

Quantum.

Computer System Recovery

GoProtect™ for RDX Software



Note: To use the System Recovery feature you must be running GoProtect 5.0.423.1 or later.

6-67634-01 Rev A

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Introduction

Quantum GoProtect introduces the ability to recover a complete computer system.

Note: Internet access is required to perform this procedure.

There are two basic elements for protecting and restoring a complete computer system using Quantum GoProtect.

- The first element is creating and running an Everything Protection Plan with System Recovery Information checked. A wizard for creating the Everything Plan steps the user through drive selection, storage selection, and creation of a schedule for when the protection plan runs.
- The second element is the System Recovery Environment (SRE). When a complete system is being recovered, the computer needs to use a bootable device to bootstrap the recovery process. The System Recovery Environment is a custom Microsoft Windows 7 Pre-installation Environment image that can run from a CD/DVD drive, from a bootable USB hard drive, and in the case of a virtual machine recovery, when mounted as an ISO formatted bootable CD/DVD. After the computer has been booted with the SRE, the process of recovering the system is only a few steps away.

Creating an Everything Protection Plan

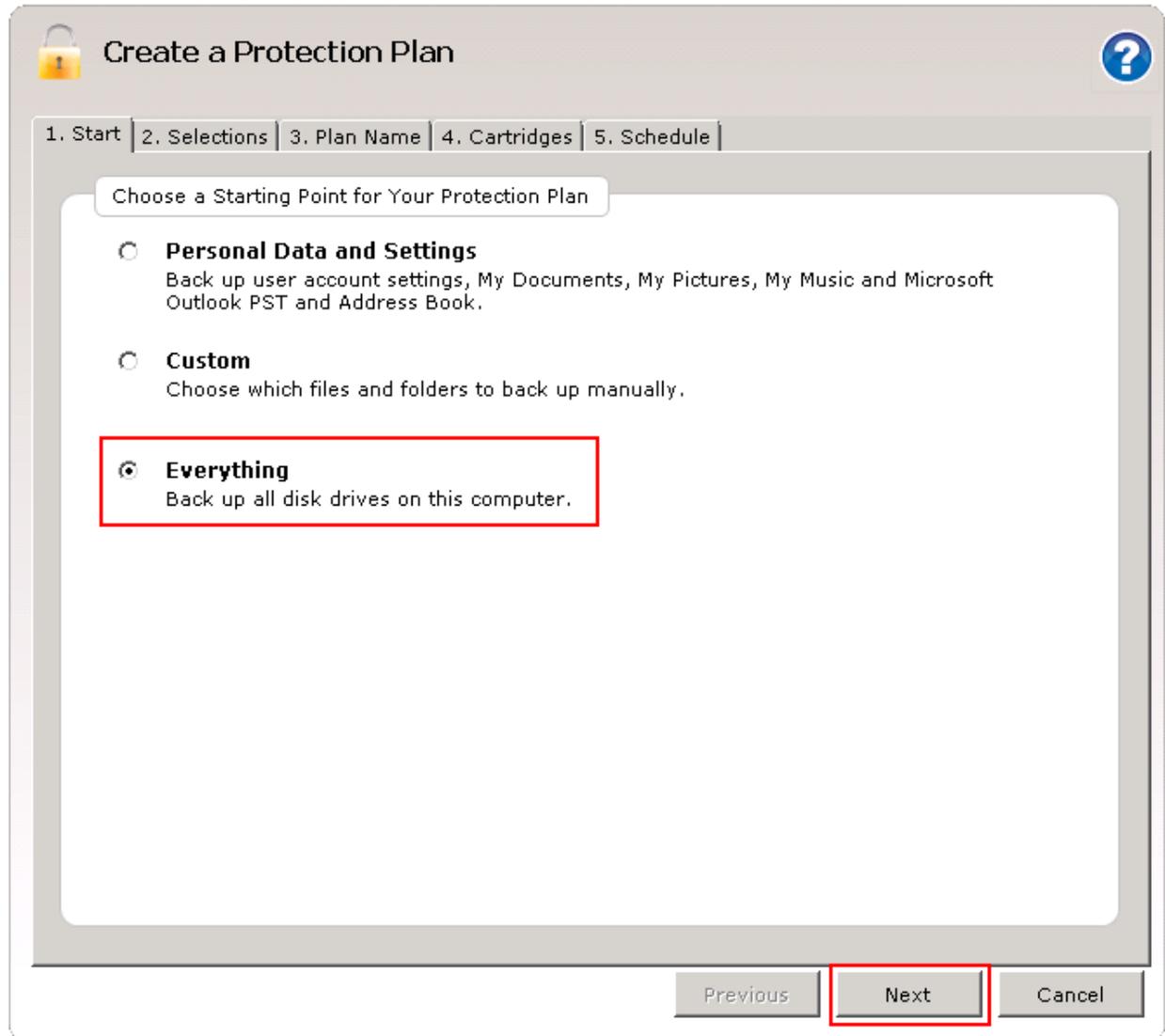
The Everything Plan can save the computer's system configuration information, including volume information and sizes, as well as all data on the computer. You can create an Everything Plan for the Windows Vista, 7, 2008 and 2008 R2 operating systems.

To create an Everything Protection Plan you must run the **Create a Protection Plan Wizard**:

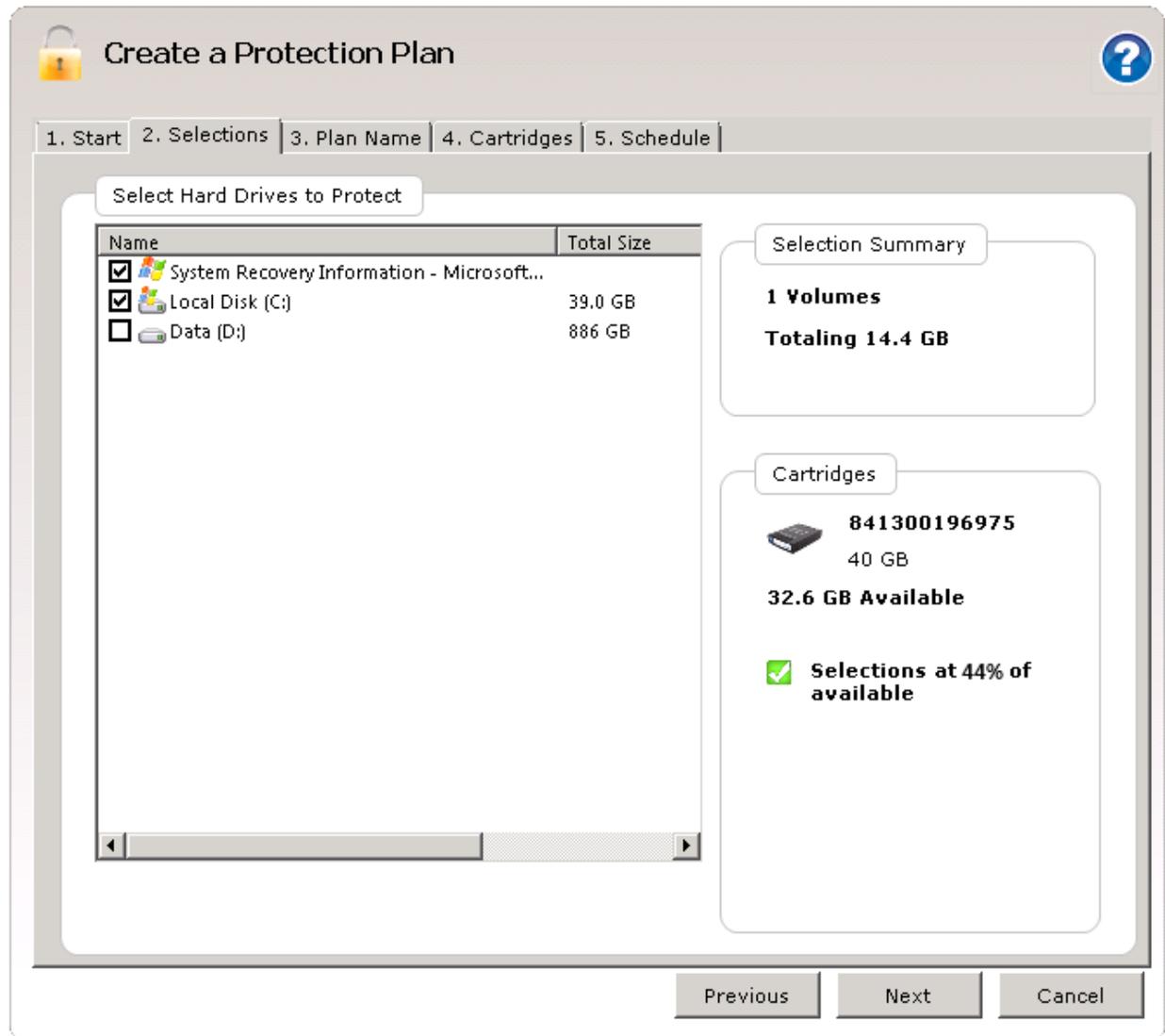
1. Click **Add a Protection Plan** from the upper right of the **Home** page, as shown in the following image.



2. Choose **Everything** from the enabled plan types, as shown in the following image, and click **Next**.



The **Selections** window displays.



As shown above, this window shows the three elements that you can choose to protect:

- **System Recovery Information** includes all files and configurations necessary to recover a working Windows setup. The icon for this choice is a large Windows flag.
Note: The System Recovery Information box displays when using Windows Vista, 7, 2008 and 2008 R2 operating systems.
- **System Drives** (not labeled as such) refer to the drive(s) on which the Windows operating system is stored. The icon for a system drive is a drive with a smaller Windows flag on it. In most cases, this will be only Drive C: (as shown above).
- **Data Drives** are all drives on the computer that are not system drives. These are indicated by a drive icon. In the window above, Drive D: is a data drive. Only drives with non-removable media can be protected; removable drives are not listed.

3. Choose the elements that you want to protect.
 - To protect the operating system files and configurations, check the **System Recovery Information** box.
 - To protect the system disk(s), check the box for those drives (this may only be Drive C:). When you protect the System Recovery Information, you must also protect the System Disk (Disks). To exclude a system disk from protection, uncheck it in the **Create a Protection Plan** window shown in the above window.
 - To protect a data drive, check the box for that drive. You do not have to select data drives as part of this plan—it may be preferable to protect data on a given data drive with a different plan type. For example, the data on a data drive might contain a Microsoft Exchange database and/or log files. In this case, an Exchange Data Protection Plan would be a better candidate for protecting the data on this drive, since only an Exchange Data type plan truncates logs.
4. After you've checked all drives to protect, click **Next**.

The **Plan Name** window displays.

Create a Protection Plan

1. Start | 2. Selections | 3. Plan Name | 4. Cartridges | 5. Schedule

Set Plan Name and Description

Name: Seligman Everything Plan

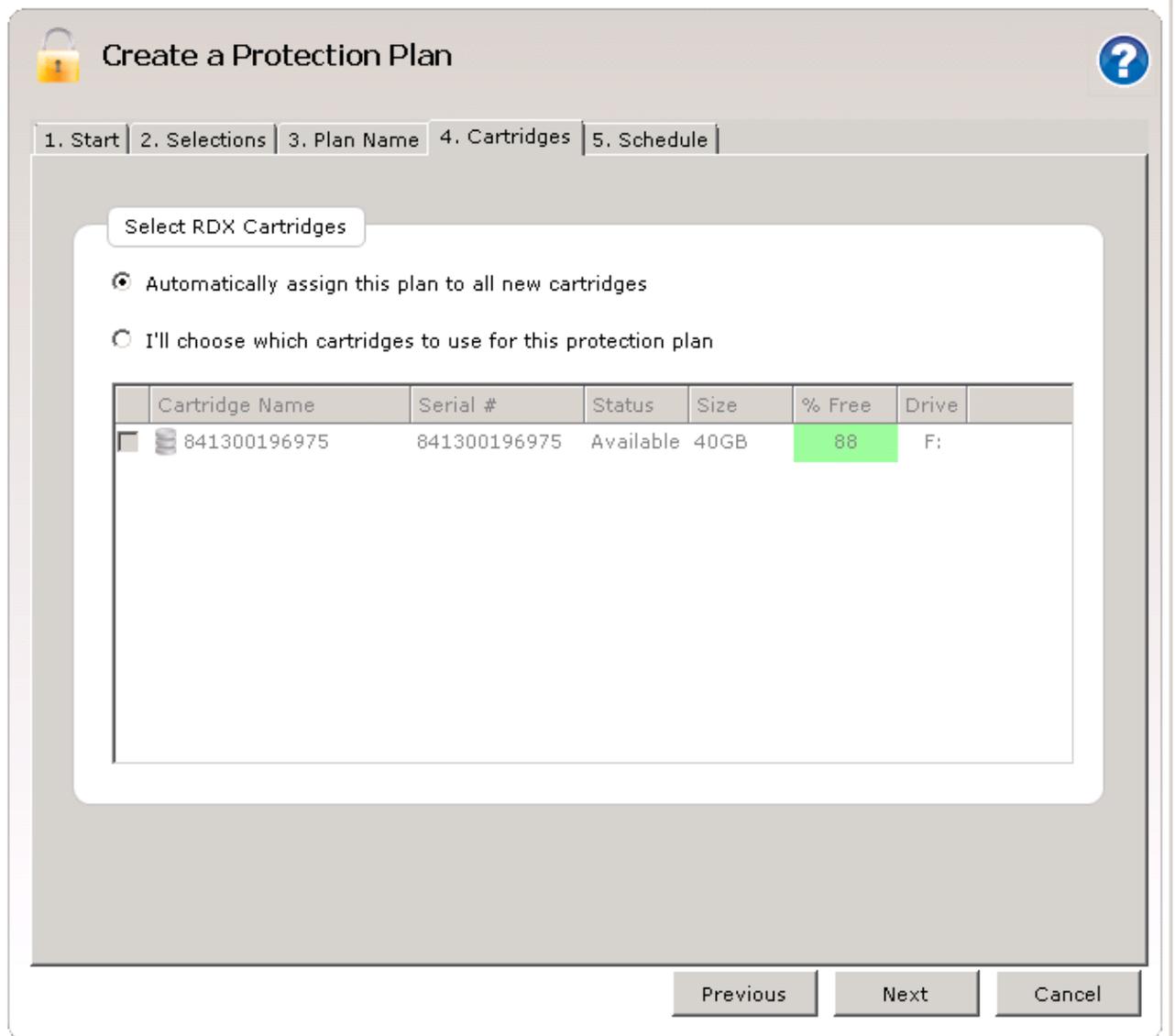
Description: This plan protects all hard drives on this computer. If a hard drive is added or removed the files on those drives will be protected automatically.

Previous Next Cancel

5. Enter a **Name** and **Description** for the protection plan, including the name of the computer is a best practice if using the same storage with several computers.

6. Click **Next**.

The **Cartridges** window displays.



7. Select the RDX Cartridges options you would like to use.

- If you choose **Automatically assign this plan to all new cartridges**, the software chooses an available cartridge each time the plan runs. This could be a new cartridge or a cartridge that has been used by this or other protection plans in the past.
- If you choose to assign each cartridge individually, the plan only uses the cartridges you select to save backed up information for the plan.

Note: On subsequent runs of the protection plan, the software chooses the most recently used cartridge by default. If that cartridge is not available, the software searches for the next available cartridge.

8. After you've chosen the cartridges to use, click **Next**.

The **Schedule** window displays.

The screenshot shows a window titled "Create a Protection Plan" with a question mark icon in the top right. Below the title bar is a progress indicator with five steps: 1. Start, 2. Selections, 3. Plan Name, 4. Cartridges, and 5. Schedule. The "5. Schedule" step is active. The main content area is titled "Choose when Protection Plan Runs" and contains the following options:

- No Schedule
- Daily
- Weekly
- Monthly
- Advanced

To the right of these options is a label "At:" followed by a dropdown menu showing "6:00 PM". Below these options is a checked checkbox labeled "Run this plan only when logged on". At the bottom of the window are three buttons: "Previous", "Finish", and "Cancel".

9. If you choose **No Schedule**, you can run the plan manually from the **Home** page.

Note: For more information on how to schedule a plan click the help button in the upper right.

10. After you have chosen when you would like the protection plan to run, click **Finish** to complete the wizard or click **Previous** to review or change any of the settings before saving the plan.

A window displays asking if you would like to save the System Recovery Environment (SRE) to media.

Note: This dialog box serves as a reminder to save the SRE before it is needed.

11. To save the SRE at this time, click **Yes** and then follow the prompts. Refer to the section **Saving the System Recovery Environment to Media**.

Otherwise click **No**.

Running a Protection Plan

When creating a protection plan, you can schedule the plan to run Daily, Weekly or Monthly at a specific time. You can view a summary of the schedule and the most recent run status from the **Home** page.

My Saved Protection Plans

 **Seligman Everything Plan**   
Status: **OK**
This plan runs At 6:00 PM every day, starting 2/28/2012

After the plan is created, you can choose one of the following actions to review or modify how and when the plan by clicking **Edit Settings**, or run the plan by clicking the **Run Now** button, or remove the plan by clicking the **Remove Plan** button. You can always run the plan manually, without a schedule, using the **Run** action. For more information on these actions, select **Help** in the upper right.

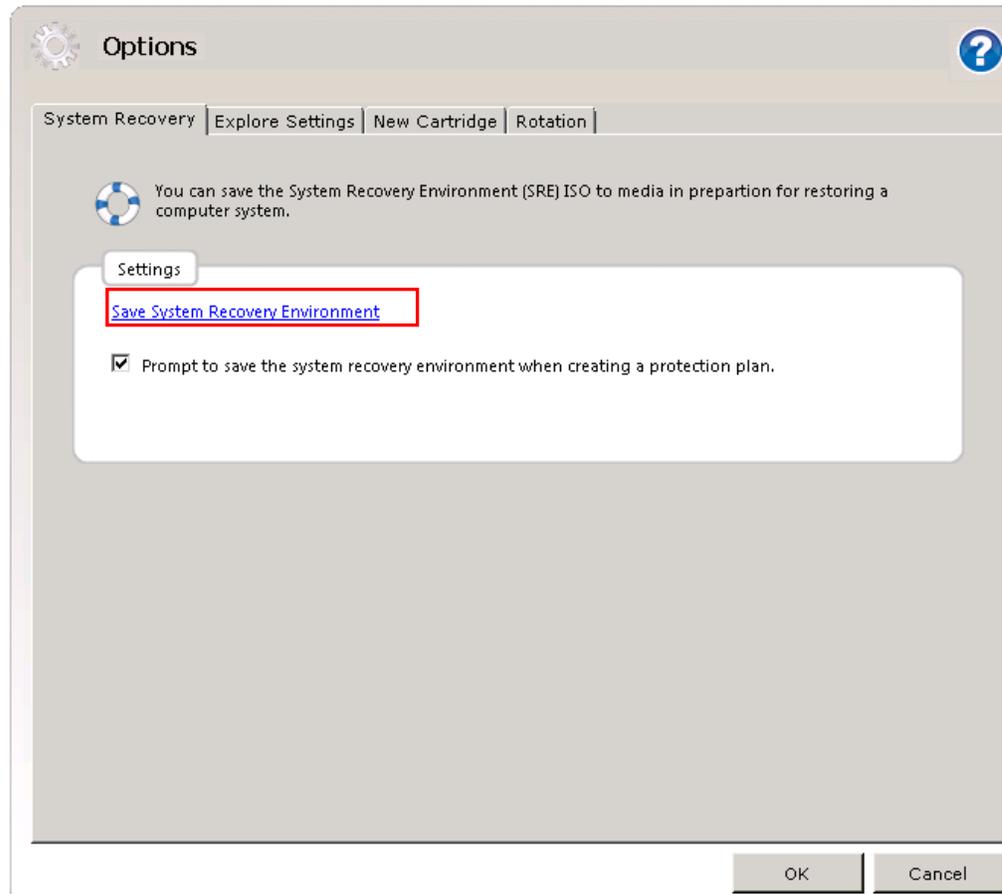
Saving the System Recovery Environment to Media

You must prepare bootable System Recovery Environment media for use with a System Recovery Protection Plan restore point during a system recovery.

1. There are two ways to save the System Recovery Environment (SRE) to media:
 - At the end of the **Create a Protection Plan** wizard, you are prompted whether or not to save the SRE to media. You can save the SRE here.



- Or click the **Save System Recovery Environment** link on the **Options** window under the **System Recovery** tab, as shown below.



Whichever method you use, the following window displays.



2. Choose whether you want to **Save the current version** or **Download from the Internet**.

- If this is the first time you are saving the SRE, select **Download from the internet**.
- If the information message at the bottom of the window indicates a newer version of the SRE.iso is available, select **Download from the Internet**.

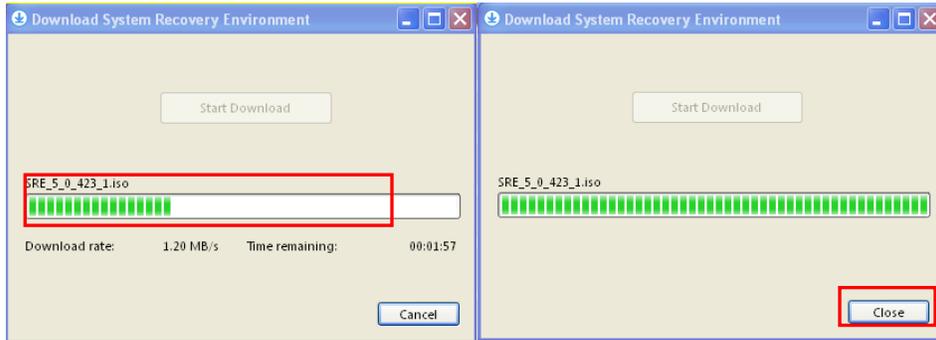
Note: If you already have the latest SRE.iso, the options **Save the current version** or **Download from the Internet**, are *not* displayed.

3. Select one of the choices there to save the SRE to a USB hard drive, .iso file, or CD/DVD.

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- Click the **Start Download** button for the download to begin.

The .iso file is downloaded to C:\Program Files\Quantum\GoProtect\Client\SRE.



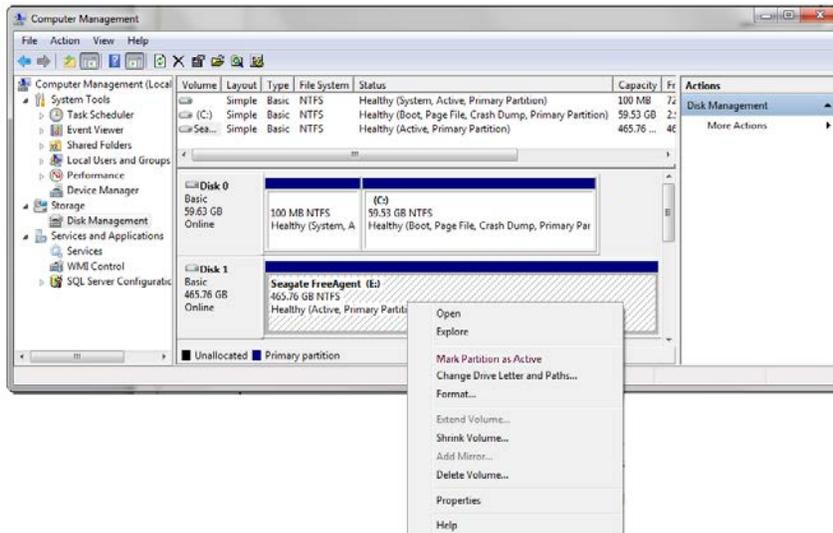
- Once the download is complete, click **Close** to close the window.
You are prompted to save another copy of the SRE.iso file to a folder.
- Proceed to the section **Copying the SRE to an .iso file**.

Copying to a USB Hard Drive

If you select the **Copy to a USB hard drive** option, the following displays, which shows the image file to copy, and a list of available USB hard drives to use as a target for the copy.

Please note that:

- Only the first partition on a USB hard drive can be used.
- Make sure that you set the partition on that drive to **active** using a utility like Disk Manager or DISKPART. This allows the USB hard drive to boot a system.



When you copy to a to a USB hard drive, the drive is not formatted, and all existing data is preserved. The required files to make the drive bootable with the SRE are copied to the drive.

To copy the SRE to a USB hard drive:

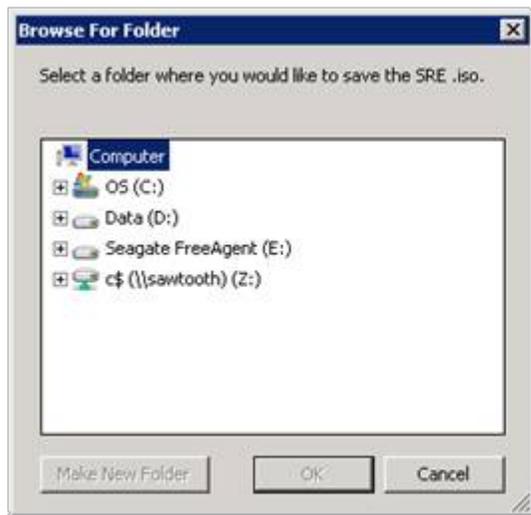
1. When you are ready to copy the information to the target drive, click **Copy**.



2. When the copy completes, click **Cancel** to close the window.

Copying the SRE to an .iso file

If you select the **Copy SRE .iso file** option, the **Browse for Folder** window displays (shown on the left below).



To perform the copy:

1. Navigate to a location to save the SRE .iso file. Choose a folder on a local or mapped drive where you want to save the file.
2. Click **OK** (it will no longer be grayed out, as it is displayed in the above window).

A progress bar displays, as shown in the right-hand window above. Get more information about the process by clicking the **More details** button.

When the copy completes, the **Copying 1 item** window (shown above on the right) closes.

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3. Navigate to the destination folder to burn the .iso to CD/DVD using other applications, or to prepare for a recovery in a virtual environment.

The SRE .iso file is an ISO formatted file that can be used to boot virtual machines. Most virtual machine hypervisors let you configure a virtual machine to boot from CD/DVD devices or ISO formatted files.

You can also copy this file to a CD or DVD by using **isoburn.exe** on a Windows 7 or Windows 2008 R2 computer, or by using a third-party CD/DVD burner such as PowerISO.

Burning to CD or DVD

If you select the **Burn to CD or DVD** option and you are running Windows 7, 2008, 2008 R2 with Desktop Experience installed, the **Windows Disc Image Burner** dialog box displays (shown in the left dialog box below).

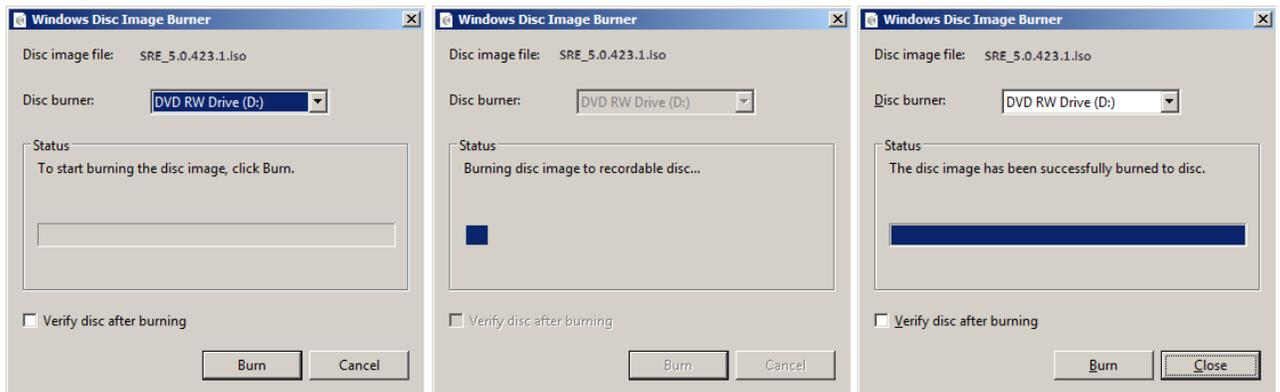
Note: If you are not running the noted operating systems, you can use a third-party CD or DVD burning program such as PowerISO. Navigate to the saved ISO file double-click the ISO file and follow the prompts.

1. Select the CD/DVD drive to on which you want to burn a bootable disc.
2. If you want to verify the disc after burning, check **Verify disc after burning box**.
3. Click **Burn**.

The progress bar displays (shown in the center dialog box below).

4. When the disc has been burned, click **Close** (shown in the right window below).

This option is only available if the program Windows Disc Image Burner (isoburn.exe) is installed on your computer. This program is installed by default on Windows 7 and on Windows 2008 R2 systems that have the Desktop Experience feature installed.



Restoring Data from an Everything Protection Plan

The Everything Protection Plan stores all of the system information and system data needed to restore a computer. However, this plan type is not limited to full system recovery.

You can also restore individual files or folders from the **Explore** window as discussed below.

To restore data:

1. Select the **Explore** button (at the left side of the window).

The available recovery point dates and times display in the center, at the top. (In this case, there is one available for the selected date, as shown below).

Home

Explore

Cartridges

Options

Results

Alerts (1)

Help

Explore

Search for files

February, 2012

Sun	Mon	Tue	Wed	Thu	Fri	Sat
29	30	31	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29			

March, 2012

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

April, 2012

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	1	2	3	4	5

Today: 2/29/2012

View Options

Only show recovery points for this computer

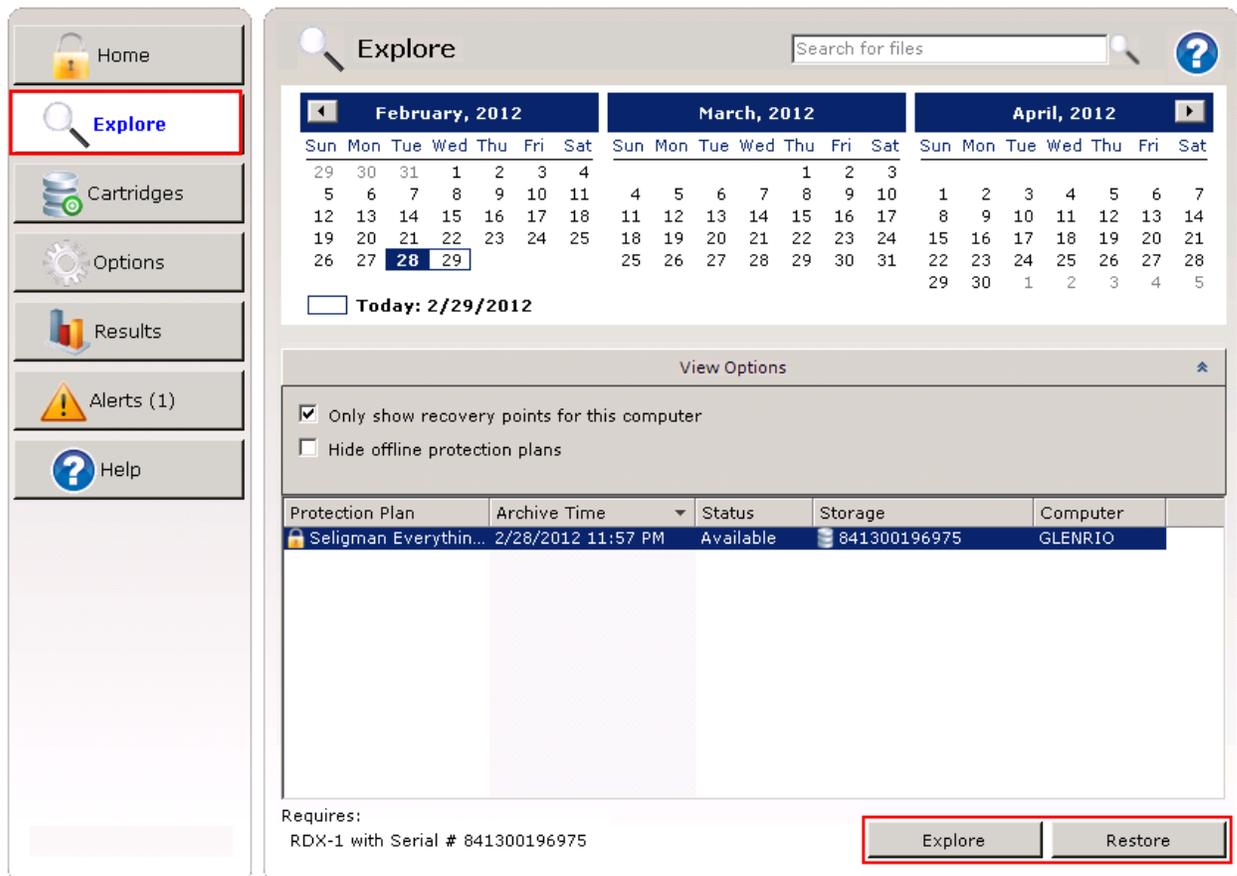
Hide offline protection plans

Protection Plan	Archive Time	Status	Storage	Computer
Seligman Everythin...	2/28/2012 11:57 PM	Available	841300196975	GLENRIO

Requires:
RDX-1 with Serial # 841300196975

Explore Restore

- Select the date and time you want to recover, as shown in the window below. As shown, we've selected the first **Seligman System Plan**, with an Archive Time of 2/28/2012 11:57 PM.



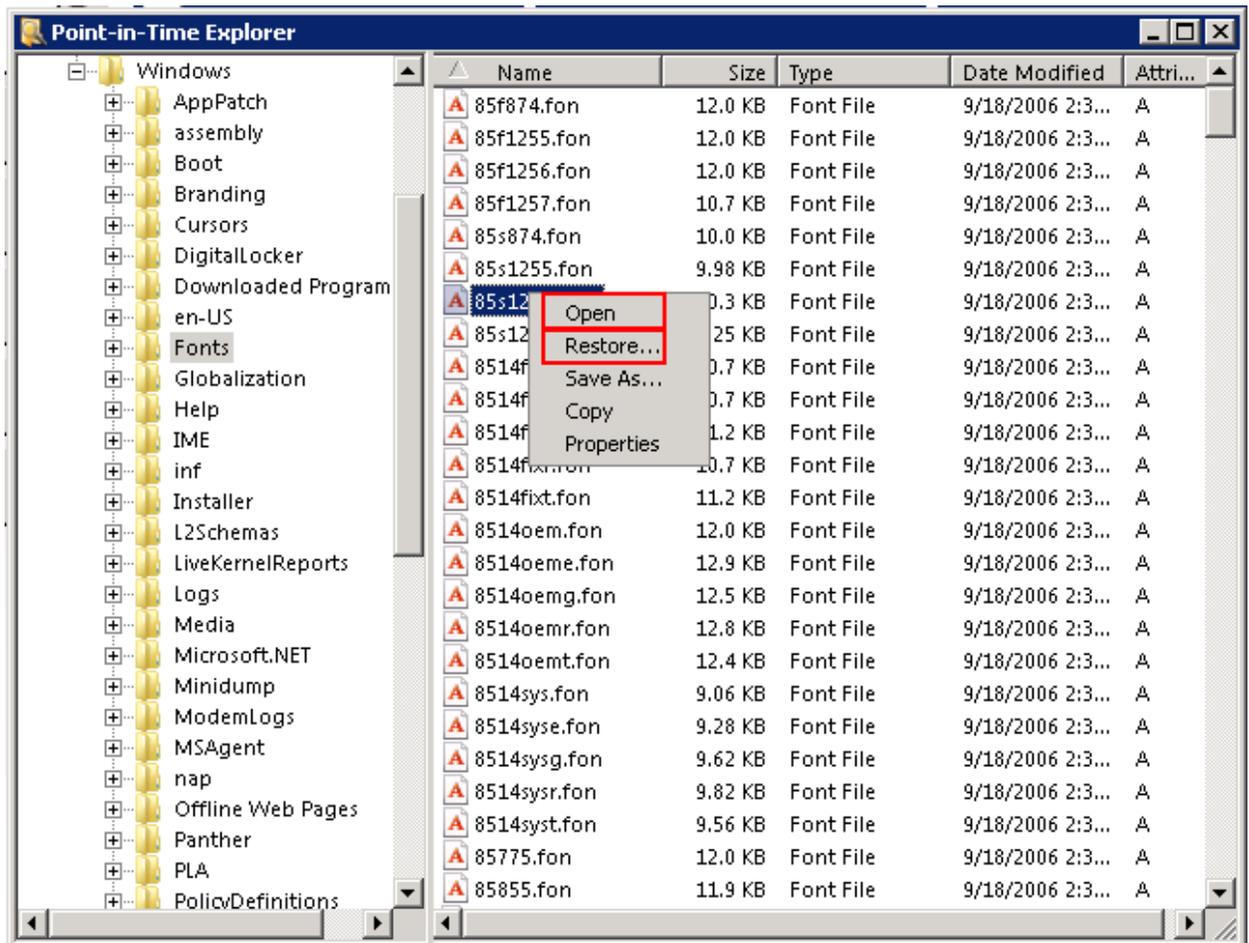
- Do one of the following:

- If you want to select specified files and/or folders, do the following.

Note: If you want to restore ALL of the data from the recovery point, skip to the next bulleted item.

- Click the **Explore** button (see the previous image) to view a Windows Explorer-style listing of the files and folders contained in that recovery point.
- In the **Point-in-Time Explorer** window (see the window below), in the left-hand pane, select the subset of the data that you want to restore. This could be any branch of the tree structure shown, such as drives and folders.
The children of the item you have chosen are displayed on the right.
- The right-hand pane shows data available for restore in the data subset that you chose, as shown in the lower part of the following window. Choose one or more items, using standard Windows Explorer methods, such as clicking and control-clicking.
- Right click the selected item(s).
As shown in the following window, for a file, you can open it, restore it, save as, copy it, and view the properties. Viewing the properties of a folder can show you how space it would require for a restore.

- e. When you are ready to restore the item(s) you chose, right click the item(s) and select **Restore**, as shown in the second line of the drop down menu below.

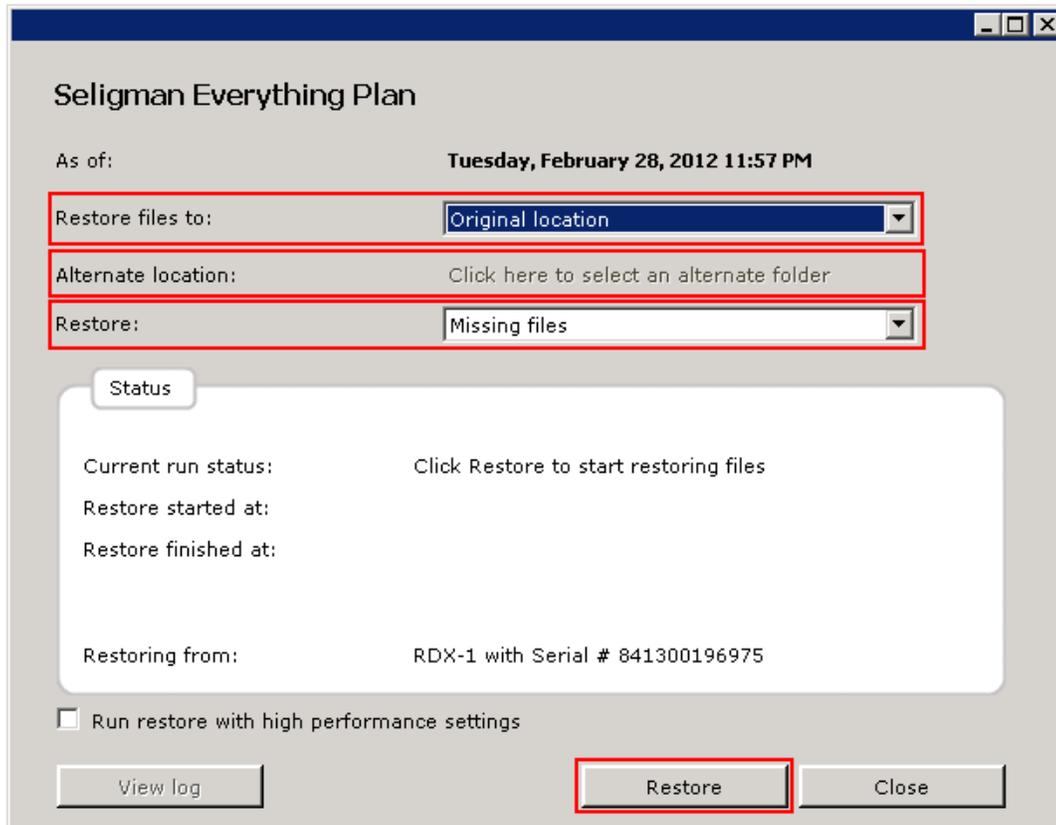


- f. Continue with Step 4 on p.17.

Note: This method only restores the data from the backup. You must use the System Recovery Environment to restore an entire system.

- If you want to restore ALL of the data from the recovery point, select the **Recovery Point** as shown on the previous page and then click the **Restore** button.

The window displays the selected recovery point (in this case, **Seligman System Plan**).



4. Make the following choices:

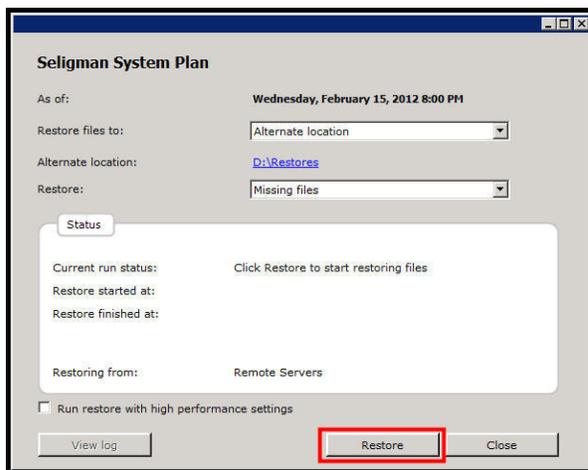
- **Restore files to:** Choose where to put the restored files. You have the following choices:
 - **Original location** - Choose this to restore your file(s) to the folder(s) from which they were archived. This is the default. If the folder(s) no longer exist, they will be created again, preserving any hierarchical levels.
If this is your choice, **choose it now**, then **skip to the next numbered step**.
 - **Alternate location** - Choose this restore your files to a location (folder or folders) other than the one(s) from which they were archived. This option will preserve the hierarchical folder structure of the archived data. All folders and subfolders that existed when the protection plan archived the data will appear in the alternate folder that you choose.

To restore your files to an **Alternate location**:

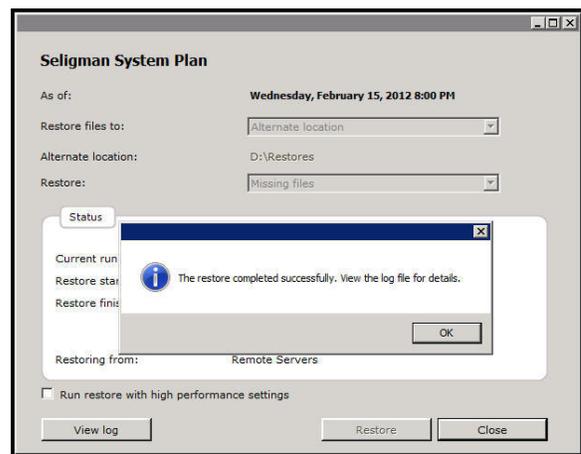
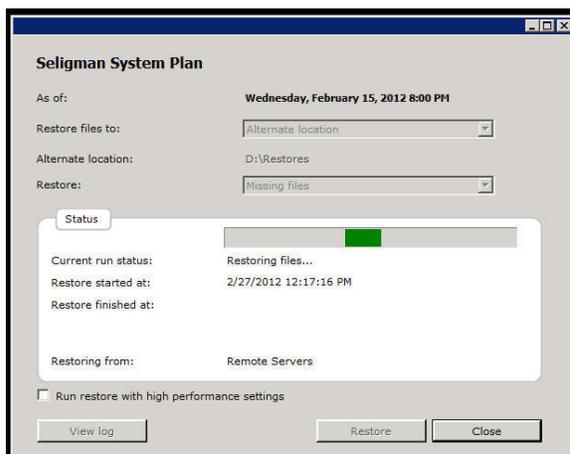
- a) Click the **Restore files to** drop-down list, and click **Alternate Location**. The text next to **Alternate location** becomes active and is displayed as a blue hyperlink.
- b) Click the **Click here to select an alternate folder** link.
- c) In the window that now displays, navigate to, and select, the folder to which you want to restore the files.

- **Restore:** Choose which set of files to restore.
 - **Missing files** (shown in the window above) - Choose this option to do the following:
 - Only restore files that were in the original location, but that do not exist in the folder(s) to which you are restoring.
 - Leave all files unchanged that exist both in the original location and in the folder(s) to which you are restoring.
 - **Missing files and files that are older** - Choose this option if you want the restore operation to restore files that no longer exist in the original folder (are missing) **and** to replace older files in the restore location with newer files from your archive.
 - **Missing files and files that are different** - Choose this option if you want the restore operation to restore files that no longer exist in the original folder (are missing) and to replace files in the restore location, regardless of whether the archived files are newer or older. You might choose this option if you are rebuilding a particular area of your hard disk.

5. After you've chosen all options, click **Restore** (if you have not already done so).



The file chosen are restored to the folder that you specified. The following windows display as the restoration progresses (left) and completes (right):



Note: Restoring all or part of your data only restores the data from the backup. You must use the System Recovery Environment to restore an entire system.

Booting a Computer for Recovery

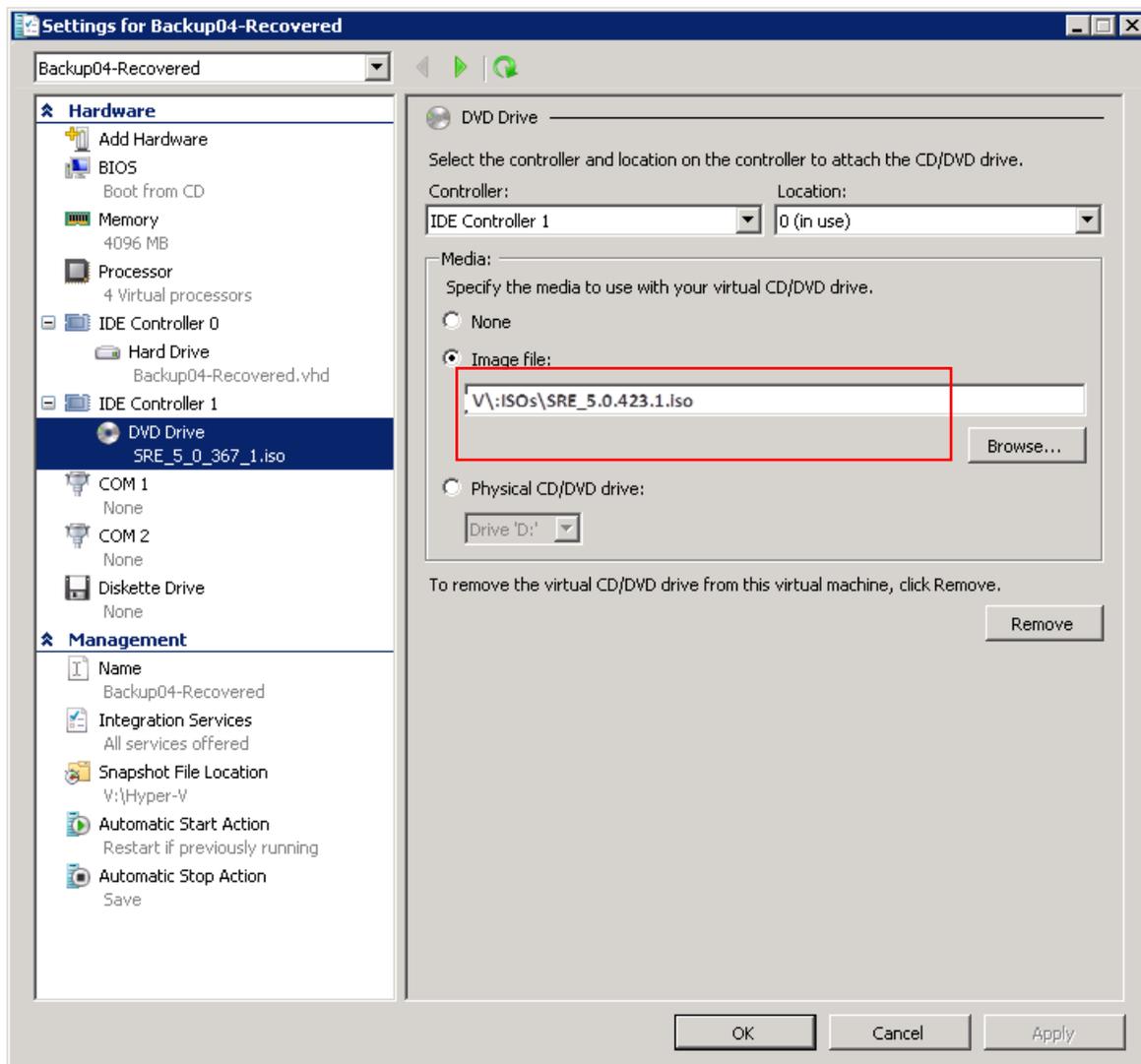
When you need to recover a computer, use the System Recovery Environment (SRE) to boot it. Most modern computers can boot from CD/DVD or USB hard drives. Check your computer specifications and BIOS support for booting from CD/DVD or USB hard drives.

You may have to select the boot drive from a boot menu at startup, or adjust the BIOS to have the system choose to boot from a CD/DVD or USB hard drive.

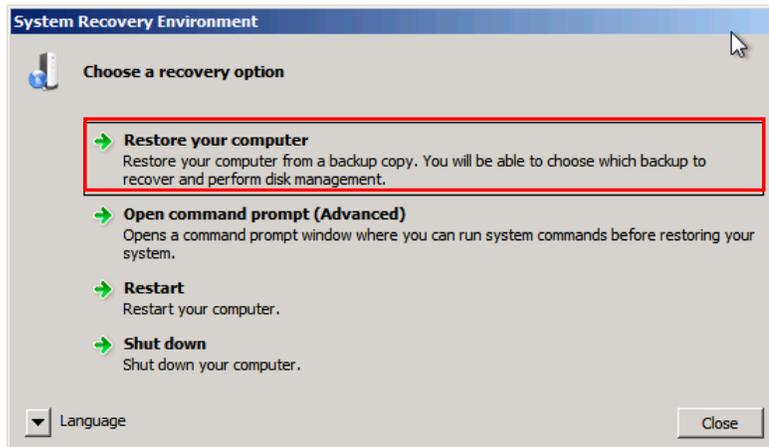
Virtual machine hosts, sometimes referred to as *hypervisors*, allow a virtual machine (VM) to be configured to boot from a physical CD/DVD drive, or from a virtual CD/DVD drive linked to an ISO image file (.iso extension).

1. To recover a VM using the SRE, configure the VM to boot from CD/DVD media, or copy the SRE ISO file to the hypervisor and configure the system to boot from an ISO file on a CD/DVD drive.

The window below displays an example of configuring a VM with Microsoft Hyper-V to boot from an ISO file.



After you boot the SRE, the **Choose a recovery option** window displays.



2. Restore your computer.
 - a. Select **Restore your computer**.

A System Recovery Wizard runs.
 - b. Follow the prompts, which are discussed in the next section.

Note: As shown in the above window, you can open a command prompt to use system commands, restart your computer, or shut it down. Usually, you can restore a computer without command line prompts. However, there are several reasons for using the command prompt, such as setting the IP address for a network adapter using the **netsh** command, if the DHCP server does not provide one.

Using the Wizard to Restore Your Computer

The first step is to help the wizard find stores and archives that contain recovery points that were previously produced by running Computer System Protection Plans.

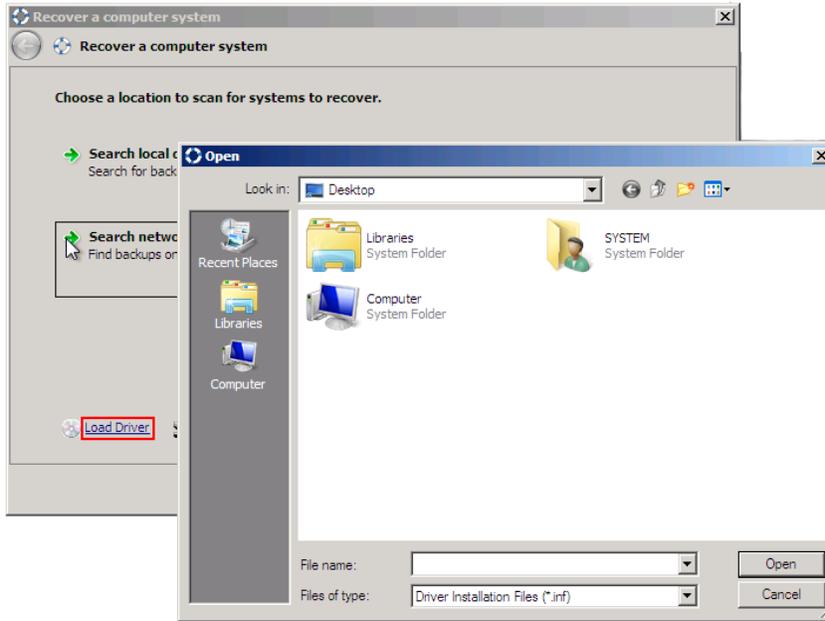
There are two locations that the wizard can search to find recovery points—local disks and network locations. In this case, the Local disks would be any attached RDX dock(s). Network locations are shares on another computer that have RDX dock(s) attached for remote access to protected data.

Note: To search network locations, the SRE has to be able to bind to a network adapter. At boot time, the SRE searches all of the network drivers to find a match for your hardware.

If a network driver is available and is compatible with your system, it is loaded and attempts to obtain an IP address using DHCP.

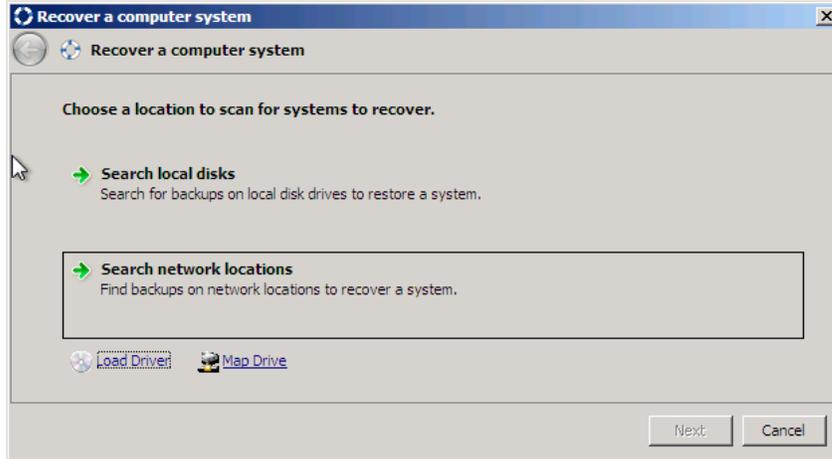
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If a network driver cannot be loaded by the SRE, click **Load Driver**, as shown in the window below, to browse for a 32-bit network adapter driver compatible with your system. When the network adapter driver is loaded, the driver attempts to obtain an IP address using DHCP.



Now that you have a driver, you need to find object stores and archives that contain recovery points produced by running Computer System Protection Plans:

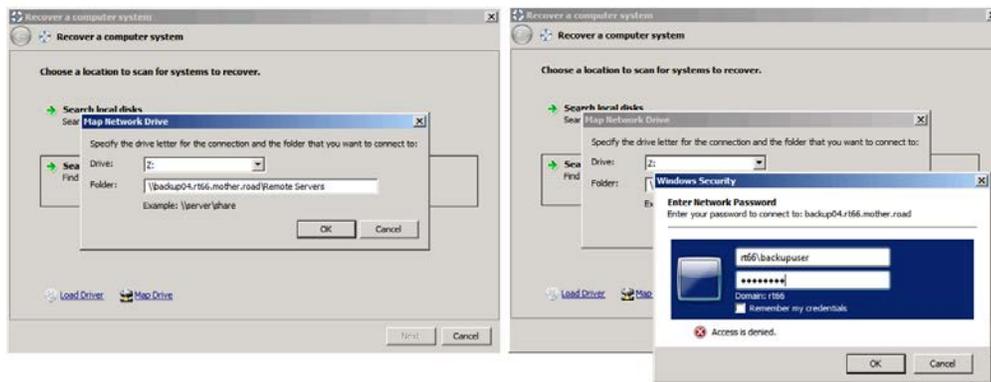
1. Select one of the choices shown in the following window:



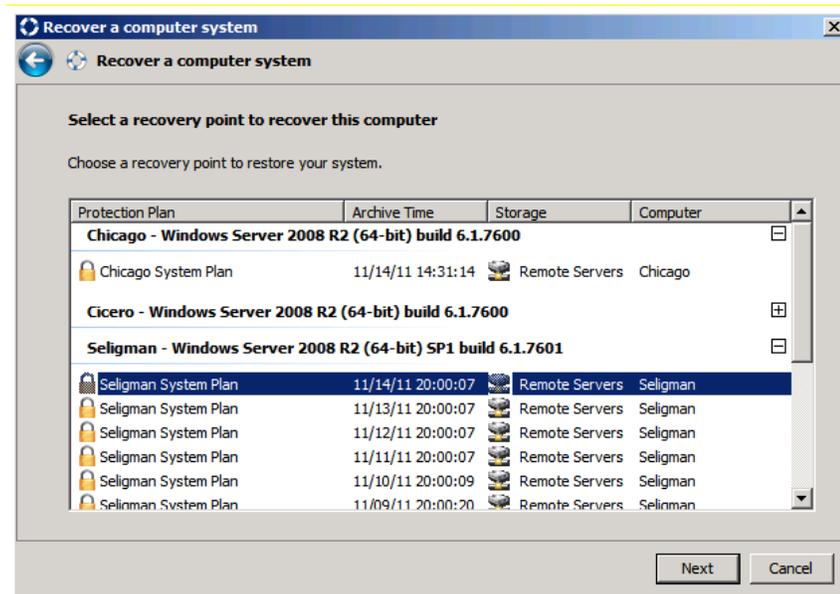
- To search local disks, click **Search local disks**. The RDX cartridge inserted into a dock attached to the system is scanned for possible systems to recover. Skip the rest of this step and go to the next numbered step.

- To search network locations, click **Search network locations** and follow the steps below. You are prompted to map a network drive letter to a UNC path.
 - Choose a specific share or the administrative share for the RDX Dock attached to another computer. The administrative wizard searches the RDX cartridge for possible systems to recover.

For example, if your RDX is assigned the D drive on another computer, you can specify `\\<computer with RDX attached>\D$` as the folder.
 - When you have chosen the share, click **OK** to complete the process.
 - In the **Windows Security** window shown in the next image, enter the user ID and password for the user account that can access the store. Use the same account for accessing the store through a network folder that you use for your protection plans.
 - Click **OK**.



The **Select a recovery point to recover this computer** window displays.



Using this window to select the system, system plan, and recovery point to use. As shown above, each system that has recovery points available in the stores that were found is displayed in the list as a group.

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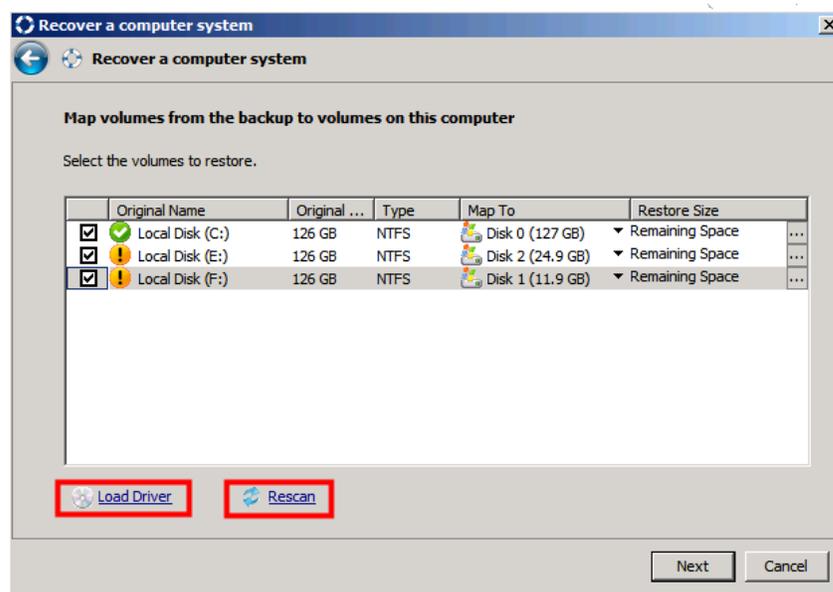
In this window:

- The boldfaced headings show the system name, OS version and build of each system with available recovery points. Initially, only this heading displays.
- To see all available recovery point for a given system, click the + symbol to the right of its name. In the image above, we see the first 6 recovery points for **Seligman** (because the user has clicked the + sign for it), but none of the available recovery points for **Cicero** (because the user has not yet clicked the + for that system).
- The line for each displayed recovery point shows the name of the protection plan that created the recovery point, and when the protection plan ran.

Choose a recovery point for a system:

1. Click the + sign in the heading for that system, to expand the recovery point list.
2. Select the recovery point you would like to restore to the computer, and click **Next**.

The following window displays:



Note: If no drives are displayed in the window for volume mapping, you may need to install a driver for a storage controller on your computer. If you need to load a driver, click **Load Driver**, browse for and install a compatible 32-bit driver, and then click **Rescan**.

After the dialog box has displayed volumes (drives) to restore, you must configure the volume-to-drive mapping for the restore. As shown in the window above, the volumes that were selected by the protection plan are displayed with the original drive label and letter (**Original Name** column), capacity (**Original...** column), and file system type (**Type** column).

3. Map the volumes from the selected recovery point to volumes on the computer for which you have chosen a recovery point (see the previous window).

- a. Check the box (far left) for the first drive that you would like to restore.

As shown in the window above, the **Map To** column automatically displays the first disk drive attached to the system [for **Local Disk (C:)** above, this is **Disk 0 (127 GB)**].

The **Remaining Space** column automatically displays **Remaining Space**, meaning that all remaining space on the drive will be used for the volume that will be created on the drive for the restore.

4. If the current choices for **Map To** and/or **Restore Size** are not what you want, you can change them:

- To change the volume mapping, click the triangle at the right of the **Map To** column. In the drop-down list (not shown), select a different mapping.
- To change the Restore Size, click the button at the right of the **Restore Size** column and change the size in the dialog box that displays (not shown).

In the row for each disk volume you have chosen to restore, an icon displays between the check box for that disk and the name in the **Original Name** column. The next step shows how to interpret these icons.

5. For each volume you have chosen in the **Original Name** column, you may or may not need to take further action:

- If a volume HAS enough room for the restore, its icon will be a checkmark, as for **Local Disk (C:)** in the previous image.

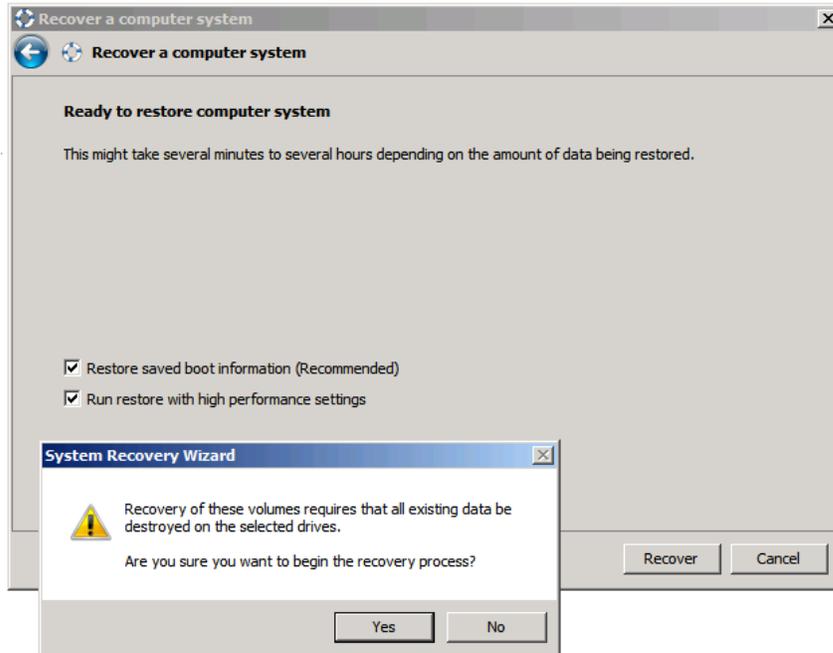
Because of this good volume-to-drive mapping, you do not need to take further action for this volume.

- If a volume DOES NOT HAVE enough room for the restore, its icon will be an exclamation (warning icon), as for **Local Disk (E:)** and for **Local Disk (F:)** in the previous image.

To fix this unworkable volume-to-drive mapping, click the back button  to return to step 4 on p. 24 and follow the instructions from there.

- When you are satisfied with your mappings, click **Next**.

The **Recover a computer system** window displays the message **Ready to restore computer system**.



As shown in the image above, there are two check box options on this page-- **Restore saved boot information** and **Run restore with high performance settings**.

- It is recommended that you always choose **Restore saved boot information**
- Choosing to run with high performance settings performs multiple restores simultaneously. This can negatively impact system performance.

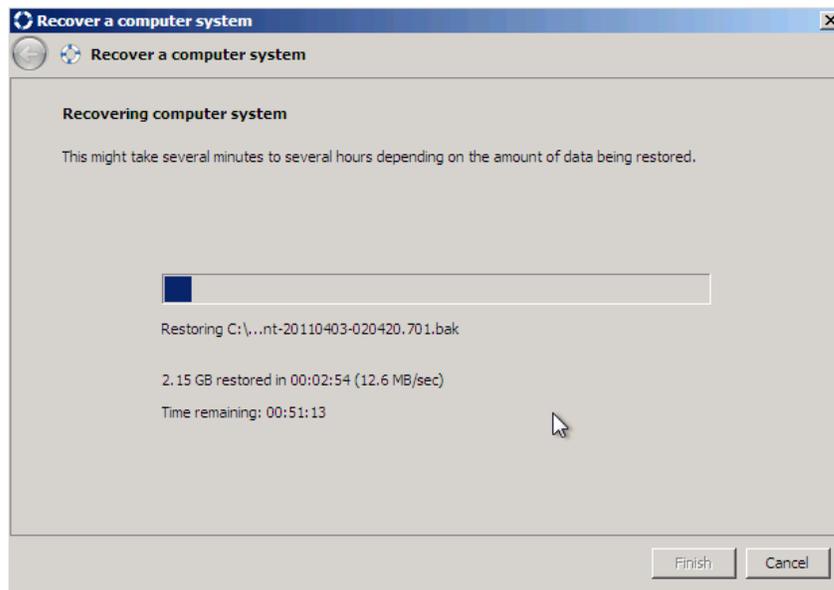
- Check any boxes that you want, then click **Recover**.

Because the restore operation overwrites all data on the drives selected for restoring, a warning window displays (shown above).

- If you want to run the recovery operation that you just set up, click **Yes**, and continue with the next numbered step.
- If you DON'T want to run the recovery operation, click **No**. Selecting **No** returns you to the **Ready to restore computer system** window (see the previous window), where you can cancel the recovery.

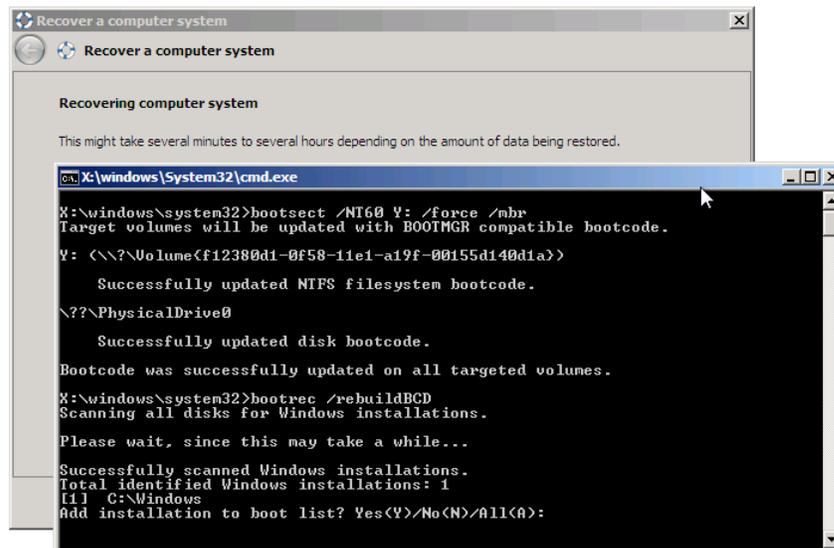
Computer System Recovery

When the restore starts, the following window displays. This lets you monitor the throughput and see an estimate of when the restore will finish, based on the current throughput.



8. When the restore is done, click the **Finish** button.

When the file restore operation completes, the DOS-mode command window displays.



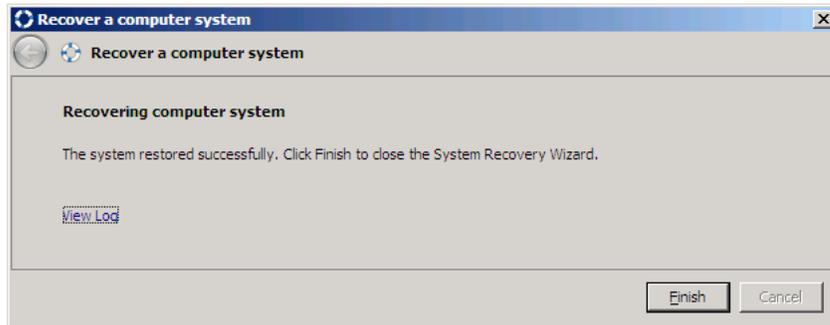
As shown above, you are prompted to restore the boot information for each Windows installation found on the disk drives of the computer. Here, the restoration operation is asking you what to do for [1] C:\windows (the first drive that the user specified to restore).

Caution: At the **Add installation to boot list?** prompt discussed below, Quantum highly recommends that you **always** answer **A** or **Y** at the prompts. If you answer **N** for a boot drive, the restored system may not boot.

Computer System Recovery

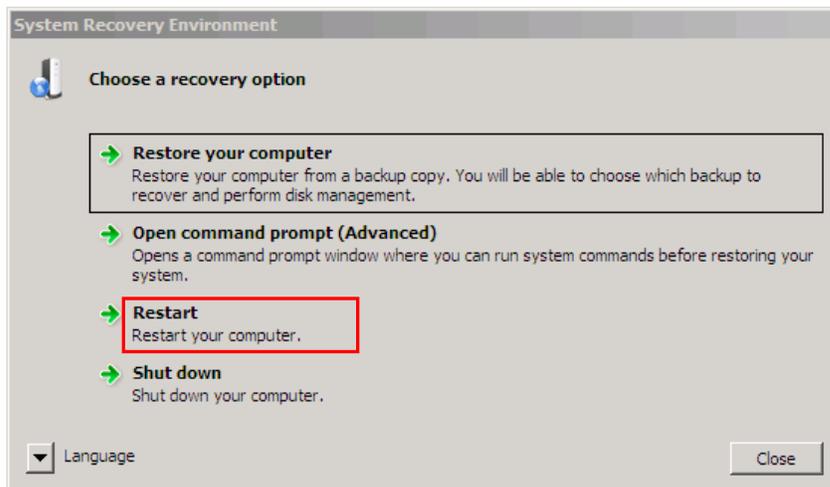
9. At the **Add installation to boot list?** prompt (last line in the image above):
 - Press **A** if you want to restore the boot information for *all* of the disk drives being restored. Boot information is added to all drives, and you will not be asked about subsequent drives.
 - Alternatively, you can answer **Y** or **N** for each drive, one by one. To do so, press **Y** or **N** when asked about each drive.As noted above, Quantum recommends **Y**.

When the restore is finished, the following window displays:



10. If you wish to view the Restore Log, click **View Log**.
11. To finish the restore operation, click **Finish**.

The SRE launch window displays.



When the SRE launch screen displays, you can choose to restart the computer and boot into the restored OS, as shown in the red box above.

Note: You may need to adjust your BIOS boot menu if you changed it during the recovery process.

