SonicWALL Bare Metal Recovery and Local Archiving - Workstation

User's Guide

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Table of Contents

Chapter 1.   Introduction

1.1   What is SonicWALL Bare Metal Recovery and Local Archiving - Workstation?

SonicWALL Bare Metal Recovery and Local Archiving - Workstation solves all backup problems, ensuring the safety of all information on your PC.

Using it, you'll be able to create exact hard disk images, including all operating systems, applications and configuration files, software updates, personal settings and all of your data.

If failures occur that block access to information or affect system operation, or if you accidentally delete necessary files, you'll be able to restore the system and lost data easily.

You won't have to select files and folders for backup, as many backup applications require. Instead, you will store all your disk data. As a result, SonicWALL Bare Metal Recovery and Local Archiving - Workstation is simpler and faster than competitive applications.

You can create images on local hard disks, CD-R/RW, DVD+R/RW, DVD-RW, or a variety of removable media, such as FireWire (IEEE-1394) and USB (1.0, 1.1 and 2.0) devices.

You can restore the partition or lost data from an image any time. You can also connect an image as a virtual drive, browse its contents and extract selected files to the hard disk.

The unique technology developed by SonicWALL and implemented in SonicWALL Bare Metal Recovery and Local Archiving - Workstation allows you to create exact, sector-by-sector disk images and restore their content **directly from Windows** without the reboots typical for similar products.

Wizards and a user-friendly, Windows XP-styled interface will make your work even more convenient. Just answer some simple questions and let SonicWALL Bare Metal Recovery and Local Archiving - Workstation take care of everything else! When a problem occurs, it will get you up and running in short order.

1.2   What is a disk image?

A disk (partition) image is a file that contains a copy of all information stored on a disk. The image stores the installed operating system, all programs, and all documents and settings.

By backing up your information regularly, you will protect yourself from data loss in case of system failure or PC malfunctions.

By default, SonicWALL Bare Metal Recovery and Local Archiving - Workstation image files have a ".tib" extension and can contain images of several partitions or disks.

Images of large partitions or several disks could be quite large. If so, they can be split into several files that together make an original image. A single image can also be split for burning to removable media. A single image that is split across multiple CDs is sometimes called a "spanned volume."

SonicWALL Bare Metal Recovery and Local Archiving - Workstation stores only those hard disk parts that contain data (for supported partition types). This reduces image size and speeds up image creation and restoration from.

A partition image includes all files and folders independent of their attributes (including hidden and system files), boot record, FAT (file allocation table) and root.

A disk image includes images of all disk partitions as well as the zero track with master boot record (MBR).

1.3   Software usage terms and conditions

The conditions for SonicWALL Bare Metal Recovery and Local Archiving - Workstation software usage are described in the «License Agreement» (page 3 of this manual). The unique registration number is a confirmation of your legal purchase and usage of SonicWALL Bare Metal Recovery and Local Archiving - Workstation on your system.

Under current legislation, the «License Agreement» is considered a contract between you and SonicWALL Inc. The contract is a legal document and its violation may result in legal action.

Illegal use and/or distribution of this software will be prosecuted.

Chapter 2. Installation and operation

2.1 System requirements

SonicWALL Bare Metal Recovery and Local Archiving - Workstation requires the following hardware:

- Pentium CPU and higher
- 64 MB RAM
- floppy disk drive or CD-RW drive for bootable media creating
- mouse (recommended)

2.2 SonicWALL Bare Metal Recovery and Local Archiving - Workstation installation

To install SonicWALL Bare Metal Recovery and Local Archiving - Workstation:

1. Insert the installation CD into your drive.

2. Follow the instructions on the screen.

After installation of SonicWALL Bare Metal Recovery and Local Archiving - Workstation is completed, you should restart your computer.

2.3 Running SonicWALL Bare Metal Recovery and Local Archiving - Workstation

In normal mode, you can run SonicWALL Bare Metal Recovery and Local Archiving - Workstation from Windows by selecting **SonicWALL → Bare Metal Recovery and Local Archiving - Workstation → SonicWALL Bare Metal Recovery and Local Archiving - Workstation** from **Start → Programs**. This will bring the program window onto the screen.

If your disk data is totally corrupted and you can not boot, you should use the bootable media created during the installation procedure or later. It will automatically load SonicWALL Bare Metal Recovery and Local Archiving - Workstation, allowing you to recover the damaged partitions.

2.4 Removing the program

To remove SonicWALL Bare Metal Recovery and Local Archiving - Workstation from your PC, select **Start → Settings → Control Panel → Add or Remove Programs → SonicWALL Bare Metal Recovery and Local Archiving - Workstation → Remove**. You will see a dialog to confirm the program removal. Click **Yes** to confirm and SonicWALL Bare Metal Recovery and Local Archiving - Workstation will be completely removed. You may have to reboot your computer afterwards to complete the task.

Chapter 3.   General program information

3.1   Main program window

The main program window contains the menu, the toolbar, the sidebar, the **Active Tasks** pane and the main area. The main area contains operation icons, while the sidebar features **Tools** and **Help** panels.
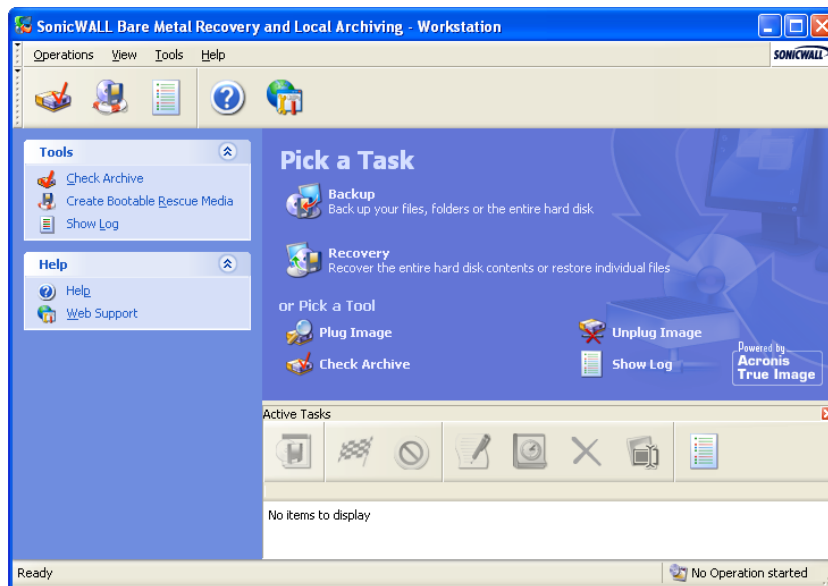
The main program window

Most of the operations are represented two or even three times in different window areas, providing several ways to select them for more convenience. For example, you can start the necessary operation or tool by clicking its icon in the main area or by selecting the same item from the **Operations** or **Tools** menu.

The main window contains operation icons divided into two groups.

The **Task** group contains the following operations:

Backup – create a backup archive

Recovery – restore data from a previously created archive

The **Tools** group contains the following items:

Plug Image – connect a disk/partition image as a virtual drive

Unplug Image – disconnect the connected virtual drive

Check Archive – runs the archive integrity checking procedure

Show Log – opens the Log Viewer window.

3.1.1   Program menu

The program menu line features the **Operations**, **View**, **Tools** and **Help** items.

The **Operations** menu contains a list of the available operations, including scheduling tasks.

The **View** menu contains items for managing the program window look:

Toolbars – contains commands that control toolbar icons

Common Task Bar – enables/disables the sidebar

Status Bar – enables/disables the status bar

Active tasks – enables/disables the Active Tasks pane at the bottom of the main area.

The **Tools** menu contains the following items:

Check Archive – runs the archive integrity checking procedure

Create Bootable Rescue Media – runs the bootable media creation procedure

Show Log – opens the Log Viewer window

Options – opens a window for editing default backup settings and text appearance (fonts).

The **Help** menu is used to invoke help and obtain information about SonicWALL Bare Metal Recovery and Local Archiving - Workstation.

3.1.2   Active Tasks pane

The **Active Tasks** pane displays the scheduled and currently-being-executed tasks. It features its own toolbar. You can customize this toolbar view by right-clicking on it and selecting the desired options.

3.1.3   Status bar

At the bottom of the main window, there is a status bar divided into two parts. The left side briefly describes the selected operation; the right side indicates operation progress and results. If you double-click on the operation results, you will see the logs window.

3.1.4   Taskbar notification area icon

During most of the operations, a special indicator icon appears in the Windows taskbar notification area (the right portion of the status bar with the clock). If you mouse over the icon, you will see a tool tip indicating the operation's progress. This icon doesn't depend on the main program window being open. It is present for background execution of scheduled tasks as well.

Chapter 4.   Creating backup archives

To be able to restore the lost data or roll back your system to a predetermined state, you should first create a data or entire-system backup file.

Backing up the entire system disk (creating a disk image) takes more disk space but enables you to restore the system in minutes in case of severe data damage or hardware failure. Moreover, the imaging procedure is much faster than copying files, and may significantly speed the backup process when it comes to backing up large volumes of data.

4.1   Backing up disks and partitions (image backup)

1. Invoke the **Create Backup Wizard** by clicking on the backup operation icon in the main program window.

2. Click **Next**.

3. Select disks or partitions to back up. You can select a random set of disks and partitions.
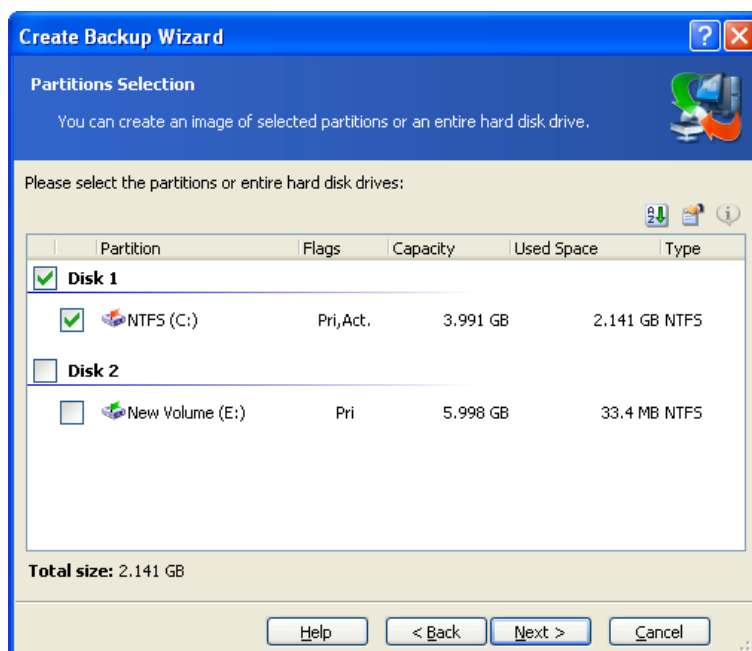
4. Click **Next**.

5. Select the name and location of the archive file.

If you are going to create a full archive, type the file name in the **File Name** line, or use the file name generator (a button to the right of the line). If you select an existing archive, it will be overwritten.

The "farther" you store the archive from the original partition, the safer it will be in case of data damage. For example, saving the archive to another hard disk will protect your data if your primary disk is damaged. Data saved to a network disk or removable media will survive even if all your local hard disks are down.

You should have DVD UDF recording software installed for burning images on DVD disks, for example: Roxio DirectCD or Ahead InCD.

6. Click **Next**.

7. Select the backup options (that is, backup archive splitting, compression level, password protection, pre/post backup commands, checking the backup data integrity). You may **Use default options** or **Set the options manually**. If the latter is the case, the settings will be applied only to the current backup task. Alternatively, you can edit the default options from the current screen. Then your settings will be saved as default. See 4.2 "Setting backup options" for more information.

8. Click **Next**.

9. Provide a comment for the archive. This can help prevent you from restoring the wrong disk/partition. However, you can choose not to make any notes. The backup file size and creation date are automatically appended to the description, so you do not need to enter this information.

10. Click **Next**.

11. At the final step, the backup task summary is displayed. Up to this point, you can click **Back** to make changes in the created task. Clicking **Proceed** will launch the task execution.

12. The task will appear on the **Active tasks** pane of the main window. The task progress will be shown in the special window. You can stop the procedure by clicking **Cancel**.

You can also close the progress window by clicking **Hide**. The backup creation will continue, but you will be able to start another operation or close the main program window. In the latter case, the program will continue working in the background and will automatically close once the backup archive is ready. If you prepare some more backup operations, they will be queued after the current.

You may want to adjust the backup process priority. To do so, click on the process icon in the System Tray and select Low, Normal, or High priority from the appearing menu. How to set the default priority, see in 4.3 "Setting backup options".

If you burn an archive to several removable media, be sure to number them, since you will have to insert them in order during the restoration.

13. You may want to see the log when the task is completed. To view the log, click the **Show Operation Logs** button on the toolbar.

4.2　Setting backup options

To view or edit the default backup options, select **Tools → Options → Backup Options** from the main program menu. You can edit the default (or set the temporary) backup options while creating a backup task as well.
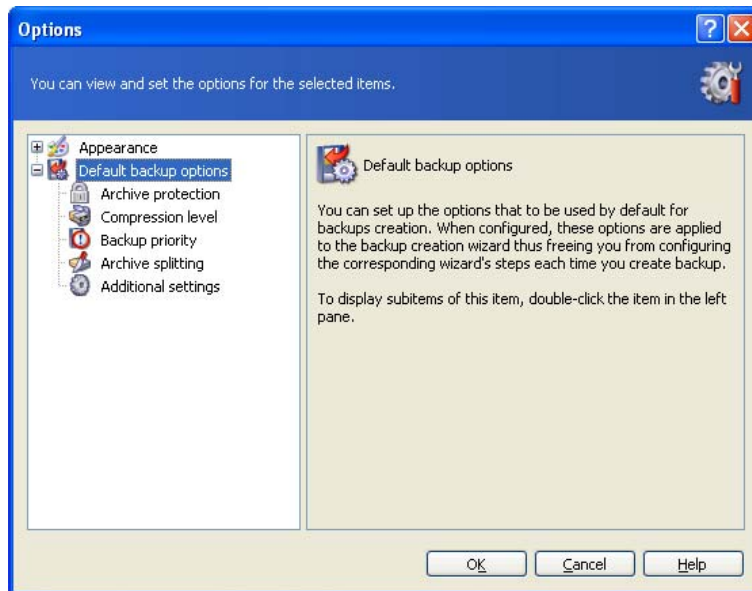
4.2.1　Archive protection

The default setting – **no password**.

An archive can be protected with a password. To protect the archive from being restored by anybody except you, enter a password and its confirmation into the text fields. A password should consist of at least eight symbols and contain both letters (in the upper and lower cases preferably) and numbers to make it more difficult to guess.

If you try to restore data from a password-protected archive, SonicWALL Bare Metal Recovery and Local Archiving - Workstation will ask for the password in a special window, allowing access only to authorized users.

4.2.2　Compression level

The default setting – **Normal**.

If you select **None**, the data will be copied without any compression, which may significantly increase the backup file size. However, if you select **Maximum** compression, the archive will take longer to create.

The optimal data compression level depends on the type of files stored in the archive. For example, even maximum compression will not significantly reduce the archive size if the archive contains essentially compressed files, like .jpg, .pdf or .mp3.

Generally, it is recommended that you use the default **Normal** compression level. You might want to select **Maximum** compression for removable media to reduce the number of blank disks required.

4.2.3   Backup process priority

The default setting – **Normal**.

The priority of any process, running in a system, determines the amount of CPU usage and system resources allocated to that process. Decreasing the backup priority will free more resources for other CPU tasks. Increasing of backup priority may speed up the backup process due to taking resources from the other currently running processes. The effect will depend on total CPU usage and other factors.

4.2.4   Archive splitting

Sizeable archives can be split into several files that together make the original archive. A single archive can also be split for burning to removable media.

The default setting – **Automatic**. With this setting, SonicWALL Bare Metal Recovery and Local Archiving - Workstation will act as follows.

When backing up to the hard disk: If the selected disk has enough space and its file system allows the estimated file size, the program will create a single archive file.

If the storage disk has enough space, but its file system does not allow the estimated file size, SonicWALL Bare Metal Recovery and Local Archiving - Workstation will automatically split the image into several files.

FAT16 and FAT32 file systems have a 4 GB file size limit. At the same time, the existing hard drives capacity may reach as much as 160GB. Therefore, an archive file might easily exceed this limit, if you are going to back up the entire disk.

If you do not have enough space to store the image on your hard disk, the program will warn you and wait for your decision as to how you plan to fix the problem. You can try to free some additional space and continue or click **Back** and select another disk.

When backing up to a diskette, CD-R/RW, DVD-RW or DVD+R/RW: SonicWALL Bare Metal Recovery and Local Archiving - Workstation will ask you to insert a new disk when the previous one is full.

Alternatively, you can select **Fixed size** and enter the desired file size or select it from the drop-down list. The archive will then be split into multiple files of the specified size. That comes in handy when backing up to a hard disk with a view to burning the archive to CD-R/RW, DVD-R/RW or DVD+R/RW later on.

Creating images directly on CD-R/RW, DVD-RW, DVD+R/RW might take considerably more time then it would on a hard disk.

4.2.5   Additional settings

1. Check archive

The default setting – **disabled**.

You can choose to check the backup data integrity. Verification will be performed immediately after the archive is created.

2. Ask for first media

The default setting – **enabled**.

You can choose whether to display the **Insert First Media** prompt when backing up to removable media. With the default setting, backing up to removable media may be impossible if the user is away, because the program will wait for pressing **OK** in the prompt box. Therefore, you should disable the prompt when scheduling a backup to removable media. Then, if the removable media is available (for example, CD-R/W inserted) the task can run unattended.

Chapter 5. Restoring a disk (partition) from an image

As mentioned above (see "Running SonicWALL Bare Metal Recovery and Local Archiving - Workstation"), SonicWALL Bare Metal Recovery and Local Archiving - Workstation can be run in several ways. However, disk restoration is always performed just one way.

We recommend that you restore disks using Windows, only using other methods if Windows doesn't load.

The boot disk (e.g. a CD) from which you loaded the program does not keep you from using other CDs with images. SonicWALL Bare Metal Recovery and Local Archiving - Workstation is loaded entirely into RAM, so you can remove the bootable CD to insert an image disk.

To restore a partition (disk) from an image, SonicWALL Bare Metal Recovery and Local Archiving - Workstation must obtain **exclusive access** to this partition (disk). This means no other applications can access it at that time. If you receive a message stating that the partition (disk) can not be blocked, close applications that use this partition (disk) and start over. If you can not determine which applications use the partition (disk), close them all.

5.1   Selecting an image to restore from

Find and select a file containing an image of the required partition. The **File Name** field will reflect its name and the **Next** will become available.
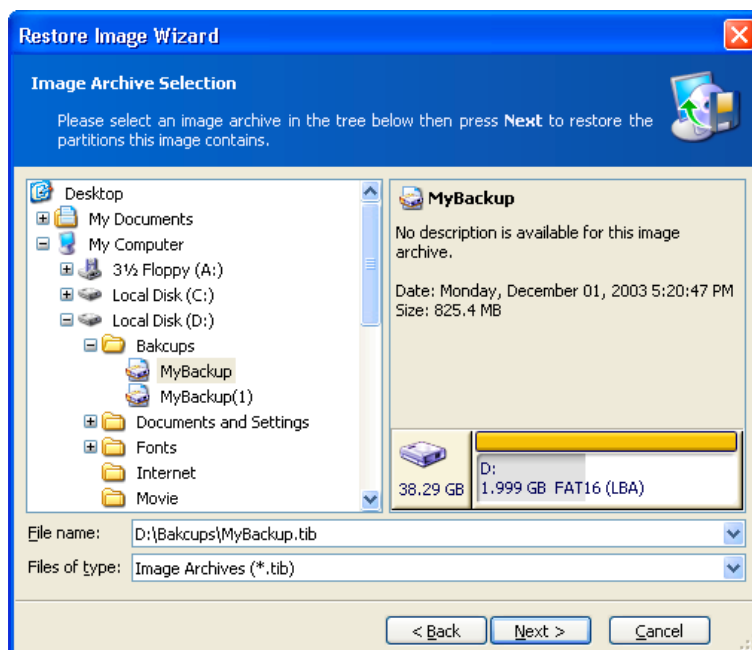

Image selection for restoration

If you are to restore an image from removable media, e.g. CD, first insert the last CD and then follow instructions of the Restore Image Wizard.

If you provided a comment to the image, it will help you know if you selected the right image to restore. The comment is displayed in the right part of the window. Note that the comment can be seen without entering a password for a protected image. However, the contents of such an image will still require a password.

If an image was protected with a password, SonicWALL Bare Metal Recovery and Local Archiving - Workstation will ask for it. The **Next** button will be disabled until you enter the correct password.

5.2   Checking image integrity before restoration

Before an image is restored, SonicWALL Bare Metal Recovery and Local Archiving - Workstation can check its integrity.

To do this, flag Yes, I want to verify the image archive on the Verify Archive Before the Restoring page of the image restoration wizard.
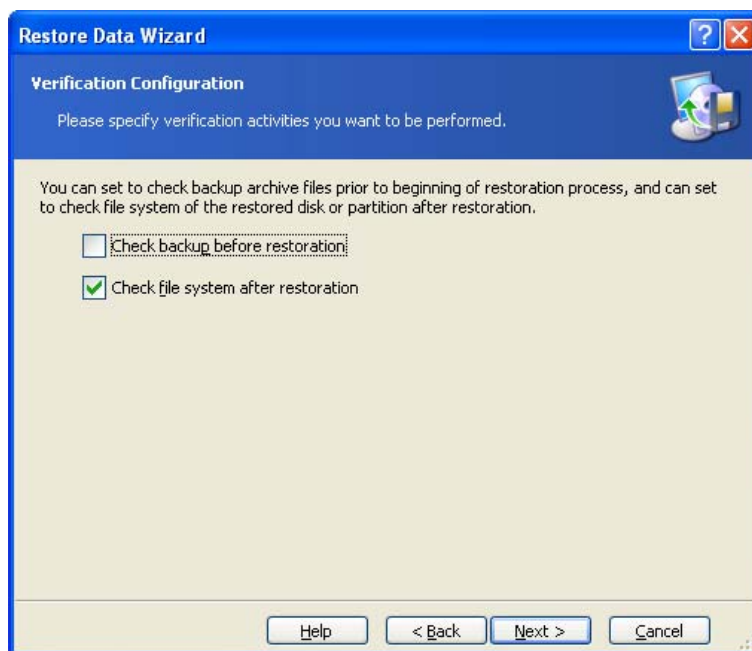
Checking image integrity before restoration

This is disabled by default in SonicWALL Bare Metal Recovery and Local Archiving - Workstation.

5.3   Selecting a partition to restore

A single file might contain images of several partitions or even disks, as shown in the figure below.
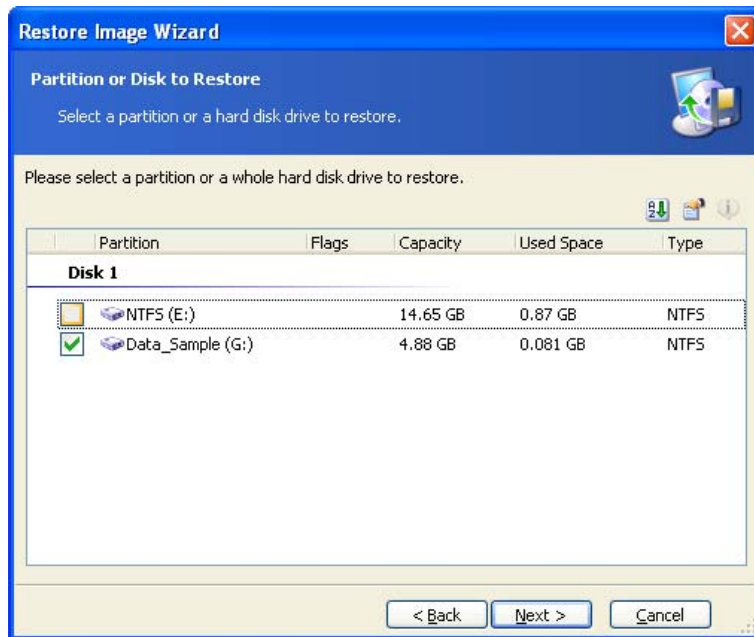
Select a partition to restore

During a single session, you can restore several partitions or disks, one by one, by selecting one disk and setting its parameters first and then repeating these actions for every partition or disk to be restored.

Select the necessary partition and click **Next**.

5.4   Selecting a location to restore to

As a rule, you should restore an image to the same partition from which the image was created.

It is possible to restore an image to another partition. A partition should be at least the same size as the uncompressed image data.
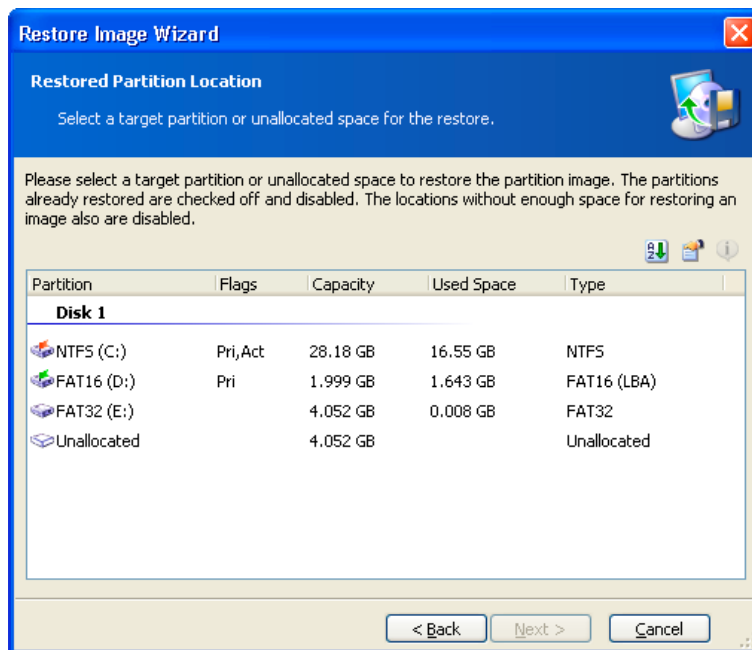
Select partition to restore image to

All the data stored on the restored partition will be replaced by the image data, so be careful and watch for non-backed-up data that you might need.

5.5   Selecting partition type

When restoring a partition, you can change its type, though it's not required in most cases.

To explain why you might need to do this, let's imagine that both OS and data were stored on the same primary partition on the damaged disk. You are forced to restore the partition from a backup to another hard disk with its own partitions and OS.
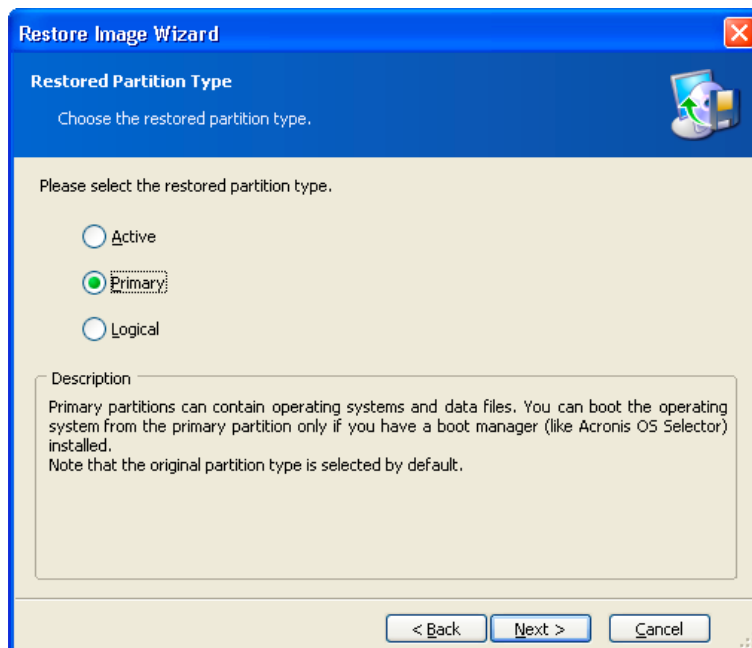
Select partition type

If you need only the data, you do not have to create another primary partition. In this case, you can restore the partition as a logical partition to access the data only.

But if you are to restore a system partition, you should select the **Primary** type for it. Finally, if you want to load an operating system from it, select **Active** as well.

Selecting **Active** for a partition without an installed operating system could prevent your PC from booting.

5.6   Selecting a file system

Though it is seldom required to change a partition file system, you can change it during its restoration. For partitions with FAT native file systems you can choose between FAT16 and FAT32. For partitions with Ext native file systems you can choose between Ext2 and Ext3. For partitions with other native file systems this option is not available.
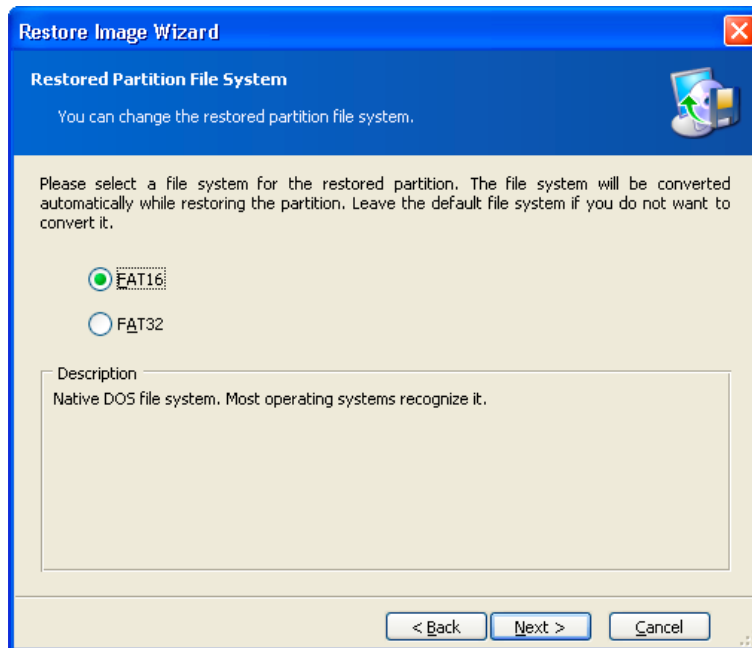
Select a file system

Let's imagine you are to restore a partition from an old, low-capacity FAT16 disk to a newer disk. FAT16 would not be effective and might even be impossible to set on the high-capacity hard disk. That's because FAT16 supports files up to 4 GB, so you won't be able to restore a 4 GB FAT16 partition to a disk that exceeds that threshold without changing the file system.

It would make sense here to change the file system from FAT16 to FAT32 by setting the appropriate software switch.

But you must also keep in mind that not all operating systems support FAT32. MS-DOS, Windows 95 and Windows NT 3.x, 4.x do not support FAT32 and will not be operable after you restore a partition and change its file system. These can be normally restored on a FAT16 partition only.

However, you can easily convert a FAT16 partition with newer OS into FAT32.

The operating systems summary is provided in Appendix A.

5.7   Selecting restored partition size

In some cases, you might need to change the partition configuration and size during restoration. SonicWALL Bare Metal Recovery and Local Archiving - Workstation is flexible enough to do this.

You can resize and relocate a partition by dragging it or its borders with mouse or by entering corresponding values into the appropriate fields.
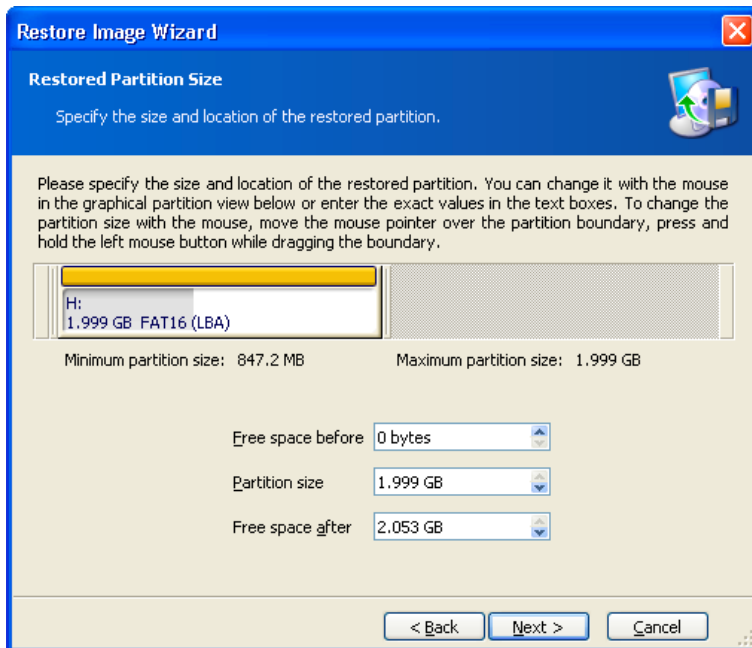
Select partition size and location

You might need to resize and relocate a partition in order to redistribute the disk space between existing partitions. In this case, you will have to restore the partition to be reduced first.

5.8   Assigning a letter to a partition

Windows utilizes letters to identify disks and partitions, automatically assigning them at loading.

Under Windows NT/2000/XP, SonicWALL Bare Metal Recovery and Local Archiving - Workstation enables you to assign any unused letter to a restored partition (logical disk). To do this, select **Yes, I want to assign a logical drive letter to restored partition**. If you don't set this switch, no letters will be assigned to the restored partition, hiding it from OS. Under Windows 9x/Me, this step is bypassed since letters are assigned automatically.
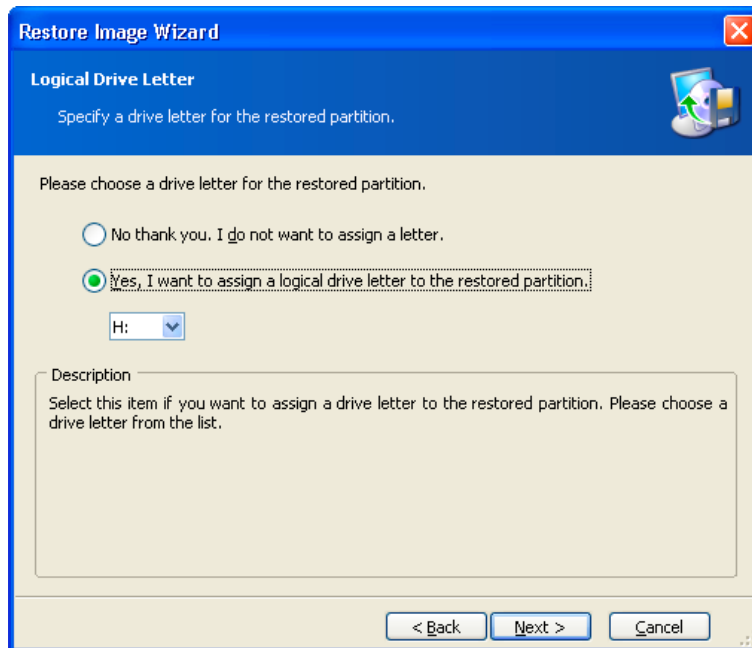
Assign any unused letter to a partition

You should not assign letters to partitions inaccessible to Windows, such as to those other than FAT and NTFS.

5.9   Checking file system integrity

Having restored a disk/partition from an image under Windows NT/2000/XP, SonicWALL Bare Metal Recovery and Local Archiving - Workstation can check the integrity of its file system.

To do this, flag **Yes, I want to check file system after the restoring** on the Check File System After the Restoring page of the image restoration wizard.
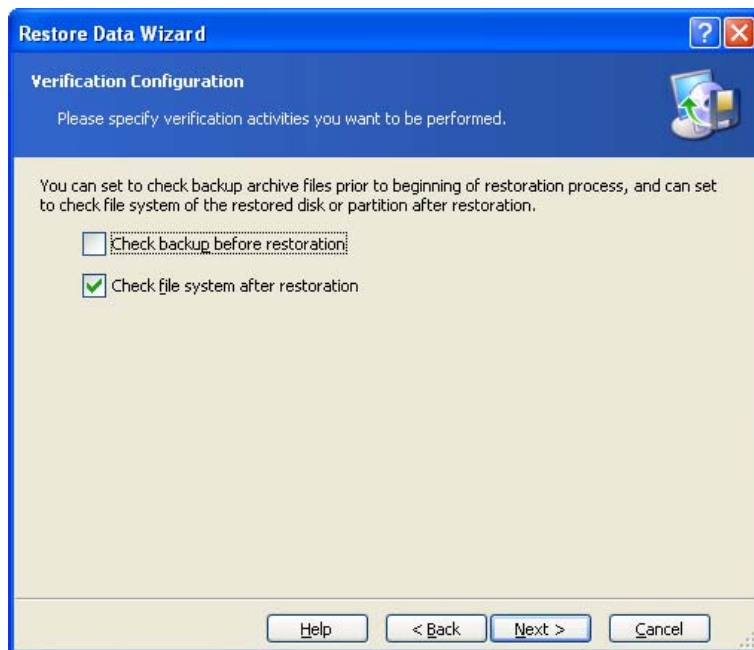
Checking file system integrity after restoration

This is disabled by default in SonicWALL Bare Metal Recovery and Local Archiving - Workstation.

Only FAT16/32 and NTFS file systems integrity can be checked.

5.10   Restoring several partitions at once

You can restore several partitions during a single session. To do this, select **Yes, I want to restore another partition or hard disk drive** in the **Next Selection** window and click **Next**.
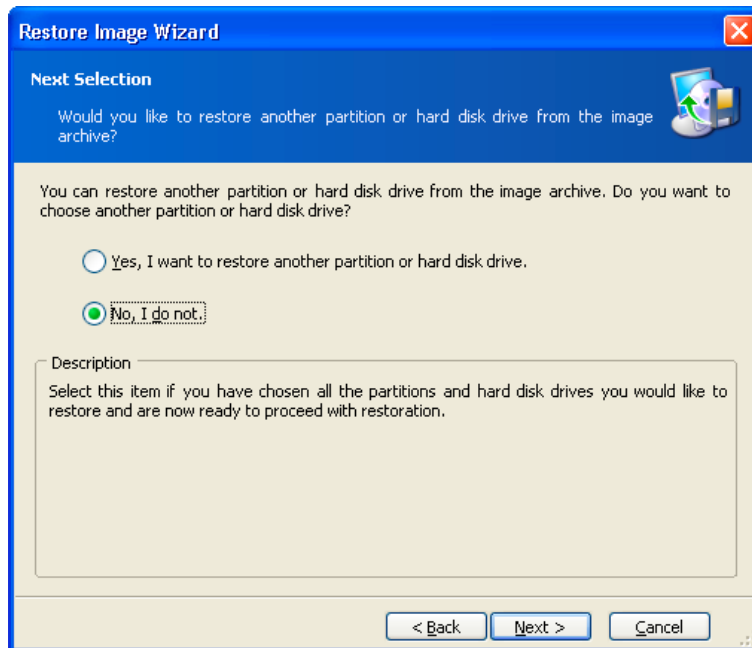
You can restore another partition during this operation

After this, you will see the partition selection window again and will have to repeat the actions mentioned above.

If you want to restore only one disk (partition) or have already selected all of the partitions you need, don't set this switch and click **Next**.

5.11   Restoration script

In the next window, you will see a disk or partition image restoration script containing a list of operations to be performed.
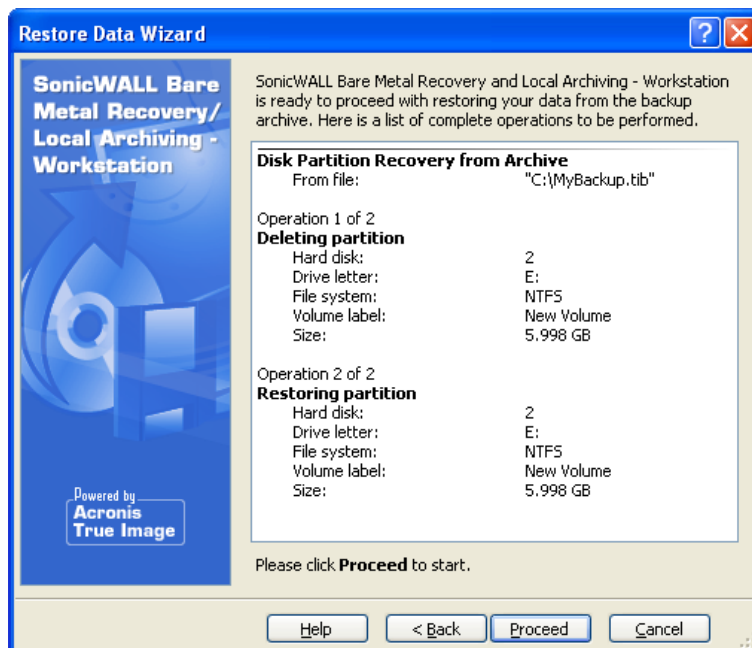
Restoration script

After you click **Proceed**, SonicWALL Bare Metal Recovery and Local Archiving - Workstation will start image restoration, indicating the progress in the special window. If you click **Cancel**, no changes will be made to disk(s).

You can also stop the procedure by clicking **Cancel**. However, it is critical to note that the partition that should have been restored from the image will be deleted and its space unallocated – the same result you will get if the restoration is unsuccessful. To recover the "lost" partition, you will have to restore it from the image again.

After the restoration is finished, you will see a message about its results.

Chapter 6.   Browsing and restoring individual files

To browse and restore individual files, SonicWALL Bare Metal Recovery and Local Archiving - Workstation can **connect images as virtual drives**, thus letting you access them as though they were a physical drive. This means that:

- A new disk with its own letter will appear in the drives list

- Using Windows Explorer and other file managers, you will be able to see image files as if they were located on a physical disk or partition

- You'll be able to find necessary files or folders in order to copy them from the virtual disk to the real one

The connected virtual drive will be read-only and you won't be able to change anything within it.

6.1   Connecting a virtual disk

Use **Plug Image** to connect an image as a virtual disk and click **Next** in the first wizard window.

6.1.1   Selecting an image

In the next window, specify the image you want to open as a virtual disk.

Select image to connect

If the selected image file is not protected by a password, you will immediately see the image comment along with the list of stored partitions. If the file is protected by a password, you will see only the comment.

6.1.2 Selecting partitions to connect and letter assignment

You must select a partition to connect as a virtual disk. Note that you can't connect the entire disk.
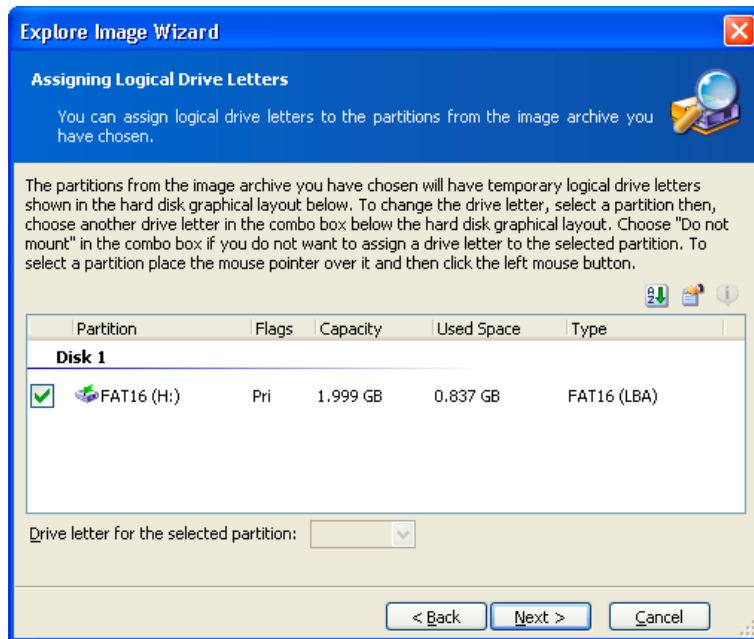
Select partition to connect

You can also select a letter to be assigned to the connected disk (from the partition letter drop-down list.)

In the next window, you will see a disk-connection script containing a single operation. Click **Proceed** to connect the image as a virtual disk.

After the disk is connected, the program will run Windows Explorer showing its contents.

Now you can easily copy any file (or folder) from the virtual disk to the real one using Windows Explorer or a similar file manager.

6.2 Unplugging a virtual disk

We recommend that you unplug a virtual disk after all necessary files and folders are copied. However, the virtual disk will disappear after your PC is turned off.

To disconnect the virtual disk, select **Unplug**.

You can also unplug the disk by clicking **Unplug Image** in the SonicWALL Bare Metal Recovery and Local Archiving - Workstation main window.

Chapter 7.   Other operations

7.1   Checking images

To be assured that your images are not damaged, you can check their integrity. To do this, select **Check Image** in the **Tools** group (expand it if it's not) or click **Check Image** on the toolbar. You will see the first wizard window. Click **Next** to continue.

7.1.1   Selecting image for checking

In this window, you will see the complete list of connected storage devices, including hard disks and other drives. Using Windows Explorer, locate the image file to be checked and select it.

Its name will appear in the **File Name** field and the **Next** button will be enabled.

Select image to check

Click **Proceed** to continue. Progress will be indicated in the new window.

You can cancel checking by clicking **Cancel**.

After checking is complete, you will see the results window.

7.2   Creating bootable media

In some cases, SonicWALL Bare Metal Recovery and Local Archiving - Workstation can be run only from a special bootable diskette or CD. Such a case might be if your PC doesn't boot up normally.

You can create bootable media during or after the installation.

For this, you will need a CD-R/RW blank, five formatted diskettes (or two for the safe variant), or any other media your PC can boot from, such as a Zip drive.

Click **Create Rescue Media** on the toolbar or in the left part of the main window, or select **Create Rescue Media** from the **Tools** menu.

You can also create bootable media without loading SonicWALL Bare Metal Recovery and Local Archiving - Workstation itself by selecting **Programs** → **SonicWALL** → **True Image** → **Bootable Rescue Media Builder** from the **Start** menu.

You will see the bootable media wizard that will ask you to select either complete or safe loader version. The latter doesn't have some devices drivers and is useful only in case the complete version doesn't work.

After you create a boot disk, identify it and keep it in a safe place.

Troubleshooting

7.3 Recovering SonicWALL Bare Metal Recovery and Local Archiving - Workstation

If SonicWALL Bare Metal Recovery and Local Archiving - Workstation ceases running or produces errors, its files might be corrupted. To fix it, you will have to recover the program. To do this, run the installer again. It will detect SonicWALL Bare Metal Recovery and Local Archiving - Workstation on your PC and will ask you if you want to recover (update) or remove it.

Click **Recover** and click **Proceed**.

7.4 Frequently asked questions

How do I use SonicWALL Bare Metal Recovery and Local Archiving - Workstation on a Linux-based PC?

SonicWALL Bare Metal Recovery and Local Archiving - Workstation supports the most popular Linux file systems, including Ext2, Ext3 and ReiserFS.

SonicWALL Bare Metal Recovery and Local Archiving - Workstation can be run from a special bootable diskette or CD independently of operating system installed.

Having been run this way, it allows you to perform any disk (partition) image creation or restoration operations on a Linux-based PC.

What storage devices does SonicWALL Bare Metal Recovery and Local Archiving - Workstation support for keeping backups?

Backups can be created on hard disks, and other storage devices supported by Windows 98/Me/NT 4/ 2000/XP.

What is the purpose of specifying image file size?

The PC hard disk is the fastest and most effective storage device. It can write a disk (partition) image considerably faster than any other device, such as a CD-R/RW. Having specified image volume size equal to 600–650Mb, you can quickly create image files on your hard disk that you can burn to CD-R/RW media afterwards. This allows you to do the entire task much more quickly.

What devices can a system partition be restored from if SonicWALL Bare Metal Recovery and Local Archiving - Workstation is loaded from its bootable diskette or CD?

SonicWALL Bare Metal Recovery and Local Archiving - Workstation supports any connected hard disks as well as CD-R/RW, DVD+R/RW, DVD-RW and a wide variety of FireWire (IEEE-1394) and USB (1.0, 1.1, 2.0) devices.

Can Easy CD Creator 4.x–5.0 impede SonicWALL Bare Metal Recovery and Local Archiving - Workstation?

Easy CD Creator 4.x and 5.0 automatically installs an old version of Take Two® backup utility that is no longer supported by its manufacturer, Roxio. If SonicWALL Bare Metal Recovery and Local Archiving - Workstation detects this utility, it shows you the following message in the beginning of image creation:

"Can't create the image of the logical disk, as it's already used by a running application. Please close all other applications and try again."

We recommend that you update your Easy CD Creator to Version 5.1 or newer and/or completely remove Take Two®.

For more information, visit

http://www.roxio.com/en/support/roxio_support/taketwo.html

Is SonicWALL Bare Metal Recovery and Local Archiving - Workstation compatible with Roxio GoBack?

Yes, SonicWALL Bare Metal Recovery and Local Archiving - Workstation is compatible with Roxio GoBack under Windows. If you want to load SonicWALL Bare Metal Recovery and Local Archiving - Workstation from its bootable media, you will have to disable Roxio GoBack first.

Note that Roxio GoBack will be deleted from your hard disk during the restoration.

I created an image on CD-R/RW disks, but when I try to browse it, SonicWALL Bare Metal Recovery and Local Archiving - Workstation tells me it can't connect this image as a virtual disk.

The current version of SonicWALL Bare Metal Recovery and Local Archiving - Workstation can connect images only if their files are located in the same place. If your image is located on several CD-R/RW or hard disks, you will have to copy all its files to a single folder on your hard disk.

I received the "Can't create image of disk D:, because it's already used by applications or contains bad sectors" error message, where D: stands for my logical disk, when I tried to create an image under Windows.

Your logical disk might contain bad sectors. We recommend that you run a complete disk surface test. Under Windows 98/Me, run scandisk and perform the complete disk check. Under Windows NT/2000/XP, type "chkdsk /R D:" in the command line and reboot.

How can I burn SonicWALL Bare Metal Recovery and Local Archiving - Workstation images to DVD?

SonicWALL Bare Metal Recovery and Local Archiving - Workstation can burn images to DVD under Windows, if you have DVD UDF recording software installed. The DVD

must be formatted. Currently, the program supports at least the following DVD recording software:

Roxio DirectCD — optional component of Roxio Easy CD Creator;

Ahead InCD — available on Nero website freely for Ahead Nero Burning Rom users (usually bundled with Nero);

Veritas DLA and all its OEM versions (e.g. HP DLA);

Pinnacle InstantCD/DVD

In general, the program also supports all other DVD UDF burst recording software, but the aforementioned applications were tested by SonicWALL for compatibility with SonicWALL Bare Metal Recovery and Local Archiving - Workstation.

To enable image recording to DVD in SonicWALL Bare Metal Recovery and Local Archiving - Workstation, you should do the following:

Install DVD UDF recording software.

Format DVD disks. DVD+RW and DVD-RW disks can be formatted in any of the aforementioned applications, while DVD+R formatting is currently supported by Roxio DirectCD only.

Run SonicWALL Bare Metal Recovery and Local Archiving - Workstation, insert a formatted DVD into your DVD+RW or DVD-RW drive and create an image. No other special actions are required.

Images stored on DVD can be restored under Windows and when SonicWALL Bare Metal Recovery and Local Archiving - Workstation is loaded from its boot disk.

There is another way to burn an image to DVD. Using SonicWALL Bare Metal Recovery and Local Archiving - Workstation, you can create an image on your hard disk and burn it using the installed DVD recording application to a DVD disk afterwards. You will be able to restore images from such disks under Windows and when SonicWALL Bare Metal Recovery and Local Archiving - Workstation is loaded from the bootable media.

7.5   Technical support

Users of legally purchased copies of SonicWALL Bare Metal Recovery and Local Archiving - Workstation can use free e-mail technical support from SonicWALL. If you have installation or working problems that you can't solve by yourself using this manual and the readme.txt file, e-mail the technical support team.

For more information visit http://www.sonicwall.com/support/contact.html

Appendix A   Partitions and file systems

A.1   Hard disk partitions

The mechanism that allows you to install several operating systems on a single PC or to carve up a single physical disk drive into multiple "logical" disk drives is called **partitioning**.

Partitioning is performed by special applications. In MS-DOS and Windows, these are FDISK and Disk Administrator.

Partitioning programs perform the following:

- create a primary partition
- create an extended partition that can be split into several logical disks
- set an active partition (applied to a single primary partition only)

Information about partitions on a hard disk is stored in a special disk area – in the 1st sector of cylinder 0, header 0, which is called the partition table. This sector is called the master boot record, or MBR.

A physical hard disk might contain up to 4 partitions. This limit is forced by the partition table that is suitable for 4 strings only. However, this does not mean you can have only 4 operating systems on your PC! Actually, existing applications called disk managers support far more operating systems on disks. For example, SonicWALL OS Selector enables you to install up to 100 operating systems!

A.2   File systems

An operating system gives the user the ability to work with data by supporting some type of **file system** on a partition.

All file systems are made of structures that are necessary to store and manage data. These structures are usually composed of operating system boot sectors, folders and files. File systems perform the following basic functions:

- track occupied and free disk space (and bad sectors, if any)
- support folders and file names
- track physical location of files on disks

Different operating systems use different file systems. Some operating systems are able to work with only one file system while others can use several of them. Here are some of the most widely used file systems .

A.2.1   FAT16

The FAT16 file system is widely used by DOS (DR-DOS, MS-DOS, PC-DOS, PTS-DOS and other), Windows 98/Me, and Windows NT/2000/XP operating systems and is supported by most other systems.

Main features of FAT16 are the file allocation table (FAT) and clusters. FAT is the core of the file system. To increase data safety, it is possible to have several copies of the FAT (there are usually two of them) on a single disk. A cluster is a minimum data storage unit in FAT16 file system. One cluster contains a fixed number of sectors. FAT stores information about what clusters are free, what clusters are bad, and also defines in which clusters files are stored.

The FAT16 file system has a 2GB limit that permits a maximum 65,507 clusters that are 32Kb in size. (Windows NT/2000/XP support partitions up to 4GB with up to 64Kb clusters). Usually the smallest cluster size is used to make the total cluster amount within the 65,507 range. The larger a partition is, the larger its clusters are.

Usually the larger the cluster size, the more disk space is wasted. A single byte of data could use up one cluster, whether the cluster size is 32Kb or 64Kb.

Like many other file systems, the FAT16 file system has a root folder. Unlike others, however, its root folder is stored in a special place and is limited in size (standard formatting produces a 512-item root folder).

Initially, FAT16 had limitations on file names. They could only be eight characters long, plus a dot, plus three characters of name extension. However, long-name support in Windows 95 and Windows NT bypasses this limitation. The OS/2 operating system also supports long names, but does so in a different way.

A.2.2   FAT32

The FAT32 file system was introduced in Windows 95 OSR2. It is also supported by Windows 98/Me/2000/XP. FAT32 is an evolved version of FAT16. Its main differences from FAT16 are 28-bit cluster numbers and a more flexible root, whose size is unlimited. The reasons FAT32 appeared are the support of large hard disks (over 8GB in capacity) and the impossibility to implement any more complex file system into MS-DOS, which is still the base for Windows 98/Me.

The maximum FAT32 disk size is 2 terabytes (1 terabyte, or TB, is equal to 1024 gigabytes, or GB).

A.2.3   NTFS

NTFS is the main file system for Windows NT/2000/XP. Its structure is closed, so no other operating system is fully supported. The main structure of NTFS is the MFT (master file table). NTFS stores a copy of the critical part of the MFT to reduce the possibility of data damage and loss. All other NTFS data structures are special files. NTFS stands for NT File System.

Like FAT, NTFS uses clusters to store files, but cluster size does not depend on partition size. NTFS is a 64-bit file system. It uses unicode to store file names. It is also a journaling (failure-protected) file system, and supports compression and encryption.

Files in folders are indexed to speed up file search.

A.2.4   Linux Ext2

Ext2 is one of the main file systems for the Linux operating system. Ext2 is a 32-bit system. Its maximum size is 16TB. The main data structure that describes a file is an i–node. A place to store the table of all i-nodes has to be allocated in advance (during formatting).

A.2.5   Linux Ext3

Officially introduced with its version 7.2 of the Linux operating system, Ext3 is the Red Hat Linux journaling file system. It is forward and backward compatible with Linux ext2. It has multiple journaling modes and broad cross-platform compatibility in both 32- and 64-bit architectures.

A.2.6   Linux ReiserFS

ReiserFS was officially introduced to Linux in 2001. ReiserFS overcomes many Ext2 disadvantages. It is a 64-bit journaling file system that dynamically allocates space for data substructures.