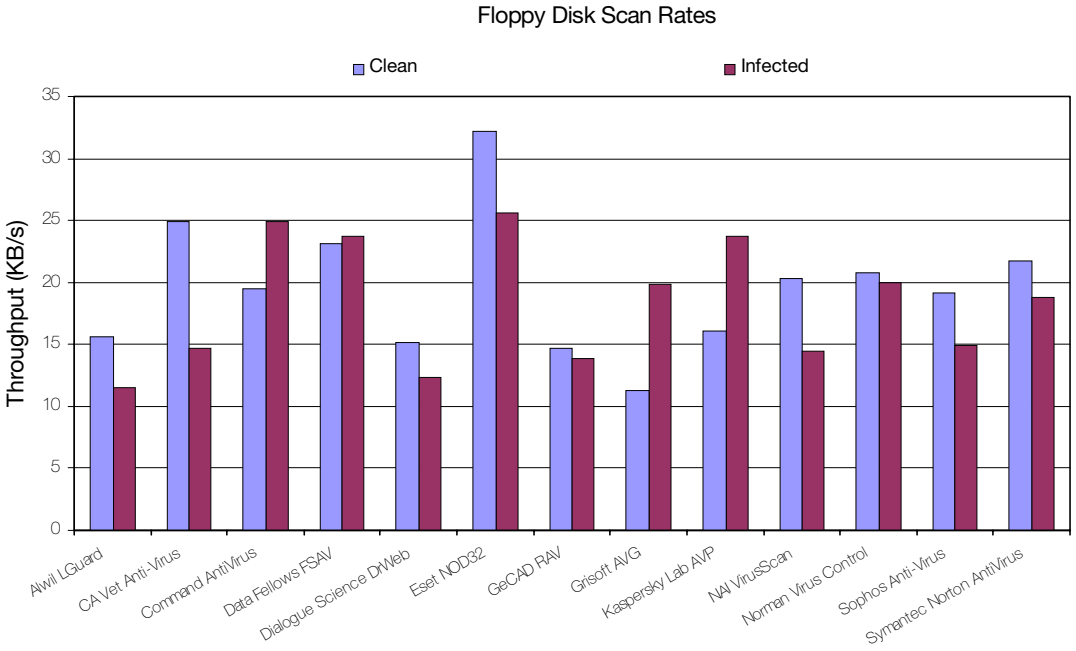
ItW Boot	100.0%	Macro	99.3%
ItW File	100.0%	Standard	100.0%
ItW Overall	100.0%	Polymorphic	100.0%

Unsurprisingly, *AVP* scoops yet another VB 100% award this month, detecting all the ItW boot and file viruses (unlike *AVPLite*, which failed to cope with *PowerPoint* files). A motley selection of macro viruses were missed in the Macro set, including the *Excel*-infecting X97M/Clonar.A and X97M/Vcx.D, and the *Word*-infecting W97M/Astia.Y and W97M/Mck.H.

Speedwise, there is little to report for *AVP*. Throughputs of approximately 1,750 and 1,000 KB/s were observed for scanning of the executable and OLE2 Clean sets respectively, positioning *AVP* amongst the bulk of the products.

NAI VirusScan v4.0.4.4049 (27/10/99)

ItW Boot	100.0%	Macro	99.6%
ItW File	100.0%	Standard	100.0%
ItW Overall	100.0%	Polymorphic	97.7%



Another strong performance from *VirusScan*, missing only 33 samples encompassing five viruses over all the test-sets. Complete ItW detection earns the product its first VB 100% award since March of last year.

Four macro viruses were missed in the Macro set, namely X97M/Clonar.A, W97M/Astia.Y, W97M/Venus.A and one of the four samples of W97M/Walker.B. This latter macro virus employs on-the-fly encryption and decryption of its code, perhaps explaining *VirusScan* having missed one of the samples (although the same sample has been detected successfully by other *VirusScan* product versions since early 1999).

In terms of speed, *VirusScan*, once again, surprises no-one. Fairly middling scanning speeds were observed in terms of executable and OLE2 scanning, and the product, happily, registered no false positives.

Norman Virus Control v4.72 (01/11/99)

ItW Boot	100.0%	Macro	99.7%
ItW File	100.0%	Standard	99.7%
ItW Overall	100.0%	Polymorphic	94.4%

Another product which did not disappoint is *Norman's Virus Control* (*NVC*). Scooping its eleventh VB 100% award since January 1998, *NVC* continues to deliver the detection rates with which it has come to be associated.

Over the entire test-set, 216 samples were missed. The bulk of these were registered in the Polymorphic set, where all the samples of ACG.A and Win95/SK.8044 were missed. In the Standard set, *NVC* joins three other products in failing to detect any of the samples infected with the PE-infecting Win32/Oporto.

NVC delivered extremely respectable throughputs during scanning of the Clean sets. Throughputs of almost 2,500 and 3,500 KB/s were returned during executable and OLE2 file scanning respectively. True to *NVC* tradition, no false positives were observed during the speed tests – a useful factor given the 'no false positives' condition soon to be added to the VB 100% award criteria.

Sophos Anti-Virus v3.27 (01/11/99)

ItW Boot	100.0%	Macro	97.7%
ItW File	100.0%	Standard	99.3%
ItW Overall	100.0%	Polymorphic	94.9%

Having taken something of a winter break from VB 100% awards, *Sophos Anti-Virus* (*SAV*) continued where it left off in May 1999, and detected all the ItW samples successfully. The VB 100% award, absent for the past three Comparatives, is back on the *Sophos* mantelpiece.

Elsewhere in the test-sets, a number of the recently introduced macro viruses were missed (including, the D and F variants of X97M/Vcx, X97M/Manalo.E, W97M/Astia.Y, and a few variants of W97M/Chack), in addition to a small number of missed samples from the Standard set. Interestingly, only four of the Win95/Sk.8044 samples were detected – the complex polymorphic engine successfully managing to elude *SAV*. Additionally, all the samples of ACG.A were missed from this set.

As ever, *SAV* produced no surprises in the Clean set, delivering scanning speeds characteristic of the bulk of products, and registered no false positives.

Symantec Norton AntiVirus (25/10/99)

ItW Boot	100.0%	Macro	98.9%
ItW File	100.0%	Standard	99.7%
ItW Overall	100.0%	Polymorphic	88.8%

Alphabetically the last contender in this Comparative, and the final recipient of the VB 100% award, *Symantec's Norton AntiVirus* (*NAV*) picks up its eighth award. As with a

couple of the other product developers, *Symantec* does not produce a specific DOS version of *NAV*. Instead, the version tested was *NAVDX* – the 'emergency' command-line scanner shipped with the *Windows* product.

Detection rates across all test-sets were high – that in the Polymorphic set was the lowest. This was due to all the samples of ACG (A and B variants), Win95/SK.8044 and W97M/AntiSocial.F being missed. In the Macro set, only one of the three P97M/Vic.A samples was detected, as were all the samples of the B, C and D variants of W97M/Lys.

Conclusions

Apart from the obvious glitches, once again all the products have exhibited impressive detection rates. Ten of the thirteen products detected all of the ItW samples successfully during on-demand scanning, earning themselves the VB 100% award – so congratulations to *CA Vet*, *Command AntiVirus*, *Dialogue Science DrWeb*, *Eset NOD32*, *Grisoft AVG*, *Kaspersky Lab AVP*, *NAI VirusScan*, *Norman Virus Control*, *Sophos Anti-Virus* and *Symantec Norton AntiVirus*.

Samples of the complex polymorphic Win95/SK.8044 (the sample set consisting entirely of infected EXEs for this review) posed problems for the products. Five of them did not manage to detect any of the infected files. Of those products which had implemented Win95/SK.8044 detection, three managed to detect a fraction of the sample set (*Command AntiVirus*, *NAI VirusScan* and *Sophos Anti-Virus*). Only four offerings managed to detect all of the samples – *Vet Anti-Virus*, *AVP Lite* (submitted by *Data Fellows*), *DrWeb* and *AVP*. It will be interesting to monitor how the future versions of these products cope with other variants of the polymorphic Win95/SK as they are added.

Plans are afoot for the addition of further requirements to the VB 100% award. As from the June 2000 review (*Windows 98*), the criterion of no false positives during scanning of the *VB* Clean sets will be introduced.

Another point of interest in future reviews will be how well the products cope with archives containing infected files – an area which will be investigated in the next review (*NT*) for the April 2000 issue.

Technical Details

Test Environment: Server: *Compaq Prolinea 590*, 90MHz Pentium with 80 MB of RAM, 2 GB hard disk, running *NetWare 4.10*. Workstations: Three 166 MHz Pentium-MMX workstations with 64 MB RAM, 4 GB hard disks, CD-ROM and 3.5-inch floppy, all running MS-DOS 6.22 and *Novell* ODI/VLM drivers. The workstations could be rebuilt from image back-ups, and the test-sets were stored in a read-only directory on the server. All timed tests were performed on a single machine that was not connected to the network for the duration of the timed tests, but was otherwise configured identically to that described above.

Virus Test-sets: Complete listings of the test-sets used are at http://www.virusbtn.com/Comparatives/DOS/200002/test_sets.html.

A complete description of the results calculation protocol is at http://www.virusbtn.com/Comparatives/Win95/199801/protocol.html.

February 2000 Comparative Review Addendum

VB offers its apologies to the Icelandic anti-virus company *FRISK Software* for omitting their results from the DOS Comparative last month. The full set of *F-PROT's* results are set out below and set against the rest of the pack.

The detection tests were performed using a test-set of the usual *VB* Polymorphic, Standard, Macro and In-The-Wild sets. Importantly, the ItW set was aligned to the October 1999 WildList, which was announced two weeks prior to the product submission deadline (01/11/99).

FRISK Software F-PROT 3.06a (31/10/99)

ItW Boot	100.0%	Macro	99.8%
ItW File	100.0%	Standard	100.0%
ItW Overall	100.0%	Polymorphic	97.1%

A quick glance at the results below is sufficient to satisfy expectations of the *F-PROT* engine by *FRISK Software International*. Skipping through the ItW file and boot sets, detecting all the samples along the way, earns the Icelandic product its second VB 100% award.

Results across the board parallel those observed for *Command AntiVirus* – unsurprising since the *Command* product uses the *F-PROT* engine. Detection in the Standard set (to which a variety of the recent *Windows* file infectors had been added) was faultless and only three samples (those infected with W97M/Astia.Y) were missed from the Macro set. The weakest area was detection in the Polymorphic set, in which samples infected with ACG.A and Win95/SK.844 were missed.

In terms of scanning speed, *F-PROT* excels (pardon the pun) at scanning OLE2 files, returning a throughput of approximately 3750 KB/s. Executable scanning was less impressive, but happily, no false positives were registered against either test-set.

On-demand tests	ItW File		ItW Overall	Macro		Polymorphic		Standard	
	Missed	%	%	Missed	%	Missed	%	Missed	%
Alwil LGuard	3	99.8%	99.8%	123	96.3%	91	91.6%	11	98.9%
CA Vet Anti-Virus	0	100.0%	100.0%	60	98.4%	264	94.4%	1	99.9%
Command AntiVirus	0	100.0%	100.0%	3	99.8%	62	97.1%	0	100.0%
Data Fellows FSAV	3	99.8%	99.8%	30	99.1%	0	100.0%	2	99.9%
DialogueScience DrWeb	0	100.0%	100.0%	11	99.6%	0	100.0%	6	99.7%
Eset NOD32	0	100.0%	100.0%	60	98.3%	21	97.2%	8	99.7%
FRISK Software F-PROT	0	100.0%	100.0%	3	99.8%	62	97.1%	0	100.0%
GeCAD RAV	23	96.3%	97.0%	92	97.2%	8792	43.3%	236	85.0%
Grisoft AVG	0	100.0%	100.0%	52	98.4%	355	86.1%	90	96.4%
Kaspersky Lab AVP	0	100.0%	100.0%	19	99.3%	0	100.0%	0	100.0%
NAI VirusScan	0	100.0%	100.0%	12	99.6%	17	97.7%	0	100.0%
Norman Virus Control	0	100.0%	100.0%	11	99.7%	195	94.4%	6	99.7%
Sophos Anti-Virus	0	100.0%	100.0%	73	97.7%	191	94.9%	18	99.3%
Symantec Norton AntiVirus	0	100.0%	100.0%	34	98.9%	305	88.8%	1	99.7%