

BackupAssist v7

Recover Tab & RecoverAssist User Guide

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1. Introduction



Recover

When a hardware or software failure has occurred, it is critical to recover your system quickly. RecoverAssist achieves this by creating a bootable media that can start and then recover your server or workstation using an image backup.

BackupAssist's Recovery tab uses RecoverAssist, a built-in feature that creates a customized, bootable RecoverAssist media, such as an optical disk or external drive. This media will start your computer and access a backup image to perform a bare-metal recovery, and recover your system. The backup image can be a BackupAssist System Protection backup, created using the bare-metal option. This image will include the operating system, configurations, and any data and applications selected for the backup.

Documentation

This whitepaper covers all aspects of the Recover tab and RecoverAssist, and can be used in conjunction with other BackupAssist guides, which provide a comprehensive documentation set.

- For information on the BackupAssist Backup tab, see the [BackupAssist Backup Tab User Guide](#)
- For information on the BackupAssist Restore tab, see the [BackupAssist Restore Tab User Guide](#)
- For information on creating an image backup, see the [BackupAssist System Protection User Guide](#)

Licensing

RecoverAssist is a standard feature included with the BackupAssist license, and requires a BackupAssist license once the initial trial period has expired. Please contact your local BackupAssist reseller or distributor for pricing information, or visit www.BackupAssist.com.

For instructions on how to activate / deactivate license keys, visit our [Licensing BackupAssist page](#).

! **Important:** If a RecoverAssist media is created during the trial period, it will expire. The RecoverAssist media will need to be re-created once a BackupAssist license has been purchased. This must be done after you purchase a license, if you want to have a permanent, bootable recovery media.

Overview

RecoverAssist Builder

This feature creates a RecoverAssist Recovery Environment (bootable media), which can be customized to include files and drivers that may be needed during the recovery process.

RecoverAssist Recovery Environment

The Recovery Environment will load from the bootable media to access and recover your computer. This customized RecoverAssist environment is a superior to the Windows Recovery Environment and includes the following enhancements:

- Supports many types of backup devices
- Automatically adjusts the appropriate Window's settings when recovering to dissimilar hardware
- Avoids many of the Windows Recovery Environment's *Blue Screen of Death* issues.

2. Creating a RecoverAssist recovery media



The RecoverAssist Builder allows you to create bootable recovery environments on optical disks and removable drives, such as DVDs, Blu-ray disks, USB thumb drives, external hard drives and SD cards.

Considerations

The bootable media's operating system must match the operating system of the image file that will be used to recover the machine. Recovery environments can be built from 32-bit and 64-bit versions of these operating systems:

- Windows Vista, Windows 7 and Windows 8
- Windows Small Business Server 2008 and 2011
- Windows Server 2008/R2 and Windows Server 2012/R2

Note: RecoverAssist media cannot be created using a Windows Server Core installation. However, you can use a RecoverAssist media created on a Windows Server installation, to launch a recovery environment and access backups of a Core Server to perform a recovery.

See the section, [operating system considerations](#) section, for more information.

The media creation process

Launch BackupAssist and follow these steps to create a bootable RecoverAssist media:

1. Select the **Recover** tab, and you will be presented with two options:
 - **Bootable media based on the installed version of Windows** – RecoverAssist will use the computer you are on, and its operating system, to create a bootable Recovery disk. If the operating system requires an install disk, this option will be grayed out and not selectable.
 - **Bootable media based on a Windows Installation Disk** – RecoverAssist will use a Windows operating system installation disk, to create a bootable Recovery Environment.

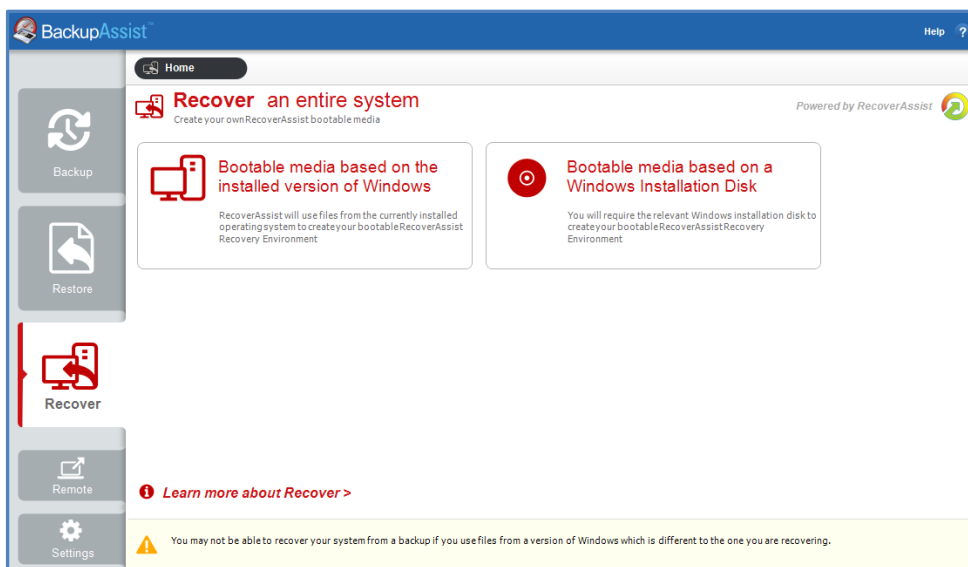


Figure 1: BackupAssist Recover tab – Bootable media selection screen

Important: Please review the [RecoverAssist implementation](#) section below for information on firmware compatibility and supported hardware.

2. Operating system installation files selection

When you make your selection in step 1, RecoverAssist will start with one of the following screens:

- *If you selected, **Bootable media based on the installed version of Windows**,* RecoverAssist will confirm the operating system details of the computer you are on.

Select **Next**

- *If you selected, **Bootable media based on a Windows Installation Disk**,* RecoverAssist will ask for the location of the Windows Installation Disk (for the computer that the recovery media is being created for). Insert the Windows installation disk into the computer you are on, and select the drive letter for drop the drop down list.

Select **Next**

3. Add device drivers

The next RecoverAssist Builder screen allows you to add your own drivers to the recovery environment (bootable media). This is useful to ensure that the recovery environment has the ability to support the hardware where your backup is stored (for example when additional drivers are needed to recover a RAID environment). RecoverAssist will automatically select the appropriate driver to be used during the boot process.

There are 3 selections that can be used to add drivers:

- **Add drivers folder** allows you to browse to the location of the drivers that you want to add to the recovery media. Drivers should be added in an unpacked state.
- **Add compressed drivers** will unpack any compressed drivers you select and add them to the recovery media.
- **Download Driver packs** will download a recommended driver pack. The drivers will be automatically downloaded and added to the media during the media creation stage.

Make your selection/s, and click **Next**.

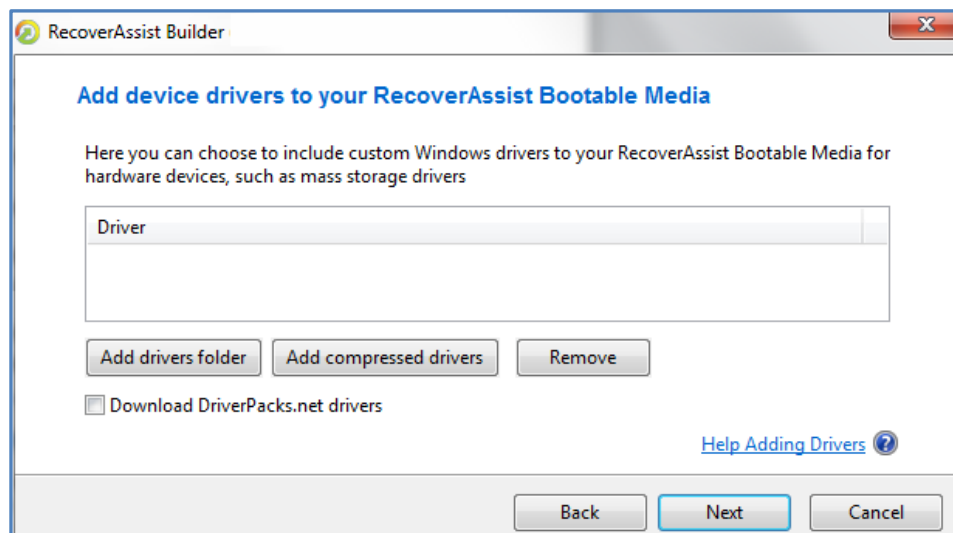


Figure 2: RecoverAssist media creation – driver selection

4. Add files/folders

The next step allows you to add files and folders to the bootable recovery media. The files and folders will be added to the UserFiles folder in the root of your recovery image. (Z:\UserFiles). You can also add drivers that you do not want to be loaded when the system boots.

Make your selection/s and click **Next**.

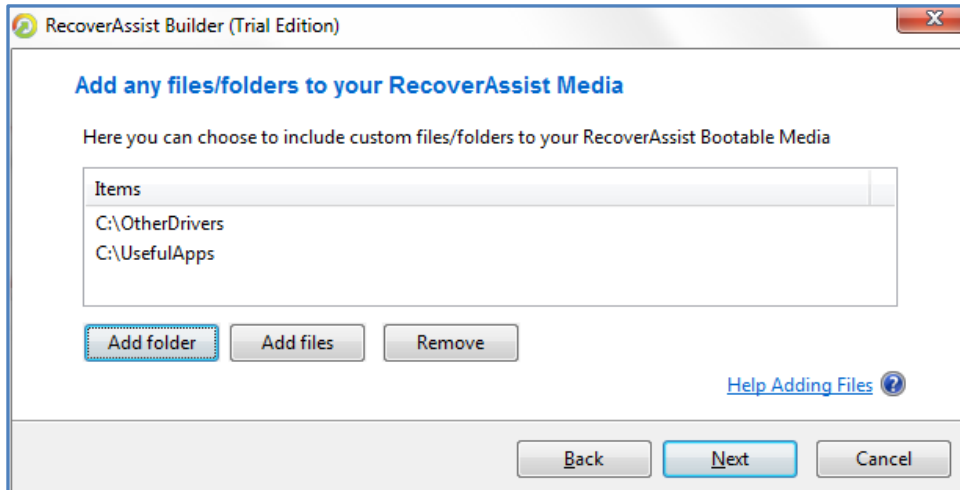


Figure 3: RecoverAssist media creation – file selection

5. Add tools and applications

The next step displays a list of troubleshooting and support tools to choose from. The applications you select will be added to your recovery media and made available during a recovery.

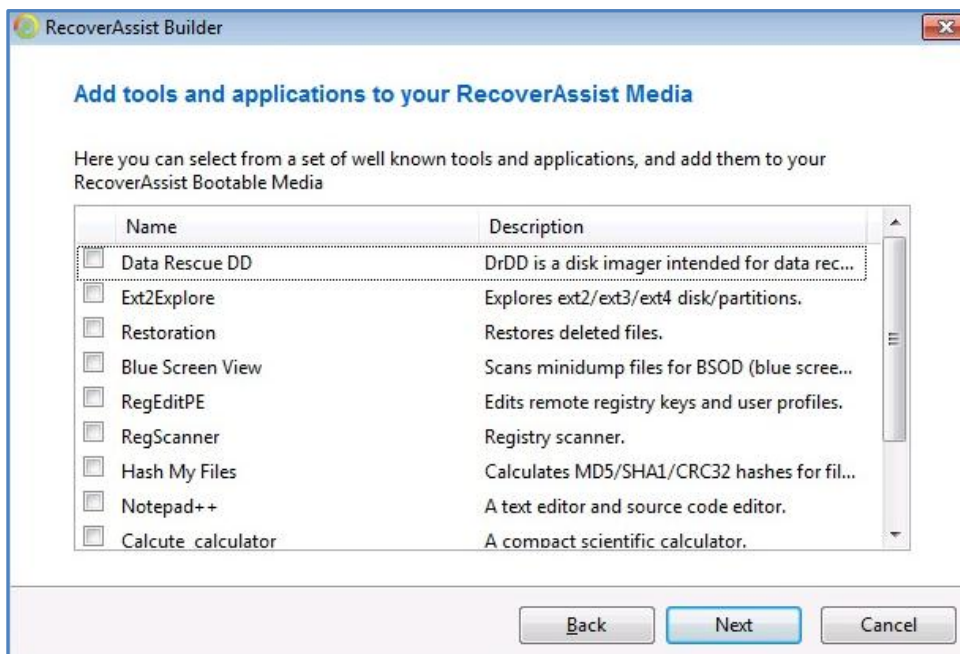


Figure 4: RecoverAssist media creation – Application selection

Make your selection/s and click **Next**.

6. Select boot media

This step selects the type of bootable media to be used. You can select:

- **An optical disk** (CD/DVD/Blu-ray)
This option will detect the optical drive on your computer and ask you to select the drive containing the media to be written to.
- **A removable drive**
This option will create the recovery image on a bootable, removable drive. A warning will advise that the removable drive will be formatted before it is written to. This means everything currently on the drive will be deleted.
- **An ISO image file**
This option will create an ISO image. Although the saved ISO image is not on a bootable media, it has two uses:
 - To create a recovery image that can be saved to a bootable device at a later date
 - To create a recovery image that can be used to recover a Hyper-V virtual environment
This is possible if the hardware is virtualized and the host server is still functioning.

7. Bootable media creation

The RecoverAssist builder will now create a bootable recovery media using the location selected in step 6. Any applications selected in step 5 will be downloaded from BackupAssist and added to the recovery media.

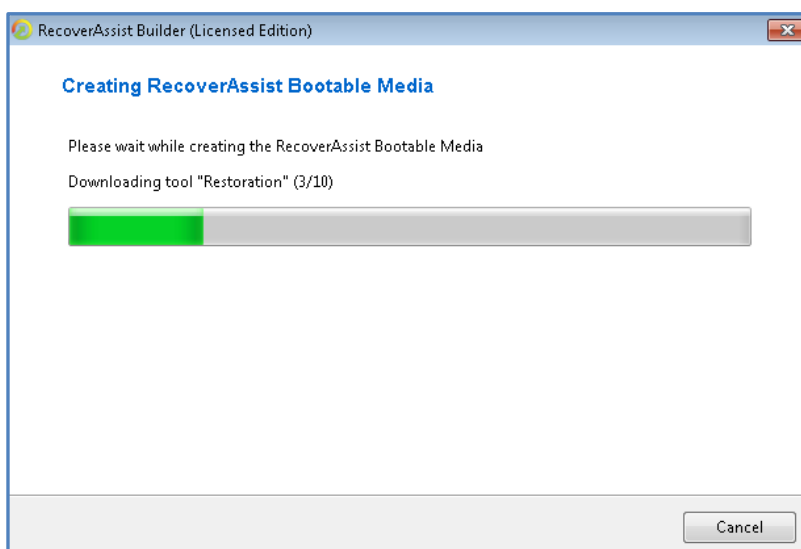


Figure 5: RecoverAssist media creation

A progress bar will be displayed. Once it has completed, click **finish**.

► **The RecoverAssist Bootable Media has now been created.**

Note: When the builder job has completed, you will be asked if you wish to make an additional RecoverAssist media with the same settings.

3. Using a RecoverAssist recovery media



The recovery process is designed to recover a server or workstation to a previous operating state, in the event of a hardware or system failure.

Recovery requirements

The recovery process will begin by starting your computer using the bootable RecoverAssist media. It will access hardware, load drivers and then ask for the location of the image backup to be used to recover your system.

To perform a recovery, you will need:

- **The RecoverAssist bootable media:** Refer to the previous section on page 3, for instructions on how to create this. The media must be created with the same operating system as the one on the image backup.
- **The image backup:** This is created using BackupAssist System Protection. The bare-metal option must have been selected during the creation of the backup for the image to work. Your computer will be recovered to the environment that existed when the image was made. The RecoverAssist environment will use the data contained in the image to recover the computer's operating system, configurations, and any applications and data that were selected when the backup was made.

Recovery process

The following steps explain how to use RecoverAssist's bootable recovery media:

1. Connect the bootable media to the computer to be recovered.

Insert the optical media or attach the removable drive.

2. Start the computer and boot from the removable media.

Your computer should detect the recovery media and begin the boot process. Understanding the boot process can assist if a problem is encountered. The process is described below:

BIOS stage – The computer will access its BIOS or EFI (a chip containing basic hardware settings) and detect the hardware needed to start the computer. It will display some of the steps onscreen and beep to confirm that it has run successfully. Additional beeps can indicate a problem detecting necessary hardware.

EFI Systems that have been backed up must be restored by booting RecoverAssist in EFI mode
EFI Systems cannot be restored to BIOS systems and BIOS systems cannot be restored to EFI systems
EFI booting can be turned off and the system will revert to BIOS mode
Only RecoverAssist on USB Removable drives can EFI boot.

O/S stage – Once the computer has completed the BIOS stage, it will look for the location of the operating system boot files. The BIOS will be configured with a device order to search for these files. The attached bootable media must be configured in this BIOS setting, and should be listed before the C drive. To check or change your boot media order, you need to access the configurations by pressing a key during the BIOS stage. The key stroke required may be displayed in screen during the BIOS post process, or noted in your hardware / server documentation.

3. Make your RecoverAssist selections

After the computer has started, a progress bar will appear while the RecoverAssist recovery environment loads. Once RecoverAssist has loaded, you will be presented with the following menu. This menu is used to locate your image backup, and to access tools and utilities.

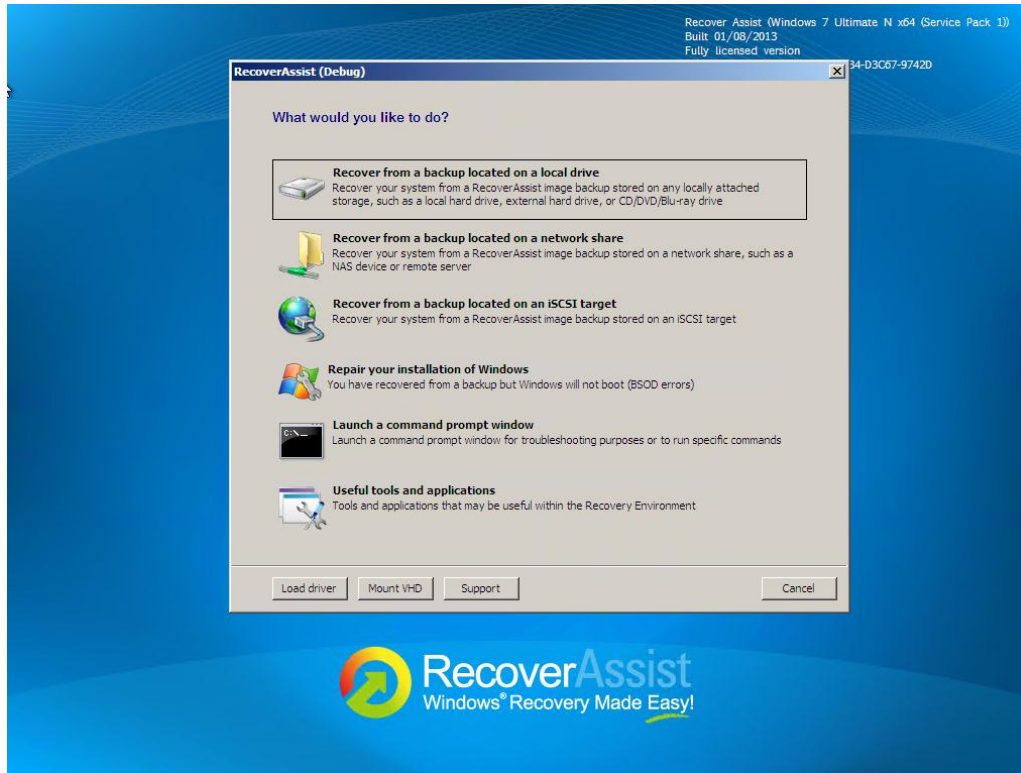


Figure 6: RecoverAssist boot menu

a. RecoverAssist Menu – backup selection

The Recovery Environment is used to locate the image backup that will be used to recover your computer's operating system and data. The first three options in the RecoverAssist menu are used to select the locations of the image file using different types of media.

Each image location option is described below:

- **Recover from a backup located on a local drive**

If a local backup is selected, then the Recovery Environment will scan all local drives for backup images.

- **Recover from a backup located on a network share or an iSCSI target**

If a network based backup is selected, the Recovery Environment will open a screen that allows the user to configure their network card. Network drivers, including custom drivers added to the RecoverAssist Builder, are loaded automatically as part of the boot process. The user is able to modify any TCP/IP network settings, or review the automatically assigned settings, before advancing to select the location of their backup on the iSCSI device or network share. RecoverAssist will search the specified location for backup images and display any images found.

! These selections can be used to access a backup inside a Data container as detailed in step 4.

b. RecoverAssist menu – backup tools and utilities

- **Repair your installation of windows**

You can attempt to repair an existing system that was recovered, using the Windows Recovery Environment but will not boot due to blue screen errors. Using the repair function is not necessary for systems that are recovered within the RecoverAssist Recovery Environment.

- **Launch a command prompt window**

This option allows the user to launch a command prompt in order to run the various command line tools included with RecoverAssist, such as diskpart.exe, bootsect.exe, regedit.exe, etc.

- **Useful tools and applications**

This option will display the applications and tools that you selected to include when you created your RecoverAssist media. Clicking on the name of an application will launch that application. These tools can be used to perform diagnostics and troubleshoot problems.

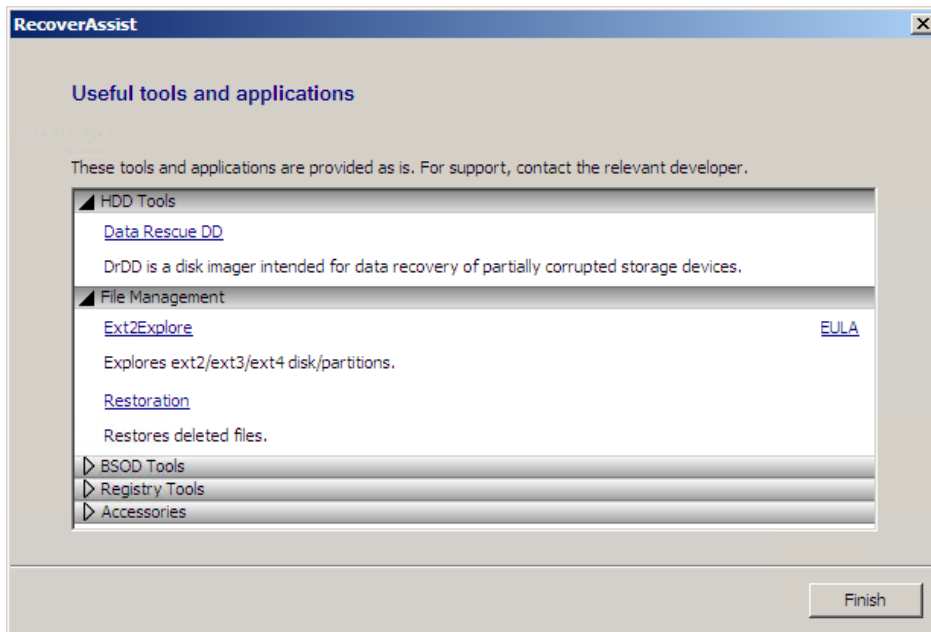


Figure 7 Useful tools and application window

c. RecoverAssist menu - buttons

- **Load driver**

From this screen you can load any additional device drivers that were not included when creating the recovery environment.

- **Mount VHD**

You can mount any VHD such as a Hyper-V Virtual Hard Drive or Windows Backup images. After mounting the VHD, you will be able to access the files using a local drive letter. This is not used to mount a Data container" (as created using a System Protection backup job).

- **Support**

This button is used to configure a VNC connection. This connection can be used by BackupAssist technical support to connect to your computer and provide assistance.

4. Select an image (System Protection) backup

When you make your selection on the **RecoverAssist menu**, RecoverAssist will scan the selected location (local drive, network share or iSCSI target) for image backups.

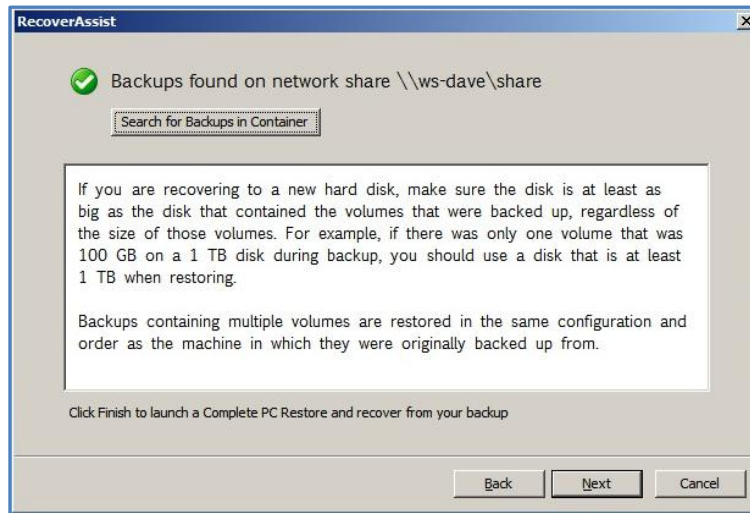
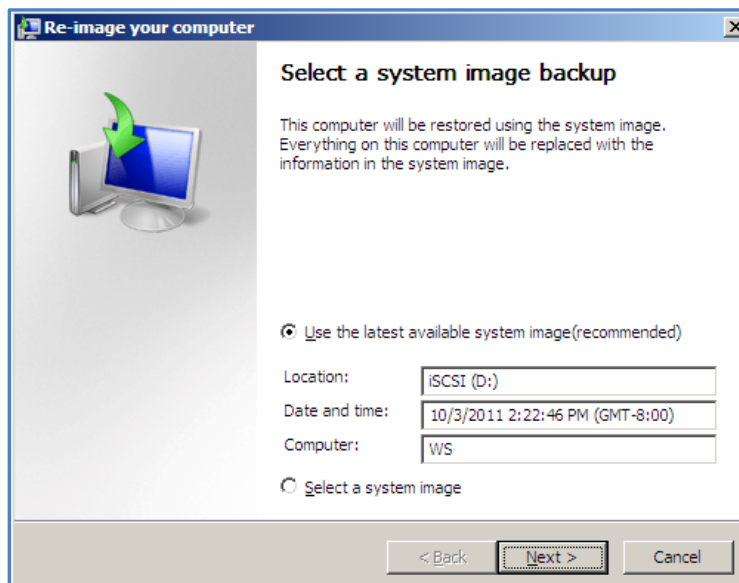


Figure 8: RecoverAssist - Backup image location selection

- If multiple backups are found, you will be given a chance to choose which backup to use.
- If your backup is in a **Data container**, RecoverAssist will allow you to search the container.
 1. Select the *Search for Backups in Container* button.
 2. Browse to the location of the Data container and select it.
 3. RecoverAssist will mount the Data container and the recovery process will proceed.

5. Start the recovery

Once you have selected your image backup, click *Next* and you will be presented with the **Re-image your computer** screen. The details of the backup you selected will be displayed.



Click *Next*, and follow the prompts to start the recovery.

4. RecoverAssist implementation information

The following sections should be used as check-sheet when planning and performing a recovery. The information includes a summary of information and additional considerations to ensure that your recovery works as intended.

BackupAssist's Recovery tab uses RecoverAssist to create a customized, bootable recovery media. The media will start your computer and enable access to an image backup so that you can perform a recovery of your system. This reference sheet contains the key configurations and dependences that need to be considered when planning a data recovery strategy.

BIOS / EFI considerations

A computer's BIOS or EFI (a chip containing basic hardware settings) detects the hardware needed to start the computer. When you turn your computer on, the BIOS/EFI will display some of the steps onscreen and beep to confirm that it has run successfully. It is important to know if your backup and recovery computers use BIOS or EFI because the firmware compatibility and media requirements of each will determine your recovery options. These considerations are explained in detail below.





Firmware compatibility: Backups made on a computer with one type of firmware cannot be used to start a computer that uses a different type of firmware. The chart below shows the firmware compatibility of BIOS and EFI computers.

Firmware matrix	Backups of a BIOS machine	Backups of an EFI machine
Recover to a BIOS machine	Compatible	Incompatible
Recover to an EFI machine	Incompatible	Compatible

Important: EFI booting can be turned off. When EFI is turned off, the system will use BIOS to boot.

Supported hardware: EFI is designed to be bootable from a removable USB media. For this reason, the RecoverAssist recovery media must be a removable USB drive.

The graphic below shows the media types that can be used to create bootable recovery environments for BIOS and EFI computers.

BIOS computer	 Removable USB drive	 CD/DVD/Blu-ray	 ISO image file
EFI computer	 Removable USB drive		

Operating System considerations


The type of operating system that you are creating the RecoverAssist media for, will determine how the media is created. There are two ways to create a bootable media using RecoverAssist:

- ❖ From the operating system's installation disk.
- ❖ Using the operating system installed on a computer.

Recovery environments can be built from 32-bit and 64-bit versions of Windows operating systems, shown in the table below. The color assigned to each operating system corresponds to the media creation method available, as defined in the Legend.

Note: RecoverAssist media cannot be created using a Windows Server Core installation. However, you can use a RecoverAssist media created on a Windows Server installation, to launch a recovery environment and access backups of a Core Server to perform a recovery.

RecoverAssist media creation support - by operating system

Windows Server 2012 R1/R2	
Windows Server 2008 R2	
Windows SBS 2011	
Windows 8	
Windows 7	
Windows Vista	
Windows Server 2008 R1	
Windows SBS 2008	
Windows Server 2003	
Windows XP	

Remember: A recovery media's operating system, must match the operating system of the backup that will be used to recover the computer.

Legend

	Installation disks & Installed version of Windows
	Installation disks only
	Not supported

Note: Operating systems that can create a recovery environment from the computer's installed operating system, can find the option is greyed out due to the way the operating system has been installed. If the option is greyed out, the operating system's install disk should be used to create a RecoverAssist media.

Back up considerations

To perform a recovery, you will need a backup that can be used by the recovery environment. The contents of the backup and how it was made are important considerations. These requirements are explained in detail below.

The 3 critical backup requirements are:

The backup must be an image backup.

For example, a System Protection backup. This creates a set of VHD or VHDX image files.

The backup must be a full image backup of the computer.

For example, the computer's settings and operating system (as well as the data) must be in the backup.

To use a backup to recover to a computer that is different to the computer that was backed up (or has different hardware), you must have a bare-metal backup.

For example, you created a System Protection backup with the bare-metal option selected.

- ❖ Bare-metal backups are highly recommended to ensure that you have the widest range of recovery options available.
- ❖ If a backup cannot be detected by the recovery environment, then it could be a problem with the backup. Check your backup to ensure it meets the 3 requirements listed above.

Hardware considerations

Memory: The computer being recovered must have at least 2GB of RAM.

Disks: When planning a recovery, it is important to know the details of the disks that were backed up (to create the backup), and the disks on the computer that you plan to recover (using that backup).


The 2 critical disk requirements for a recovery are:

The computer that is being recovered, must have a physical disk the same size, or larger than, the physical disk that the backup was made from.

For example, if your backup contains 200GB from a 1TB drive, the physical disk of the computer that you are recovering, must be 1TB or larger.

If the backup used in a recovery contains data from multiple disks, the computer that is being recovered must contain at least the same number of disks.

For example, if the backup image contains data from 2 physical disks, then the computer being recovered must have at least 2 physical disks.

 **Important:** The computer being recovered must have a physical disk setup that is compatible with the computer that was backed up.

5. Support and Resources

Contacting Technical Support

Should you have any questions regarding either BackupAssist or the Recover tab, please email support@backupassist.com and we will respond to you as soon as possible. Similarly, if you have any suggestions for additional functionality in BackupAssist, or new products or add-ons, please also forward your feedback to support@backupassist.com

Learn more – The Welcome Screen

Each tab in BackupAssist includes a “Learn More” link on the tab’s **Home** page.

Selecting the **Learn more about Recover** link will open the **Welcome Screen** with the Recover introduction selected. This screen provides an overview of the tab’s functions and features, and links to documentation and resources.

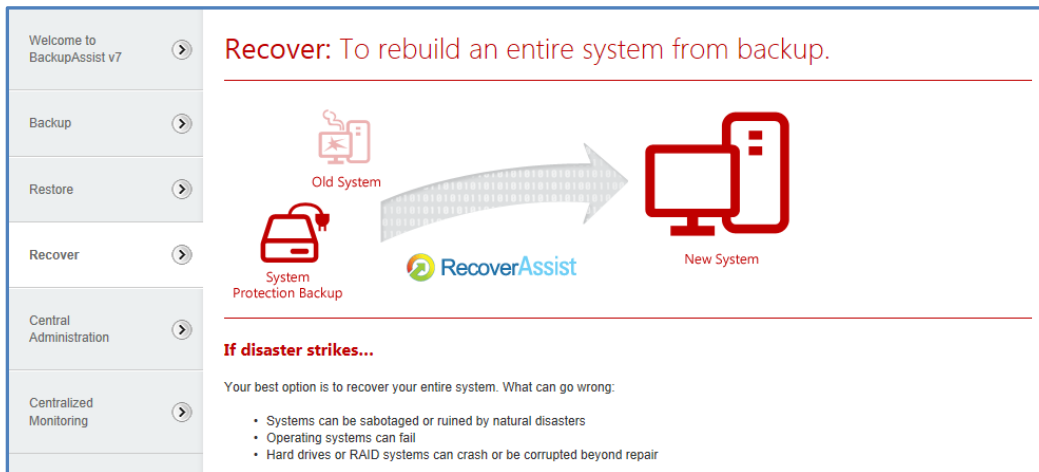


Figure 9: Recover tab - Welcome Screen