

# **Virus\_Checker**

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COLLABORATORS

	TITLE : Virus_Checker		
ACTION	NAME	DATE	SIGNATURE
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REVISION HISTORY

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## Chapter 1

# Virus\_Checker

### 1.1 Virus\_Checker documentation

\*\*\*\*\*

Virus\_Checker Documentation

by John Veldthuis  
Member of SHI Anti Virus Group

\*\*\*\*\*

Distribution

PGP Signatures

SHAREWARE

~Unpack.library~~~~~

About Safe Hex International

Setting Up Virus\_Checker

BrainFile for VirusChecker

Documentation for French Users

Virus\_Checker Version Notes

MakeKey program

Viruses Virus\_Checker Deals With:

Credits

\*\*\*\*\*

### 1.2 PGP Sigs

PGP Sigs:

As from version 6.44 all Virus\_Checker releases will have PGP sigs attached to them. This enables an extra check to ensure that the file is intact.

Below you will find my signed public key. Save it to a disk file and enter 'PGP <file name>' to decode it. This will produce a file called

'public\_key'. To add my key to your PGP keyring now enter 'PGP -ka public\_key' and follow the instructions on the screen. To verify my signature, now enter 'PGP <file name>' again. It's probably pretty paranoid to rely upon PGP signatures and keys, but then again you might want to have a somewhat unambiguous proof that the distribution archives you have downloaded are intact. Security can still be compromised, if you don't trust the key below you can still contact me to ask for an official key.

To check that the signature matches the file simply do  
 PGP <filename>.sig <filename>  
 PGP will warn you if the signature does not match the file.

-----BEGIN PGP PUBLIC KEY BLOCK-----  
 Version: 2.6ui (Amiga)

```
mQCNAi6h70wAAAAEEANWu8csrvc6Z/JY21kiJwklSIDVltJKlxNGU47AFrIGUTcSD
12WNXFkSn/wdjVLJ6ATgRBeErtxPj8t9p7ple4/cN8uziYzC0gFbQdfH/CmcrM0e
sPQJxcmkUiFG7BpENF9uqS2hNyL1HL4xH0wFXcN1PUZflGxtaQ0mtYy7jZfBAAUR
tCpKb2huIFZlbGR0aHVpcyA8am9obnZAdG93ZXIuYWN0cm14Lmdlbi5uej6JAJUC
BRAuskv2oNrznBERpEEBAS2qA/9GpqEYN43g7kDZbWN8kx1FPhcIuDRRnZquLu/k
dCyPMW0ZQ6SNWp+1+1J/MNdPVVmRvzxacsNAmeKFDGfWATr3v5Z9aWRsfxCUQI0+
1T5IAqzxyj1D5vexvdl+wytXVisDcqMDdjoZqbZmCL7cMBGerh1oWOD9AhiHqzTC
x6/x44kAlQIFEC6wfvMNJrWMu42XwQEBoBsD/0xFuFxRRBvd1d94oTbMyBYensOB
8iVPEE06W4Ai+CN4bUrwsEH0bossz5lpXtekSA4BgpTWt9xthr0S2N1jQwNbcmBO
G+rKA0hrhTafXl1jRr55zNJk38eeCwJCmGI5Z5xYLnzYe4hP5ToL1vTYQq+ZkMGZ
eZxTE/MAT5rr/I1F
=K1zN
```

-----END PGP PUBLIC KEY BLOCK-----

## 1.3 Distribution

### DISTRIBUTION:

Virus\_Checker is a SHAREWARE product as from version 6.40. If you use this software then please send a fee of US\$20 to the author at the address below

You may upload it wherever you choose, but you are not allowed to sell Virus\_Checker for profit, or include Virus\_Checker on a disk which is sold for profit, without the author's (John Veldthuis) permission. Commodore have this permission already.

Please send me any more new viruses so I can update Virus\_Checker, but please don't send a letter asking for a copy without sending me money to cover postage and disks. I cannot afford to send everyone a disk out of my own pocket. If you send just a disk then don't be surprised if you never see it again.

John Veldthuis  
 21 Ngatai Street  
 Manaia, Taranaki  
 New Zealand  
 Phone +64-6-274-8409

Email addresses:

FIDO 3:775/40.0  
USENET johnv@tower.actrix.gen.nz

## 1.4 Unpack Library

As from version 6.45 Virus\_Checker now supports unpack.library.  
What this~library does is enable REGISTERED users to  
check LHA archives without having~to unpack them first. Virus\_Checker  
handles it all automatically through~unpack.library.

To enable this feature you must first be registered  
and have a keyfile. Next~you must tell Virus\_Checker where you wish it to  
unpack the files. This must~be a directory that has no other files in it  
because unpack.library will~delete everything in the  
directory after each archive is checked. Also it~must have enough space to  
unpack all the files. unpack.library must be in~LIBS: directory. Select  
up Use UnPackLib and it should all be go. If the Use~UnpackLib gadget is  
ghosted then you are not a registered user.

The program LHA must be in your C: directory. It has been reported as long  
as it is in your path you are okay but if you have problems put it in C:

\*\*\*\* MAJOR WARNING (Please Read) \*\*\*\*

The directory name given above must have nothing in it. VC will create the  
directory if it does not exist. However unpack.library will DELETE  
EVERYTHING in this directory after each archive it unpacks.

\*\*\*YOU HAVE BEEN WARNED\*\*\*

## 1.5 about Safe Hex International

ABOUT SAFE HEX INTERNATIONAL

SAFE HEX INTERNATIONAL HAS MY PERMISSION TO DISTRIBUTE THIS PROGRAM IN THE  
ARCHIVE "THE NEW SUPERKILLERS" OR IN ANY FORM THEY WISH TO

If you know a virus programmer you can get a reward of \$ 1000 for  
supplying his name and address. The fact is that the law punishes data  
crime very severely. (5 years in jail in most countries).

We are an international group with more than 500 members who have started  
trying to stop the spread of virus. Let me give you some example:

1. Our motto is: "Safe Hex", who dares do anything else today?".
2. A virus bank containing more than 1800 Amiga and PC viruses for  
supporting good shareware anti virus programs.
3. We help people to get money back lost by virus infection.
4. We write articles about virus problems for about 20 computer  
magazines worldwide.

5. We release the newest and the best virus killers around.
6. We have more than 35 PC and Amiga "Virus Centers" worldwide where you can get free virus help by phoning our "Hotline", and the newest killers translated in your own language at very little cost.

For more information contact:

SAFE HEX INTERNATIONAL (Please send 2 "Coupon-Response  
Erik Loevendahl Soerensen International" and a self address-  
Snaphanevej 10 sed envelope, if you want infor-  
DK-4720 Praestoe mation about SHI by letter).  
Denmark  
Phone: + 45 55 99 25 12  
Fax : + 45 55 99 34 98

## 1.6 ShareWare

As from version 6.40 Virus\_Checker has gone from being a freely redistributable program into being a shareware one. The change was not made lightly but too many people are making money off VirusChecker except me. The ammount of money I get sent in decides on if I continue to update the program or not.

Therefore if you use this program then please send a fee of US\$20 to the address given here

John Veldthuis  
21 Ngatai Street  
Manaia, Taranaki  
New Zealand  
Phone +64-6-274-8409

## 1.7 BrainFile

BRAINFILE

As from version 6.40 Virus\_Checker is able to use a brain file so that complete program updates are not required all the time. The file will need to go either in the current directory where VirusChecker is run from or the best place is L:.

The name of the brainfile is VirusChecker.brain.

Put the file VirusChecker.brain in the L: directory and VC will use it  
The file is Checksum'ed and will warn you if it has been altered  
There is a version string imbedded in the file so that you can identify it.

## 1.8 Bootblock.Library

---

BOOTBLOCK.LIBRARY

As from version 6.29, Virus\_Checker can use the SHI Bootblock.library by

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Bäckgatan 6  
60358 Norrköping  
SWEDEN

What this does is add a brainfile of Bootblock viruses to Virus\_Checker. You can update this file as SHI release new brainfiles. This way you can update Virus\_Checker to recognize new BootBlock viruses without getting a new program.

The file BootBlock.brainfile has to go in the L: directory and the Bootblock.library file in the LIBS: directory. The Install script will put it there automatically.

## 1.9 Installation

INSTALLATION:

To run Virus\_Checker once, either type it's name into a CLI window (while the program is in the current directory), or double-click on it's icon from the Workbench. The program will be active until you quit it or reset your computer.

Installing Virus\_Checker so that it will be active all the while your computer is running is a good idea. This is because viruses can be on any disk you insert into any disk drive. With Virus\_Checker always active, you will be protected.

THE WORKBENCH STARTUP  
WORKBENCH 1.3 USERS INSTALL  
WORKBENCH 2.xx USERS INSTALL  
VIRUS\_CHECKER OPERATION  
    THE AREXX INTERFACE  
    THE USE OF THE BOOTBLOCK.LIBRARY  
    NOTICE FOR USERS OF FILE PACKERS AND CRUNCHERS:

## 1.10 WorkBench 1.3 install

WorkBench 1.3 install

Under 1.3, to install Virus\_Checker so that it will be run whenever you reset your computer, edit your startup-sequence to include simply "Virus\_Checker". The program will have to be either in the root directory of the disk you are booting off of, or in the C: directory, for this to work.

COMMAND LINE OPTIONS

---



## 1.11 WorkBench 2.xx install

WorkBench 2.xx install

Under the 2.0 operating system, installation is much easier. All you have to do is drag the icon for Virus\_Checker into the WBStartup drawer on your Workbench disk (or your boot partition if you use a hard disk), and Virus\_Checker will automatically be loaded when the Workbench is loaded.

If you don't load or use WorkBench then edit the user-startup file in the s: directory and simply include "Virus\_Checker" somewhere in it.

COMMAND LINE OPTIONS  
THE WORKBENCH STARTUP  
THE 2.0 USER INTERFACE

## 1.12 NOTICE FOR USERS OF FILE PACKERS AND CRUNCHERS:

NOTICE FOR USERS OF FILE PACKERS AND CRUNCHERS:

If you use a program such as PowerPacker to make your files smaller then be aware that you must check these files before you crunch them. If the file is infected and you crunch them then VC will not find the virus in the file unless you have the crunched checking option turned on

## 1.13 French Users

FRENCH USERS

Someone has gone to the trouble of translating the Virus\_Checker docs into French. If you wish to get them then please read the following

You can get the French doc from AUGL or order it for 20 French Francs at:  
BUGSS c/o Christophe Guillon  
12 allée des écureuils  
La résidence La Chataigneraie Appt 22  
33600 PESSAC  
FRANCE

Direct any questions to rullier@platon.emi.u-bordeaux.fr  
or 2:324/8.1 2:324/8.3

## 1.14 Command Line Options

COMMAND LINE OPTIONS:

The syntax is:

Virus\_Checker [-l###] [-t###] [-w###] [-b] [-q] [-i] [-n] [-m]

---

-c# [dirname]

Where:

-l### tells Virus\_Checker how far from the left edge of the screen to open the Virus\_Checker window.

-t### tells Virus\_Checker how far down from the top edge of the screen to open the Virus\_Checker window.

-w### tells Virus\_Checker how wide you want the window. It has a maximum size of 386 pixels and a minimum of 200. Any numbers out of this range are ignored.

This is ignored by Workbench 2.0 as there is really no need for it due to being able to 'pop' the window up when you want it and hide it when you don't want it.

-b tells Virus\_Checker to send its window to the back of all the other open windows.

-n tells Virus\_Checker not to open a window. It will check memory and disks inserted but you will have to use the ARexx port or the commodities 'Exchange' program (or the hotkey) to get it to scan the whole disk for Link/File viruses or to view the user interface. To stop VC, run VC again, use the ARexx port, or send it a Kill command from the commodities 'Exchange' program.

-q tells Virus\_Checker to check all memory, files, and disks for viruses, then exit. To check the dh0: partition and exit, do the following: "Virus\_Checker -q dh0:". This will check memory, disks, files, and dh0:, then exit.

-i tells Virus\_Checker not to put up a requester when it can't read the bootblock of a disk.

-m tells Virus\_Checker to watch the file s:startup-sequence for any changes. Some viruses will change this file and VC will catch it. (Only works under WB2.0 and above)

-c# where # is 0 or 1  
If -c0 is used then checking inside crunched files is turned off  
if -c1 is used the the checking is turned on.

dirname is the directory/file you want checked for File Viruses on startup. An example to open the window at x/y position of 200/100 and check DH0: is: "Virus\_Checker -l200 -t100 dh0:".

Virus\_Checker l 10 top 20 b i dh0:test

This will set the VC window at x/y position of 10,20, make it into a backdrop window, ignore errors from the BootBlock reads and check the file dh0:test when it starts up.

For the window coordinates, any values outside the size of the WB screen are ignored and any non numerical values are ignored. There must be no spaces between the options and the numbers. Options may be

given in any order.

If Virus\_Checker is already running, and you invoke it again from the command line, it will pop open the already running version.

## 1.15 Command Line Options

For WB2.0 users the command line is

```
L=LEFT T=TOP B=BACKDROPWINDOW N=NOWINDOW Q=QUIT I=IGNOREBB W=WATCHSS  
CHECKCRUNCHEDON CHECKCRUNCHEDOFF K=KILL S=STDOUT IGNORECAPTURE  
BBLIB DIR
```

L=LEFT is tells Virus\_Checker how far from the left edge of the screen to open the Virus\_Checker window.

T=TOP tells Virus\_Checker how far down from the top edge of the screen to open the Virus\_Checker window.

B=BACKDROPWINDOW sets the Virus\_Checker window as a Backdrop window

N=NOWINDOW Virus\_Checker not to open a window. It will check memory and disks inserted but you will have to use the ARexx port or the commodities 'Exchange' program (or the hotkey) to get it to scan the whole disk for Link/File viruses or to view the user interface. To stop VC, run VC again, use the ARexx port, or send it a Kill command from the commodities 'Exchange' program.

I=IGNOREBB tells Virus\_Checker not to put up a requester when it can't read the bootblock of a disk.

W=WATCHSS tells Virus\_Checker to watch the file s:startup-sequence for any changes. Some viruses will change this file and VC will catch it.

CHECKCRUNCHEDON turns on checking inside crunched files

CHECKCRUNCHEDOFF turns off checking inside crunched files

K=KILL will delete files with LINK viruses in them and not try to remove it

Q=QUIT tells Virus\_Checker to check all memory, files, and disks for viruses, then exit. To check the dh0: partition and exit, do the following: "Virus\_Checker QUIT dh0:". This will check memory, disks, files, and dh0:, then exit.

S=STDOUT This is a special mode for Virus\_Checker. It implies that Virus\_Checker will quit as soon as it finishes it's checks, Will not put up any requesters, opens no window, and if it finds any virii it will not delete them but will write the name of the file and virus to the shell from which it started. This can be used by BBS operators to check archives automatically. a line like

```
Virus_Checker >ram:infected STDOUT DH0:
```

would check all files in DH0: and if it found any would write the results to a file called ram:infected.

---

IGNORECAPTURE tells Virus\_Checker to ignore the initial check on the capture vectors. It will still warn you of changes while it is running.

BBLIB This tells Virus\_Checker to use the SHI BootBlock.library. This should be used as any viruses detected by this library will not be added to the normal Virus\_Checker checking. You need BootBlock.library in the LIBS: directory and BootBlock.brainfile in L:

DIR is the name of a dir/file to check for viruses on startup

## 1.16 THE WORKBENCH STARTUP

THE WORKBENCH STARTUP:

SPECIAL NOTE:

If Virus\_Checker is not run from Workbench it will look for the file S:VIRUS\_CHECKER.INFO This is just a standard workbench info file and can be used as described in the next section. This is to allow 1.3 users who run VC from their startup-sequence to config VC easily. It will work for 2.0 users as well. I have done it this way because it is too hard to find where a program ran from under 1.3. This way I only have to look for 1 file in one directory.

To use it add the stuff you want under Workbench and save it. Then copy the Virus\_Checker.info file to the S: directory.

Support for the icon stuff has now been put in. These will override the default settings and also the settings in the S:Virus\_Checker.config file. It will only affect those things that are given in the ICON. The rest will be left as default or as the config file sets them.

The things that you can put in via the Information menu on Workbench are as follows. These will be used if VC is started by Workbench

HOTKEY is only used by WB2.0

```

HOTKEY=string          /* HOTKEY=lcommand shift del          */
LEFT=num              /* LEFT=150              */
TOP=num               /* TOP=25                 */
WINDOW=ON/OFF         /* WINDOW=ON or WINDOW=OFF */
RESIDENT=ON/OFF       /* RESIDENT=ON or RESIDENT=OFF */
IGNOREBBERROR=ON/OFF /* Ignore BootBlock Read Error */
/* use IGNOREBBERROR=OFF to turn requester off*/
WATCHSS=ON/OFF        /* WATCHSS=ON or WATCHSS=OFF */
CHECKCRUNCH=ON/OFF    /* Turn on/off Crunched file checking */
DF0=ON/OFF            /* DF0=ON or DF0=OFF      */
|
V                      ;If Off VC will not check BootBlock or startup-sequence
DF3=ON/OFF
FULLCHECKDF0=ON/OFF    /* FULLCHECKDF0=ON or FULLCHECKDF0=OFF */
|
V                      ;If ON VC will scan all files on the inserted disk.
FULLCHECKDF3=ON/OFF
BBLIB=ON              /* Tells VC to use BootBlock.library */

```

IN ALL CASES DO NOT USE THE QUOTE MARKS " or ' in any place. VC can see the spaces between strings without them.

## 1.17 The ARexx Interface

THE AREXX INTERFACE:

VC has an ARexx port, which means you can send VC commands using the REXX language, available from your Amiga dealer, or as part of the 2.0 Operating System. The port name is "Virus\_Checker". Be aware that case is important and ARexx will not find it if the name is not spelled right. Here is an example ARexx program that talks to VC:

```
/* ARexx programs must start with a comment */

address 'Virus_Checker'      /* Talk to Virus_Checker          */
'checkdrive\df0:'           /* Make virus_Checker check df0:  */
                             /* for viruses                      */
'scanforsaddam\df0:'        /* Make VC check df0: for Saddam   */
                             /* virus damage                     */
'quit'                      /* Make Virus_Checker shut down.   ←
*/
'drive\df1: off'            /* Turn off df1: from being scanned */
```

Notice the '\' between the command and the drive name in the middle examples. This must be put between all commands and their options. 'quit' does not take an option so does not need the '\' character there. Virus\_Checker will take the following commands:

checkdrive\drivename	Check drive 'drivename' for file viruses.
scanforsaddam\drivename	Check drive (DF0:-DF3) for Saddam damage.
quit	Make Virus_Checker shut down.
saveconfig	Save the s:Virus_Checker.file file
window\option	Open or Close window (Option = on or off)
drive\df?: option	Turn on/off Drive scan (Option = on or off)
resident\option	Turn on/off Resident flag " " "
checkfile\device:dir/filename	
checkbootblock\df?:	Check the Bootblock in df? for viruses
reloadbrain	Reload VirusChecker.brain file

Special note for 'checkfile' command.

This one turns off any requesters while doing it's work. If the command OPTIONS RESULTS is used it will return RESULT if no virus found or if a virus is found then the string VIRUSNAME Virus was/is present in the file. This does not mean the virus is gone as there may have been errors trying to remove the virus.

This is really for BBS users who want to check files as they come in. You could write an arexx script to search files and log any that come up with viruses. Later after finding which ones where infected you would run VC over them again via the main menu thus making sure they where clear.

Changed Arexx CheckFile and CheckDir command.

For Checkfile RESULT will still be valid as before BUT now better support. If VCHECK.0.0 <> 0 the there was a file infected.

```

VCHECK.x.1 will hold the file name and
VCHECK.x.2 will hold the Virus name
Here is how you can scan a disk using arexx.
/Small Arexx script */
options results
address 'Virus_Checker' 'checkdrive\DH0:
say VCHECK.0.0
if VCHECK.0.0 > 0 then do
do i = 1 to VCHECK.0.0
say VCHECK.i.1
say VCHECK.i.2
end
end
This can be used for BBS checks. Unpack the archive to a temp dir and
then run checkdir over that and check the results.

```

CheckBootBlock command

This one also needs the options results and returns messages.

If the disk is clear or you give it a number outside the range of df0: to df3: it will return 'Okay', if VC had trouble reading the disk the message returned is 'ERROR reading BOOTBLOCK', if the bootblock is Not the normal one then 'NON-STANDARD BOOT CODE' is returned. If the Bootblock is infected then the virus name will be returned. At present there is no way to clear the virus from Arexx but I am working on it. Requesters are disabled while this is done.

## 1.18 MakeKey program

MAKEKEY

This is a specially written program to allow users who have registered to make a keyfile from the information they receive.

It can be run from SHELL or WORKBENCH and opens a GUI. It requires WB2.04 or better to run.

Enter the data into the gadgets and click on MakeKey and the keyfile will be generated.

WARNING WARNING WARNING WARNING WARNING WARNING WARNING WARNING WARNING

Do not click on MakeKey if you do not have the right information. Doing so will probably slow the system down greatly and may even appear to lock up the Virus\_Checker program.

## 1.19 Virus\_Checker Operation

VIRUS\_CHECKER OPERATION:

Upon running Virus\_Checker, it will first check your memory for viruses and tell you if any were detected. They will either be removed or disabled. Next all disks in the floppy drives will be checked. Any disk put in any drive (df0: to df3:) will be checked.

---

If Virus\_Checker finds and disables the LAMER virus in memory, the machine may guru. Once the machine is reset, however, the virus should be gone.

## 1.20 The 2.0 User Interface

THE 2.0 USER INTERFACE:

Many Thanks goes to Steve Tibbett for designing and most of the C code for this section. All I did was translate it into assembly and intergrate it into Virus\_Checker.

This section describes the user interface that Virus\_Checker uses when Kickstart 2.0 is detected in your computer. This section does not apply for users with Kickstart 1.3. Kickstart 1.3 users can see the special note for using the Config file below.

Virus\_Checker can be used either with a window open, or with no window open. When used with the window closed, Virus\_Checker will only show itself when it has something to tell you about. If you insert a disk containing a virus, Virus\_Checker will pop up a requester telling you about it, and give you some options to deal with it.

The normal Virus\_Checker user interface can present itself in two forms. One is the 'TitleBar Window', where only the close gadget, the depth gadget, the Zoom gadget, and the program name are visible.

If you click the Zoom gadget, Virus\_Checker's window will change into a window occupying nearly half a normal 640x200 Workbench screen. This window is broken up into three sections: The Preferences section, the Files section, and the Drives section.

In the Preferences section, you can tell Virus\_Checker whether it should open a window or not, whether the window should be a Backdrop window, and whether Virus\_Checker should quit immediately when run, or whether it should stay resident. You can also set the window position, and the hotkey that will call Virus\_Checker when you want to open it's window or pop it to the front. (The hotkey format is described in the AmigaDOS 2.0 manual, in the section on the commodities exchange). As from 6.05 you can also tell Virus\_Checker to ignore errors when reading the BootBlock. It will be saved in the config file.

THE DEFAULT HOTKEY is Left-Amiga Shift del

The Files section is where you list the drives or directories that Virus\_Checker will check when you click the Check button. If you 'Add' DF0: and DF1: to the list, then choose Check, then Virus\_Checker will check all the files on both DF0: and DF1: for file viruses.

The Drives section lets you specify which of your floppy disk drives will automatically be checked for bootblock and file viruses when you insert a disk. If you have a program like CrossDOS and you don't want

---

Virus\_Checker looking at the msdos disks then simply disable it and Virus\_Checker will never look at that drive again. Unless you enable it again.

The Second row of Drive gadgets turn on and off the automatic scanning of the entire disk. These are disabled by default. If you turn them on, then Virus\_Checker will scan the entire disk every time you insert one. Checking for file viruses takes some time, so you may not want this on for a drive that you are constantly moving disks in and out of. The state of these gadgets is also saved in the Config file.

Any of the Gadgets that have text with an UnderScore beneath then can be accessed by simply pressing the that key on the keyboard. For example. If you wished to change the Hotkey you will notice that the H in HotKey is Underlined. This means simply by pressing the 'h' key that gadget will become active.

The options that you set in the user interface can be saved to disk using the Save button. The options are saved to the file "S:Virus\_Checker.Config", and are read from there whenever the program is loaded.

#### KEYSTROKES:

The Following keys will activate the following functions, when typed into the Virus\_Checker window:

- s - Will activate the Scan mode
- m - Will immediately do a complete memory scan (same as startup)
- f - Will activate the Saddam Disk Scan (used to fix Saddam virus damage)
- 0 - 3 Will check the First File in startup-sequence and bootblock on disk in drive which matches number

There are also some options on the menu (hold the right mouse button to get to the menus) which have keyboard-equivalent shortcuts. These are next to the inverse A on the menu.

#### LINK/FILE VIRUS CHECK:

If you want to check a disk for Link/File viruses then put the disk in any drive. Make sure the Virus\_Checker window is active and use the right mouse button to bring up the Project Menu. Select the "Link/File Scan" and release the mouse button. An alternative way is to just press the 's' key on the keyboard.

This will bring up a requester asking you which drive to check. Enter the drive name in the box, eg. DF0:, DH1:,RAD: etc. Under WB2.0 you can also use the "Use Requester" option. It will then check all the files on that drive. You can also enter directories if you want to eg, c: df0:c, df0:libs etc.

When Virus\_Checker is scanning the disk and you know that a directory is clear and don't want to check it press control-d in the window with the filenames and Virus\_Checker will ignore that directory and go back up one level.

If you want to stop the check completely press control-c in the

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window with the filenames and Virus\_Checker will print a break message then stop scanning the disk and go back to normal scanning.

If Virus\_Checker brings a requester up that says a program just run has infected your memory with the Xeno Virus, it has already disabled it. You should immediately check all files on the disks that are in the drives at that time. This means that a program that you just ran or a program some other program just ran is infected with the virus and all files should be checked to find out which one it was.

With viruses which use a RomTag I have decided to clear out all RomTags to make sure I remove the Viruses from the list. In doing this you will lose things like Recoverable ram disks such as RAD:, VD0: etc. If you have a virus make sure that you save anything in the ram disks that you want before rebooting. The ramdisks and others will disappear on a reboot. My policy is better safe than sorry.

#### BRAINFILe ADDITION:

When VC finds a Non-Standard bootblock it will bring up 4 gadgets. One of these gadgets is Learn. Pressing this will allow VC to remember this BootBlock and not bother you again with it. To do this VC writes a file called VCBrainFile to the S: directory. If you have a single drive this will invoke a requester asking that Volume something be put in the drive. This will then save to the file. On Startup VC will check for the file in the S: directory and read it if it is there. If not it will carry on without it. If you get an error then VC will tell you about it and will happily write over the file next time.

#### NON-STANDARD BOOT CODE:

When Virus\_Checker brings up a Requester that says the disk has non-standard boot code, this means that the code in the boot block is not what should be there. This does not mean that it is a virus as many games use copy protection in their boot blocks, and there are many bootblocks that do interesting things, that are not viruses. You should however be cautious if it is not a game. Do not replace the boot block if you are not sure. If something strange happens then please send a copy of the disk to me so that I can check it out. To determine if an unknown bootblock is likely a virus:

1. Format a blank disk so you know it is clear.
2. Make sure all disks except the one just formatted are write protected.
3. Boot from the disk that you suspect.
4. Place formatted disk in drive zero and then reboot.
5. Take disk out of drive zero and turn off computer for about 30 secs.
6. Run the Virus\_Checker program. If the Virus\_Checker finds non-standard boot code on the newly formatted disk, you have found a new virus. Please send it to me.

## 1.21 Credits

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## CREDITS:

My thanks go out to...

Steve Tibbett    For designing and most of the C code for the 2.0 User Interface on Virus\_Checker.

Thomas Neumann    For the inclusion of unpack.library and His help on a bug

Tim Nugent        For the conversion of this doc file to AmigaGuide format.

ARexx             Developed on an Amiga 1000 and is a 100% Amiga product.

John Veldthuis.

## 1.22    VIRUSES VIRUS\_CHECKER DEALS WITH:

## VIRUSES VIRUS\_CHECKER DEALS WITH:

Virus\_Checker deals with many bootblock viruses, some of which are not listed here. The ones that are listed here describe all the types of bootblock viruses, so listing all the rest of them would be redundant.

## SCA:

The SCA is the simplest virus to deal with, as it's not actually DOING anything except hiding in memory, until you reboot. We just look at CoolCapture and fix it to get it out of RAM.

## AEK:

This is a clone of the SCA virus and we get rid of it in the same manner.

## LSD:

Another SCA clone and uses the same code.

## BYTE BANDIT:

The Byte Bandit virus takes the DoIO() vector and re-directs it through itself. Thus, any attempt to read or write the boot block (ie, AmigaDOS trying to figure out what kind of disk it is) results in the BB writing itself onto that disk. We couldn't just rewrite the boot block, we have to get him out of RAM first. This virus also has an interrupt that crashes the machine every 5 minutes or so after it's infected a few of your disks. Ow. It stays in memory not via the Capture vectors, but by a Resident module. When machine looks crashed press these keys at the same time from left to right LAlt, LAmiga, Space, RAmiga, RAlt. This will restore things for another 5 minutes.

## REVENGE:

Basically, a Byte Bandit clone except it will bring up an obscene

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pointer a few minutes after you reboot. We treat it much like the byte bandit.

#### BYTE WARRIOR

Jumps right into 1.2 Kickstart. Won't work under 1.3. Hangs around via Resident struct, doesn't do any damage.

#### NORTH STAR/STARFIRE:

Like SCA, hangs around via CoolCapture, killing CoolCapture kills the North Star.

#### OBELISK SOFTWARES CREW:

Hangs around via CoolCapture, also watches reads of DoIO() (but doesn't infect EVERY disk - only ones you boot from).

#### IRQ:

This is the FIRST Non-Bootblock Virus. It copies itself from place to place via the first executable program found in your startup-sequence. It SetFunction's OldOpenLibrary(), has a KickTagPtr, and lives in the first hunk of an infected program.

#### PENTAGON CIRCLE:

This one looks at the DoIO vector, and has a CoolCapture vector. It will write itself over any virus inserted, but not onto anything else. No danger, easy to eliminate. Holding left button while booting with this one shows different screen colour, but doesn't get rid of it.

#### HCS:

Hooks into the System Z protector. This is another virus protector that can write itself to disks. Anything that spreads itself, under any name, is a virus. Doesn't do anything except during a reboot, then examines disks and writes over viruses.

#### DISK-DOKTORS:

This is another virus which looks at the DoIO routine for the reading of any bootblocks. If it finds one it will rewrite a copy of its code to it if it can. This one also patches into the Vertical Blank interrupt and seems to format your disk after a certain number of interrupts (can't be sure though). The nasty bit is it also creates a task called clipboard.device which spends its life copying itself through memory fragmenting the memory into small blocks. Calls ROM CODE direct so won't work under V1.3. We restore the DoIO routine, the Vert Blank interrupt and RemTask the clipboard.device.

#### LAMER EXTERMINATOR:

This virus was sent to me by Andrew Mercer of the Palmerston North group. His letter said that He noticed strange things on his disks. On disassembling the virus I found that most of it was encrypted and the data was encrypted randomly using the beam position of the screen. Thus it appears different each time. It patches the trackdisk.device to look at reads and writes, It patches the Sumkick vector in exec in case someone tries to get rid of it. When it detects a read or a write it will randomly select a sector on the disk and will check if it is a data block. If it is it will write LAMER! all over the sector and rewrite it. Some say this Virus will write to write protected disks. I have not had this happen to me and

I can see no special code in the disassembly to accomplish this feat.

**TIMEBOMB:**

This is a strange Virus. It does not insert itself into any vectors. However it will copy itself back to the disk it came from. When the count gets to 2 it will wipe out the Root Directory of the boot disk and display an alert. If the count is over 2 it will just display an alert.

**GADAFFI:**

Inserts itself into the CoolCapture vector, Uses a RomTag structure and patches the DoIO vector. Jumps directly into the Kickstart so will only work under V1.2 Kickstart. After 13 copies it will step the heads of drives 0 and 1 in and out. We simply clear all vectors and Use the old V1.2 DoIO code entry point.

**BSG9:**

This is similar to the IRQ virus in that it does not live in the Boot Block. It operates differently. Inserts itself into the RomTag pointer. It then loads the program it replaced and executes it. On Reboot the RomTag is called. It patches the Intuition OpenWindow Routine to its code. It then returns. Once AmigaDos opens up the CLI window the virus code gets run. This gets the startup-sequence file and gets the first command that is run. It then checks if it is already here. If not, then it moves this program from its directory into the devs: directory and renames it a strange name. It then copies itself to replace the command it just moved. A give away is the file size. The Virus size is 2608 bytes and there will be a file with what looks like spaces for its name in the devs: directory. To get rid of it we copy the file in devs: back to the c: directory and rename it. Then delete the file in the devs: directory. In memory all we do is change the RT\_INIT code which is run on reboot to do an immediate RTS. The memory for the program is still used but the Virus is disabled. It will display a screen of its own which says:

```
A Computer Virus is a disease
Terrorism is a Transgression
Software Piracy is a crime
This is the Cure
BSG9 [plus some other junk]
```

**WAR HAWK:**

This Virus installs itself into the CoolCapture Vector. It copies itself to the disk when the computer is warm booted. After every four copies it displays a message. To get rid of it we simply clear the CoolCapture vector.

**VKILL (or AIDS):**

This is another virus hidden as a Virus protector. When booted it copies itself to the stack area that is not used. It then patches the CoolCapture vector to survive a reboot. It patches the PutMsg vector of ExecBase to watch for BootBlock reads and writes. When it finds one it checks it and tells you if a virus is present. If you want to get rid of it it will copy itself to the disk. To remove it we Clear the CoolCapture Vector and SetFunction the PutMsg vector

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**ULTRAFOX:**

This one lives in the CoolCapture vector. When you reboot it will change the DoIO vector and wait for a BootBlock read. When it finds one and the disk is not already infected it will write itself to the bootblock. After every 16 copies it will put a custom copper list which displays greetings.

**PVLPROTECTOR:**

This one is another bootblock protector. When it finds a virus it will write itself to the disk instead of a proper bootblock. All we do is set the RomTag to do a RTS.

**REVENGE LAMER EXTERMINATOR:**

This is another file virus. It is supposed to speed up disk operations by 800%. This was found on a BBS and when run patches itself into several places. It will read the s:startup-sequence file on reboot and will edit it so that it runs itself as the program. It sticks out because the first line in the startup-sequence will be blank. When the Checker finds it look in the Root directory and you will find what looks like a blank filename. Virus Checker will rename this virus for you. You can then delete the virus and alter your startup-sequence to get rid of the first blank line

**UNKNOWN:**

This is a virus that has no names anywhere and will only work under V1.2 Kickstart. Very easy to get rid of.

**JITR:**

Very mild sort of virus this one. Only writes itself to the BootBlock. Does nothing else. Easily fixed by clearing the CoolCapture vector.

**MICROSYSTEMS:**

Haven't got this one yet so can't tell you much about it. Just have to restore a vector in the exec.library and clear the Exec CoolCapture vector.

**XENO:**

This virus is a very nasty one in the way that it infects all programs that can be run. It does not need the program to be run but even someone doing a LIST or DIR on a disk when the virus is present will infect all those other files on disk. It patches into the dos.library and takes over the Open(), Lock() and LoadSeg() calls in dos. This way it can intercept the files being looked at. It will copy itself to the start of every runnable program and alter the file so that it still works. There is also an encrypted message which says 'Greetings from the Xeno Virus' but I have not worked out when this appears yet. To get rid of it from memory we have to reset the changed vectors. To get rid of it from the file is very much harder. First the file has to have the virus removed from the code. Then the relocation data pointers have to be changed so that everything still works. When Virus\_Checker finds a file infected with the Xeno Virus it will tell you which file it is and bring up a requester. You can now check the files on drive zero for further viruses if you want.

**16 BIT CREW:**

This virus does not do much and only infects disks that you

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boot with. To get rid of it from memory we clear the CoolCapture Vector and restore the DoIO vector.

#### NEW ALIEN BEAT:

This one will only work under Version 1.2 Kickstart as it jumps into the ROM code directly. To fix in memory we have to manually patch the DoIO vector and FindResident Vector with the correct values for 1.2. and clear the Capture vectors.

#### BLACKFLASH:

This virus will display a message after a certain amount of copies of it have been made. It says that your computer is sick and has a virus. To remove it we just restore the DoIO vector and clear out the capture vectors.

#### DIGITAL EMOTIONS:

This is another tame virus. Only infects disks when it is rebooted. Clean out the Captures vectors and it is gone.

#### SCARFACE:

This takes over the BeginIO routine in the trackdisk.device to watch for reads and writes to the disk. When it finds one it will write itself to the disk. It also has a VertBlank interrupt which will do something after a while. I think it only reboots the machine. It also has a romtag which we have to clear out.

#### TURK:

Another simple virus. Does not do very much. Simple to get rid of.

#### JOSHUA:

Again, lives in the TrackDisk BeginIO and VertBlank Interrupt. Also has a RomTag to survive reboots. This one will display a sprite after so many interrupts. I am not sure what it looks like but maybe someone wants to wait until it is triggered. It counts interrupts. It will also infect every disk but in the drive that is not write protected. Data in it that says something is encoded. To remove we simply restore the BeginIO code and VertBlank Interrupt and wipe out the RomTag.

#### BUTONIC:

This is another file type virus. It uses the DoIO vector to check for reads to the Root Block of a disk. It will then write the virus to the disk and add it to the startup-sequence as the first instruction. The filename of the virus and its comment make it invisible when doing a DIR but shows up with a LIST. This will also bring up GURU messages and change the title of the active window to some german stuff. To get rid of it we clear the ROMTAG, restore the DoIO vector and delete the file off the disk. You will need to remove the blank line from the startup-sequence where the virus was. The second version of this infects the Level 2 Interrupt as well and uses different file names to hide itself in the Startup-Sequence.

#### CENTURIONS;

Another file type virus. It hooks into the Trackdisk BeginIO() vector and waits for reads to the boot block of a disk. It changes the SumKickData() vector so that it will survive a checksum. To

get rid of it in memory we simply kill the RomTag vector, restore the SumKickData vector and patch the trackdisk code it uses to skip over the virus. When it finds a read to the bootblock it will check the write protect. It will then find the startup-sequence and find the name of the first command. It then looks for the command in the root directory, then the c directory. Once found it adds itself to the front of the file and is run when the startup-sequence is run again. Signs of infection are that it adds 3916 bytes to the size of the file it infects. After every ten copies it will change the pointer to a smiley face and a message will scroll across it.

#### CODERS NIGHTMARE:

A boot block virus. Fairly tame this one but it will wreck copy protected disks. It takes over the DoIO vector waiting for reads to track zero block 0 then it writes itself to the disk if it can. It has a level 2 interrupt which after a time will display a message and then reboot the machine. To remove we just reset the DoIO and Level 2 Interrupt vectors and clear out the RomTag.

#### FORPIB:

Another boot block virus. It takes over the Trackdisk BeginIO vector and waits for reads to block 0. Then it copies itself if it can. It also has a VertBlank Interrupt and after a certain time a message will appear. (I think). There is a bug in this in that it tries to use a color register but it has got the wrong value in there. To remove just restore both vectors and remove the RomTag.

#### GX TEAM:

Yet another bootblock virus. This just takes over the DoIO vector and after a certain number of copies it will bring up a requester then guru. To remove replace the DoIO vector and clear RomTag and Capture vectors. This virus will only work under version 1.2 kickstart.

#### GREMLINS:

Yes, another bootblock virus. Sickening isn't it. Don't know what this one does but very easy to remove. Just zero the Capture vectors, restore the SumKickData vector and DoIO vector and it's gone.

#### KAUKI:

This boot block virus will only work under Version 1.2 kickstart. As I don't have it I can't tell you what is displayed but something is displayed. Easy to get rid of. Just clear the Capture vector and set the DoIO vector to \$FC06DC just to make sure.

#### SADDAM virus

This is a file type file that hides itself as the Disk-Validator. The disk on which it came was unvalidated so AmigaDOS loaded it to try and validate the disk. This causes the virus to run and infect your machine. It does infect a lot of vectors that need fixing when it is found. I just wipe it off the disk and it is left to the user to put a new Disk-Validator on the disk.

It will change the root block BitMap pointer so that if the virus is not running AmigaDOS will think the disk is UnValidated and load the virus. It will also change DATA blocks so DOS does not know them unless the virus is running. When the virus is triggered it will wipe

out the whole disk and bring up a Requester telling you it is the SADDAM virus.

**CCCP:**

This a combination Bootblock and file virus. It changes itself so that it will write to the BootBlock and to random files on the disk. The only way to find it on disk is to scan the whole disk.

**DISASTER MASTER 2:**

This is a fairly simple File type virus. It will write to a disk after a warm boot and if there is enough room on the disk will make a file called cls in the C: directory and add cls \* as the first line in the startup-sequence. We just clear the RomTag and Capture vectors, check the DoIO vector and that's it for memory. Just wipe the file off the disk and warn the User about the startup-sequence.

**HAWNES:**

A simple file type virus. It infects the OpenLibrary() vector waiting for an opening of intuition.library. It then patches OpenWindow() to it's own routine. When a window opens it checks the startup-sequence and if not already present, copies itself to the disk using DOS. It patched the VertB int and will display something after a while. It will Wipe out a disk after so many copies as well. Simple to remove and alter the first line in your startup-sequence which will hold in hex \$C0A0E0A0C0.

**RETURN OF THE LAMER:**

Another file type virus which replaces the Disk-Validator. It uses a RomTag to stay in memory, infects vectors, VertBlank Int, trackdisk.device BeginIO(), and another vector in the trackdisk. When the RomTag is called it infects the OpenWindow() vector. Just delete the Disk-Validator and replace it from a good disk. In memory, just restore the vectors and clear the RomTag out.

**TRAVELLING JACK:**

A Link type virus this one installs itself into the internals of AmigaDOS taking over the BCPL inner workings. To check in memory we have to wind our way thru many vectors and then reinstall the original from the virus. To remove from file we just remove the first code hunk. Seems to copy itself to each file that has been read but not sure on this.

**LIBERATOR:**

This is a file virus that says it will remove all viruses but is in fact a virus itself. It copies itself to the s/startup-sequence with a line that says 'memcheck s'. You will also find a file called .FastDir on the disk. After a certain count it will delete the entire s/startup-sequence and display a message, and stop access to the floppy drives and DH0:. It will also stop most virus checking programs by RemTask()ing them. Virus\_Checker 5.30 and above is safe from the current version as the Task name has been changed. Easy to remove, we just delete the file.

**MENEM'S REVENGE:**



This is a Link virus. It starts a Task called a single space. This task sole job is to Patch the LoadSeg vector in DOS. It thus infects programs that are run. It is triggered thru the Amiga's time and will write it's message to files on dh0: and/or df0: The message it writes and then displays as an Alert is

Menem's Revenge has arrived  
Argentina still alive

All VC does is Remove the Task and reset the LoadSeg vector. It will be removed from files as they are scanned. It adds 3076 bytes to each file it infects.

There are some problems with this virus. It does not know Amiga Files very well and will sometimes get it wrong. VC will remove the virus okay but the program may still not work due to this. Also when the virus is removed from memory the computer may lock-up or GURU after a while. This may be due to memory not being freed properly when the task is removed.

#### TRABBI:

Harmless link virus. Will try to link itself into all files it can get at. Uses the drive it was started from. Creates a Task that will play a tone/music and put up a requester after a delay.

#### METAMORPHOSIS:

This one is a combination Link/BootBlock virus. It will pick random files in the c: directory to infect when every the OldOpenLibrary() call is made. It also infects the DoIO() vector and this will write the bootblock part of the virus.

## 1.23 Virus\_Checker Version Notes

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*****  
Virus_Checker Version Notes  
*****
```

Version History shortened

#### 6.28 Released 20 June 1993

Corrected small bug where 6.25 and up would crash on some machines  
Mostly A600's affected  
Added new feature for checking archives. It is a one shot mode run only from CLI/SHELL and WB2.0x and up. See COMMAND LINE OPTIONS  
Added DM-Trash virus to checker  
Added InstallVC script. This uses CBM Installer program  
Added new special mode to WB2.0x command line. BBFILECHECK will force the file check to see if the file is a BootBlock virus. WARNING. This is a dangerous option and is only used for testing a BootBlock dump for viruses. Don't use it as it may detect good files as viruses.

#### 6.29 Released 27 July 1993

One more change for detection of menems revenge virus and replex. Some still saying it is being picked up but I cannot see how.  
Added option to disable CoolCapture not zero requester.  
Added support for the SHI's Bootblock.library. By using this library

and its brainfile you have the ability to add new Bootblock viruses as SHI release new brainfiles. The BootBlock.brainfile goes in the L: directory and Bootblock.library in LIBS:. See BBLIB in docs  
Added New version of SKick into Capture check.  
Found small bug in WB support where VC would not recognise the YES command in the icon.

6.30 Released 17 August 1993

Changed way in which Virus\_Checker reads low memory. Will now only cause 2 Enforcer hits.  
Corrected bug that prevented BBLIB shell option not to work.  
Updated to latest BootBlock.library and Brainfile which adds more viruses  
Added more Bootblock viruses to internal code as well  
Added FU?K virus to code

6.31 Released 22 September 1993

Okay for all the whingers that are complaining about Enforcer hits then you can now turn off the low vector checks. Dont complain if you get hit by a virus and VC does not pick it up due to this. LOWOFF is the keyword  
Added a file version of VKill virus. Looks like a copy of the BB virus that has just had a header stuck on it  
Added Crime \* 2, Red Oct, another Travelling Jack and Nano viruses  
Fixed small bug in SnapShot window. Would not save position in Config

6.32 Released 26 September 1993

Fixed bug in LOWOFF command line. Seems I checked the signal after I checked the vectors. Fixed now  
PowerPacker 4 files getting reported as CRIME virus

6.33 Released 6 October 1993

Taken out both Crime viruses. Too many PowerPacked files getting caught as crime virus.  
Found crashing bug when one of the libraries was not present.  
Virus\_Checker will now ask before deleting any files.  
Added Wahnfried, Sentinel, Overkill, Mutilation, Guardians, Ingo Return, Fuck device, Angel, and Detlef BB viruses  
Added Disktroyer and another version of the Nano File viruses

6.34 Released 30 January 1994

Added Dag creator trojen, Also DM-Trash trojen, This one acts like a BBS utility but adds a user to the BBS data files as a Sysop. Not sure which BBS it goes for.  
Added Satan, Soapaulo, Starcom BB viruses

6.40 Released 20 April 1994

Changed checking on Paradox virus as it was being picked up in memory when it should not have been  
Big Add here. Finally added a Brainfile to VirusChecker. Therefore unless there needs to be an update to the program I only need to update the brainfile. See BRAINFILE

6.41 Released 23 April 1994

Found a bug in the brainfile when I went to add a Linkvirus to it.  
Added new Arexx command. RELOADBRAIN. This will force VC to reload the VirusChecker.brain file. Handy for updating a new brain file

6.42 Released 18 July 1994

Bug in VC.guide. A missed brace made the SHI info disappear  
Bug in Initate code if signal not got. Would crash machine  
Extended Buffer read for Crunched files. Was not big enough  
Added an ABOUT menu that lets you know what versions are there  
Finally got the NewLookMenus to work, Was using the wrong TagList  
No more Enforcer hits and removed LowOff gadget/arg. Now uses a different method to get the low vectors

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- 6.43 Release 24 July 1994  
Bug in Keyfile code. Missed a register save  
Big bug with Getting low vectors on 68000. Assembler used 68020 mode of PC relative which the 68000 did not understand. Result CRASH
- 6.44 Released 28 October 1994  
Changed Arexx CheckFile and CheckDir command.  
For Checkfile RESULT will still be valid as before BUT now better support. If VCHECK.0.0 <> 0 the there was a file infected.  
VCHECK.x.1 will hold the file name and  
VCHECK.x.2 will hold the Virus name  
Here is how you can scan a disk using arexx.  
/\* Small Arexx script \*/  
options results  
address 'Virus\_Checker' 'checkdrive\DH0:  
if VCHECK.0.0 > 0 then do  
do i = 1 to VCHECK.0.0  
say VCHECK.i.1  
say VCHECK.i.2  
end  
end  
This can be used for BBS checks. Unpack the archive to a temp dir and then run checkdir over that and check the results.
- 6.45 Released 3 December 1994  
Added unpack.library for use with registered versions. This allows the use of unpack.library to check LHA/LZH archives without having to unpack them first  
Added Polyzygotronifikator virus. Tricky little beast. VC does not remove the virus code but disables it.  
There was a keyfile generator in Germany for VC. Due to this I changed format and as such those who used it are wasting their time and mine. This cost me \$200 in postage alone to send out new keyfiles to everyone. I hope the mongrel is happy now. BTW there is fingerprint in the key it generated and stand by for a surprise for those who used it.
- 6.46 Released 31 December 1994  
Added KEYPATH variable. If running under WB2.04 or better VC will use the enviroment variable KEYPATH to look for it's keyfile.  
Changed code so that Polyzygotronifikator is now completely removed  
Small bug with Commander virus. Did not allocate a big enough buffer  
Checking in LHA files worked but not main scan.
- 6.47 Released 31 December 1994  
Bloody assembler did brain in again. New Release
- 6.50 Released 22 January 1995  
Added updated BootBlock.brainfile  
Major change to way scanning code works. No longer uses decrunch.library, instead uses unpack.library. Key still required for LHA files though.  
If virus found in file that has been crunched and it is a link virus then VC will remove the virus and save the file out as uncrunched.

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