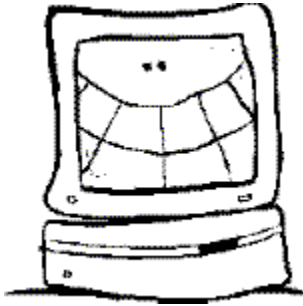# NovaBoot Help for Windows 95/98

The information in this help system pertains to the NovaBoot utility included both with NovaBack (Tape based backup) and NovaDisk (Logical Device based backup) for Windows 95/98. The term NovaWare applies to whichever application you are using, whether NovaBack or NovaDisk.

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Wise Precautions

Saving System Setup

Put simply, NovaBoot allows you to restore data to a hard disk that has failed. In order to do this, there must be a hard disk READY to receive data.

But what if your hard disk is not   recognized at all by your computer? In this case, since your hard disk must be recognized in order to restore its data from the backup, some additional steps must be taken.

Utilities are included on the NovaBoot diskette to assist. For details, see Utilities included on the NovaBoot Diskette.

In every computer, there is a special area of memory called CMOS. Even when your computer is turned off, the information is kept available thanks to a battery inside your computer. Now if this battery should lose its charge or fail for some reason, you will likely lose the information in this CMOS memory area. This should concern you, because vital information about your hard disk is stored there which, *if lost, will cause your hard disk NOT to respond to ANY recovery software.*

Therefore, you should take this simple step to ensure that you can recover your hard disk data, even if CMOS settings are lost:

When you first turn power on to your system, look for some message on screen which offers you the chance to change system setup. Often this is a matter of pressing the DEL key. Your system may be different. If you do not see anything like this, please ask your computer vendor how to access your CMOS settings.

When the setup screen appears, write down all the information you see, especially hard disk information. This typically shows tracks, sectors, drive type, etc. Then, if you have problems such as hard disk not recognized, re-enter the settings you have written down.
If you STILL have similar problems, then you probably need to run FDISK and FORMAT on your hard disk.

NOTE: If you are using a boot manager to launch one of several operating systems, then please refer to the topic, Booting Multiple Operating Systems.

Knowing disk partition sizes
On rare occasion, it may be necessary to re-partition your hard disk. In fact even if its not necessary to do so, some users may desire to change the space allocated to a particular drive volume. In either case, it may be useful to examine partition settings and write this down for later reference if needed. You may do this by using the FDISK command. You must exercise caution when running FDISK! All you want to do at this point is examine settings, NOT change any. Typically after typing the FDISK command, you are presented with a list of options. Option 4, display partition information is the choice of interest. If you have more than one physical hard disk in your computer, you will also have a fifth option which allows you to select the hard disk for which you wish to examine partition information. You should do this for each hard disk available.

A Backup to your Backup
When creating the full recovery backup, NovaBoot sets your system to disable long filenames. Immediately after the backup has completed, NovaBoot returns your system to long filename usage as normal. However, if power were to go out during the backup, or some other event occurred preventing NovaBoot to reset long filename usage, it may be difficult (if not impossible) to recover long filename information.

Therefore, the best policy for fool-proof data recovery is to do a full backup of your system IN ADDITION to creating your NovaBoot recovery backup. This is consistent with normal backup methods anyway. Typical backups involve doing a full backup once in a while, and incremental backups (backing up only files that have changed) more frequently. Whatever method you choose, it may be wise to have a regular full backup on hand in addition to the NovaBoot recovery backup. This will give you the option of reinstalling Windows 95/98, reinstalling NovaWare for Windows 95/98, then performing a restore using NovaWare for Windows 95/98 with Windows 95/98 fully operational to begin with.

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Booting from the NovaBoot Diskette

When booting from the NovaBoot diskette,

1. The DOS operating system loads.

2. If using a SCSI backup device, the appropriate DOS ASPI driver will load.

3. If using a QIC tape drive, the appropriate settings are set in the environment table.

4. A message appears on screen announcing that an analysis of your hard drive(s) will begin, and that you may press CTL-BREAK to avoid doing this.

This final step actually runs the PREP_RST command, which is the final command run from your autoexec.bat file.

If using a logical backup device, the PREP_RST process will prompt you to insert the appropriate driver disk necessary to set up and recognize your backup device so that it is ready to restore data. A message is then posted on screen indicating success or any problems that may have occurred.

What PREP_RST actually does:

PREP_RST also examines disks to be restored from the backup to be sure that they are recognized and ready to receive data. It knows what drives to check because when the NovaBoot disk was written, it specified this information to PREP_RST in the form of command line arguments. PREP_RST posts a report of its findings on screen showing the condition of your hard disk(s). That is, if the disk(s) are ready to receive the data to be restored from the backup.

IF ANY DRIVE IS NOT RECOGNIZED:

In this case, the screen reports the drive name. No further action is taken by NovaBoot,   because the hard disk is unavailable to restore data from the backup. For details on action you may take in this instance, please see Utilities and Precautions.

IF ALL DRIVES ARE READY TO RECEIVE DATA:

1. A directory is created on hard disk and all files from floppy are copied there.

2. A RUNTAPE or RUNMEDIA command is created and written to the root directory on hard disk.

3. A message appears prompting you to run the RUNTAPE or RUNMEDIA command.

4. After running the RUNTAPE or RUNMEDIA command, the temporary directory on hard disk is removed, then a message appears on screen prompting you to remove the NovaBoot diskette from drive A: and to restart your computer.

PREP_RST.EXE   parameters:

Note that this is automatically set up by NovaBoot. However, you may want to know

how it works. You may actually type PREP_RST with no other information on the command line to obtain extended syntax information including several examples of its use.

RUNTAPE.BAT or RUNMEDIA.BAT contents:

1. Change to temporary directory.

2. Run the restore command.

3. Change to the root directory.

4. remove the temporary directory on hard disk and all its files.

[RESTORE] command syntax:

The [RESTORE] command can actually be one of three possible commands, depending on whether you are using NovaBack or NovaDisk and whether you have a SCSI device or not. The possible [RESTORE] commands are:

RSTE - NovaBack (SCSI tape)

QRSTE - Novaback (QIC tape)

QRUNE QRSTE - NovaDisk (logical device)

[RESTORE]{options} [drive_volumes]

where:

drive_volumes = the hard drive list to restore.

options:
s = restore all subdirectories
d = restore all files set to read-only status
h = restore all files set to hidden status
y = restore all files set to system status
i =   (name) where name = specific tape drive name to use, if any is given

Note that restored data can be redirected. For example, data backed up from drive C: can be restored to drive D:. A forward slash symbol is used for this.

For example, if you originally backed up drive volumes C: D: and E:,
and you wished   to restore all data, except put E: data on drive F:,
you would use these parameters for the restore command:

RSTC or QRSTE {sdhy} C: D: E:/F:

Note that the redirection ability plays a key role in restoring data backed up from compressed hard disks. For more detail, please see Disk Compression.

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Different Backup Device Types

Backup devices come in the form of internal or external types.

Internal devices are attached directly into your computer. Attached cables are usually hidden from view since all connections exist inside the computer.

External devices sit on the desk next to your computer. These are connected using a cable running from the device to a plug accessible from the outside of your computer.

NovaBoot classifies a device in two main areas:

1. SCSI or non-SCSI Devices

SCSI (small computer system interface) devices require that you connect them to a SCSI controller, also known as a SCSI host adapter. Such controllers are usually installed inside your computer allowing you to connect to them inside the computer case (for internal device connection) or through a plug accessible from the outside of your computer case (for external devices). You may possibly use a parallel to SCSI interface. This means that your SCSI controller actually connects to your parallel (printer) connector on your computer. However it still electronically communicates to your backup device using the SCSI protocol, and therefore should still be thought of as a SCSI interface.

SCSI devices require that you have a DOS ASPI device driver for your particular SCSI host adapter. Therefore, when running NovaBoot for a SCSI backup device, you will be required to select (if automatically detected in config.sys) the appropriate device driver, OR will need to specify the full path and filename for the driver. This is simply the nature of operating SCSI backup devices under a DOS environment, which by definition is necessary when booting from the NovaBoot diskette.

Non-SCSI devices do not require this special device driver.

2. Tape or Logical Devices

The **NovaBack** program uses **tape devices** for backup.

If you are using NovaBack then your tape device falls into one of two general catagories, QIC or SCSI.

The **NovaDisk** program uses **logical devices** for backup.

A logical device means that you can use the device like any disk drive. For example, you may refer to it by a letter, such as drive C:. The term logical just implies the simplicity of hiding the wide variety of technical and physical differences for you so that you may simply refer to it by a letter reference.

Logical devices fall into two main catagories, depending on the type of disk used:

a. Removable Media

This means you can actually remove the disk from the device and insert others. For example, your floppy disk drive is a removable media device.

b. Non-Removable Media

This means you cannot actually remove the disk from the device. The disk is permanently   installed inside the device. For example, your hard disk drive is a non removable media device. These devices are sometimes also referred to as fixed disk devices, which is not to imply that the disks were recently repaired.

Logical devices typically come in SCSI or Parallel varieties.

If SCSI, then the comments regarding SCSI devices (above) apply.

If Parallel, then the unit attaches to your parallel (printer) connector on your computer.

Whether SCSI or parallel, however, you will need a special DOS device driver which comes with your backup device in order for NovaBoot to recognize the device after having booted from the NovaBoot Diskette. These materials are mentioned at the time you select the device you wish to use and no special preparations are required on your part. You only need to be certain that you in fact have a DOS install disk for your device.

NovaBoot will prompt for this disk when needed and perform all details needed to set up and recognize the backup device automatically.

QIC and SCSI Tape Drives

Some users may be unsure whether they have a QIC tape drive or a SCSI tape drive.

QIC (quarter inch cartridge) drives are tape drives which are controlled by a floppy disk controller. This includes drives known as QIC80, 3010, 3020 and Travan. There are also types which physically connect to your parallel port, but are still controlled with the aid of a floppy to parallel interface inside the tape enclosure. many of these drives can be identified by the tape used -   it fits in the palm of your hand and has a metal back plate. However there are a few exceptions where this same tape is used but actually has a SCSI controller, in which case the drive should be considered a SCSI drive.

SCSI (small computer system interface) drives are tape drives which are controlled by a SCSI controller, also known as a SCSI host adapter. There is a wide variety of media for these, including 4mm DAT, 8mm EXABYTE, larger quarter inch cartridges, reel to reel and others.

You may refer to documentation accompanying your tape drive if you are not able to tell.

However, there is little concern from a user stand point on which is used. In fact NovaBoot works identically on QIC and SCSI tape drives, with the exception that SCSI devices require the use of a special device driver as mentioned in <u>Different Backup Device Types</u>.

QIC tape drive users have no concern about device drivers at all. NovaBoot automatically provides the appropriate device support directly. Therefore, when running NovaBoot, no device driver selection screen is given for QIC tape drive users.

Disk Compression

NovaBoot automatically supports disks which are compressed. There is no special handling required of the user. However it may be of interest how this is basically done.

When a disk is compressed, another drive letter for it appears, which is known as the host drive. For example, if you compress drive C:, you may find that there now exists a host drive H: to which drive C: is dependent. When running NovaBoot to make the recovery backup, the user is shown a list of drives to back up. If a drive is compressed, a single entry in the list is shown for that drive indicating both the user drive letter (such as C:) and its associated host drive letter (such as H:). Actually, the drive you think of as C: is really one huge file, and C: files are actually read or written by accessing this huge file. What USED TO BE drive C: is now drive H:, which contains this huge file and all support files needed to properly set up and maintain disk compression. So, using the drive letter examples above, NovaBoot does NOT backup C: at all, but it backs up H: instead.

After booting from the NovaBoot diskette,   drive H: is typically still available, so the data may simply be restored to recover the compressed drive. But what if drive H: does not exist? No problem for NovaBoot, because it knows since the host drive is unavailable that the data may be restored to the original physical disk (which by definition is then uncompressed, since the host drive does not exist!). So in that case, data backed up from drive H: is restored to drive C:. However, prior to doing this NovaBoot will ask your permission to remove all files from drive C: first, so that it can put back an exact copy and be sure to have enough space on the disk to do so.

Please note that the C: and H: pairs are only used for illustration in this example. If you use disk compression, these letters may be different. Also NovaBoot can handle several   compressed hard drives, so you are not restricted by the number of compressed drives or any combination of compressed and non-compressed hard drives.

Utilities included on the NovaBoot Diskette

You can do more than just restore the backup data when you have booted
your system with the NOVABOOT diskette. These additional operations
are available:

1. NOVABOOT /H or BOOTHELP - To view this text pertaining to utility programs.

2. FDISK - In very rare instances it may be necessary to repartition your hard disk. That is, there must exist a drive C: in order to restore data to that drive! Therefore it would be wise to run FDISK and write down your current settings (partition sizes, etc.) in the event you need to restructure your disk.

3. FORMAT - This is usually only necessary if you had to run FDISK.
In the example of formatting drive C:, use the FORMAT C: /S command. The /S parameter is only needed if you are formatting drive C:. You may safely omit the /S parameter for any other drive.

4. CHKDSK - To be sure a hard drive is healthy enough to retain restored data, the CHKDSK command can be of help. For example, to check drive C, use the 'CHKDSK C:' command.

5. SYS - This command will make your C: drive bootable. This may be necessary in the event that you have formatted drive C: and forgot to use the /S parameter. If when attempting to boot from hard disk you receive the message missing operating system,   the SYS command can fix this.

6. DELPATH - This is used by NovaBoot when removing its temporary work directory. In some cases it may be used when host drives (related to compressed disks) are unavailable to receive backup data. If you wish, you can remove all files on a hard disk with one DELPATH command. To do so, use the command DELPATH drive:\

where drive: is the drive letter of the hard disk from which you wish to remove all files.

One instance where you may wish to do this is if you know you have a lot of files on your hard disk that you do not want, and would like to remove all files prior to restoring data from the backup. Note that this can also be done using the FORMAT command as shown above. If you wished to remove one directory structure and all its lower structure, DELPATH can be used for that too. For example, if you wished ONLY to remove D:\OLD and all directories underneath it, you could use the command, DELPATH D:\OLD.

Booting Multiple Operating Systems

NovaBoot does not provide the ability to save and recover boot managers or multiple operating system bootup services. There are many variations in multi-OS bootup techniques, so specific advice cannot be given. However, it may help you to understand the NovaBoot requirement. Simply stated, the hard disk volumes which are backed up (when creating the NovaBoot recovery backup) must be visible after booting from the NovaBoot diskette. For example, the C: drive that was visible during backup must appear as drive C: when attempting to restore data from the backup.

These observations and recommendations are offered:

1. *A fast diagnostic test.*

Simply create a bootable floppy. You can do this in Windows 95/98 or you may access the DOS screen and use the command, SYS A:, with a floppy disk in drive A:. Or you may use the FORMAT A: /S command. Observe a few of the directories on EACH hard drive volume you may wish to backup. Then boot from the floppy disk you just made bootable. After booting, can you still see those directories? Note that directories with long names will appear differently. This is normal, since you have booted from floppy and by definition cannot view your file system in long filename form.

2. *The Windows 95/98 or Windows NT multiple OS boot manager.*

Windows 95/98 and Windows NT can set up your system so that you are presented a list of bootup choices. This situation is generally compatible with NovaBoot. Note however that if you format your C: drive you will lose the NT boot manager facility.

3. *Third party boot managers and the OS/2 boot manager.*

There are several variations where, depending on how you use these, you may or may not be able to see the hard disk volumes NovaBoot expects to see when restoring data from the backup. In some cases, you will have drive letters actually representing different physical hard drives after booting from floppy than after booting from hard disk!

This can be managed by NovaWare's redirection operator. For example, if you find that data backed up as drive C: becomes visible as drive D: after booting from floppy, then you may edit the RUNTAPE.BAT or RUNMEDIA.BAT command to redirect data backed up as drive C: data to be restored to drive D:. Details on this technique may be found in [Booting from the NovaBoot Diskette](#).

Problems and Solutions

1. Installing multiple copies of NovaWare on one computer is not recommended.

Having more than one installation of NovaWare can cause problems, particularly if one of two or more has been uninstalled.

2. Inability to access drive C: after booting from floppy.

In many cases, particularly with 1.2 GB hard disks, a disk manager is used, such as ONTRACK. Do not confuse this with the boot manager as discussed in the topic, Booting Multiple Operating Systems. A disk manager helps manage large amounts of disk space and MUST be allowed to initialize BEFORE attempting to boot from floppy disk. There are messages in the NovaBoot application to this effect. In this case, you need to wait until you see an on screen message offering you the option to boot from floppy. Then you may insert the floppy boot disk, and press the key indicated to boot from floppy   (typically the spacebar).

Also, you may have lost your CMOS system settings. Details on this may be found in Wise Precautions.

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Making the NovaBoot Recovery Backup

You can make your NovaBoot recovery backup by starting NovaBoot, then selecting the Make Recovery Backup option. You should only do this if you have already made the NovaBoot boot diskette. This diskette must be available for NovaBoot to modify during the course of making the recovery backup. You do not have to make a new NovaBoot boot diskette prior to each time you make your recovery backup. However, you should remake your NovaBoot boot diskette if you have made any changes to your hardware, particularly if related to your backup device.

NovaBoot's procedure for making the recovery backup

1. *Present a list of all local hard disks to the user*.

By default, the entire list is selected for backup, but you may deselect any drive in the list by clicking on its entry.

2. *Conditionally prompt for the desired backup device to use.*

Tape: Present a list of all logical tape drives if more than one has been configured.

By default, the current active tape drive is selected for you, but you may change that selection if you wish.

Logical Device: You may not select a different logical device for backup than that used when you made the boot diskette.

3. *Modify the NovaBoot boot diskette.*

This allows the boot diskette to get information about your selections in step 1 and 2.

4. *Backup all selected drives to the selected or default backup device*.

NovaBoot automatically handles compressed drives, and also runs a verify after the backup has completed. This ensures that the backup matches the data on disk.

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Making the NovaBoot Boot Diskette

You can make your NovaBoot boot diskette by starting NovaBoot, then selecting the Make Boot Diskette option. You must complete this procedure before making the NovaBoot recovery backup. You should also repeat this procedure if you have made any changes to your hardware, particularly if related to your backup device.

NovaBoot's procedure for making the boot diskette

1. *Get ASPI device driver (SCSI backup devices only)*.
For details, please see <u>Different Backup Device Types</u>.

2. *Conditionally prompt for the desired backup device to use.*
Tape: Present a list of all logical tape drives if more than one has been configured.
By default, the current active tape drive is selected for you, but you may change that selection if you wish.
Logical Device: Present a list of possible devices to use for backup including floppy disk, hard disk, and other vendor specific logical devices.

3. *Format diskette in drive A:, make it bootable, copy files*.
You need to provide this diskette (high density, not write protected) and must be sure that its OK to lose any data that previously exists on it. A warning to that effect will appear   prior to the actual format taking place.   After this is done, NovaBoot copies all files to the diskette which are needed to carry out the NovaBoot functions when booting from that diskette.

4. *Create test data on disk and back it up*.
The \~TMP~TST directory is created, then all files from the Windows 95/98 Command directory are copied there. The purpose is simply to a provide a small source of test data to use for backup tests. The backup begins, then runs a verify after the backup has completed. This ensures that the backup matches the data on disk.

5. *Reboot the system from the new NovaBoot boot diskette*.
This is to confirm the ability to restore data to disk from the backup after booting from the NovaBoot disk. Although you are given the option NOT to reboot at this time, you should allow this to complete at least once.
Once you have booted from the NovaBoot disk, your system is automatically checked and the RUNTAPE or RUNMEDIA command is created for you. This command will restore the backed up data to the test directory created in step 4. For more details on how this works, please see <u>Booting from the NovaBoot Diskette</u>.

6. *Reboot for hard disk, check the restored data*.
After booting from floppy and   restoring the test data, start up as usual from hard disk. Prior to displaying desktop icons, a data verification process automatically begins. This is a comparison of the test data to the original data from which it was copied. This eliminates any question of the integrity of the data restored.

NovaBoot Overview

NovaBoot for Windows 95/98 provides the safety of complete system disaster recovery.

If you are unable to start Windows 95/98 due to any malfunction, you can simply boot from the NovaBoot diskette and recover your system from backup. This takes all the guess work out of system repair, with the added convenience of having a simple one-step solution to total system disaster recovery.

Two procedures make up the NovaBoot disaster recovery solution:

1. *Making the NovaBoot Boot Diskette*.

Part of this procedure includes creating and backing up test data. Then after booting from the diskette, the data is restored to hard disk. After rebooting from hard disk, the restored test data is checked for accuracy. Materials required for this step include one high density floppy diskette for drive A: and backup media.

2. *Making the NovaBoot Recovery Backup*.

Upon successful completion of step 1, the actual disaster recovery backup may be made.

You are able to select from a list of all hard disks to backup. As a courtesy you also may exclude directories at your own discression so that you are not unconditionally forced to back up the entire hard disk(s). Compressed disks are automatically handled and require no special knowledge on the part of the user. Materials required include the NovaBoot boot diskette made in step 1, and as many units of backup media (tapes or disks) as is required to contain all data from the list of hard disks you have selected.

Diskettes for Boot diskettes:

Always gets formatted.

Be sure there is no data you wish to retain prior to running NovaBoot.

Tape for backup:

Always gets overwritten.

Be sure there is no data you wish to retain prior to running NovaBoot.

Removable Media for Backup (Diskettes):

Always get overwritten.

Be sure there is no data you wish to retain prior to running NovaBoot.

Removable Media for Backup (non-Diskettes and Hard Disk):

Only existing backups are overwritten.

Be sure there is no backup you wish to retain prior to running NovaBoot.

The topics included in this help program should cover most questions from novice to advanced. In any case, please also read the Wise Precautions Topic. There you will find some additional practical steps you can take to help ensure successful system recovery

as well as other useful strategies for system maintenance.

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