



# Retrospect

## Best Practices: Protecting VMware Virtual Environments

<b>Description:</b>	This document outlines best practices for protecting VMware hosted machines using Retrospect
<b>Area of Protection:</b>	VMware Environments for SMBs
<b>Retrospect Edition(s):</b>	Retrospect 8 Multi Server (Part #: APPNEWMSV080EC) Retrospect 8 Single Server (Part #: APPNEWSSV080EC) Retrospect 8 Small Business Server (Part #: APPNEWSBP080EC – includes Exchange Agent) Retrospect 8 Disk-to-Disk (Part #: APPNEWDTD080EC)
<b>Retrospect Add-On(s):</b>	Retrospect 8 VMware Host Server Agent w/ASM (Part #: OPTNEWVMA080EC) Retrospect 8 VMware Host Server Agent (Part #: OPTNEWVMA080EN) Retrospect 8 VMware Agent Upgrade w/ ASM (Part #: OPTUPGVMA080EC) Retrospect 8 VMware Agent Upgrade (Part #: OPTUPGVMA080EN)
<b>Use Case:</b>	Small, medium businesses and departments within a large corporation needing to protect VMware environments

### Introduction

This document discusses how best to take advantage of Retrospect's strengths to meet the key business need of protecting vital data assets across heterogeneous environments, including virtual machines.

#### Virtualized Windows Machines

Retrospect now offers the VMware Host Server Add-on, an agent-less solution for easier and significantly faster protection of data on VMware Windows virtual machines with NTFS or FAT/FAT32 file systems. After a one-time login to your ESX or Virtual Center servers using Retrospect, you can select which virtual machines to add as backup sources for immediate or automated backups. To enable backup of the selected virtual machines' volumes in a consistent state, the Retrospect add-on works with VMware to gain access to the VMware host storage. This does not require any Retrospect client/agent on the virtual machines or shutting down the virtual machines. The add-on works with the following VMware platform products:

- ESX/ESXi versions: 4.1 and 5.0
- vCenter Server versions: 5.0

VMware Tools must be installed and be up-to-date on each guest OS to be protected by Retrospect.

#### Virtualized Linux Machines

To protect Linux or other guest OSes not supported by the Retrospect 8 VMware Host Server Add-on, the Retrospect Client software can be installed on these virtual machines just like physical servers and client machines. See the list of platforms supported by Retrospect Client at: <http://retrospect.com/en/support/downloads>

If you have VMware platform products older than 4.1, please refer to *Supporting Other VM Configurations* at the end of this document.

## Maximizing VM Backup Performance

#### Virtualized Windows Machines

To provide the best virtual machine backup performance, backups should be scheduled at times when the virtual machine being backed up isn't busy, and the underlying VMware host storage is not being

used to support other virtual machines or other activities. During the backup of a virtual machine, Retrospect (with the VMware Host Server Add-On) is reading the virtual machines' volumes file by file from VMware host storage through Windows and VMware. Therefore, the Windows computer running Retrospect should have fast access to the VMware infrastructure storage hosting the virtual machine volumes being backed up.

### Virtualized Linux Machines

The Retrospect Client software running on a virtual machine sends each needed file on the VM's volumes to the Retrospect server. For the best backup performance, schedule backups at times when the virtual machine's load on computation, storage and network I/O is lower.

## VMs as Part of Heterogeneous Environments

As important as virtualization is, it is part of the bigger computing eco-system that businesses need to protect, including notebooks, client desktops and physical servers. Backup data from various sources is centrally managed by Retrospect, regardless of where the data came from. This architecture enables virtual machine backup to leverage all of the file-level protection capabilities like physical machine backup does. The next few sub sections discuss what Retrospect features provide key benefits in such heterogeneous environments:

### Reducing Network Load and Storage Costs

- **File-Level Deduplication:** Cross-platform documents such as Acrobat and Microsoft Office files are most often spread across and accessed from multiple OS platforms. In addition, many application and system files are the same across multiple physical and virtual machines. By using the same backup set for backing up physical and virtual machines, Retrospect automatically and very efficiently provides file-level deduplication across them, saving time, network bandwidth and storage. In addition, file-level deduplication avoids having to checksum each used block, and therefore requires fewer processing resources.
- **Selectors:** Multiple virtual machines are often cloned from a base image or template. Retrospect's powerful selector feature lets you precisely control what files to protect and what not to, based on various criteria, including name, date, type, or size. Retrospect includes a number of built-in selectors, and you can also create custom selectors. For example, you can create a selector that will choose to backup all Microsoft Office documents modified after March 1, 2010. This further reduces resources consumed by the deduplication process.
- **Grooming:** To support storage space management and meet data retention policies, Retrospect offers the option of deleting the oldest backups when the backup drive becomes full, or on a schedule that you specify. The default policy is to keep at least the last seven backups as well as one backup for each week in the last month, and then one backup for each month prior. Or you can simply specify how many backups to keep.

### Leveraging Existing Infrastructure and Investments

- **Broad Device Support:** Virtual and physical machines can be backed up directly to Tape, Hard Disk, NAS, RDX and Cloud; this simplifies backup set rotation for redundancy goals.
- **Centralized Management:** Virtual machine support is seamlessly integrated into Retrospect. Your busy IT staff doesn't need to learn or juggle another tool just for virtual machine protection.

### Adapting Priorities to Resources

- **Proactive Backup:** Businesses must ensure that virtual and physical servers and notebooks get backed up. Proactive backup is ideal for the task, particularly in environments with notebooks that appear irregularly on the network. Whenever Retrospect detects a notebook, Proactive

Backup dynamically adjusts backup priorities based on which of the available virtual and physical backup sources is most- and least-recently backed up. For more details, see: [http://retrospect.com/en/documentation/user\\_guide/win8/automated\\_operations#50458626\\_15251](http://retrospect.com/en/documentation/user_guide/win8/automated_operations#50458626_15251)

### Data Migration and Replication

- File-Level Restore: Data files can be backed up from a physical or virtual machine, and restored/synchronized to a different machine running the Retrospect Client software or to a network volume. This feature can be used to efficiently migrate or replicate data, leveraging Retrospect's capabilities to transfer only files meeting certain criteria (specified using selectors), files that do not already exist at the destination, or files where the destination doesn't already have a newer version of those files.

### Disaster Recovery

VMware's virtual machine template, used in conjunction with Retrospect, can greatly simplify disaster recovery. The VM template enables you to efficiently create virtual machines and enforce consistent guest configurations. Through Retrospect's selectors and cross-machine file-level deduplication discussed earlier in this document, unique files among multiple virtual machines are efficiently backed up. When it comes time for disaster recovery, you can recreate the virtual machine from a VMware template, and then install the Retrospect Client software for restoring files specific to the original virtual machine. For more information about the VMware virtual machine template, see:

[http://pubs.vmware.com/vsphere-50/index.jsp?topic=%2Fcom.vmware.vsphere.vm\\_admin.doc\\_50%2FGUID-9062F225-E01B-42BA-8AFB-8EA4069068FE.html](http://pubs.vmware.com/vsphere-50/index.jsp?topic=%2Fcom.vmware.vsphere.vm_admin.doc_50%2FGUID-9062F225-E01B-42BA-8AFB-8EA4069068FE.html)

### Supporting Other VM Configurations

For customers using VMware ESX/ESXi versions 3 through 4.1, Retrospect continues to support VMware Consolidated Backup (VCB). It allows Retrospect 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. For more information, please see:

[http://retrospect.com/en/documentation/user\\_guide/win8/addendum#protecting-virtual-machines-with-retrospect-and-vmware-consolidated-backup](http://retrospect.com/en/documentation/user_guide/win8/addendum#protecting-virtual-machines-with-retrospect-and-vmware-consolidated-backup)

If you would like more information on our Retrospect VMware Host Server Add-On, please contact us at [sales@retrospect.com](mailto:sales@retrospect.com)