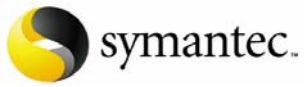

Evaluator's Guide

Symantec Backup Exec™ System Recovery

Authored by:

Dorian J. Cougias
CEO, Network Frontiers, LLC

Karsten Koop
Lead Engineer, Network Frontiers

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Evaluating Symantec Backup Exec System Recovery

Overview

This evaluation guide provides all the information necessary to understand and evaluate Symantec Backup Exec System Recovery's primary features. This guide is divided into two sections.

1. The first section describes issues to consider when setting up a test environment.
2. The second section provides hands-on exercises that demonstrate Backup Exec System Recovery's powerful and easy-to-use features. Step-by-step instructions are provided to help you along. Only the most relevant screenshots have been provided to keep the document at a manageable size.

Section One – testing system recovery software

Remember that when you are evaluating recovery software, you are also testing the hardware, software, and other variables in your environment. In order to evaluate Symantec Backup Exec System Recovery effectively, it is important to minimize the impact of other variables.

Setting up the hardware

System recovery software tests many hardware components, including the CPU, device bus, hard disk, backup storage location, network cabling, and network connections.

Computer Hardware

Select a recent model computer with only the hard disk(s) you'll use connected to a clean data bus (or network if you are storing your recovery points on a shared storage device such as NAS or SAN). If you plan to run a network-based backup test, make sure the network hardware is functioning properly and that the topology reflects the real world (and is not oversimplified).

Recovery Point warehouse

With Backup Exec System Recovery, most people back up to hard disk drives (either direct- or network-attached). Smaller capacity devices are not recommended for server and network backups. They are more costly per gigabyte of capacity and have too little capacity to meet today's backup requirements.

The software environment

Standardize on a logical set of system software and installed applications for each machine in the test. While some evaluators may require test environments that use mixed operating systems, be careful not to work with too many variables at once.

Other variables

Other variables to consider include disk fragmentation, network traffic, etc. Your best bet is to test everything on an isolated network so you can control traffic issues. You will also want to get a realistic system configuration for benchmarking your recovery point. You may want to install the standard applications that you would expect to see in a production environment. And try to minimize hard disk fragmentation. Ideally, use a freshly restored data set on a newly formatted hard disk. Otherwise, you must ensure the same type and degree of fragmentation for each of your tests.

Section Two – hands on exercises for Backup Exec System Recovery

There are three hands on exercises described in this evaluator's guide. They are as follows:

1. Creating a recovery point schedule that shows you how to create your automated recovery points.
2. Performing a hardware independent restore that shows you how easy it is to restore a failed computer (including the operating system, settings, configurations, applications, everything) to *any* new computer with the same or greater capacity for storage.
3. Configuring LightsOut restore to load the recovery environment without using a CD and, optionally, to conduct remote bare metal recovery using a 'lights out' type controller to remotely boot a server.

This combination of hands on exercises will give you a solid understanding of the power and true ease of use that you'll have when you use Symantec's Backup Exec System Recovery.

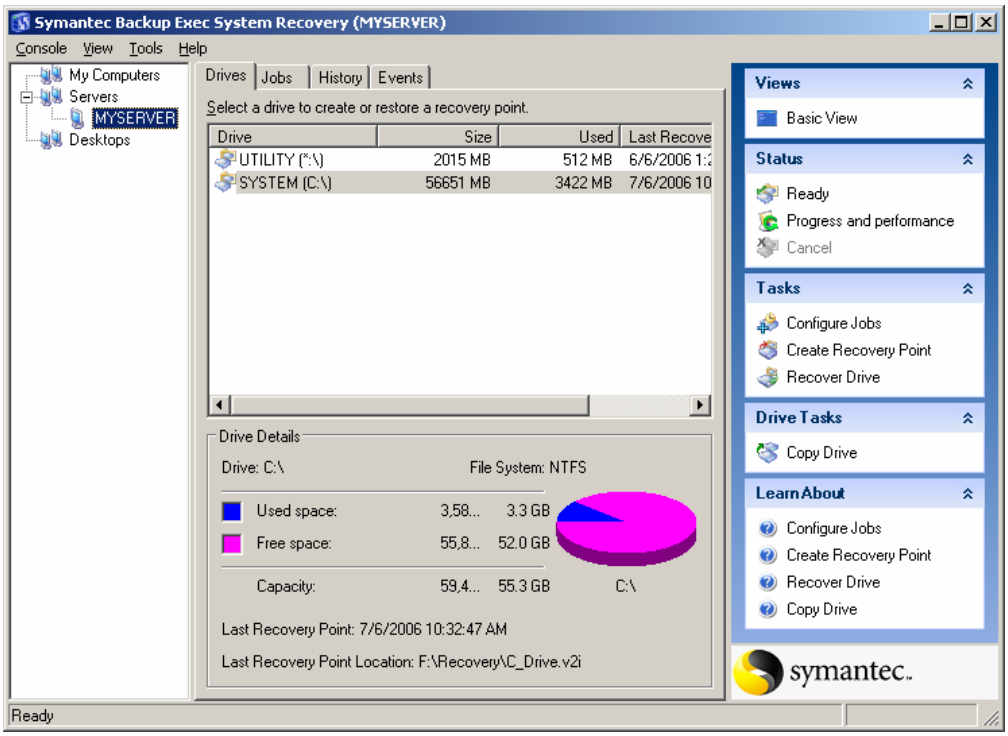
1 - Creating a Recovery Point Schedule

A recovery point is only as good as it is current. An outdated recovery point may save some time in rebuilding a failed system, at least compared to rebuilding it from scratch. But that is not good enough for fast-paced businesses, which are usually low on resources anyway. So there needs to be certainty in the backup mechanism that the recovery point of a critical system is current with all the most recent system changes; you would not want to leave this responsibility to a human being. Backup Exec System Recovery lets you precisely define when and how to create a recovery point.

To create a Recovery Point Schedule, you need to have Backup Exec System Recovery Server or Small Business Server or Desktop Edition installed. To perform exercises two and three you must have a Symantec Recovery Disk (CD) and a full license or 30 day evaluation license for the product. Because the installation is as simple as running the Installer Wizard, we'll skip it here. It should take you only a few minutes to install the software you are going to evaluate.

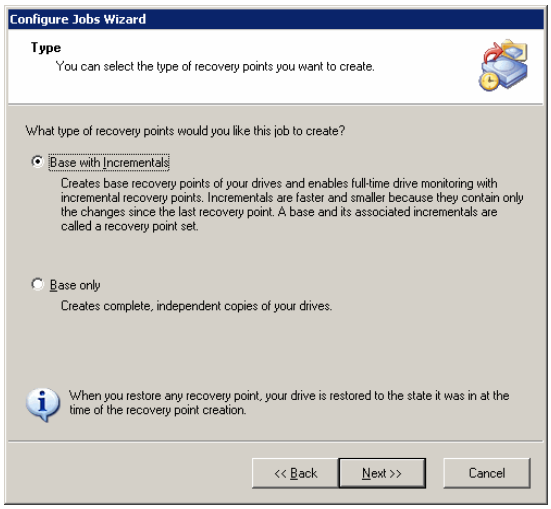
Creating the Schedule

Start the Backup Exec System Recovery Application, select the computer for which you want to create a recovery point schedule and click the **Configure Jobs** command.



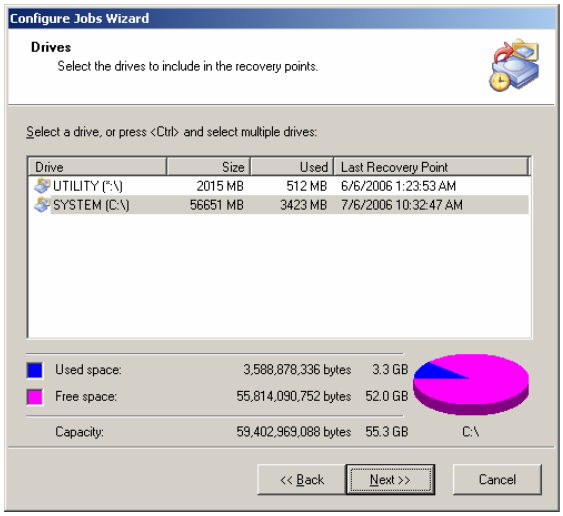
The Backup Exec System Recovery Main Window

In the next dialog (shown below) select the job type. As this recovery point job will run according to a very tightly recurring schedule the option **Base with Incrementals** is the best choice. This opens the option of scheduling base recovery points to the widest choices possible. Click the **Next** button.



Define the Job Type

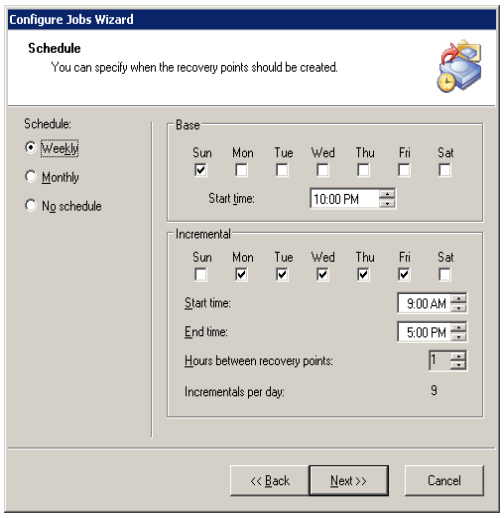
Now select the *source* for the recovery point creation depending on which part of the system you want to protect. The source for all recovery points is a *logical volume*. Backup Exec System Recovery does not backup individual files or folders – only logical volumes (which can be comprised of a disk partition, a whole disk, or an array of disks arranged in a logical volume). You can use the Ctrl key to select more than one partition.



Define the Source

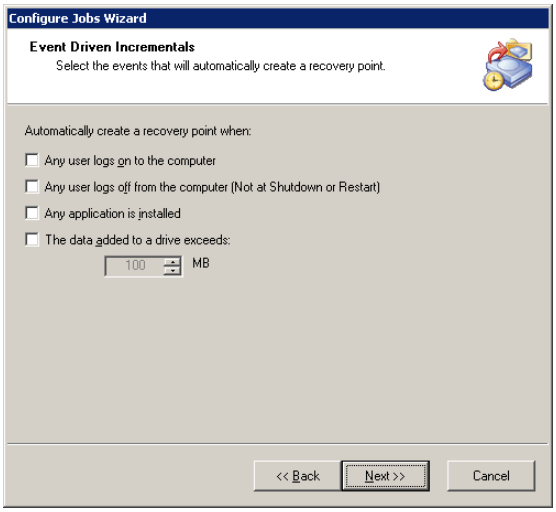
Next, select the destination directory for the recovery point. If you intend to save the recovery point onto a device on the network, you should enter the network credentials into the appropriate fields; otherwise the job might fail to run without proper authentication.

You will now define the schedule for this job. Because the system will remain online while recovery points are captured, you want to schedule this job to allow for normal resource demand. In a regular business situation the weekend is more appropriate for the longer lasting base recovery point while the incrementals capture all changes during the week. In the example below we have selected to create a base recovery point on the weekend while the incrementals run Monday to Friday every hour. Click the **Next** button to continue once you've made your selection.



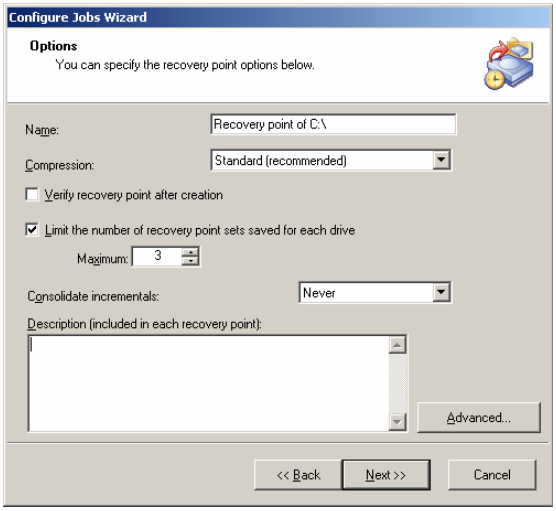
Define the Schedule

A Backup Exec System Recovery feature that is exceptional is that in addition to the scheduled creation of recovery points you can select events that trigger the recovery point creation. A commonly used trigger for creating a recovery point is if the amount of changed data has surpassed a defined threshold.



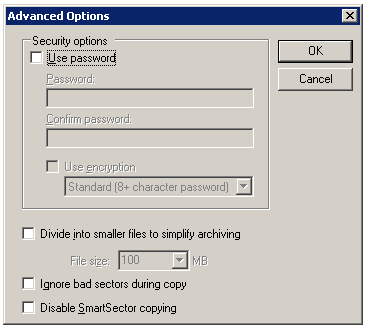
Define the Events for the Recovery Point Creation

Next you can set various options for this recovery point job. Either enter a descriptive name or let the software automatically assign a name based on the computername, and choose standard compression for the best performance to compression ratio. If you are under space constraints in the recovery point warehouse, select the number of recovery points that you would like to keep. In order to further save space you can select an interval to consolidate the incrementals. Pick either from 4 hours or 12 hours and click the **Advanced** button.



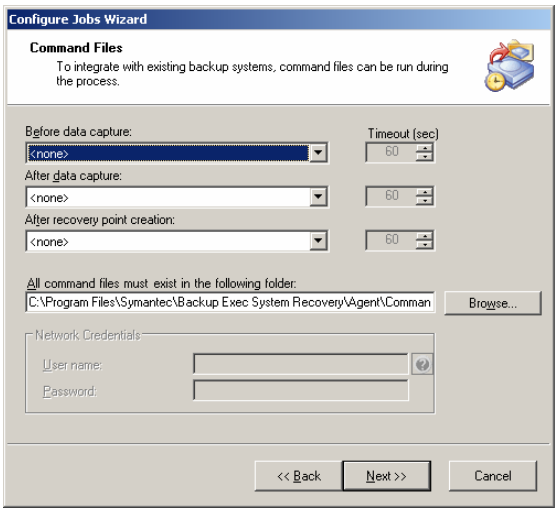
Define Job Options

In the **Advanced** dialog Backup Exec System Recovery lets you define a password for recovery points created by this job in order to protect it from unauthorized access. When password protected, the recovery points can also be encrypted. Choose from 128, 192, or 256 bit encryption based on the three different password lengths provided. In addition you can divide recovery points into chunks not exceeding a certain size for saving them on CD or DVD for example. For the remainder of the settings choose the defaults. Click the **OK** button when done and click the **Next** button in the **Options** dialog.



Advanced Options

In the **Command Files** dialog Backup Exec System Recovery lets you select command files that can be executed before the snapshot, after the snapshot and after the creation of the recovery point. For example, this could be a batch file that stops a database before the snapshot is taken and starts it up right after the snapshot has been taken. Click the **Next** button to continue.



Select Command Files

Finally, Backup Exec System Recovery presents you a summary of this recovery point job. Click the **Finish** button to save this job. It will now run at every scheduled point in time or can be manually initiated to run immediately by right-clicking on the job and choosing 'run job now.'

2 - Performing a hardware independent restore

With Symantec Backup Exec System Recovery it is possible to restore a volume to the same or to a new computer within minutes. This powerful capability allows users to restore their full system to whatever computer is available even if the storage controller and hardware abstraction layer (HAL) are different. The Backup Exec System Recovery installation CD doubles as a ready-made bootable recovery environment. This CD is commonly called the Symantec Recovery Disk (SRD).

Performing the Restore

To perform a hardware independent restore using the Restore Anyware capability, select a computer that is different from the one where the recovery point originated. This simulates an environment where the user does not have the original hardware to restore to. You might need to change the settings of the BIOS of the computer to allow booting from CD. During the boot up process you will wait a short moment then see the message **Press any key to boot from CD…** Press a key, otherwise the computer will try to boot from other devices. The boot process can take a few minutes during which the SRD is

detecting all the necessary drivers to load. You will be presented with the license agreement for the recovery disk. Read the license agreement and click the **Accept** button.

When the boot up process is finished you need to start the network services, as later on you will connect to the server that holds the recovery point for this computer. Click the **Yes** button or wait for 10 seconds for the services to start automatically.

The Symantec Recovery Disk Main Screen

Now click the **Network** command to get to the necessary tools for system restoration.

The first thing you need to do is map a network drive to gain access to the volume where the recovery points of this computer have been stored. Click the **Map Network Drive** command.

Select one of the available drive letters, then enter the exact UNC path to the network share that contains the recovery points in the **Folder** field. Click the **Finish** button.

You will then be asked to authenticate yourself as a user with administrative rights on the domain, or at least on the server containing the recovery points. Enter your credentials into the **User name** and **Password** fields and click the **OK** button.

After the drive has been successfully mapped you are returned to the **Network** screen. Click the **Home** button to return to the start screen.

Now that you are ready to recover the volume click the **Recover My Computer** button on the **Home** screen.

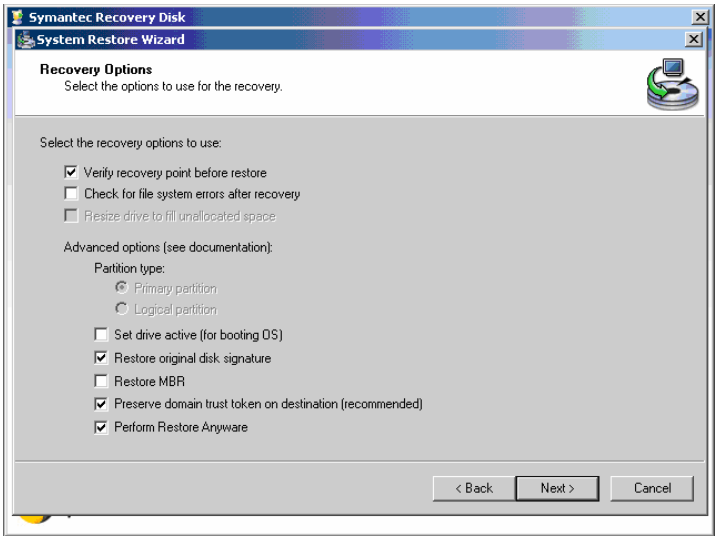
The System Restore Wizard will lead you through the restoration of the computer. Click the **Restore drives** radio button as we will restore a complete volume.

In the next step you can select the restore method by choosing between **Single drive**, **Multiple drives** and **Multiple drives using system index file**. Select the **Single drive** option and click the **Next** button to continue.

Now choose the location of the recovery point by either typing the path into the text field or by using the **Browse…** button to locate the recovery point. Click the **Next** button to continue.

As a final step you need to indicate the target volume for restoration. Select the target volume by clicking on it and click the **Next** button.

In the Recovery Options dialog de-select the **Verify recovery point** option and select the **Set drive active** option so that the computer can start from the hard drive after it has been restored. As we are restoring a recovery point that came from a different system you need to select the **Perform Restore Anyware** checkbox. Click the **Next** button to continue.



Recovery Options

Before you get to restoring the recovery point, Backup Exec System Recovery displays a summary of the planned restore. Select the **Reboot when finished** checkbox to let the PC reboot into its last good state, then click the **Finish** button.

Read the warning about retargeting and click the **Yes** button – if you are really sure that that is what you want to do.

The restore process is in progress. As the progress bar reaches completion, Restore Anyware will begin the retargeting process by automatically updating critical system drivers so that the operating system will boot on the new computer.

If the new drivers are not already on the SRD then you will be prompted to provide the drivers. If prompted for a driver, it is simplest to place the drivers in the same directory where the recovery point is located as you already have access to this location. The

software installs these additional drivers using a process much like a typical Windows driver installation.

When it is finished the computer will reboot into the state of the last good recovery point. During boot, Windows plug-and-play will run detecting non-critical device and peripheral drivers. When plug-and-play has completed check the device manager and install any additional drivers necessary to complete the process.

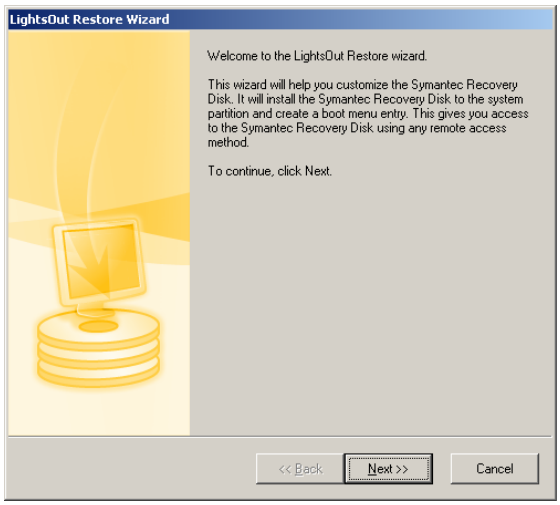
3 – Using LightsOut Restore

When a system fails due to an error in the operating system, for example caused by a faulty driver that leads to a blue screen or caused by a virus attack, it is often less of a problem to restore the system to a functioning state than to find the culprit and remove it. Often it is impossible to completely clean a system that has been heavily infested by viruses. In addition the damaged system may be hundreds of miles away and a technician would need to be deployed to restore the system. Backup Exec System Recovery and LightsOut Restore will eliminate the need to boot from the recovery CD and can also be used to perform remote recovery by using a standard "lights out" controller available in many server computers.

For this scenario you need to have Backup Exec System Recovery and you need to configure LightsOut Restore.

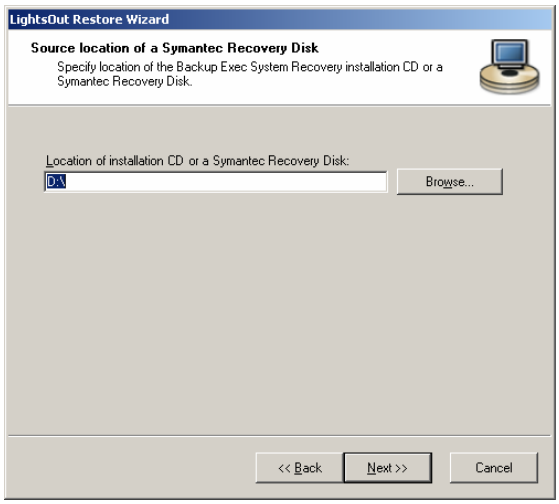
LightsOut Restore

LightsOut Restore functionality in Backup Exec System Recovery accommodates an easy system restore without the need of inserting a boot CD. This provides a faster boot time when loading the recovery disk from hard drive instead of CD. And it gives the option for users who have remote "lights out" controllers to remotely drive a bare metal recovery. To configure LightsOut Restore go to Start>Programs>Symantec>Backup Exec System Recovery>LightsOut Restore Setup. This wizard will guide you through the installation of the recovery CD onto your hard drive.



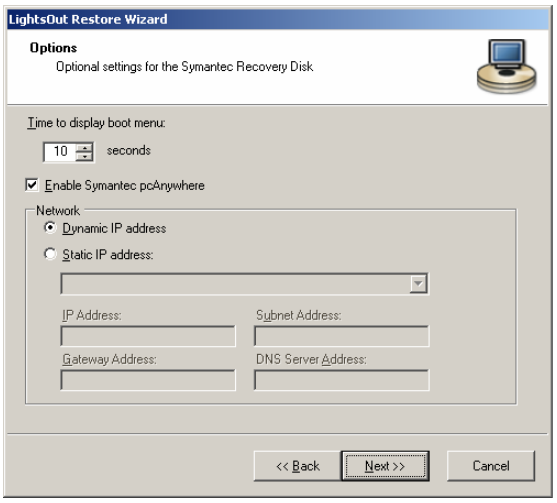
The LightsOut Restore Wizard

Next select the path to the Backup Exec System Recovery installation CD and click the **Next** button.



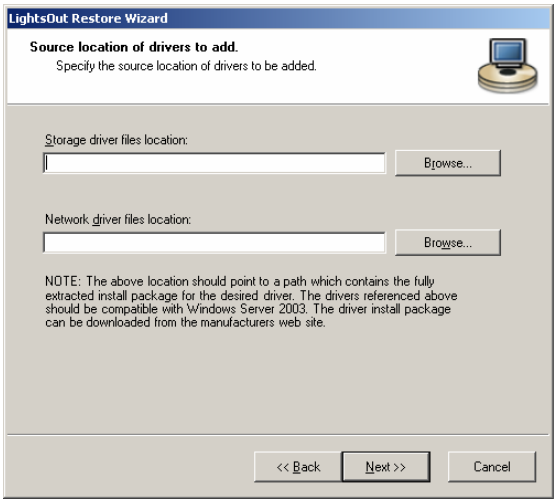
Select the Installation CD

In the next dialog you can configure the startup options for the Symantec Recovery Disk. Adjust the **Time to display boot menu** value to your likes and leave the **Enable Symantec pcAnywhere** checkbox checked. As you are configuring a server for a possible restore, it probably has a static IP-address. Enter the server's IP-address, Subnet address, Gateway address and DNS server address. Click the **Next** button to continue.



Configure LightsOut Restore Capability

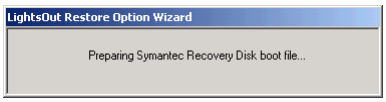
If the server has devices installed that are not being supported by the Symantec Recovery Disk you can point the LightsOut Restore configuration wizard to the directories that contain supporting drivers. Click the **Next** button when done.



Optional Driver Directories

Finally LightsOut Restore displays a summary of the options that you selected. Click the **Finish** button to finalize the setup of LightsOut Restore.

As a next step LightsOut Restore installs a Windows Pre-Install Environment (Windows PE) into the hidden **MININT** directory in the root directory of drive C. This directory contains a boot environment by the name of **Symantec Recovery Disk**, which is selectable as an alternative to the regular Windows installation upon system boot.



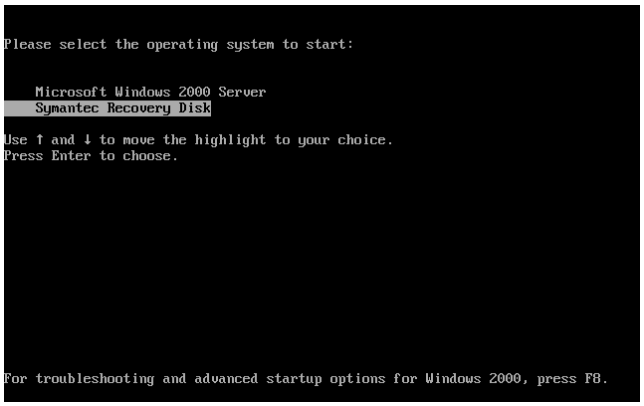
Installation in Progress

LightsOut Restore configures and installs the Symantec Recovery Disk according to the previously selected settings.

At the end of the installation, LightsOut Restore reports that the installation has been performed successfully. The server you installed LightsOut Restore on is now prepared for a restore in case it fails.

Performing the Remote Restore

If you don't have a "lights out" controller you can still perform most of the recovery remotely to see how it works. Begin by restarting the computer where you just installed LightsOut Restore. The computer will restart and present you with the option to start either the installed operating system or to start **the Symantec Recovery Disk**. Select the **Symantec Recovery Disk** option and hit the **Enter** key on your keyboard.

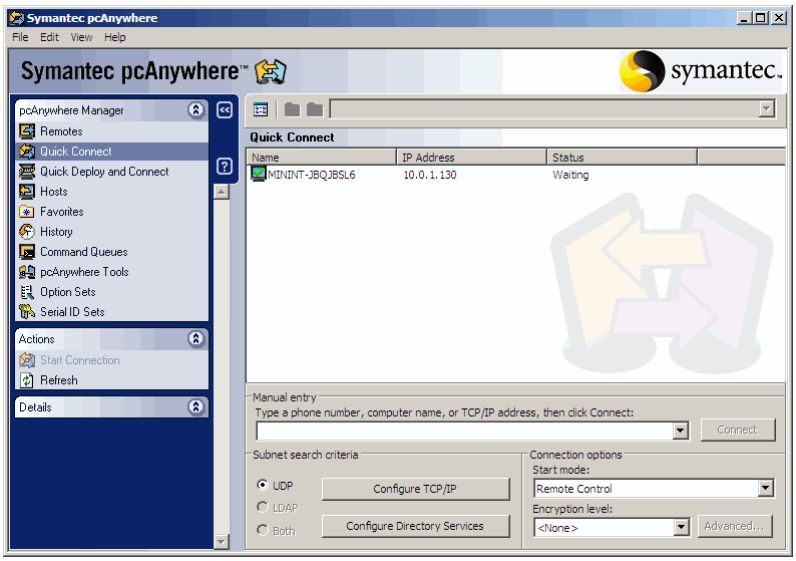


Boot Options

The Symantec Recovery Disk will now load into RAM.

Next, a Windows installation environment will start from the Symantec Recovery Disk. after the boot-up is finished you will see the main screen of Symantec Backup Exec System Recovery LightsOut. As you previously selected to start pcAnywhere when the LightsOut capability starts you will switch to a computer running pcAnywhere to remotely control the computer running LightsOut Restore.

Within pcAnywhere click the **Quick Connect** command. This will list all pcAnywhere hosts. Select the server that is accessible via the pre-configured IP-address by double-clicking its name.



Connect through pcAnywhere

pcAnywhere will prompt you for the credentials of a user with administrative rights on this machine. By default the pcAnywhere host on the Symantec Recovery Disk provides the user ***symantec*** with the password ***recover***. Enter both values and click the **OK** button.

From now on you have complete remote control over the computer via pcAnywhere.

In order to restore the damaged system installation you need to get access to the previously saved recovery point. If the recovery point has been saved to a local hard drive you can easily access it, otherwise you need to map a network drive to the path where the recovery point resides. In latter case click the **Network** button on the left-hand navigation.

Within the Network options click the **Map a Network Drive** command.

Select an available drive letter and enter the path to the location of the recovery point and click the **OK** button.

A dialog will pop up asking you for the credentials of a user with at least the minimum read rights to the location where the recovery point resides. Enter the credentials and click the **OK** button.

Now you need to return to the **Recovery** menu. Click the **Home** button.

Next click the **Recover My Computer** command.

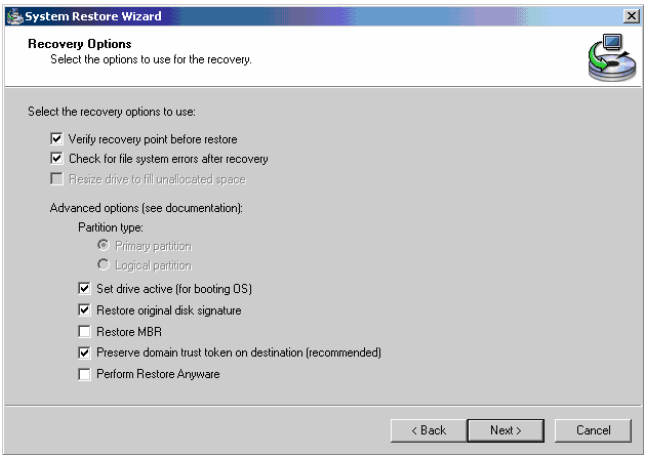
The System Restore Wizard will start, prompting you to select from alternative options. In the first dialog select the **Recover drives** option as you will restore the entire volume.

Next select the **Single Drive** restore option and click the **Next** button.

Now browse to, or enter the location of the recovery point that you want to restore and click the **Next** button.

As a next step, select the destination to which you want to restore the recovery point. As no hardware has been exchanged this will be the original hard drive. Select the drive and click the **Next** button.

In the **Recovery Options** dialog you can deselect **Verify the Recovery Point** . Also select to **Set the Drive Active for Booting** and to **Restore the Original Disk Signature.** If your system was the member of a domain then select **Preserve the Domain Trust Token on Destination**. Click the **Next** button to finalize the restore process.



Recovery Options

Review the restore summary, keep the **Reboot when finished** checkbox checked to reboot into the restored OS and click the **Finish** button.

The **System Restore Wizard** will prompt you one more time, informing you that all data on the target device will be replaced by the data contained in the most recent recovery point. Click the **Yes** button to finalize the restore operation.