

# **EMC<sup>®</sup> Retrospect<sup>®</sup> 7.7**

## **User's Guide Addendum**

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*EMC Retrospect 7.7 User's Guide Addendum, version 7.7, first edition*

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## Introduction

This addendum to the Retrospect User's Guide describes new functionality introduced in Retrospect 7.7: disaster recovery using the Retrospect Emergency Recovery CD and VMware Consolidated Backup (VCB) integration. It is assumed that the user is already familiar with the operation of Retrospect in general, as well as the computing systems that Retrospect is used to protect. For example, this document describes how to use Retrospect to back up VMs running on a VMware ESX or vCenter host by using VCB; it does not describe how to setup a VCB proxy server.

## Using the Retrospect Emergency Recovery CD

Retail versions of Retrospect 7.7 include a Retrospect Emergency Recovery CD that will boot most Windows computers running XP/2003 or later to speed their recovery from a non-bootable state, such as after a hard drive failure. If you purchased an electronic version of Retrospect, an image of the CD can be downloaded from the [EMC Retrospect web site](#) with the entry of a valid license code.

The Retrospect Emergency Recovery CD supersedes the older Disaster Recovery CD creation process in previous versions of Retrospect.

Once a Windows computer has been booted from the Retrospect Emergency Recovery CD, its hard disk drives can be partitioned and formatted, and it can be restored either locally, by using the Retrospect application with connected storage media containing the backup, or from a Retrospect server on the network via the Retrospect Client software.

**NOTE:** The Retrospect Emergency Restore CD and the Retrospect restore process are designed to restore to hardware similar to that from which the backup was made, such as when a hard disk drive is replaced, not when the destination computer is completely different from the source computer.

## Planning Ahead

To successfully recover a computer that won't boot, it is first necessary to have a complete Retrospect backup of that computer's boot volume, as well as any other disks that you want to restore. In addition, you will need to have access to the Backup Set storage media containing the backup, as well as the Catalog file that matches the Backup Set. A comprehensive backup strategy should include making copies of Retrospect's Catalog files onto separate media, such as a network volume or another computer.

**NOTE:** If you do not have a copy of the Backup Set's Catalog file, it can be recreated from the media, though this will increase the length of time required to complete the restore.

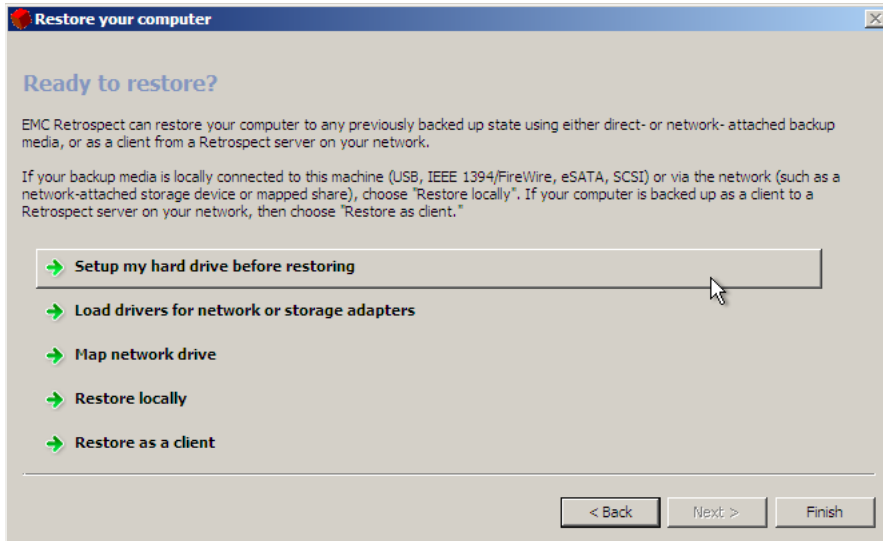
**NOTE:** If you are restoring to a disk that had Windows Vista, 7, Server 2008, or Server 2008 R2 installed, the physical target hard disk drive must be the same size or larger than the physical drive being replaced. This is necessary to ensure the proper restoration of any hidden partitions, such as a Recovery Partition, that was present on the source disk.

## Getting Started

If the computer you are recovering from a non-bootable state is the same computer that runs Retrospect, then you will be restoring locally, using the Retrospect program. If the computer you are recovering is normally backed up as a client to another computer on the network running the Retrospect program, then you will be restoring using the Retrospect Client method. Insert the Retrospect Emergency Recovery CD in the optical drive of the computer to be restored, power it on and boot from the CD.

**NOTE:** You may need to adjust the boot order in your computer's BIOS settings to boot from a CD. Refer to the documentation for your specific computer model for instructions on how to change the BIOS settings during the boot process.

Once you've booted from the Retrospect Emergency Recovery CD and agreed to the legal notifications, you will be presented with the home screen of the Emergency Recovery wizard.

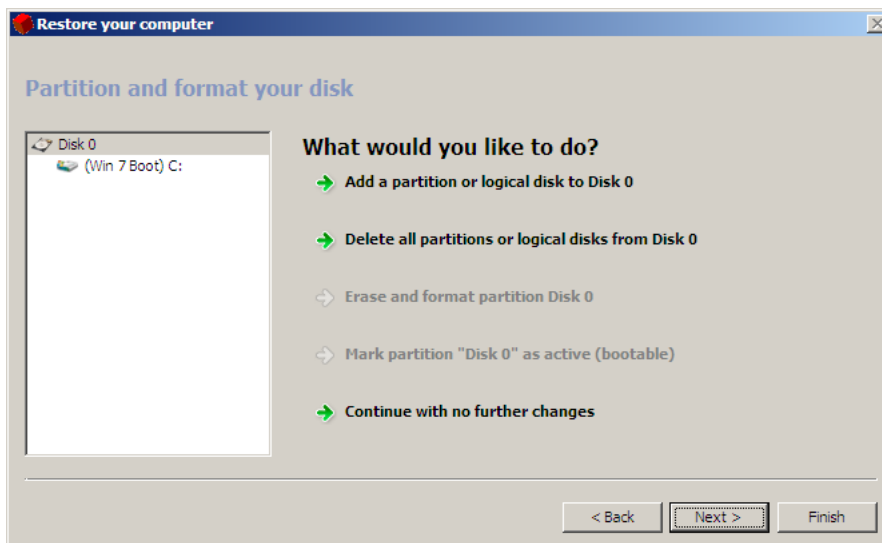


This screen provides access to all the tools needed to recover your computer. From here, you can partition and format your hard disk drive, install drivers for components required to access the network or storage devices, and map a network drive. Once the environment is configured with the aforementioned tools, you can choose to restore locally using the Retrospect application or as a client from a Retrospect server on the network.

## Preparing Your Hard Disk Drive for Recovery

In some cases, you may need to partition or format the hard disk drive in your computer before you can proceed with the Emergency Recovery process. The most common is replacing a smaller drive with a larger one.

To partition and format a hard disk drive, click on **Setup my hard drive before restoring**. A drive must have at least one active partition before recovery can take place. The screen on the following page shows an active partition called Win 7 Boot.



**WARNING:** Partitioning or formatting a hard disk destroys data stored on the disk. Proceed only if you are certain that the data on the drive has been properly backed up.

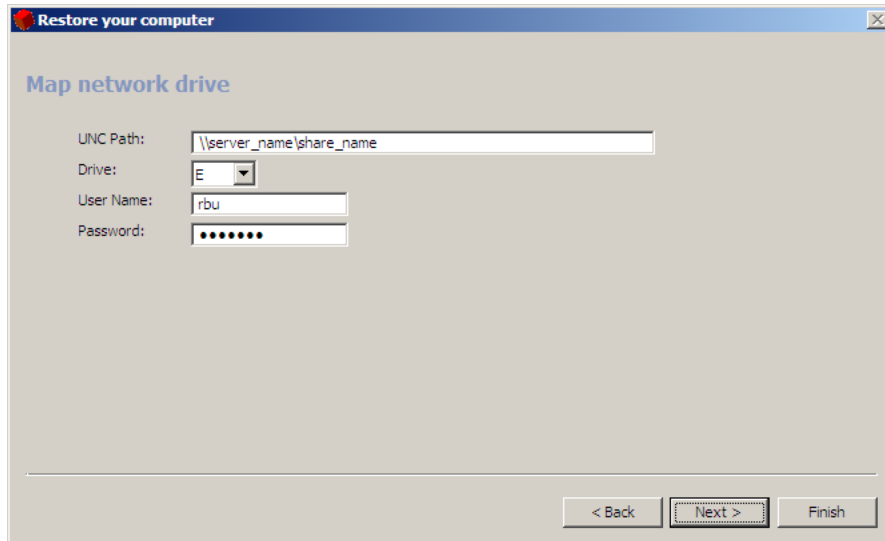
**WARNING:** If the drive that are restoring had a hidden Recovery Partition, the Retrospect Emergency Recovery process will recreate the exact partitioning scheme that was present when the backup being restored was originally created. This process will destroy all data present on the drive.

## Loading Drivers

If the computer being recovered has a network adapter or storage host bus adapter that isn't recognized by the Retrospect Emergency Recovery system and that must be used in order to perform the recovery, it may be necessary to load a Windows driver for that adapter.

To install a driver, first make sure that it is stored on media accessible by this computer, either on the network, an optical disk (the Retrospect Emergency Recovery CD loads into RAM, so it can be safely ejected without affecting the recovery process), or even a USB flash drive. Next, click on Load drivers for network or storage adapters, browse to the location of the .inf file and install the driver.

## Mapping a Network Drive



If you need to access a network share to complete the recovery process, click **Map network drive**, enter the UNC path to the share, assign a drive letter, and enter the proper login credentials.

### Restoring Locally

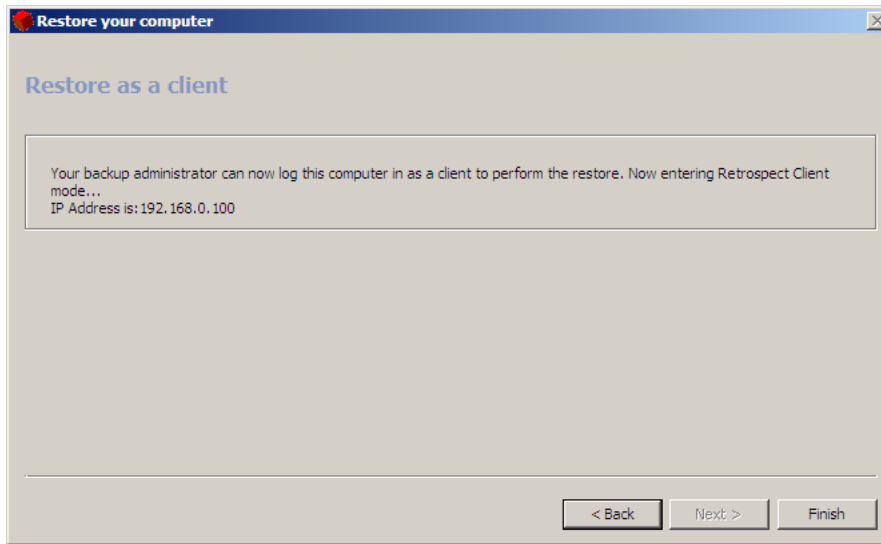
If the computer being recovered was the Retrospect backup computer, you will be using the Retrospect program on this computer to restore from a Backup Set stored on either a locally-attached device, such as a USB hard disk drive or SCSI tape drive, or on a network volume.

Click **Restore locally** and use Retrospect to restore the computer as described in the Restore section of Chapter 4, “Immediate Operations,” in the *Retrospect User’s Guide*.

**NOTE:** When restoring the boot volume, make sure that you select a restore option that includes the registry and System State information, otherwise, the computer may not start up, and the Retrospect Emergency Recovery process will need to be repeated.

## Restoring as a Client

If the computer being recovered was being backed up as a client to a Retrospect server on the network, you will be restoring as a client. Click Restore as a client to initiate Retrospect Client mode. A screen will appear displaying the IP address to use in order to log this computer into the Retrospect server as described in the Working with Clients section of Chapter 7, “Networked Clients,” in the *Retrospect User’s Guide*.



Once you have logged in this computer as a client to the Retrospect server, proceed to restore the computer as described in the Restore section of Chapter 4, “Immediate Operations,” in the *Retrospect User’s Guide*, selecting the client’s volumes as the destinations for the restore.

**NOTE:** When restoring the boot volume, make sure that you select a restore option that includes the registry and System State information, otherwise, the computer may not start up, and the Retrospect Emergency Recovery process will need to be repeated.

## Final Steps

When the restore is complete, exit Retrospect (if restoring locally), eject the Retrospect Emergency Recovery CD, and click the Finish button in the Retrospect Emergency Recovery wizard to reboot the computer. In some cases a second reboot may be required.

If the computer being recovered was running Windows 7 or Windows 2008, and a hidden Recovery Partition was present when it was previously backed up, then the Retrospect Emergency Recovery process will automatically repartition the startup disk to match the original partition layout during the restore. This step is necessary for the computer to be able to start up properly following the restore.

If a hidden Recovery Partition was present and restored by Retrospect, you may need to adjust the hard disk partition sizes after the computer starts up normally. The most common need for this step is when a higher-capacity hard disk drive is used to replace full or failed lower-capacity hard drive. Because Retrospect must recreate the same partitioning scheme on the new drive, the extra capacity of the new drive will not be available for use until you extend an existing partition or create a new partition. Both of these tasks can be accomplished using Windows 7's or Windows Server 2008's Disk Management tool.

## Protecting Virtual Machines with Retrospect and VMware Consolidated Backup

Retrospect's integration with VMware Consolidated Backup (VCB) allows a Retrospect server running on a VCB proxy server to provide both file- and image-level backups and duplicates of a virtual machine (VM) without requiring the VM to be suspended or shut down. This is accomplished through Retrospect's External Scripting functionality, which calls the necessary pre- and post-scripts on the VCB proxy server.

**NOTE:** External Scripting is intended for advanced users who possess at least a rudimentary knowledge of one or more scripting languages supported by Windows Scripting Host. For more information, see the External Scripting section of Chapter 10, "Tools," in the *Retrospect User's Guide*.

## Requirements

Before getting started with configuration, several prerequisites must be satisfied:

- A VCB proxy server must be setup, configured for its environment, and running as outlined in the *Virtual Machine Backup Guide* [available from VMware's website](#).
- VMware Tools must be installed in each guest OS to be protected.
- Retrospect Disk-to-Disk or higher must be installed directly on the VCB proxy server. A Retrospect Multi Server license is required to back up or restore files directly to a guest server OS with the Retrospect Client running in a VM.
- The VCB proxy server must have enough disk space available to hold the largest image to be backed up or restored.

## Configuring VCB for Backups

Before configuring Retrospect to back up VMs, the VCB config.js settings file, located on the VCB proxy server (e.g. C:\YOUR\_VCB\_FRAMEWORK\config\config.js) must be modified. The variables that must be modified are:

```
BACKUPROOT=<path_to_mount>;           (ex: BACKUPROOT="C:\\vcb_mnts");
HOST=<esxserver_hostname>;           (ex: HOST="esxserver.vmware.com");
USERNAME=<user name>;                 (ex: USERNAME="vcbUser");
PASSWORD=<password>;                 (ex: PASSWORD="vcbpasswd");
VM_LOOKUP_METHOD="name";             (ex: VM_LOOKUP_METHOD="name");
PREEXISTING_MOUNTPOINT="delete";     (ex: PREEXISTING_MOUNTPOINT="delete");
PREEXISTING_VCB_SNAPSHOT="delete";   (ex: PREEXISTING_VCB_SNAPSHOT="delete");
```

## Configuring Retrospect and Backing Up

Most of the work necessary prior to running backups of VMs takes place in the Retrospect Event Handler script and the Retrospect application.

### Editing the retro.ini File

In order for Retrospect to communicate with VCB, the retro.ini file located in the Retrospect application directory must be edited. Open the retro.ini file with a text editor and add the following line in the [OEM] section:

```
CheckVCBScripts=1
```

Save and close the `retro.ini` file.

The default install location for the Retrospect application is `C:\Program Files\Retrospect\Retrospect 7.7\`

## Retrospect Event Handler Settings

The Retrospect Event Handler is an external script through which Retrospect communicates information to other programs. VCB scripting is handled with a special Retrospect Event Handler, `VCB_RetroEventHandler.bat`. A sample script is provided in the External Scripts folder located in the application directory.

The default install location is `C:\Program Files\Retrospect\Retrospect 7.7\External Scripts\Sample VCB\`.

**NOTE:** It is recommended that a copy of the `VCB_RetroEventHandler.bat` be created before any changes are made.

Configuring the `VCB_RetroEventHandler.bat` file is straightforward; only the “`VCB_FRAMEWORK_PATH`” variable needs to be set:

```
set VCB_FRAMEWORK_PATH=c:\vcb_framework
```

## Activating the VCB\_RetroEventHandler

To activate the `VCB_RetroEventHandler.bat` script, copy it to the same folder as the Retrospect Config file. For Windows XP and Server 2003:

```
c:\Documents and Settings\All Users\Application Data\Retrospect\;  
for Windows Vista, 7, and Server 2008: c:\Users\All Users\Retrospect\.
```

## Creating Virtual Machine Backup Scripts

The following process needs to be repeated for each VM and each type of backup (file or image).

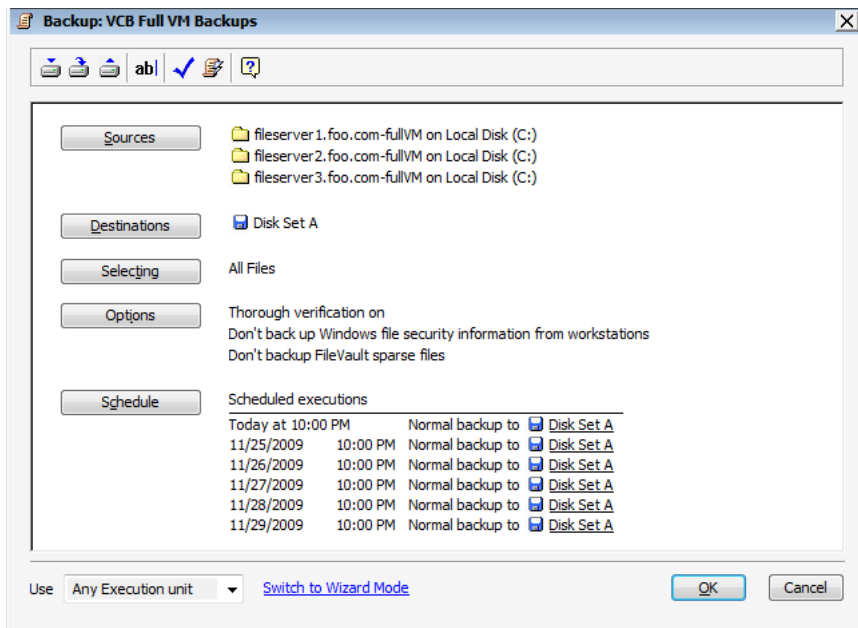
First, create a temporary folder in the VCB mount points directory which is specified by the variable `BACKUPROOT` in `VCB config.js` (see [Configuring VCB for Backups](#) section). To perform an image-level backup of a VM named `mytestvm.foo.com`, the folder must be named “`C:\vcb_mnts\mytestvm.foo.com-fullVM`”; while for a file-level backup, the folder needs to be “`C:\vcb_mnts\mytestvm.foo.com`”.

Define the mount point as a subvolume in Retrospect.

Next, define a backup script with a name beginning with “VCB\_”, e.g. “VCB\_mytestvm\_backup”, and specify the subvolume defined above as source.

Once all of the above steps have been completed, Retrospect is ready to back up VMs.

Note: for file-level backups, when VCB mounts a VM's drive, folder and file hierarchy, it creates identical views within two directories, one called *letters* and other called *digits*. Retrospect only backs up the contents from directory *letters*.



## Restoring Data to Virtual Machines

For each type of backup, either file-based or image-based, there is a corresponding restore method. Data from file-level backups are typically restored via Retrospect Client software running in the VM, whereas image-based backups are first restored to a directory on the VCB proxy server before being moved to the ESX or vCenter Server using VMware Converter.

## **Restoring from File-level Backups**

File-level backups provide the ability to restore individual files to any physical or virtual computer that is running the Retrospect Client software. Because Retrospect backs up the file and folder structure from a VCB mount points directory, which buries the virtual volumes inside additional levels of folder hierarchy, this method does not allow for full machine restores.

To perform folder and file-level restores using the Retrospect Client software installed inside a VM, refer to Chapter 4 of the *Retrospect User's Guide*.

## **Restoring from Image-level Backups**

While image-level backups of VMs don't allow for smaller, incremental backups, they do provide the very fastest complete restore of an entire VM. Restoring from an image-level backup is a two-step process. First, use Retrospect to restore the VM image (usually made up of multiple .vmdk files) to a new folder on the VCB proxy server. Once that step is completed, use one of the methods outlined in VMware's *Virtual Machine Backup Guide* to complete the process of restoring the image to ESX or vCenter Server storage.