

# Administration Guide - Virtual Server iDataAgent (Xen)

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# Overview - Virtual Server iDataAgent

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#### Key Features

- Complete Virtual Machine Protection
- Granular Recovery of Virtual Machine Data
- Minimal Load on Host Resources
- Automatic Protection of Virtual Machines
- Block Level Deduplication

#### Terminology

## INTRODUCTION

The Virtual Server iDataAgent provides a unified protection and recovery vehicle for all virtual machine data in your enterprise. In addition to complete protection of entire virtual machines for disaster recovery, the Virtual Server iDataAgent also provides more granular backup and recovery options that operate seamlessly with your virtual machine protection. Added options for automatic data discovery, deduplication, and reporting help ensure all your virtual machine data is easily traceable and retrievable whenever the need arises.

## KEY FEATURES

The Virtual Server iDataAgent offers the following key features:

### COMPLETE VIRTUAL MACHINE PROTECTION

The Virtual Server iDataAgent backs up a complete image of each virtual machine. This is accomplished by creating a snapshot of the virtual machine's disk, which includes the complete state of the virtual machine at the time of backup. Subsequently, the virtual machine disk can be easily restored and mounted back onto the host computer. The virtual machine is then ready for use.

### GRANULAR RECOVERY OF VIRTUAL MACHINE DATA

In some cases, it may not be desirable to recover an entire virtual disk for a contained subset of data. For such circumstances, the Virtual Server iDataAgent provides the facility to restore individual files from a virtual disk. This negates the need to install a separate File System iDataAgent on each virtual machine or recover an entire virtual server disk for a mere subset of needed files. **VMware** backups also provide the facility to recover entire volumes with similar benefits.

### MINIMAL LOAD ON HOST RESOURCES

The Virtual Server iDataAgent is designed to ensure data protection and recovery operations consume as few resources on the host computer as possible. This is accomplished by placing the iDataAgent in the most resource-efficient location possible for mounting and transfer of data.

For **VMware**, the iDataAgent is installed on a proxy computer that can communicate with the Virtual Center or ESX Server being backed up. This proxy computer handles all the mounting and transfer of data from the host computer to the backup media. The proxy computer can be a separate physical machine, which is useful if the host computer already has a significant load placed on it through everyday operations. Alternatively, a virtual machine on the ESX Server or Virtual Center can be configured as the proxy computer if sufficient resources are available on the host and a separate, designated physical computer is not desired.

Similarly, for **Xen**, a proxy computer is also used. This proxy computer is always a virtual machine residing on the Xen server and is reserved specifically for data protection operations.

For **Microsoft Virtual Servers** and **Hyper-V**, the iDataAgent is installed directly on the host computer and utilizes Microsoft's embedded resource management capabilities to ensure backup and restore operations consume as few resources as possible.

The diagram on the right illustrates the combination of installations available for each virtualization vendor.

### AUTOMATIC PROTECTION OF VIRTUAL MACHINES

## WHERE TO GO NEXT

### VMware

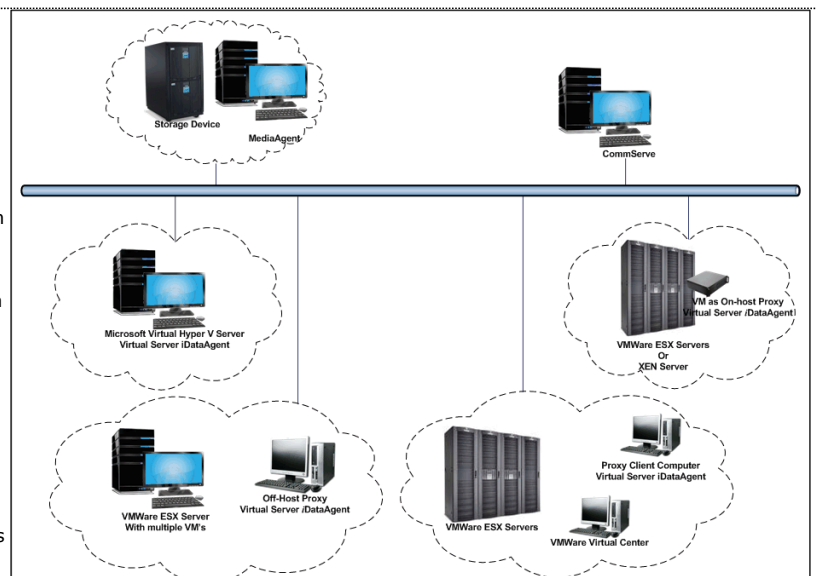
Walks you through the process of installing and configuring the Virtual Server iDataAgent for VMware.

### Microsoft Hyper-V

Walks you through the process of installing and configuring the Virtual Server iDataAgent for Microsoft Hyper-V.

### Xen

Walks you through the process of installing and configuring the Virtual Server iDataAgent for Xen.



In any virtual environment, virtual machines are added or moved on a frequent basis. This rate of change can make it difficult to track whether newly created or moved virtual machines have been protected. The Virtual Server iDataAgent solves this problem by providing several options for automatically discovering virtual machines. The discovery process can add all new or moved virtual machines or a select group of virtual machines satisfying certain criteria to the backup content.

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## BLOCK LEVEL DEDUPLICATION

Deduplication provides a smarter way of storing data by identifying and eliminating the duplicate items in a data protection operation.

Deduplication at the data block level compares blocks of data against each other. If virtual machines contains blocks of data that are identical to each other, block level deduplication eliminates storing the redundant data and reduces the size of the data in storage. This dramatically reduces the virtual machine backup data copies on both the disk and tapes.

## TERMINOLOGY

The Virtual Server iDataAgent documentation uses the following terminology:

<b>VENDOR</b>	The virtualization software being used (such as Hyper-V, VMware, or Xen).
<b>DISK-LEVEL</b>	Backup and restore operations for virtual server disks.
<b>VOLUME-LEVEL</b>	Backup and restore operations of volumes within a virtual server disk (such as a C: drive)
<b>FILE-LEVEL</b>	Backup and restore operations of individual files and folders within a virtual server disk, such as documents and images.
<b>GUEST HOST</b>	A virtual machine.
<b>GUEST OS</b>	The operating system running on the virtual machine (such as Windows or Linux).
<b>PROXY COMPUTER</b>	A physical computer separate from the host computer on which the iDataAgent is installed. This computer facilitates most of the data movement from the host computer to the backup media. In some cases, this computer may be a virtual machine installed on the host computer. Such computers are referred to as a <b>Proxy Virtual Machine</b> .

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# System Requirements - Virtual Server iDataAgent (Xen)

System Requirements | Supported Features

The following requirements are for the Virtual Server iDataAgent:

## XEN REQUIREMENTS

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### VERSIONS OF XENSERVICES SUPPORTED

Citrix XenServer 5.5  
Citrix XenServer 5.6  
Citrix XenServer 6.0  
Citrix XenServer 6.1  
Citrix XenServer 6.2

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### GUEST OPERATING SYSTEM

The Agent can be installed on the following Operating Systems:

Microsoft Windows Server 2003 32-bit and x64 Editions with a minimum of Service Pack 1  
Microsoft Windows Server 2008 32-bit and x64 Editions  
Microsoft Windows Server 2008 R2 x64 Edition

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## HARD DRIVE

### HARD DRIVE SPACE REQUIRED ON STORAGE REPOSITORIES

Xen Virtual Server agent requires hard disk space to create snapshots of Virtual machines that are being backed up. Ensure that the storage repository has sufficient temporary space for snapshots during a backup job. The size required for a snapshot depends on the type of Storage Repository, and could be as large as the size of the virtual machine being backed up.

117 MB minimum of hard disk space for software/ 498 MB recommended  
100 MB of additional hard disk space for log file growth  
775 MB of temp space required for install or upgrade (where the temp folder resides)

## MEMORY

A minimum of 2.0 GB RAM is required.

## PROCESSOR

All Windows-compatible processors supported

## PERIPHERALS

DVD-ROM drive  
Network Interface Card

## MISCELLANEOUS

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### NETWORK

TCP/IP Services configured on the computer.

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### ALLOCATION UNIT SIZE OF THE NTFS VOLUMES

The cluster size or the allocation unit size of an NTFS volume in a virtual machine must be multiple of 1024 bytes. You can set the cluster size before formatting a volume. The default cluster size is 4096 bytes.

## NOTES ON VIRTUAL SERVER iDATAAGENT INSTALLATIONS FOR XEN

- Ensure that the virtual machine where you have installed the Virtual Server iDataAgent has a xencenter name that is the same as its short host name.
- .NET Framework 3.5 with Service Pack 1 must be installed prior to performing disk level backups.

- Xen tools version 5.5 or 6.0 must be installed.

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## **XEN TOOLS**

The following services must be running on the proxy virtual machine prior to performing backups:

- COM+ System Application
- COM+ Event System
- Remote Procedure Call (RPC)
- Virtual Disk Service
- Citrix tools for Virtual Machines

Virtualization State of the VMs backed up should be Optimized. This state is visible in XenCenter console, on the General tab of the VMs.

## **DISCLAIMER**

Minor revisions and/or service packs that are released by application and operating system vendors are supported by our software but may not be individually listed in our System Requirements. We will provide information on any known caveat for the revisions and/or service packs. In some cases, these revisions and/or service packs affect the working of our software. Changes to the behavior of our software resulting from an application or operating system revision/service pack may be beyond our control. The older releases of our software may not support the platforms supported in the current release. However, we will make every effort to correct the behavior in the current or future releases when necessary. Please contact your Software Provider for any problem with a specific application or operating system.

Additional considerations regarding minimum requirements and End of Life policies from application and operating system vendors are also applicable

# Getting Started - Xen Deployment

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The Virtual Server iDataAgent is used to protect Xen virtual machine data. Follow the steps given below to install the Virtual Server iDataAgent.

## INSTALLATION

The software can be installed using one of the following methods:

### METHOD 1: INTERACTIVE INSTALL

Use this procedure to install directly on dedicated virtual machine on the XEN Server. This dedicated virtual machine is referred to as the Client computer in this install procedure.

### METHOD 2: INSTALL SOFTWARE FROM COMMCELL CONSOLE

Use this procedure to install remotely on a dedicated virtual machine on the XEN Server.

## WHERE TO INSTALL

Install the Virtual Server iDataAgent on any virtual machine residing on the master of the Xen server pool.

### METHOD 1: INTERACTIVE INSTALL

1. Run **Setup.exe** from the **Software Installation Disc** on dedicated virtual machine on the XEN Server.

Ensure that the virtual machine is residing on the master of the server pool.

2. Select the required language.

Click **Next**.

3. Select the option to install software on this computer.

The options that appear on this screen depend on the computer in which the software is being installed.

4. Select **I accept the terms in the license agreement**.

Click **Next**.

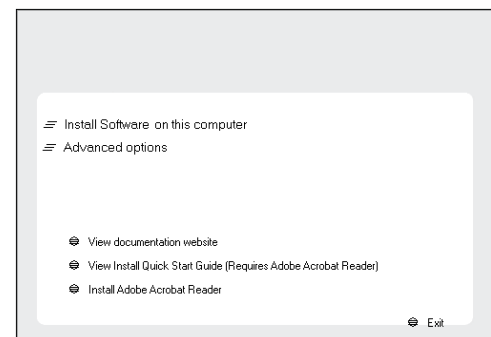
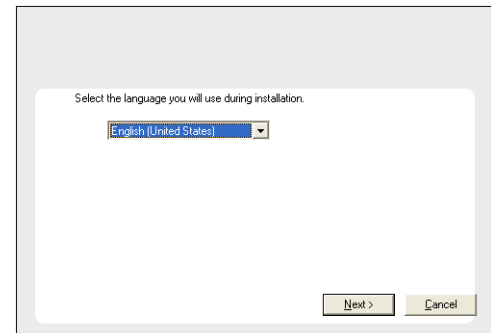
## BEFORE YOU BEGIN

### Download Software Packages

Download the latest software package to perform the install.

### System Requirements

Verify that the computer in which you wish to install the software satisfies the System Requirements.







10. Select **Add programs to the Windows Firewall Exclusion List**, to add CommCell programs and services to the Windows Firewall Exclusion List.

Click **Next**.

If Windows Firewall is disabled on this computer, select this option to add the CommCell programs and services to Windows firewall exclusion list.

This option enables CommCell operations across the firewall, if the firewall is enabled at a later time.

11. Verify the default location for software installation.

Click **Browse** to change the default location.

Click **Next**.

- Do not install the software to a mapped network drive.
- Do not use the following characters when specifying the destination path:

/ : \* ? " < > | #

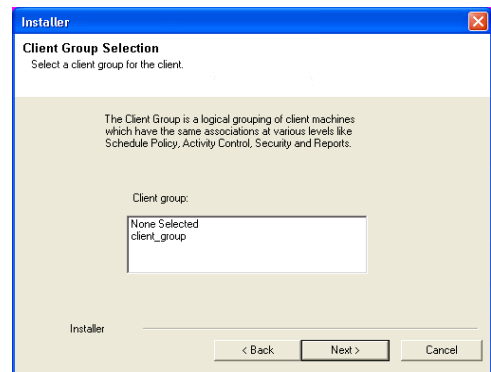
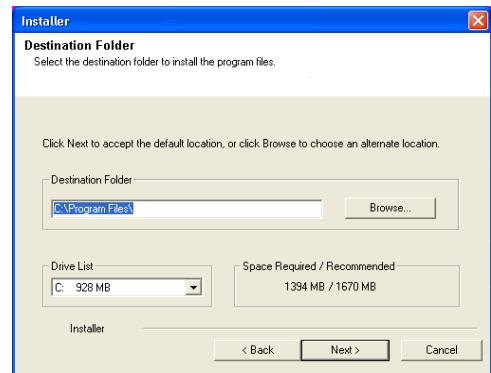
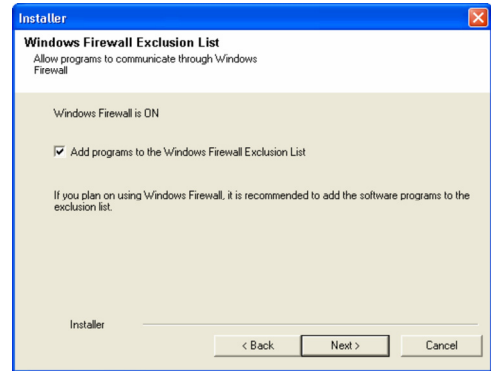
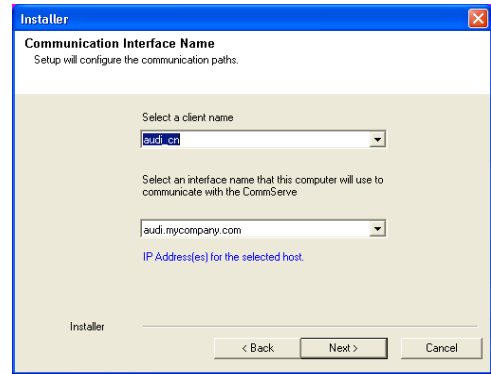
It is recommended that you use alphanumeric characters only.

12. Select a Client Group from the list.

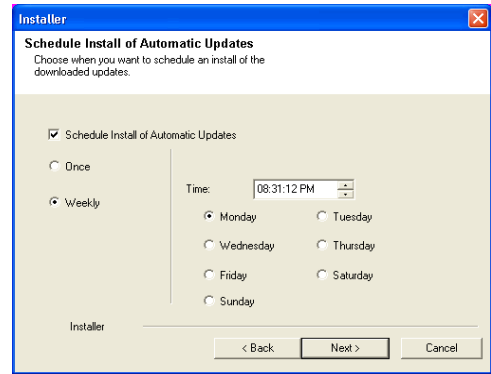
Click **Next**.

This screen will be displayed if Client Groups are configured in the CommCell Console.

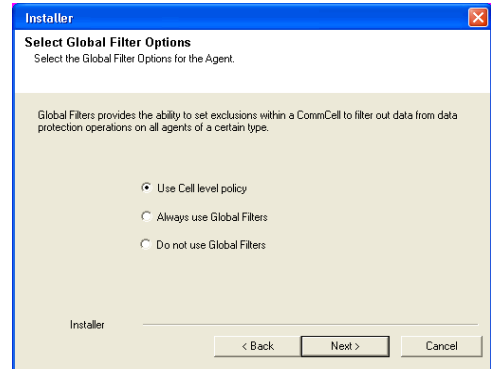
13. Click **Next**.



14. Click **Next**.



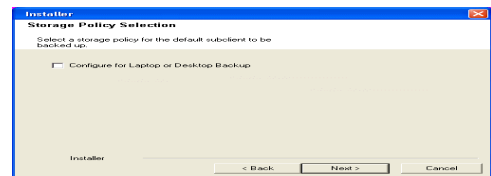
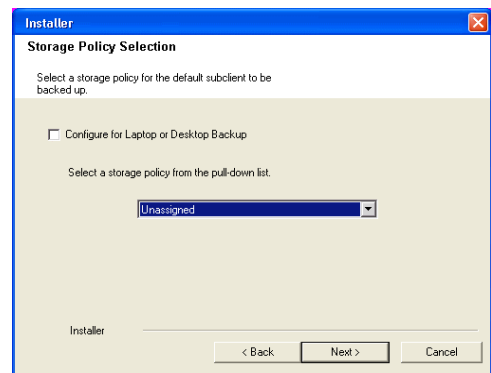
15. Select a **Storage Policy**.  
Click **Next**.



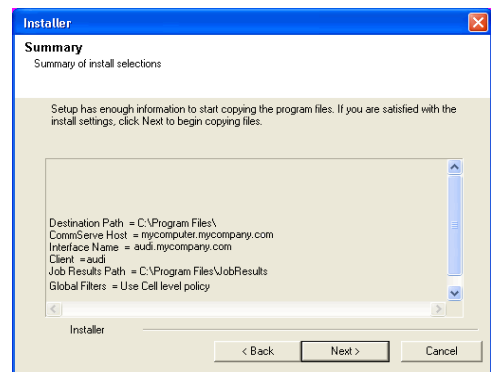
If you do not have Storage Policy created, this message will be displayed.  
Click **OK**.

You can create the Storage Policy later in step 19.

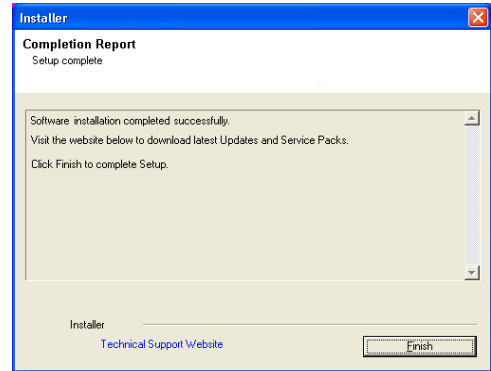
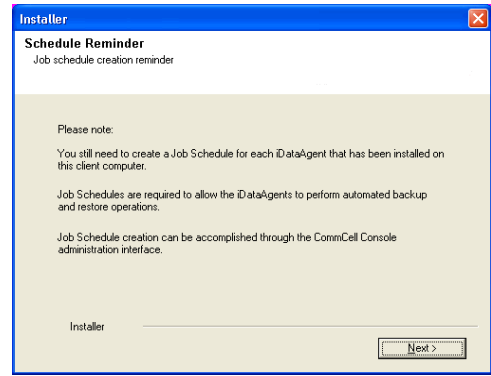
16. Click **Next**.



17. Click **Next**.



18. Click **Finish**.

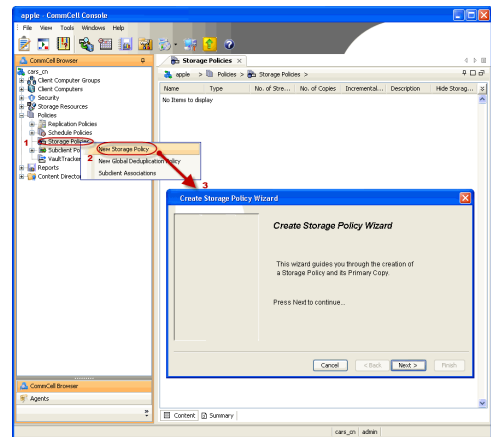


If you already have a storage policy selected in step 15, click the **Next** button available on the bottom of the page to proceed to the **Configuration** section.

If you do not have Storage Policy created, continue with the following step.

19. Create a Storage Policy:

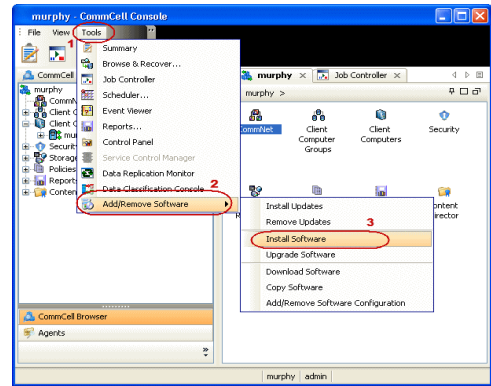
1. From the CommCell Browser, navigate to **Policies**.
2. Right-click the **Storage Policies** and then click **New Storage Policy**.
3. Follow the prompts displayed in the Storage Policy Wizard. The required options are mentioned below:
  - o Select the Storage Policy type as **Data Protection and Archiving** and click **Next**.
  - o Enter the name in the **Storage Policy Name** box and click **Next**.
  - o From the **Library** list, click the name of a disk library to which the primary copy should be associated and then click **Next**.  
Ensure that you select a library attached to a MediaAgent operating in the current release.
  - o From the **MediaAgent** list, click the name of a MediaAgent that will be used to create the primary copy and then click **Next**.
  - o For the device streams and the retention criteria information, click **Next** to accept default values.
  - o Select **Yes** to enable deduplication for the primary copy.
  - o From the **MediaAgent** list, click the name of the MediaAgent that will be used to store the Deduplication store.  
Type the name of the folder in which the deduplication database must be located in the Deduplication Store Location or click the Browse button to select the folder and then click **Next**.
  - o Review the details and click **Finish** to create the Storage Policy.



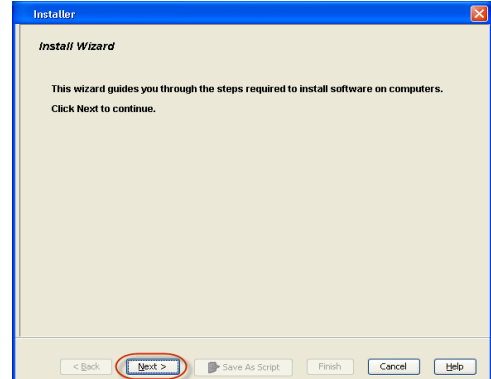
## METHOD 2: INSTALL SOFTWARE FROM COMMCELL CONSOLE

1. From the CommCell Browser, select **Tools | Add/Remove Software | Install Software**.

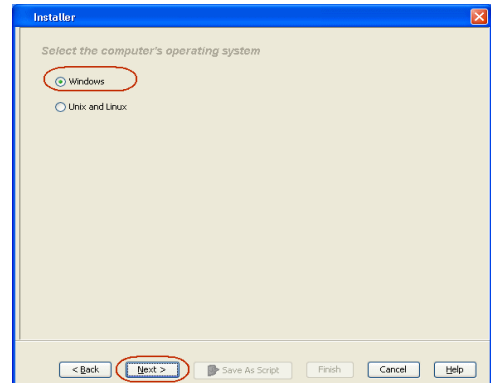
2. Click **Next**.



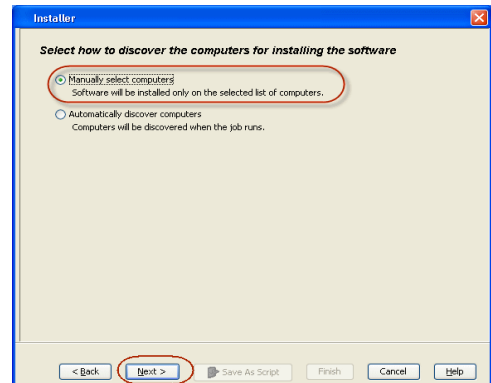
3. Select **Windows**.  
Click **Next**.



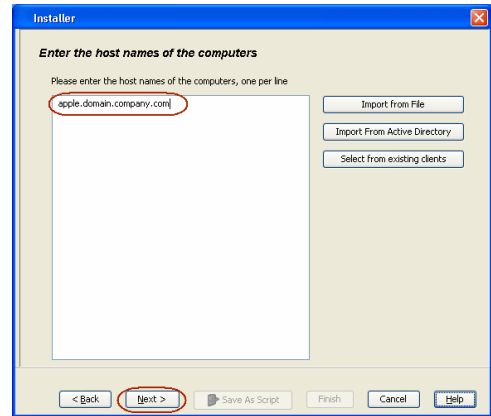
4. Select **Manually Select Computers**.  
Click **Next**.



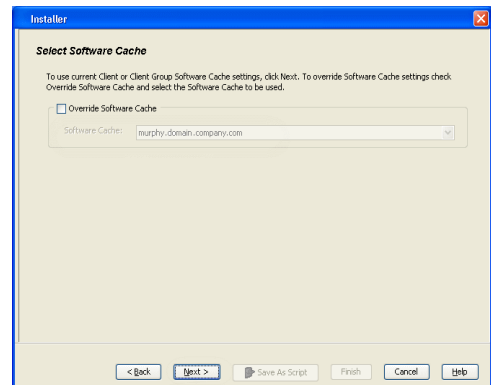
5. Enter the fully qualified domain name of the dedicated virtual machine on the XEN Server.  
For example: `apple.domain.company.com`  
The Virtual Server iDataAgent will be installed on this computer.  
Click **Next**.



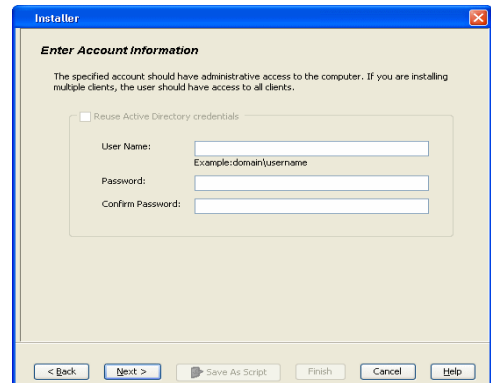
6. Click **Next**.



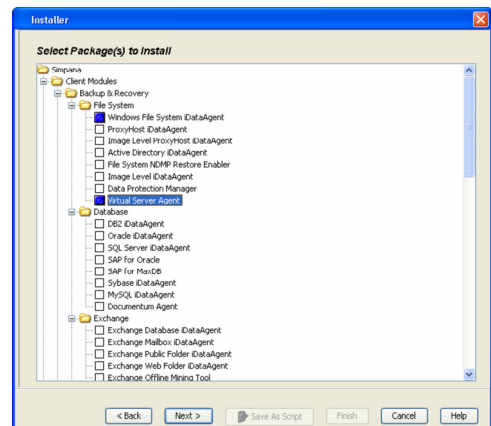
7. Specify **UserName** and **Password**.  
Click **Next**.



8. Select **Virtual Server Agent**.  
Click **Next**.

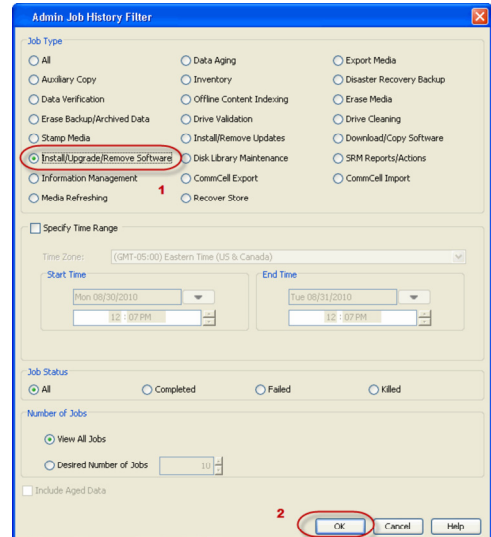
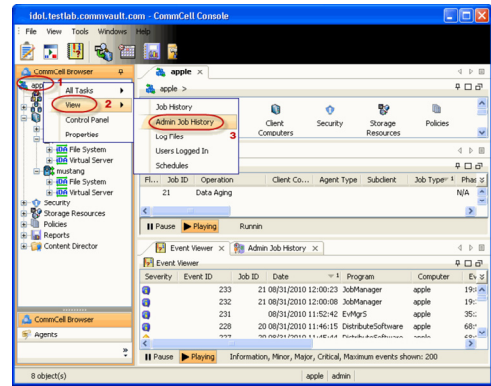


9. Click **Next**.

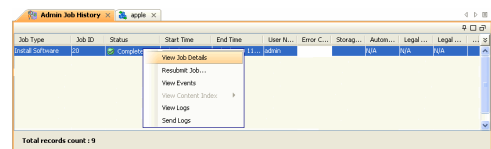




14. Select **Install/Upgrade/Remove Software**.  
Click **OK**.



15. You can view the following details about the job by right-clicking the job:
- Items that succeeded during the job
  - Items that failed during the job
  - Details of the job
  - Events of the job
  - Log files of the job





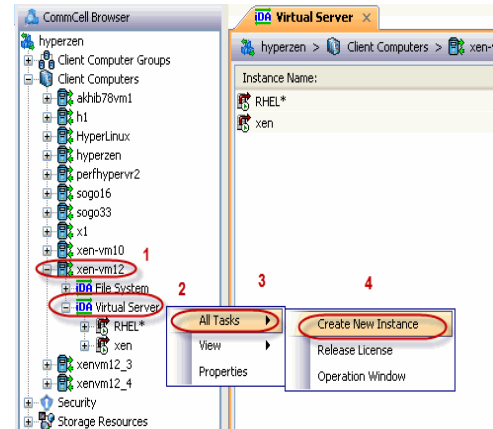
# Getting Started - Xen Configuration

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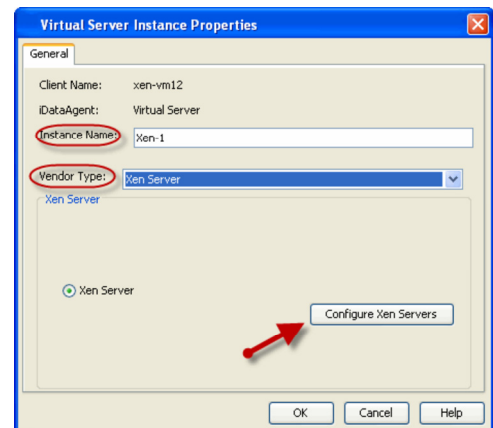
## CONFIGURATION

Once the Virtual Server iDataAgent has been installed, configure an Instance, a Backup Set and a Subclient to facilitate backups. The following sections provide the necessary steps required to create and configure these components.

- From the CommCell Browser, navigate to **<Client> | Virtual Server**.
  - Right-click the **Virtual Server Agent | All Tasks** and click **Create New Instance**.

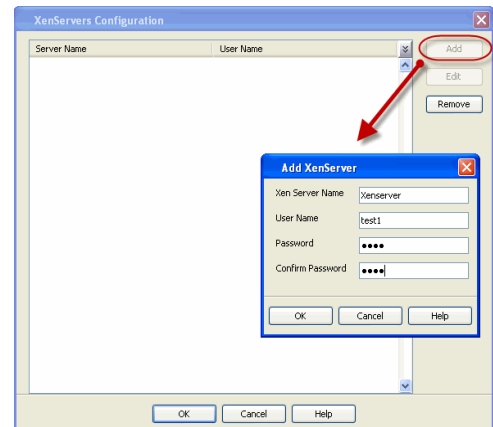


- Enter the **Instance Name**.
  - Select Xen from Vendor Type menu.
  - Click **Configure Xen Servers**.



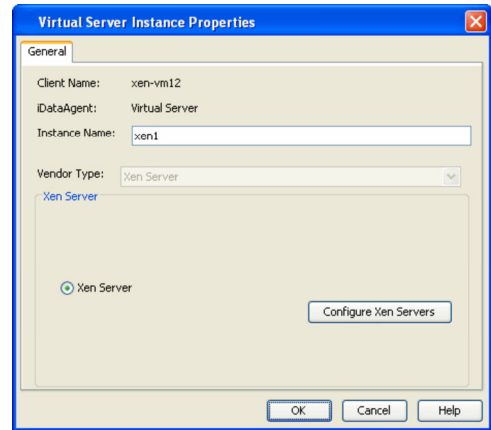
- Click Add.
  - Enter **Xen Server Name**, **User Name** and **Password** for the Master server of the pool.  
It is recommended to provide the actual root credential.
  - Click **Ok**.

Repeat this step for all the remaining servers in the Xen Server Pool.

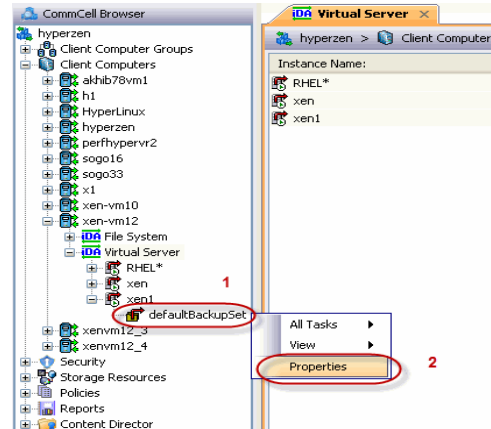


- Click **OK** to save the instance.

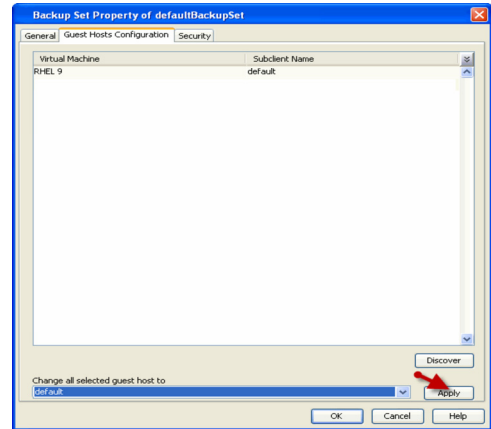
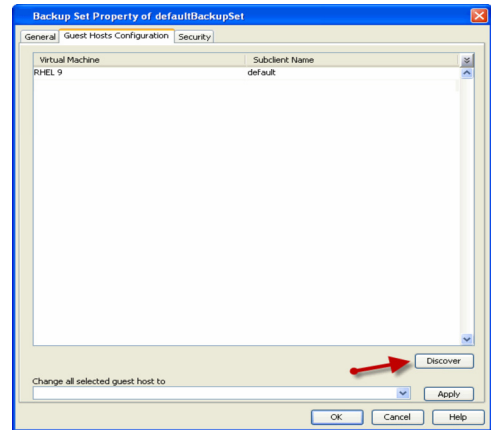
5.
  - From the CommCell Browser, right-click the **Default Backup Set**.
  - Click **Properties**.



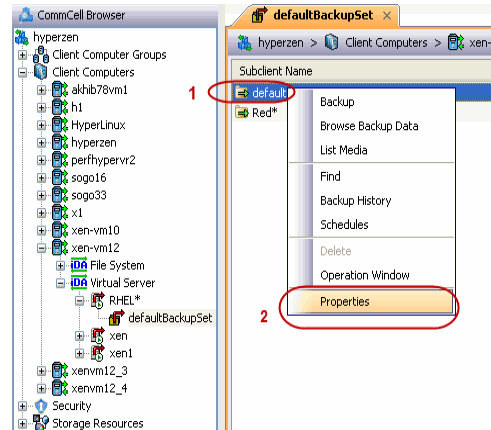
6. Click **Discover**, on the **Guest Hosts Configuration** tab. Discovery process might take several minutes to complete.



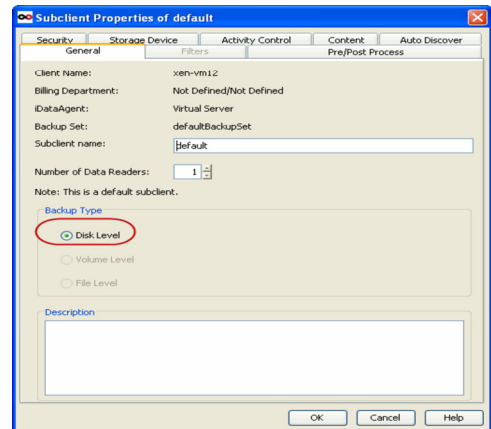
7.
  - Select the default subclient from **Change all selected guest hosts to** list.
  - Click **Apply**.
  - Click **OK**.



8.
  - From the CommCell Browser, navigate to the **Subclient**.
  - Click **Properties**.

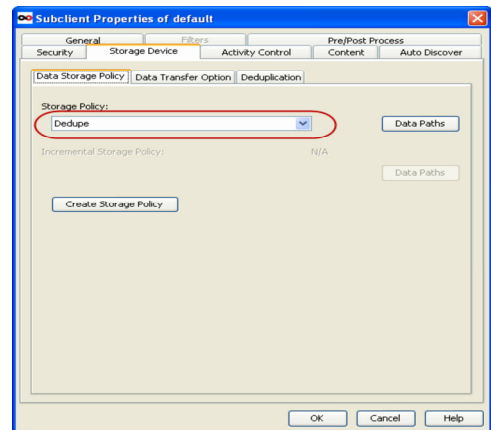


9. Select **Disk-Level** from the Backup Types.



10. Click **Storage Device** tab. Ensure that a Storage Policy is selected. Click **Ok**.

If you do not have Storage Policy created, continue with **Step 11**.

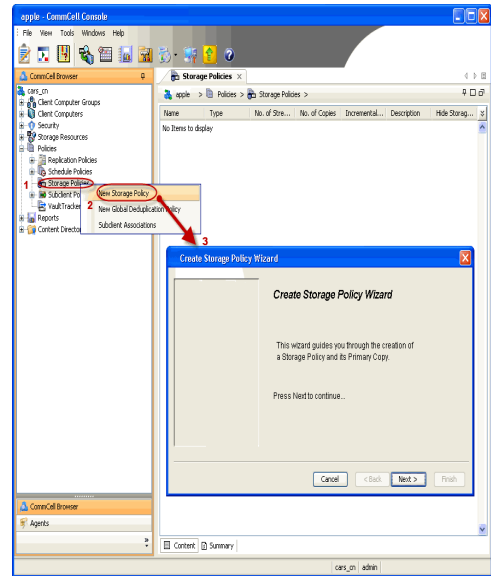


11. Create a Storage Policy:
  1. From the CommCell Browser, navigate to **Policies**.
  2. Right-click the **Storage Policies** and then click **New Storage Policy**.
  3. Follow the prompts displayed in the Storage Policy Wizard. The required options are mentioned below:
    - Select the Storage Policy type as **Data Protection and Archiving** and click **Next**.
    - Enter the name in the **Storage Policy Name** box and click **Next**.
    - From the **Library** list, click the name of a disk library to which the primary copy should be associated and then click **Next**.  
Ensure that you select a library attached to a MediaAgent operating in the current release.
    - From the **MediaAgent** list, click the name of a MediaAgent that will be used to create the primary copy and then click **Next**.
    - For the device streams and the retention criteria information, click **Next** to accept default values.

- Select **Yes** to enable deduplication for the primary copy.
- From the **MediaAgent** list, click the name of the MediaAgent that will be used to store the Deduplication store.

Type the name of the folder in which the deduplication database must be located in the Deduplication Store Location or click the Browse button to select the folder and then click **Next**.

- Review the details and click **Finish** to create the Storage Policy.



# Getting Started - Xen Backup

◀ Previous Next ▶

## PERFORM A BACKUP

After configuring the subclient, you can run a full backup of the virtual machines on your Xen server.

### WHAT GETS BACKED UP

The following data is backed up by the Virtual Server iDataAgent:

- Virtual Machines
- Associated Virtual Disks

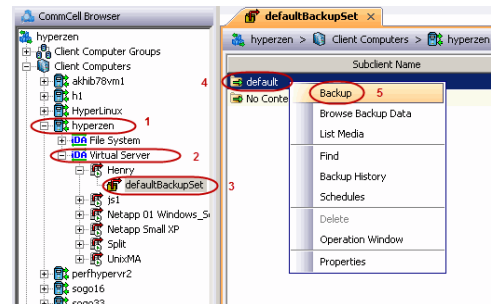
### WHAT DOES NOT GET BACKED UP

The following data is not backed up by the Virtual Server iDataAgent:

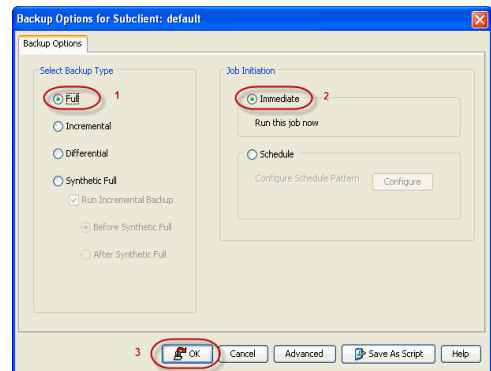
- Xen templates
- Virtual machines containing more than one disk with the same name

The following section provides step-by-step instructions for running your first backup immediately.

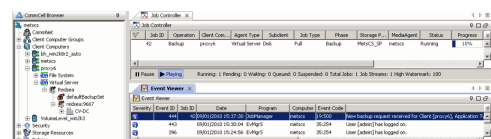
- From the CommCell Console, navigate to **Client Computers | Virtual Server**
  - Right-click the **Subclient** and click **Backup**.



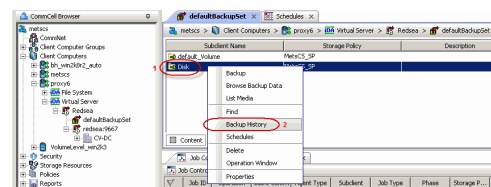
- Select **Full** as backup type and **Immediate** to run the job immediately.
  - Click **OK**.



- You can track the progress of the job from the **Job Controller** or **Event Viewer** window of the CommCell console.



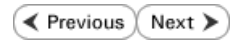
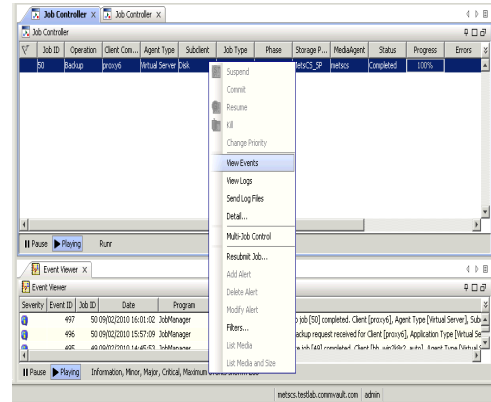
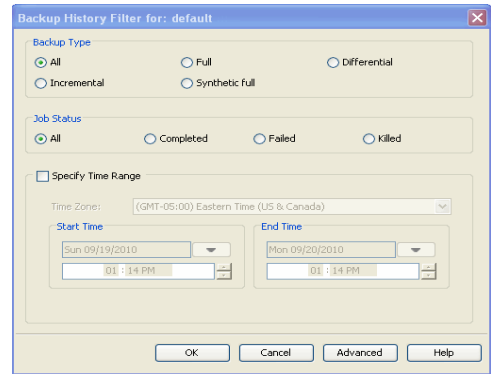
- Once job is complete, view the details of job from the **Backup History**. Right-click the subclient and select **Backup History**.



- Click **OK**.

6. You can view the following details about the job by right-clicking the job:

- Items that failed during the job
- Items that succeeded during the job
- Details of the job
- Events of the job
- Log files of the job
- Media associated with the job



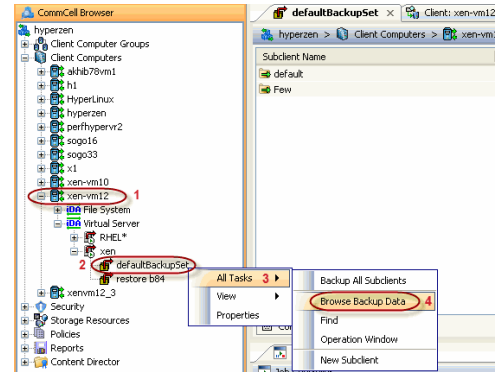
# Getting Started - Xen Restore



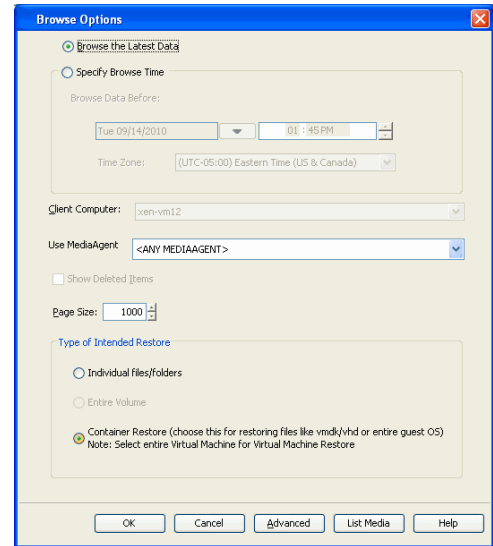
## PERFORM A RESTORE

It is recommended that you perform a restore operation immediately after your first full backup to understand the process. The following section describes the steps involved in restoring a virtual machine.

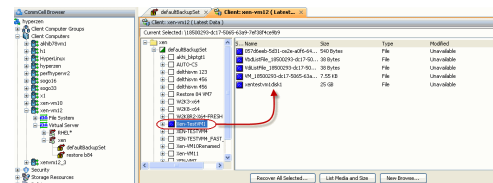
- From the CommCell Console, navigate to **<Client> | Virtual Server**.
  - Right-click the backup set that contains the data you want to restore and click **All Tasks | Browse Backup Data**.



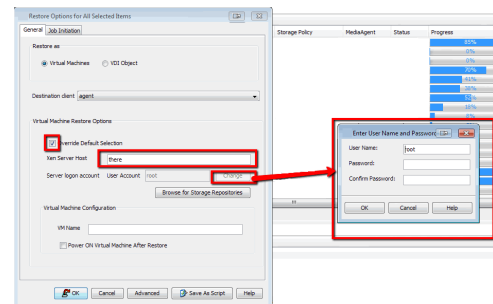
- Click **OK**.



- Select the virtual machine under the backup set. Its entire contents will be automatically selected in the right pane.
  - Click **Recover All Selected**.



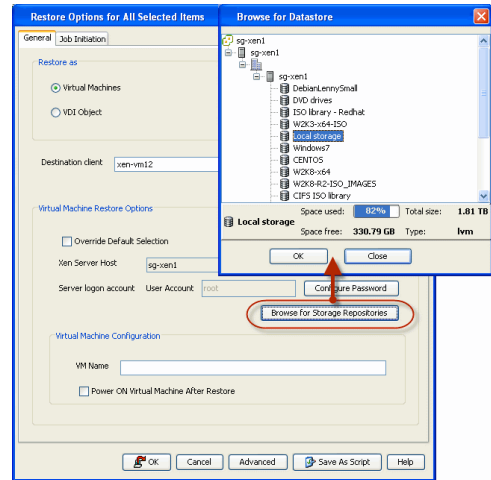
- Select **Override Default Selection**.
  - Enter the **Xen Server Host**. This host should be the Master Server of the Xen pool.
  - Click **Change**.
  - Enter the user name and password of the Xen Server Host. The credentials entered should be the **root** credentials.



- Click **Browse for Storage Repositories**.
  - Select a storage repository from the available set of storage devices.

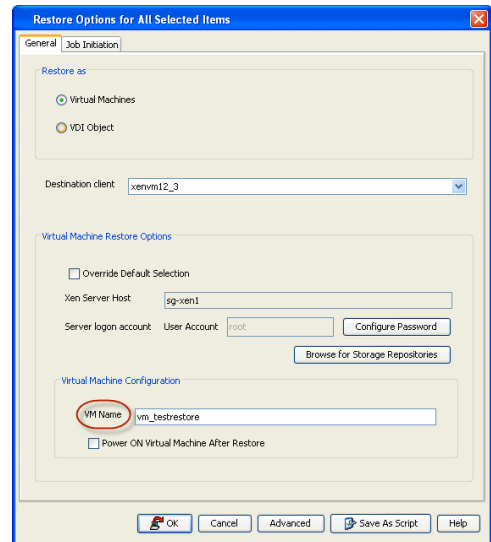
- Click **OK**.

If the selected storage repository does not meet the minimum requirements needed to restore the virtual machine, you can repeat this step until an acceptable storage repository is found.

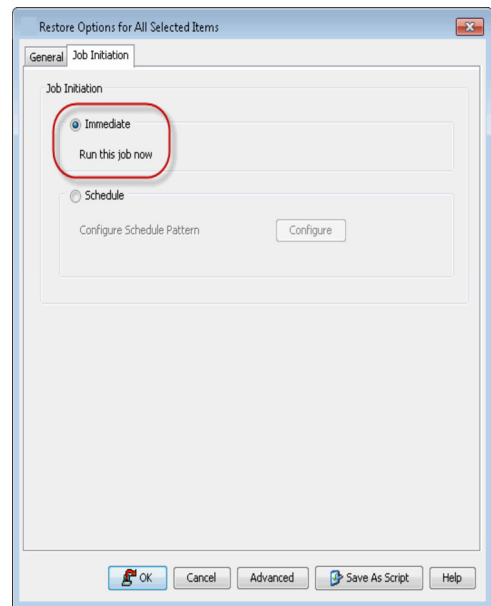


6. Enter the **VM Name** for the virtual machine.

Ensure that you provide a fully qualified name for the virtual machine. Entering an IP address will cause the restore operation to fail.



6.
  - Click the **Job Initiation** tab.
  - Select **Immediate** to run the job immediately.
  - Click **OK**.



7. You can monitor the progress of the restore job in the **Job Controller** or **Event Viewer** window of the CommCell Console.



8. Once the restore job has completed, right-click the entity (e.g. agent, instance) and click **View | Restore History**.

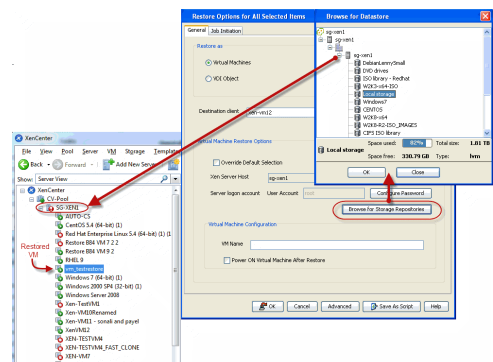
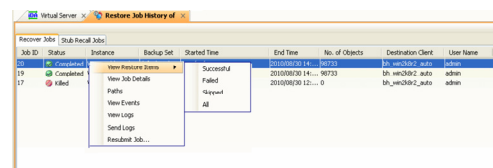
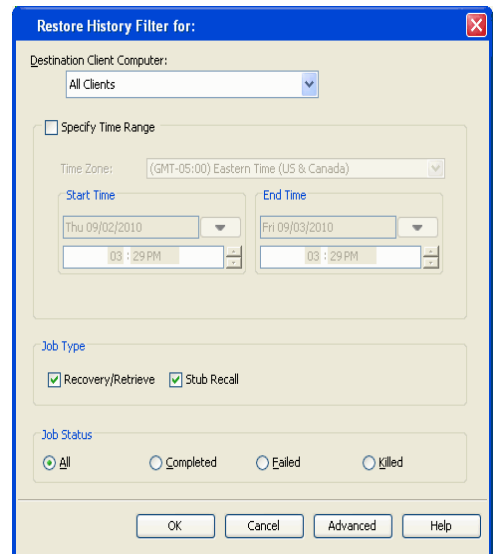
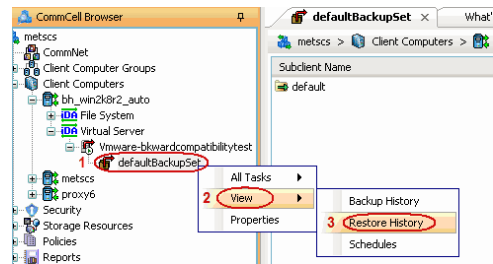
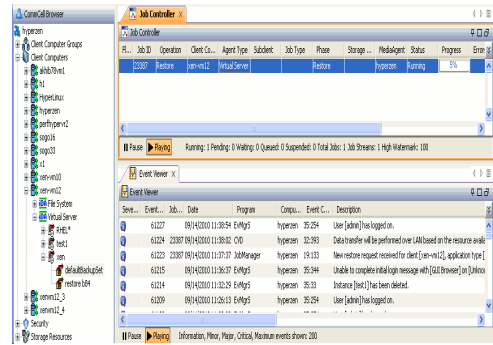
If the entity chosen is the client computer, click **View | Job History**.

9. Click **OK**.

10. You can view the following details about the job by right-clicking the job:

- View Restore Items
- View Job Details
- View Events of the restore job.
- View Log files of the restore job.

11. Once the virtual machine is restored, it is automatically mounted to the Xen Server Host you specified.



**CONGRATULATIONS - YOU HAVE SUCCESSFULLY COMPLETED YOUR FIRST BACKUP AND RESTORE.**

If you want to further explore this Agent's features read the **Advanced** sections of this documentation.



# Advanced - Xen Configuration

## TABLE OF CONTENTS

### Understanding the CommCell Console

#### Configuring Automatic Discovery of Virtual Machines

- Discover Non-Associated Virtual Machines to Default Subclient
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#### Deleting an Instance, Backup Set or Subclient

- Delete an Instance
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#### Installing a Xen Client in V10

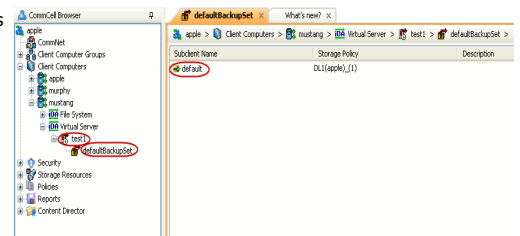
## UNDERSTANDING THE COMMCELL CONSOLE

The Virtual Server iDataAgent uses three main components to perform backup and restore operations from the CommCell Console.

**Instance** - defines the Virtual Center to be backed up.

**Backup Set** - collective information of all virtual machines contained in the virtual center.

**Subclient** - defines the virtual machines to be backed up.



## CONFIGURING AUTOMATIC DISCOVERY OF VIRTUAL MACHINES

### DISCOVER NON-ASSOCIATED VIRTUAL MACHINES TO DEFAULT SUBCLIENT

While rule-based discovery provides certain levels of granularity in populating virtual machines to back up, there may be scenarios where an entire Xen Server requires complete protection on a routine basis. The **Automatically add new VMs that do not qualify for membership in any of the subclients** option provides the facility to assign any virtual machines found during discovery to the default subclient provided the virtual machine is not already configured in another subclient.

Note, however, that selecting this option overrides any previously configured regular expressions, or the selection of **Do Not Backup** for any virtual machines.

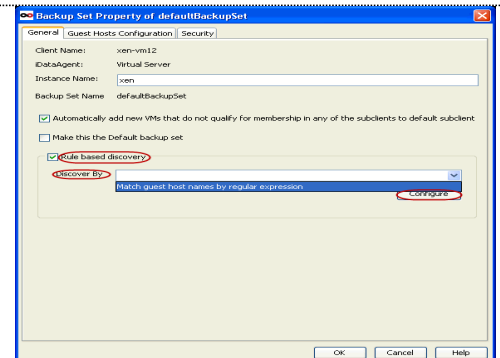
1. From the CommCell Browser, right-click the backup set and select **Properties**.
2. Select **Automatically add new VMs that do not qualify for membership in any of the subclients**.
3. Click **OK**.

### DISCOVER BY REGULAR EXPRESSION

While virtual machine discovery can always be performed manually, it may be useful to discover virtual machines based on a specific set of criteria, particularly in environments where virtual machines are added, removed, or relocated on a routine basis. The following sections describe several methods of discovering virtual machines based on specific criteria, as well as the configuration steps required.

When configured, virtual machines matching the wildcard expressions are automatically either assigned to or filtered from the associated subclient.

1. From the CommCell Browser, right-click the backup set for which you want to discover guest hosts and click **Properties**.
2. Select **Rule-Based Discovery**.
3. Click **Discover By** drop-down box and select **Match Guest Host Names By Regular Expression**.
4. Click **Configure**.
5. Highlight the desired subclient name.
6. Click **Configure**.
7. Type the name of the host name in the **Guest host name** text box.
8. Click **Add** to add the name to the **Add Guest host name** list.



9. Click **OK**. The name is added to the Wildcard names for Virtual Machines column.
10. Click **OK** to return the backup set's **Properties** dialog box.
11. Click **OK**.

## MODIFYING AND INSTANCE, BACKUP SET OR SUBCLIENT

Certain properties of Agents, Instances, and Subclients can be modified to accommodate changes to your configuration, data, or desired backup behavior.

It is recommended that that you do not modify the properties of an instance or subclient when a job is in progress for that specific instance or subclient. If a job is in progress, either wait for the job to complete or kill the job from the Job Controller.

The following table describes the properties that can be configured from these levels.

OPTION	DESCRIPTION	RELATED TOPICS
<b>Change the User Account Details</b>	<p>In order to perform discovery, backup, and restore operations within a single instance, you need administrator-level global, virtual machine, and resource privileges.</p> <p><b>Xen Server Administrator</b> is an example of an account with acceptable privileges for these operations.</p> <p>You can configure the user account associated with the <b>Xen Server</b>.</p> <ol style="list-style-type: none"> <li>1. From the CommCell browser, right-click the virtual server instance.</li> <li>2. Click <b>Properties</b>.</li> <li>3. Click <b>Configure Xen Servers</b>.</li> <li>4. Click <b>Add</b> to add a new Xen Server.</li> <li>5. Type the Xen Server Name.</li> <li>6. Type the user name.</li> <li>7. Type password, and then confirm password.</li> <li>8. Click <b>OK</b>.</li> </ol> <p>You can edit the account details associated with the Xen Server.</p> <ol style="list-style-type: none"> <li>1. From the CommCell browser, right-click the virtual server instance.</li> <li>2. Click <b>Properties</b>.</li> <li>3. Click <b>Configure Xen Servers</b>.</li> <li>4. Select the Xen Server.</li> <li>5. Click <b>Edit</b>.</li> <li>6. Type the user name.</li> <li>7. Type the password, and then confirm password.</li> <li>8. Click <b>OK</b>.</li> </ol>	
<b>Change Storage Policies</b>	<p>You can modify the storage policies in any of the following situations.</p> <ul style="list-style-type: none"> <li>• To include a different media for the backup operation.</li> <li>• To use a storage policy with a different retention criteria.</li> </ul> <p>You can change the storage policies from the subclient level.</p> <ol style="list-style-type: none"> <li>1. From the CommCell Browser, right-click the subclient , and then click <b>Properties</b>.</li> <li>2. Click the <b>Storage Device</b> tab.</li> <li>3. Select the <b>Storage policy</b> from the drop-down list.</li> <li>4. Click <b>OK</b>.</li> </ol>	Refer to Storage Policies.
<b>Rename a Subclient</b>	<p>You can rename a subclient.</p> <ol style="list-style-type: none"> <li>1. From the CommCell Browser, right-click the subclient.</li> <li>2. Click <b>Properties</b>.</li> <li>3. Type the new name in the <b>Subclient name</b> field.</li> <li>4. Click <b>OK</b>.</li> </ol>	
<b>Data Transfer Options</b>	<p>You can efficiently configure the available resources for transferring data secured by data protection operations from the subclient level. This includes the following:</p> <ul style="list-style-type: none"> <li>• Enable or disable <b>Data Compression</b> either on the client or the MediaAgent.</li> </ul>	Refer to Data Compression and Network Bandwidth Throttling.

	<ul style="list-style-type: none"> <li>Configure the transfer of data in the network using the options for <b>Network Bandwidth Throttling</b> and <b>Network Agents</b>.</li> </ul> <p>You can configure the data transfer options.</p> <ol style="list-style-type: none"> <li>From the CommCell Browser, right-click the subclient.</li> <li>Click <b>Properties</b>.</li> <li>Click <b>Storage Device</b>.</li> <li>Click <b>Data Transfer Option</b> tab.</li> <li>Choose the appropriate software compression option for this subclient.</li> <li>Select <b>Throttle Network Bandwidth</b> and set the required bandwidth.</li> <li>Click <b>OK</b>.</li> </ol>	
<b>View Data Paths</b>	<p>You can view the data paths associated with the primary storage policy copy of the selected storage policy or incremental storage policy. You can also modify the data paths including their priority from the subclient level.</p> <ol style="list-style-type: none"> <li>From the CommCell browser, right-click the subclient.</li> <li>Click <b>Properties</b>.</li> <li>Click <b>Storage Device</b>.</li> <li>Select <b>Storage Policy</b> from the drop-down menu.</li> <li>Click <b>Data Paths</b>.</li> </ol>	
<b>Number of Data Readers</b>	<p>Use this option to specify the number of simultaneous backup data streams allowed for this subclient.</p> <ol style="list-style-type: none"> <li>From the CommCell browser, right-click the subclient.</li> <li>Click <b>Properties</b>.</li> <li>Type the <b>Number of Data Readers</b>.</li> <li>Click <b>OK</b>.</li> </ol>	Refer to Streams.
<b>Configure a Subclient for Pre/Post Processing of Data Protection</b>	<p>You can add, modify or view Pre/Post processes for the subclient. These are batch files or shell scripts that you can run before or after certain job phases.</p> <ol style="list-style-type: none"> <li>From the CommCell browser, right-click the subclient.</li> <li>Click <b>Properties</b>.</li> <li>Click <b>Pre/Post Process</b>.</li> <li>Click one of the following phases and type the full path of the process that you want to execute during that phase. Alternatively, click <b>Browse</b> to locate the process (applicable only for paths that do not contain any spaces). <ul style="list-style-type: none"> <li><b>PreBackup Process</b></li> <li><b>PostBackup Process</b></li> </ul> </li> <li>Click <b>OK</b>.</li> <li>Select <b>Run Post Scan Process for all attempts</b> to run a post scan process for all attempts .</li> <li>Select <b>Run Post Backup Process for all attempts</b> to run a post backup process for all attempts.</li> <li>For subclients on Windows platforms, <b>Run As</b> displays <b>Not Selected</b>. If you want to change the account that has permission to run these commands, click <b>Change</b>. <ol style="list-style-type: none"> <li>In the <b>User Account</b> dialog box, select <b>Use Local System Account</b>, or select <b>Impersonate User</b> and enter the user name and password. Click <b>OK</b>.</li> <li>If you selected Local System Account, click <b>OK</b> to the message advising you that commands using this account have rights to access all data on the client computer.</li> </ol> </li> </ol>	Refer to Pre/Post Processes.
<b>Configure Activity Control</b>	<p>You can enable backup and restore operations from the agent and subclient level. However, you can enable restore operations only from the agent level.</p> <ol style="list-style-type: none"> <li>From the CommCell browser, right-click the subclient.</li> <li>Click <b>Properties</b>.</li> <li>Click <b>Activity Control</b>, select or clear option(s) as desired.</li> <li>Click <b>OK</b>.</li> </ol>	Refer to Activity Control.
<b>Configure User Security</b>	<p>You can configure user security from the agent or subclient level.</p> <p>You can perform the following functions:</p> <ul style="list-style-type: none"> <li>Identify the user groups to which this CommCell object is associated.</li> <li>Associate this object with a user group.</li> <li>Disassociate this object from a user group.</li> </ul>	Refer to User Administration and Security.

	<ol style="list-style-type: none"> <li>1. From the CommCell browser, right-click the subclient.</li> <li>2. Click <b>Properties</b>.</li> <li>3. Click <b>Security</b>.</li> <li>4. Select the appropriate user groups to which you want to associate to the CommCell object from the <b>Available Groups</b> pane, and then move the user group to the <b>Associated Groups</b> pane.</li> <li>5. Click <b>OK</b>.</li> </ol>	
<b>View Software Version and Installed Updates</b>	<p>The <b>Version</b> tab, at the Agent level displays the software version and post-release service packs and updates installed for the component.</p> <ol style="list-style-type: none"> <li>1. From the CommCell browser, right-click the agent.</li> <li>2. Click <b>Properties</b>.</li> <li>3. Click <b>Version</b>.</li> <li>4. Click <b>OK</b>.</li> </ol>	
<b>CommCell Configuration Report</b>	<p>The CommCell Configuration Report provides the properties of the CommServe, MediaAgents, clients, agents, SRM agents, subclients, and storage policies within the CommCell based on the selected filter criteria.</p> <ol style="list-style-type: none"> <li>1. From the CommCell browser, click <b>Reports</b> icon.</li> <li>2. Select <b>CommCell Configuration</b>.</li> <li>3. Click <b>Run</b>.</li> </ol>	Refer to CommCell Configuration.

## DELETING AN INSTANCE, BACKUP SET OR SUBCLIENT

The following sections describe the steps involved in deleting an instance, backup set, or subclient.

When you delete an instance or backupset, the associated data is logically deleted and you can no longer access the corresponding data from CommCell Console for recovery purposes.

Refer to the troubleshooting article on Recovering Data Associated with Deleted Clients and Storage Policies for information on how to recover data if you accidentally delete an entity.

### DELETING AN INSTANCE

Consider the following before deleting an instance:

- When you delete a specific instance all job schedules and job histories that pertain to any of the levels within the deleted instance are deleted.
  - You cannot delete an instance if it is being backed up. Attempts to delete an instance under such conditions cause the deletion to fail. If a backup is in progress, either wait for the backup to complete or kill the backup job using the Job Manager. Once the backup is no longer in progress, you can delete the instance level.
  - You cannot delete an instance if there is only one instance present for an agent. To delete the final instance, you must remove the agent software from the client computer.
1. From the CommCell Browser, right-click the instance that you want to delete, click **All Tasks** and then click **Delete**.
  2. Click **Yes** to confirm the deletion. (Clicking **No** cancels the deletion and retains the node.)
  3. Type the requested phrase in the **Enter Confirmation Text** dialog box and click **OK**. This should delete the instance.

### DELETING A BACKUP SET

Consider the following before deleting a backup set:

- You cannot delete a default backup set.
  - Schedules associated with the backup set are also automatically deleted.
1. From the CommCell Browser, right-click the user-defined backup set that you want to delete, and then click **Delete** from the shortcut menu.
  2. A confirmation message is displayed, asking if you want to delete the backup set.  
Click **No** to cancel the deletion and retain the backup set, or click **Yes** to continue the deletion.

### DELETING A SUBCLIENT

Consider the following before deleting a subclient:

- You cannot delete a default subclient.
  - Schedules associated with the subclient are also automatically deleted.
1. From the CommCell Browser, navigate to **Client Computers** | **<Client>** | **<Agent>** | **<Backup Set>**.

2. Right-click the **<subclient>** that you want to delete, and then click **Delete**.
3. A confirmation message is displayed, asking if you want to delete the subclient.

Click **No** to cancel the deletion and retain the subclient, or click **Yes** to continue the deletion.

## **INSTALLING A XEN CLIENT IN V10**

A V9 Xen client can be installed with a V10 installation of the CommCell software. For instructions, see *Installing Clients from Previous Releases* in the CommCell.

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# Advanced – Xen Backup

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- Restarting Jobs
- Controlling Jobs

#### Additional Options

## CHOOSING BACKUP TYPES

BACKUP LEVEL	RESTORE LEVEL	NOTES
Disk-Level	Disk-Level (as virtual machine) Disk Level (as VDI Object)	
Disk-Level with <b>Enable Granular Recovery</b> enabled	Disk-Level (as virtual machine) Disk-Level (as VDI Object) File-Level	

## FULL BACKUP

Full backups provide the most comprehensive protection of data. However, full backups also consume the most amount of time and resources. To streamline the backup process, several additional backup types are available. The sections below describe the additional backup types that are available.

1. From the CommCell Console, navigate to **<Client> | Virtual Server**.
2. Right-click the **BackupSet** and click **All Tasks | Backup All Subclients**.  
Click **Yes**.
3. Select **Full** as backup type and **Immediate** to run the job immediately.  
Click **OK**.
4. You can track the progress of the job from the **Job Controller or Event Viewer** window.
5. Once job is complete, view the details of job from the **Job History**.  
Right-click the client computer, click **View** and then click **View Job History**.
6. Click **OK**.
7. You can view the following details about the job by right-clicking the job:
  - o Items that succeeded during the job
  - o Items that failed during the job
  - o Details of the job
  - o Media associated with the job
  - o Events of the job
  - o Log files of the job.

## INCREMENTAL BACKUPS

An incremental backup contains only data that is new or has changed since the last backup, regardless of the type. On average, incremental backups consume far less media and place less of a burden on resources than full backups.



The illustration on the right clarifies the nature of full and incremental backups. For simplicity, assume there is a file system that contains six files as represented in the figure.

Backup #1 is a full backup and therefore writes all the data, changed and unchanged, to the backup media. Backups #2 through #n-1 are incrementals and only back up those files that have changed since the time of the last backup, regardless of the type. For example, files A, B, and E changed after the full backup and were therefore backed up in Backup #2. Backup #4 backed up files A and D because both files were modified sometime after Backup #3 occurred. File F did not change; hence, it was not backed up in any of the incremental backups, but it was included in both full backups, which, by definition, back up everything.

1. From the CommCell Console, navigate to **<Client> | Virtual Server | defaultBackupSet**.
2. Right click the subclient and click **Backup**.
3. From the **Backup Options** dialog box, select from the following options:
 

Backup Type:

  - Select **Incremental**.

Backup Schedule:

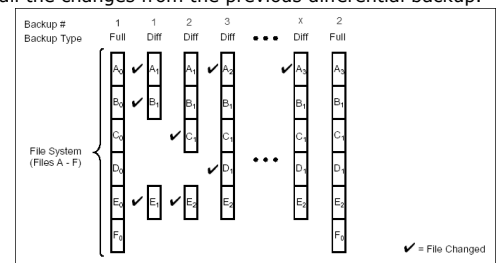
  - Select **Run Immediately**
4. Click **OK**.
5. You can track the progress of the backup job from the **Job Controller** window.
6. When the backup has completed, the Job Controller displays **Completed**.

## DIFFERENTIAL BACKUPS

A differential backup contains only the data that is new or has changed since the last full backup. Like incremental backups, differential backups, on average, consume less media and place less of a burden on resources than full backups. Differential backups are cumulative. This means that each differential backup contains all changes accumulated since the last full backup. Each successive differential backup contains all the changes from the previous differential backup.

The illustration on the right demonstrates the nature of differential backups. For simplicity, assume there is a file system that contains six files as represented in the figure.

Backup #1 is a full backup and therefore writes all the data to the backup media. Backups #2 through #n-1 are differential backups and only back up those files that changed since the time of the last full backup. For example, files A, B, and E changed after the full backup and were therefore backed up in Backup #2 as well as all subsequent differential backups. File C changed sometime after Backup #2 and was consequently backed up in Backup #3 and all subsequent differential backups. File F did not change; hence, it was not backed up in any of the differential backups, but it was included in both full backups, which, by definition, back up everything.



1. From the CommCell Console, navigate to **<Client> | Virtual Server | defaultBackupSet**.
2. Right click the subclient and click **Backup**.
3. From the **Backup Options** dialog box, select from the following options:
 

Backup Type:

  - Select **Differential**.

Backup Schedule:

  - Select **Run Immediately**
4. Click **OK**.
5. You can track the progress of the backup job from the **Job Controller** window.
6. When the backup has completed, the Job Controller displays **Completed**.

## SYNTHETIC FULL BACKUPS

A synthetic full backup is a synthesized backup, created from the most recent full backup and subsequent incremental and/or differential backups. The resulting synthetic full backup is identical to a full backup for the subclient.

Unlike full, incremental, and differential backups, a synthetic full backup does not actually transfer data from a client computer to the backup media. Therefore, they do not use any resources on the client computer.

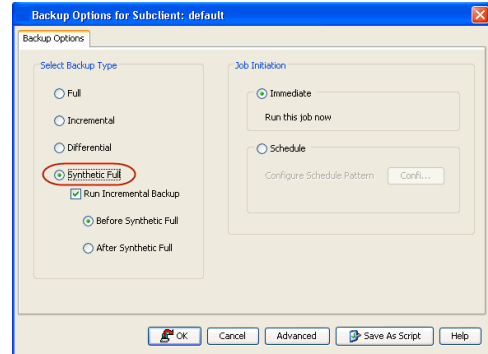
Synthetic full backups are media-based; they read backup data from one media and simultaneously write (restore) the result to the new active media within the same media group. As a result, synthetic full backups require that at least two media drives for the same storage policy be available at the time the job is started. Synthetic full backups cannot be performed on subclients where the storage policy is associated with a stand-alone drive.

## RUNNING SYNTHETIC FULL BACKUPS

Synthetic full backups can either be started manually or scheduled to occur at regular intervals. Do not concurrently run more than one synthetic full backup, especially synthetic full backups with multiple streams.

1. From the CommCell Console, navigate to **<Client> | Virtual Server | defaultBackupSet**.
2. Right click the **<Subclient>** and click **Backup**.
3. From the **Backup Options** window, select **Synthetic Full** for **Backup Type**.
4. Select **Immediate** for **Job Initiation**.
5. Click **OK**.

You can track the progress of the backup job from the **Job Controller**. When the backup has completed, the **Job Controller** displays **Completed**.



## RUNNING AN INCREMENTAL BACKUP BEFORE OR AFTER A SYNTHETIC FULL BACKUP

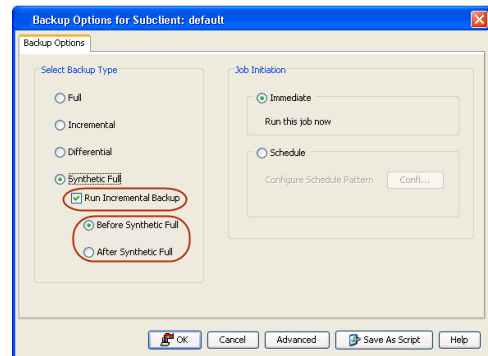
An incremental backup can be run either before or after a synthetic full backup.

- Running an incremental backup before the synthetic full ensures that any new or recently changed data is included in the synthetic full.
- Running an incremental backup after the synthetic full ensures that any new or recently changed data since the backup that occurred prior to the synthetic full, but was not included in the synthetic full, is backed up by the incremental.

The sections below describe the steps to run an incremental backup before or after a synthetic full backup:

1. From the CommCell Console, navigate to **<Client> | Virtual Server | defaultBackupSet**.
2. Right click the **<Subclient>** and click **Backup**.
3. From the **Backup Options** window, select **Synthetic Full** for **Backup Type**.
4. Select **Run Incremental Backup** and then select **Before Synthetic Full** or **After Synthetic Full** options.
5. Select **Immediate** for **Job Initiation**.
6. Click **OK**.

You can track the progress of the backup job from the **Job Controller**. When the backup has completed, the **Job Controller** displays **Completed**.



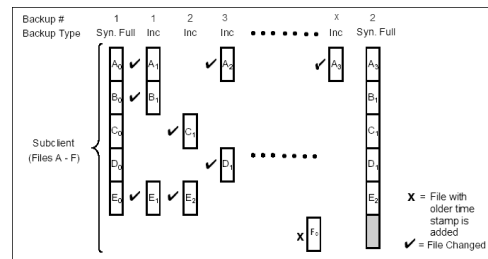
## VERIFYING SYNTHETIC FULL BACKUPS

This option ensures that files that have not backed up by incremental jobs since the last full backup are backed up by the next incremental.

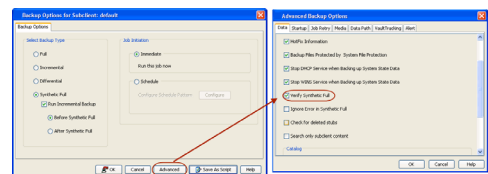
For example: If you perform the conventional full backup only once for a given subclient and then perform incremental (or differential) backups and periodic synthetic full backups. After the conventional full backup, a file is added to the subclient and the file has a time stamp older than the time of full backup. In such scenario, the file will never get backed up. Eventually, such files may be pruned and no backup of such files will be available.

The illustration on the right explains the necessity of verifying synthetic full backups.

In order to overcome this problem, it is recommended to verify the synthetic full backups job periodically as follows:



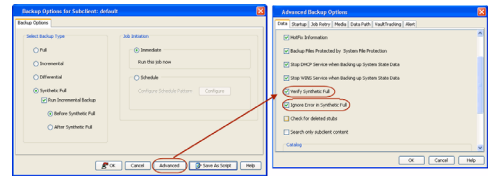
1. From the CommCell Console, navigate to **<Client> | Virtual Server | defaultBackupSet**.
2. Right click the **<Subclient>** and click **Backup**.
3. From the **Backup Options** dialog box, select **Synthetic Full**.
4. Click **Advanced**.
5. In the **Advanced Backup Options** dialog box, click the **Data** tab.
6. Select **Verify Synthetic Full**. Click **OK** to continue.
7. Click **OK**.



## IGNORING ERRORS IN SYNTHETIC FULL BACKUPS

Errors encountered in synthetic full backups can be ignored, even if backup media is partially corrupted. Errors such as inability to read data (bad tape, files missing on disk media, etc.) will be ignored when this option is enabled.

1. From the CommCell Console, navigate to **<Client> | Virtual Server | defaultBackupSet**.
2. Right click the subclient and click **Backup**.
3. From the **Backup Options** dialog box, select **Synthetic Full**.
4. Click **Advanced**.
5. In the **Advanced Backup Options** dialog box, click the **Data** tab.
6. Select **Verify Synthetic Full** and then select **Ignore Error in Synthetic Full**.
7. Click **OK** to close the **Advanced Backup Options** dialog box.
8. Click **OK**.



## ACCELERATED SYNTHETIC FULL BACKUPS (DASH FULL)

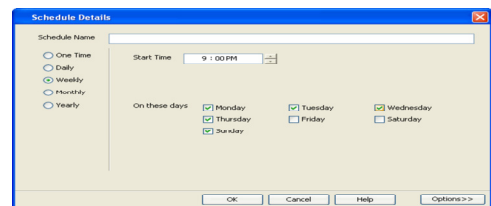
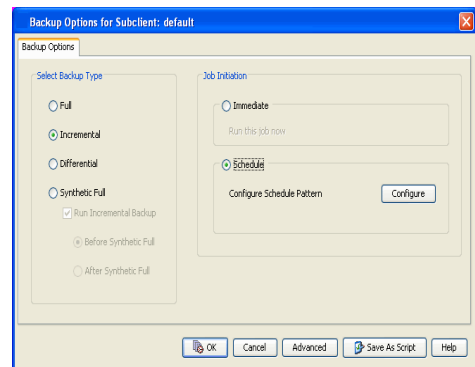
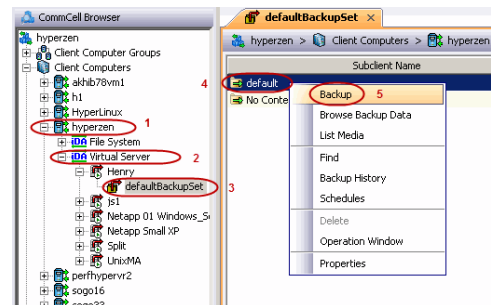
When a storage policy copy is deduplicated, synthetic full backups can be created in an accelerated mode to significantly reduce the copy duration. This is done by identifying and transferring the data signatures (instead of the data itself) to the target wherever possible.

Learn more...

## SCHEDULING A BACKUP

1.
  - From the CommCell Console, navigate to **Client Computers | Virtual Server**
  - Right-click the **Subclient** and click **Backup**.
2.
  - Click **Schedule** to schedule the backup for a specific time.
  - Click **Configure** to set the schedule for the backup job. The Schedule Details dialog displays.
3. Select the appropriate scheduling options. For example:
  - Click **Weekly**.
  - Check the days you want the run the backup job.
  - Change the Start Time to 9:00 PM
  - Click **OK** to close the Schedule Details dialog
  - Click **OK** to close the Backup Options dialog

The backup job will execute as per the schedule.



## MANAGING JOBS

Jobs can be managed in a number of ways. The following sections provide information on the different job management options available:

## RESTARTING JOBS

Jobs that fail to complete successfully are automatically restarted based on the job restartability configuration set in the Control Panel. This configuration can be changed at any time; however, changes to this configuration will affect all jobs run in the entire CommCell.

It is also possible to override the default CommServe configuration for individual jobs by configuring retry settings when initiating the job. This configuration, however, will apply only to the specific job.

Backup jobs for this Agent are resumed from the point-of-failure.

### CONFIGURE JOB RESTARTABILITY AT THE COMMSERVE LEVEL

1. In the CommCell Console, click the **Control Panel** icon, then double-click **Job Management**.
2. In the **Job Restarts** tab of the Job Management dialog box, select a job type from the **Job Type** list, and then select the **Restartable** check box.
3. To change the maximum number of times the Job Manager will try to restart a job, select a number in the **Max Restarts** box.
4. To change the time interval between attempts by the Job Manager to restart the job, select a number of minutes in the **Restart Interval (Mins)** box.
5. Click **OK** to save your changes.

### CONFIGURE JOB RESTARTABILITY FOR AN INDIVIDUAL JOB

1. From the **Backup Options** dialog box, click **Advanced**, then select the **Job Retry** tab and specify the following as desired:
  - o **Total Running Time** - The maximum elapsed time, in hours and minutes, from the time that the job is created.
  - o **Number of Retries** - The number of times that Job Manager will attempt to restart the job.
  - o **Kill Running Jobs When Total Running Time Expires** - Option to kill the job when the specified Total Running Time has elapsed, even if its state is "Running".
2. Click **OK**.

## CONTROLLING JOBS

The following controls are available for running jobs in the Job Controller window:

<b>SUSPEND</b>	Temporarily stops a job. A suspended job is not terminated; it can be restarted at a later time. Only preemptible jobs can be suspended.
<b>RESUME</b>	Resumes a job and returns the status to Waiting, Pending, Queued, or Running depending on the availability of resources or the state of the operation windows and activity control settings. Backup jobs for this Agent are resumed from the point-of-failure.
<b>KILL</b>	Terminates a job.

These controls can be applied to:

- All jobs in the Job Controller.
- All selected jobs in the Job Controller providing you have the correct security associations at the proper level for each job selected.
- All data protection operations running for a particular client or client/agent.
- All data protection operations running for a particular MediaAgent.

1. From the Job Controller of the CommCell Console, right-click the job and select **Kill**, **Suspend**, or **Resume** as desired.
  - o When killing a job:

Click **Yes** when the confirmation prompt appears if you are sure you want to kill the job. The job status may change to **Kill Pending** for a few moments while the operation completes. Once completed, the job status will change to **Killed** and it will be removed from the Job Controller window after five minutes.
  - o When suspending a job:

The job status may change to **Suspend Pending** for a few moments while the operation completes. The job status then changes to **Suspended**.
  - o When resuming a job:

As the Job Manager attempts to restart the job, the job status changes to **Waiting**, **Pending**, or **Running**.

## ADDITIONAL OPTIONS

Several additional options are available to further refine your backup operations. The following table describes these options, as well as the steps for

configuring them.

Be sure to read the overview material referenced for each feature prior to using them.

OPTION	DESCRIPTION	RELATED TOPICS
<b>Catalog</b>	<p>The Catalog section helps you to select the index cache sharing and granular restartability options for the job.</p> <ol style="list-style-type: none"> <li>1. Right-click the Subclient and select <b>Backup</b>.</li> <li>2. From the <b>Backup Options for Subclient</b> window, click <b>Advanced</b>.</li> <li>3. From the <b>Data</b> tab, select the <b>Use shared profile if present with transaction logging</b> option. This option helps you to use the shared index cache profile of the MediaAgent (if configured) to save a copy of the job's index cache for index cache sharing with transaction logging feature for granular job restartability. Shared profile with transaction logging provides job restartability in failover situations.</li> <li>4. Select the <b>Use shared profile if present without transaction logging</b> option. This option helps you to use the shared index cache profile of the MediaAgent (if configured) to save a copy of the index cache for index cache sharing without transaction logging feature for granular job restartability. This is not a recommended configuration.</li> <li>5. Select the <b>Use Transaction Logging</b> option. This option helps you to use transaction logging feature for granular job restartability (without using shared profile for index cache sharing).</li> <li>6. Select <b>None</b> for not using shared profile and transaction logging.</li> <li>7. Select the <b>Enable Granular Recovery</b>. This is to perform Granular Recovery. It allows the recovery of Individual files and folders.</li> <li>8. Click <b>OK</b>.</li> </ol>	Refer Index Cache Server for more information.
<b>Startup Options</b>	<p>The Job Manager will use the startup priority setting when allocating the required resources. This is useful if you have jobs that are very important and must complete, or jobs that can be moved to a lower priority.</p> <ol style="list-style-type: none"> <li>1. Right-click the Subclient and select <b>Backup</b>.</li> <li>2. From the Backup Options for Subclient window, click <b>Advanced</b>.</li> <li>3. From Startup tab, select the Default Priority option.</li> <li>4. Select Change Priority option to change the priority for a job, between 0 (highest priority) and 999 (lowest priority).</li> <li>5. Select Start up in Suspended State option to specify the selected job to start in the Job Controller in a suspended state.</li> <li>6. Click OK.</li> </ol>	Refer Job Priority and Priority Precedence for more information.
<b>Job Retry Options</b>	<p>The Job Retry option helps in configuring the retry behavior of the backup jobs. You can specify the maximum elapsed time before a job can be restarted or killed and the maximum number of restart attempts.</p> <ol style="list-style-type: none"> <li>1. Right-click the Subclient and select <b>Backup</b>.</li> <li>2. From the <b>Backup Options for Subclient</b> window, click <b>Advanced</b>.</li> <li>3. From the <b>Job Retry</b> tab, select the <b>Enable Total Running Time</b> check box and specify the maximum elapsed time in hours and minutes.</li> <li>4. Select the <b>Number Of Retries</b> check box and specify the number of retries in the Number Of Retries box. Based on this number, the Job Manager attempts to restart the job.</li> <li>5. Select the <b>Kill Running Jobs When Total Running Time Expires</b> check box. The job will be killed when the job is still in running status even after reaching the maximum elapsed time.</li> <li>6. Click <b>OK</b>.</li> </ol>	Refer Job Management for more information.
<b>Start New Media</b>	<p>The Start New Media option helps in starting the backup/archive operation on a new media. This media management feature provides a degree of control over where the data physically resides.</p> <ol style="list-style-type: none"> <li>1. Right-click the Subclient and select <b>Backup</b>.</li> <li>2. From the <b>Backup Options</b> for Subclient window, click <b>Advanced</b>.</li> <li>3. From the <b>Media</b> tab, select the <b>Start New Media</b> check box.</li> <li>4. Click <b>OK</b>.</li> </ol>	<p>Refer the Creating an Exportable Media Set section of the Export Media for more information.</p> <p>Another form of the <b>Start New Media</b> option is available from the library properties. Refer the Start New Media section of the Library Properties for more information.</p>
<b>Mark Media Full</b>	<p>The Mark Media Full on Success option marks the Media as Full, 2 minutes after the successful</p>	Refer the <b>Create an Exportable Media Set</b> section

	<p>completion of the backup/archive. This feature prevents any other data being written to the same media.</p> <ol style="list-style-type: none"> <li>1. Right-click the Subclient and select <b>Backup</b>.</li> <li>2. From the <b>Backup Options</b> for Subclient window, click <b>Advanced</b>.</li> <li>3. From the <b>Media</b> tab, select the <b>Mark Media Full on Success</b> check box.</li> <li>4. Click <b>OK</b>.</li> </ol>	<p>of the <b>Export Media</b> documentation for more information.</p> <p>Refer Export Media for more information.</p>
<b>Allow other Schedules to use Media Set</b>	<p>The Allow Other Schedules to use Media Set option allows jobs that are part of the schedule or schedule policy and using the specific storage policy to start a new media. It also prevents other jobs from writing to the same set of media.</p> <ol style="list-style-type: none"> <li>1. Right-click the Subclient and select <b>Backup</b>.</li> <li>2. From the <b>Backup Options</b> for Subclient window, click <b>Advanced</b>.</li> <li>3. From the <b>Media</b> tab, select the <b>Allow Other Schedules to Use Media Set</b> check box.</li> <li>4. Click <b>OK</b>.</li> </ol>	<p>Refer the Creating an Exportable Media Set section of the Export Media for more information.</p>
<b>Data Path Options</b>	<p>Data Protection operations use a specific data path (Library, MediaAgent, Drive Pool, and Drive) to perform the backup operations as configured in the CommCell. By default, the system automatically identifies the data path for the backup operations.</p> <p>The following are some of the important situations where you may need to change the data path:</p> <ul style="list-style-type: none"> <li>• When the preferred MediaAgent, library or drive pool is not available during the backup</li> <li>• When you need to use a different MediaAgent, library or drive pool for load balancing purposes.</li> <li>• When you need to direct that backup to a particular location for compliance purposes.</li> </ul> <ol style="list-style-type: none"> <li>1. Right-click the Subclient and select <b>Backup</b>.</li> <li>2. From the <b>Backup Options</b> for Subclient window, click <b>Advanced</b>.</li> <li>3. From the <b>Data Path</b> tab, select <b>Use MediaAgent</b> and <b>Use Library</b> or <b>Use Drive Pool</b> and <b>Use Drive</b> from the respective drop-down combo boxes.</li> <li>4. Click <b>OK</b>.</li> </ol>	<p>Refer Change Data Path for more information.</p>
<b>Vault Tracker</b>	<p>The VaultTracker feature provides the facility to manage media that are removed from a library and stored in offsite locations. The VaultTracker function provides the following capabilities in your day-to-day operations:</p> <ul style="list-style-type: none"> <li>• Identifies media that must be sent off-site for storage or brought back from off site locations.</li> <li>• Automatically moves the media in sequence in the library and provides a pick-up list for the operators.</li> <li>• Identifies and tracks the media during transit.</li> <li>• Records and tracks the movement of media not used by all MediaAgents or Foreign Media.</li> </ul> <ol style="list-style-type: none"> <li>1. Right-click the Subclient and select <b>Backup</b>.</li> <li>2. From the <b>Backup Options for Subclient</b> window, click <b>Advanced</b>.</li> <li>3. From the <b>VaultTracking</b> tab, select the necessary options.</li> <li>4. Click <b>Ok</b>.</li> </ol>	<p>Refer to the following documentation for a comprehensive overview prior to using this feature:</p> <ul style="list-style-type: none"> <li>• VaultTracker if a standard CommServe license is available.</li> <li>• VaultTracker Enterprise if the VaultTracker Enterprise license is available.</li> </ul>
<b>Alerts</b>	<p>The Alert option is used for setting up the criteria to raise notifications/alerts for job statuses such as failure, success, or any other conditions triggered by the backup job. Adding alerts helps the user or the user group to get the notification automatically about the status of the backup job.</p> <ol style="list-style-type: none"> <li>1. Right-click the Subclient and select <b>Backup</b>.</li> <li>2. On the <b>Backup Options for Subclient</b> window, click <b>Advanced</b>.</li> <li>3. On the <b>Alert</b> tab, click <b>Add Alert</b> and it opens <b>Add Alert Wizard</b> window.</li> <li>4. From the <b>Add Alert Wizard</b> window, select the <b>Threshold and Notification Criteria</b>. Click <b>Next</b>.</li> <li>5. Select the <b>Notification Types</b>. Click <b>Next</b>.</li> <li>6. Select the <b>Users and User Groups</b>. Click <b>Next</b>.</li> <li>7. Click <b>Finish</b>.</li> </ol>	<p>Refer Alerts for more information.</p>
<b>Command Line Backups</b>	<p>Command Line Interface enables you to perform backups from the command line. The commands can be executed from the command line or can be integrated into your own scripts or scheduling programs. In addition, you can also generate scripts for specific operations from the CommCell Console using the <b>Save As Script</b> option. These scripts can later be executed using the commands from the command line interface.</p>	<p>Refer Command Line Interface for more information.</p>
<b>CommCell Readiness Report</b>	<p>The CommCell Readiness Report provides you with vital information about the condition of your CommCell.</p>	<p>Refer CommCell Readiness Report for more information.</p>
<b>Backup Job Summary</b>	<p>The Backup Job Summary Report provides the details of all the backup jobs of clients.</p>	<p>Refer Backup Job Summary Report for more information.</p>

**Report**

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# Advanced - Xen Restore

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## CHOOSING RESTORE TYPES

When restoring Xen data, it is important to consider the backup-level that was originally performed. The following table illustrates the types of restores available for each backup level:

BACKUP LEVEL	RESTORE LEVEL	NOTES
Disk-Level	Disk-Level (as virtual machine) Disk Level (as VDI Object)	
Disk-Level with <b>Enable Granular Recovery</b> enabled	Disk-Level (as virtual machine) Disk-Level (as VDI Object) File-Level	

## RESTORING A VIRTUAL MACHINE TO A DIFFERENT XEN SERVER HOST

An entire virtual machine can be restored to a storage repository of the original Xen Server Host or to a different one using the credentials of the Xen Server Host. Specifying a different location provides the flexibility to distribute restored virtual machines to a location with greater space and resource availability should the virtual machine's original location prove not optimal.

When restoring a virtual machine, a Disk Level backup must have been used to back it up.

- From the CommCell Console, perform a **Browse and Restore** operation.
- In the **Browse Options** window, click **Container Restore** and click **OK**.
- In the **Browse** window, select the virtual machine in the left pane. The configuration and VDI objects of the virtual machine are displayed in the right pane.
- Click **Recover All Selected** in the bottom of the window.
- From the **General** tab:
  - Click **Virtual Machines**.
  - Choose the **Destination Client**.
  - Select **Override Default Selection** and enter a different Xen Server Host name. This can be an IP address or full-qualified name.
  - Click **Configure Password** to enter a new user name and password.
  - Click **Browse for Storage Repositories** and specify a storage repository to which the virtual machine will be restored.

## RELATED TOPICS

### Scheduling

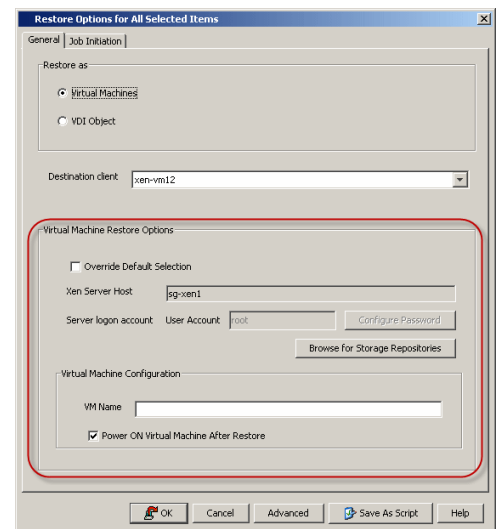
Provides comprehensive information on scheduling jobs.

### Job Management

Provides comprehensive information on managing jobs.

### List Media

Provides comprehensive information on media management and prediction.





- o Enter a fully-qualified **VM Name** and optionally select **Power On** to power on the virtual machine immediately following the restore's completion.
6. Click **OK**. When a virtual machine is restored, it is automatically mounted to the Xen Server Host.

## ROLE OF PROXY COMPUTER

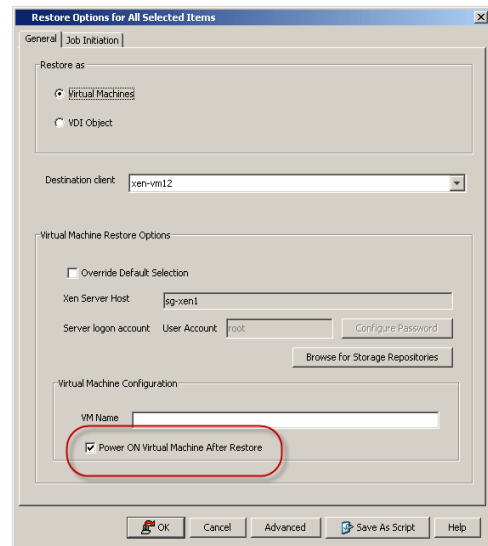
When backup data is restored in environments where a proxy computer is used, the Virtual Server iDataAgent will use a staging area on the proxy computer to convert the data to the data type (i.e., Virtual Machine, VDI Object) selected in the **Restore Options** dialog box.

In environments where a proxy computer is not used, the data is converted on the client computer itself.

## AUTOMATICALLY POWER ON RESTORED VIRTUAL MACHINES

Once a virtual machine has been restored, it can be automatically powered on per completion of the restore job.

1. From the CommCell Console, perform a **Browse and Restore** operation.
2. In the **Browse Options** window, click **Container Restore, Browse the Latest Data**, and click **OK**.
3. In the **Browse** window, select a virtual machine in the left pane under a backup set. The configuration and VMDK files of the virtual machine are displayed in the right pane.
4. Click **Recover All Selected** in the bottom of the window.
5. From the **General** tab:
  - o Click **Virtual Machines**.
  - o Choose the **Destination Client**.
  - o Enter a fully-qualified **VM Name**.
  - o Select **Power On** to power on the virtual machine immediately following the restore's completion.
6. Click **OK**. When a virtual machine is restored, it is automatically mounted to the Xen Server Host.

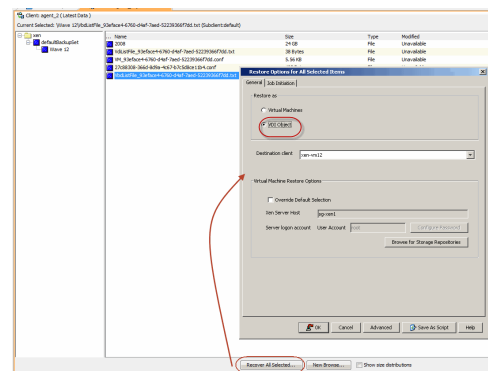


## RESTORING VDI OBJECTS

Restoring Virtual Disk Image (VDI) Objects is useful if you want to mount the disk image as a volume on an existing virtual machine to mine data.

When restoring VDI Objects, a Disk Level backup must have been used to back them up.

1. From the CommCell Console, perform a **Browse and Restore** operation.
2. In the **Browse Options** window, click **Container Restore** and click **OK**.
3. In the right pane of the **Browse** window, select the VDI Objects and all the configuration files associated with the disks which you want to restore. It is mandatory to manually select the associated configuration files for each VDI object selected for restore.
4. Click **Recover All Selected**.
5. From the **General** tab:
  - o Click **VDI Object**.
  - o Choose the **Destination Client**.
6. Click **OK**.
7. Once a VDI Object has been restored, it can be mounted to a virtual machine.

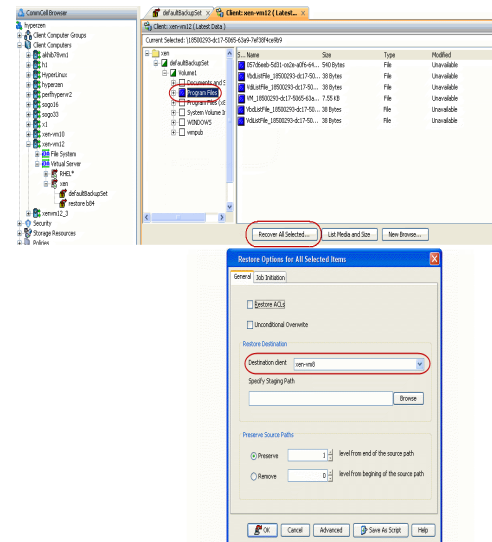


## RESTORING FILES AND FOLDERS

When restoring a file or folder on a virtual machine, a Disk Level backup must have been used as long as **Enable Granular Recovery** was selected as an advanced backup option.

1. From the CommCell Console, perform a **Browse and Restore** operation.
2. In the **Browse Options** window, click **Individual files/folders**.
3. Click **OK**.
4. In the **Browse** window, right-click a file or folder in the right pane, and then click **Recover All Selected**.
5. From the **General** tab, specify a **Destination Client**. This is the destination client to which the file will be restored.

- Click **OK**.



## RESTORE DESTINATIONS

When restoring individual files or folders of a virtual machine, the Virtual Server iDataAgent provides the facility to restore the data to the same path/destination or different path/destinations on the client computer from which the virtual machine originated; this is referred to as an in-place or out-of-place restore.

- From the CommCell Console, perform a **Browse and Restore** operation.
  - When browsing the data, locate the virtual machine from which the file was initially backed up. Then, select the file(s) to be recovered from the virtual machine's displayed content.
- In the **Browse Options** window, click **Individual files/folders**.
- Click **OK**.
- In the **Browse** window, locate the virtual machine from which the file was initially backed up. Then, select the file(s) to be recovered from the virtual machine's displayed content in the right pane and click **Restore Current Selected**.
- If performing an in-place restore:
  - Select the **Destination Client** that was the original computer from which the file on the virtual machine originated.
  - Enter the same path in **Specify Staging Path** where the file on the virtual machine originated.
- If performing an out-of-place restore:
  - Select the **Destination Client** that is a different computer from which the file on the virtual machine originated.
  - Enter a different path in **Specify Staging Path** from where the file on the virtual machine originated.

In this case, the destination client must reside in the same CommCell as the client whose data was backed up. Also, the restored data assumes the rights (i.e., permissions) of the parent.
- A file and folder can also be restored to a UNC path (Windows) or NFS-mounted file system (Unix) in **Specify Staging Path**. On Unix computers, clients with NFS mounted to another machine can restore to that mount. (Click the **Browse** button to see if the mount is visible). On Windows computers, UNC path of a shared drive can be specified. For example, enter `\\servername\sharename`. (A drive letter associated with a mapped drive cannot be specified.) The Windows logon information for this shared drive must be added as follows:
  - Click **Advanced**.
  - From the **General** tab of the **Advanced Restore Options** dialog box, select the **Impersonate User** option. Then, enter a username and password that has all permissions for the UNC path to which the data will be restored. This user should be allowed to create files in the destination folder of the virtual machine through the Virtual Server iDataAgent host computer as selected in the **Destination Computer** field. Without these permissions, the recovery operation will not complete successfully.

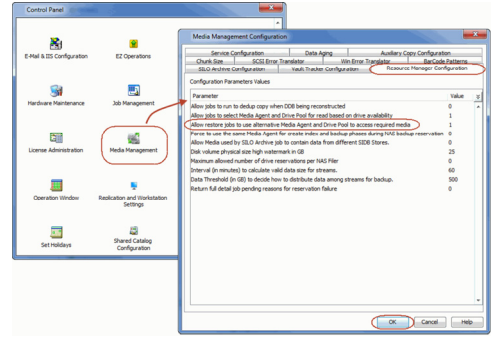
When performing out-of-place restores, restoring data to a UNC path (Windows) or NFS-mounted file system (Unix) is similar to a cross-computer restore except that:

- The restored data passes through the client computer to the mapped share/file system.
- The computer that hosts the share or mounted file system need not be another client within the CommCell.
- All data restored to the shared directory assumes the security attributes (i.e., permissions) of the parent directory.

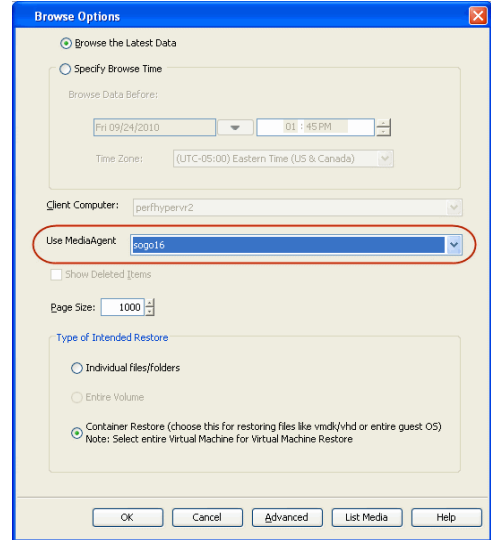
## RESTORING GUEST FILES FROM UNIX MEDIAAGENT

For container and file-level restores from disk-level backups using any Unix (AIX, HP-UX, or Solaris) MediaAgent, perform the following steps:

- From the CommCell Console, click **Control Panel** and then double-click **Media Management**.
  - Click the **Resource Manager Configuration** tab.
  - Enter the **Value 1** for the **Allow restore jobs to use alternative Media Agent and Drive Pool to access required media** parameter.
  - Click **OK**.

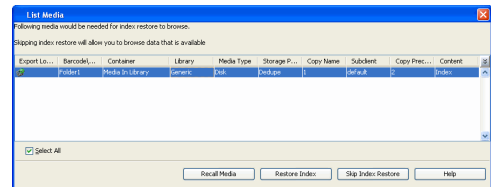


- From the CommCell Console, navigate to **Client Computers | Virtual Server**
  - Right-click an instance and click **All Tasks | Browse**.
  - Select a Windows MediaAgent.
  - Select a restore type and click **OK**.
  - Select the virtual machine from which you want to restore the files and folders. The **List Media** dialog box appears.

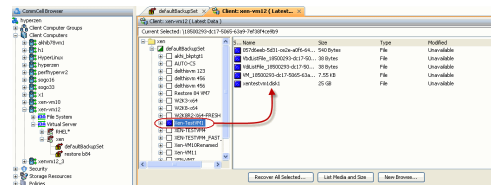


- Click **Select All**.
  - Click **Restore Index**. The index of the Unix MediaAgent will be restored to the selected Windows MediaAgent. All the volumes, files and folders on the selected virtual machine will be displayed.

The index restore operation can be avoided if the index cache is shared between the Unix and Windows MediaAgents. For more information about sharing the index cache, refer to Configure a MediaAgent for Index Cache Sharing.



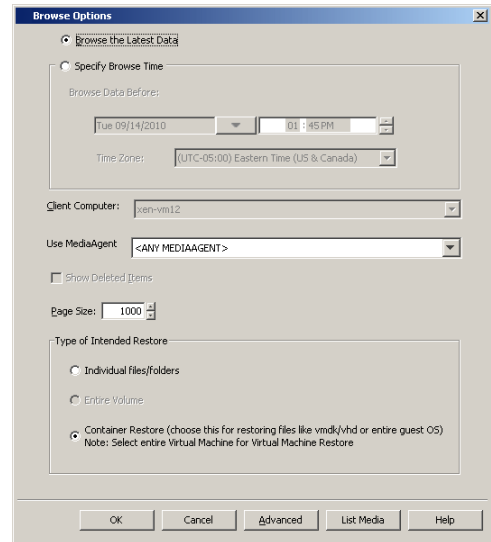
- Select the guest files and folder for restore and click **Recover All Selected**. You cannot select an entire volume for restore.
  - Click **OK**.



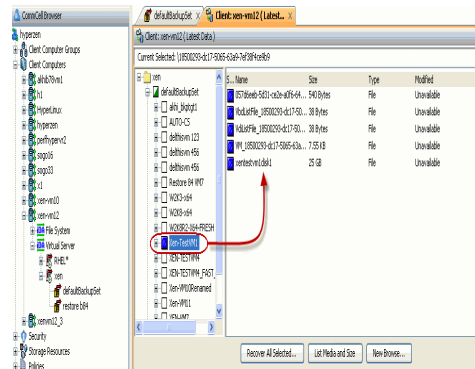
## SCHEDULING A RESTORE

- From the CommCell Console, navigate to **Client Computers | Virtual Server**
  - Right-click an instance and click **All Tasks | Browse**.
  - Select a restore type and click **OK**.

2.
  - Select a virtual machine or file to restore.
  - Click **Recover All Selected**.

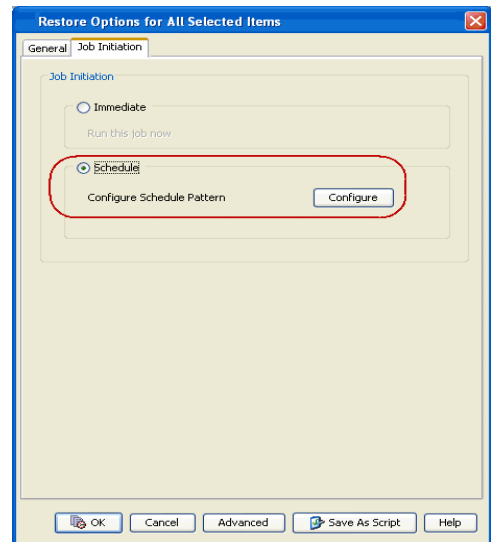


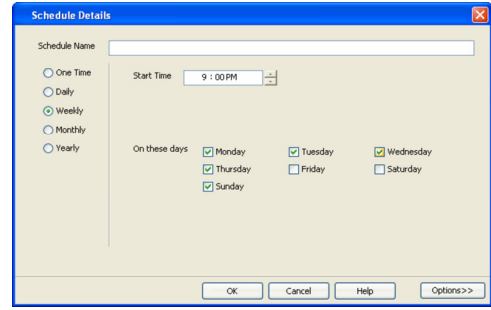
3.
  - Click **Job Initiation** tab and click **Schedule**.
  - Click **Configure**.



4. Select the appropriate scheduling options. For example:
  - Click **Weekly**.
  - Check the days you want the run the restore job.
  - Change the Start Time to 9:00 PM
  - Click **OK** to close the Schedule Details dialog
  - Click **OK** to close the Restore Options dialog

The restore job will execute as per the schedule.





## BROWSE DATA

The option to browse the backup data provides the facility to view and selectively restore/recover the data that was backed up.

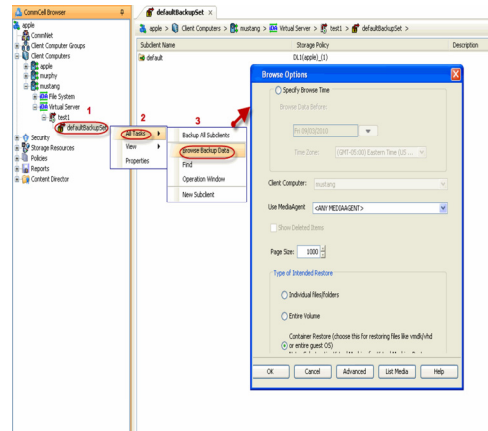
The browse option can be invoked from the client, agent, instance, backup set, or subclient level depending on the functionality of a given agent.

Depending on the agent, there are several additional options to customize your browse, including:

- Capability to browse the most recent (latest) data.
- Capability to browse data in a specified time range.
- Capability to limit the browse to a specified path.
- Facility to specify the page size of the browse window.
- Ability to browse the image of the data as it existed at the specified browse time.
- Ability to browse from a specified storage policy copy.
- Ability to browse folders/files owned by specific users.

Use the following steps to browse data:

1. From the CommCell Browser, navigate to **<Client>**.
2. Right-click **Instance** or **Backup Set** or **Subclient**, click **All Tasks | Browse/Browse Backup Data**.
3. Click **OK**.



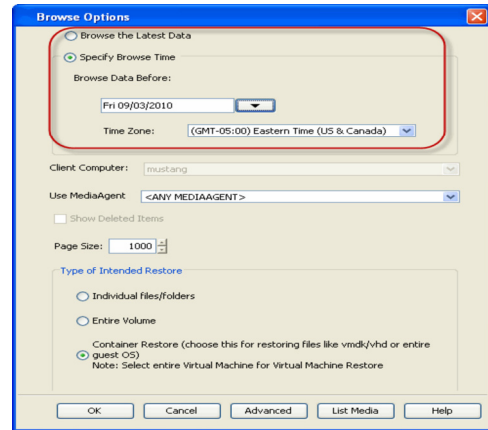
## BROWSING DATA FROM BEFORE THE MOST RECENT FULL BACKUP

To browse data that is older than the most recent full backup specify a **Browse Data Before** date that pre-dates the full backup. Remember, the **Browse Data Before** date establishes the ending point of the search. Consequently, using a **Browse Data Before** date that pre-dates the most recent full backup starts the search in the previous full backup cycle. This is only valid if the data in that full backup cycle has not expired.

### BROWSE DATA BEFORE A SPECIFIED TIME

Follow the steps given below to browse data that was backed up before a specified time:

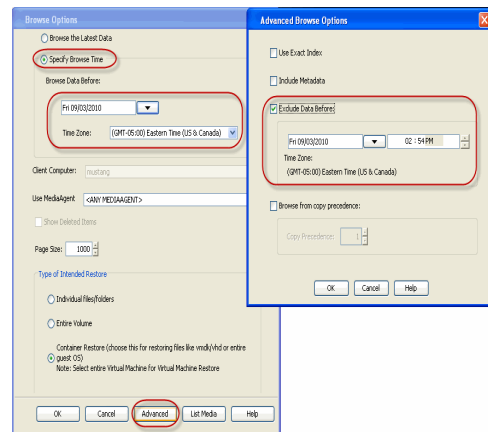
1. From the CommCell Browser, navigate to **<Client>**.
2. Right-click **Instance** or **Backup Set** or **Subclient**, click **All Tasks | Browse/Browse Backup Data**.
3. Select **Specify Browse Time** and the **Time Zone**.
4. Click **OK**.



### BROWSE DATA BETWEEN A SPECIFIED TIME

Follow the steps given below to browse data backed up during a specified time interval:

1. From the CommCell Browser, navigate to **<Client>**.
2. Right-click **Instance** or **Backup Set** or **Subclient**, click **All Tasks | Browse/Browse Backup Data**.
3. Select **Specify Browse Time** and the **Time Zone**.
4. Click **Advanced**.
5. Select **Exclude Data Before**, select the date and time from which you wish to view the data in the browse window.
6. Click **OK**.



### LIST MEDIA

Use List Media to predict media required for the following operations:

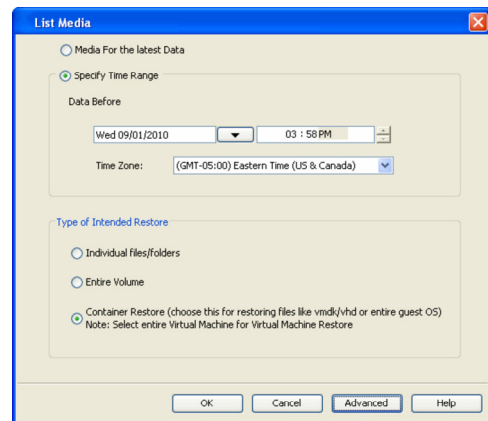
- To restore data associated with a specific backup set, subclient or instance
- To restore the index required to browse data associated with a specific backup set or subclient
- To restore a specific file (or specific files and folders)
- To restore data associated with a specific job

The list media operation can be performed for instances, backup sets, and subclients. The following sections describe each of these methods.

### LISTING MEDIA FOR A SUBCLIENT

Do the following:

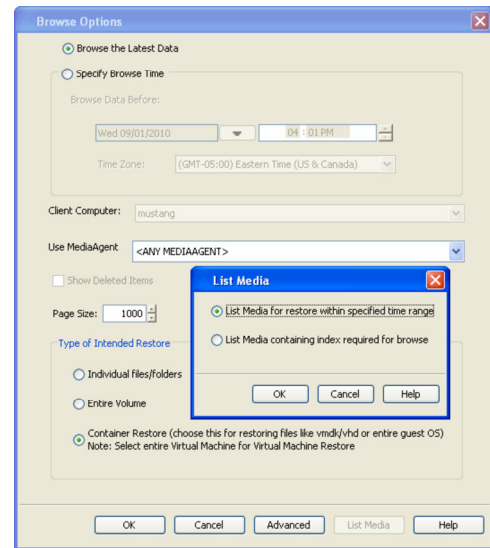
1. From the CommCell Browser, navigate to the subclient and right-click **List Media**.
2. Select one of the following options:
  - o Click **Media For the Latest Data** to list media associated with the most recent data protection cycle.
  - o Click **Specify Time Range** to list media associated with data protection operations up to the specified date and time range.  
Specify the end date and time in the **Data Before** box.
3. Select the **Type of Intended Restore**.
4. Click **OK**.



## LISTING MEDIA FOR A BACKUP SET OR INSTANCE

Do the following:

- From the CommCell Browser, navigate to the backup set or instance, right-click **All Tasks | Browse**.
- Select one of the following options:
  - Click **Browse the Latest Data** to list media associated with the most recent data protection cycle.
  - Click **Specify Browse Time** to list media associated with data protection operations up to the specified date and time range.  
Use the **Browse Data Before** box to specify the end date and time.
- Click **List Media**.
- Select one of the following options:
  - Click **List Media for restore within specified time range**
  - Click **List Media containing index required for browse**
- Click **OK**.



## RESTORE BY JOBS

The Restore By Jobs feature provides the facility to select a specific backup job to be restored. This method of restoring data is considerably faster as it reads continuously on the tape and retrieves the data and does not depend on the indexing subsystem to get the seek offsets on the media.

This feature can be used in different scenarios such as the following:

- To restore point-in-time data associated with a specific backup job, such as full, incremental, differential, etc.
- To restore CommServe DR data for the disaster recovery or for creating a hot-site purposes.
- To restore multiplexed data from the same client.

Consider the following when restoring by jobs:

- Run a restore by jobs whenever you want to restore the entire contents of the job.
- Avoid running restores by jobs for jobs associated with the default subclient. If you do this, the entire contents of the machine will be restored. As such, this may cause problems (e.g., the machine might run out of space) or produce undesirable results (e.g., you might end up restoring operating system files or directories that you really do not want to restore).
- Avoid modifying the contents of any associated subclients since this may result in the retrieval of older data.

Use the following steps to restore data by jobs.

- From the CommCell Browser, right-click the level whose data you want to browse, click **View History**, and then click the **Backup History**.
- From the **Backup History Filter** window, select the filter options, if any, that you want to apply and click **OK**.
- From the Backup Job History window, right-click the backup job that need to be restored and select **Browse**.
- From the **Browse Options** dialog box, click **OK** to execute the browse using the **Browse the Latest Data** option.
- From the **Browse** window, select the instance node in the left pane and then select the required data and logs in the right pane, and click the **Recover All Selected** button at the bottom of the window.
- Select the desired restore options and click **OK**.

## MANAGE RESTORE JOBS

Once you initiate the restore operation, a restore job is generated in the Job Controller. Jobs can be managed in a number of ways. The following sections provide information on the different job management options available:

### RESTART JOBS

Jobs that fail to complete successfully are automatically restarted based on the job restartability configuration set in the Control Panel. This configuration can be changed at any time; however, changes to this configuration will affect all jobs run in the entire CommCell.

It is also possible to override the default CommServe configuration for individual jobs by configuring retry settings when initiating the job. This configuration, however, will apply only to the specific job.

Restore jobs for this Agent are re-started from the beginning.

#### CONFIGURE JOB RESTARTABILITY AT THE COMMSERVE LEVEL

1. In the CommCell Console, click the **Control Panel** icon, then double-click **Job Management**.
2. In the **Job Restarts** tab of the Job Management dialog box, select a job type from the **Job Type** list, and then select the **Restartable** check box.
3. To change the maximum number of times the Job Manager will try to restart a job, select a number in the **Max Restarts** box.
4. To change the time interval between attempts by the Job Manager to restart the job, select a number of minutes in the **Restart Interval (Mins)** box.
5. Click **OK** to save your changes.

#### CONFIGURE JOB RESTARTABILITY FOR AN INDIVIDUAL JOB

1. From the **Restore Options** dialog box, click **Advanced**, then select the **Job Retry** tab and specify the following as desired:
  - o **Total Running Time** - The maximum elapsed time, in hours and minutes, from the time that the job is created.
  - o **Number of Retries** - The number of times that Job Manager will attempt to restart the job.
  - o **Kill Running Jobs When Total Running Time Expires** - Option to kill the job when the specified Total Running Time has elapsed, even if its state is "Running".
2. Click **OK**.

#### RESUBMIT JOBS

If a restore job fails to complete successfully, you can resubmit the job without the need to reconfigure the original job's restore options using the **Resubmit Job** feature. When a job is resubmitted, all the original options, restore destinations, and other settings configured for the job remain in tact.

#### RESUBMIT A RESTORE JOB

1. From the CommCell Browser, right-click a client computer whose data recovery history you want to view, click **View**, then click to view a job history.
2. From the **Job History Filter** dialog box, select **Restore**.
  - o If you want to view more advanced options for restores, from the Job History Filter, select **Restore**, then click **Advanced**.
  - o From the **Data Recovery History Advanced Filter** select the destination client computer of the restores you would like to view, then click **OK**.
3. The system displays the results of the options you selected in the **Data Recovery Job History** window.
4. Right-click on any job, and select **Resubmit**.
5. Select the job options.
6. Click **OK**.

#### CONTROL JOBS

The following controls are available for running jobs in the Job Controller window:

<b>SUSPEND</b>	Temporarily stops a job. A suspended job is not terminated; it can be restarted at a later time. Only preemptible jobs can be suspended.
<b>RESUME</b>	Resumes a job and returns the status to Waiting, Pending, Queued, or Running depending on the availability of resources or the state of the operation windows and activity control settings. Restore jobs for this Agent are resumed from the beginning.
<b>KILL</b>	Terminates a job.

These controls can be applied to:

- All jobs in the Job Controller.
- All selected jobs in the Job Controller providing you have the correct security associations at the proper level for each job selected.
- All data protection operations running for a particular client or client/agent.
- All data protection operations running for a particular MediaAgent.

#### CONTROL A JOB

1. From the Job Controller of the CommCell Console, right-click the job and select **Kill**, **Suspend**, or **Resume** as desired.
  - o When killing a job:

Click **Yes** when the confirmation prompt appears if you are sure you want to kill the job. The job status may change to **Kill Pending** for a few moments while the operation completes. Once completed, the job status will change to **Killed** and it will be removed from the Job Controller window



after five minutes.

- o When suspending a job:

The job status may change to **Suspend Pending** for a few moments while the operation completes. The job status then changes to **Suspended**.

- o When resuming a job:

As the Job Manager attempts to restart the job, the job status changes to **Waiting, Pending, or Running**.

## ADDITIONAL RESTORE OPTIONS

Several additional options are available to further refine your restore operations. The following table describes these options, as well as the steps to implement them.

Be sure to read the overview material referenced for each feature prior to using them.

OPTION	DESCRIPTION	RELATED TOPICS
<b>Automatically Detect Regular Expressions</b>	<p>This option allows you to automatically detect regular expressions (wildcard characters) in the virtual machines assigned to a subclient.</p> <p>This allows you to restore the files and folders in virtual machines which contain regular expressions in their name (e.g., c:\[test1]).</p> <ol style="list-style-type: none"> <li>1. From the CommCell Browser, click <b>Client Computers   Virtual Server   &lt;instance name&gt;   BackupSet</b>. The default and other subclients (if available) are displayed on the right-hand windowpane.</li> <li>2. Right-click the backupset that contains the data you want to restore. Click <b>All Tasks</b> and then click <b>Browse Backup Data</b>.</li> <li>3. From the Browse Options window, select the <b>Type of Intended Restore</b> and click <b>OK</b>.</li> <li>4. From the browse window, select the data to be restored and click <b>Recover all Selected</b>.</li> <li>5. From the <b>Restore Options for All Selected Items</b> dialog box, click <b>Advanced</b>.</li> <li>6. From the <b>Advanced Restore Options (General)</b> tab, select <b>Automatically Detect Regular Expressions</b> option.</li> <li>7. Click <b>OK</b>.</li> </ol>	
<b>Impersonate User</b>	<p>This information is needed only if you intend to restore data to a mapped network drive, shared network drive, or directory to which you do not have access privileges.</p> <p>You can impersonate a windows logon information with an account that has access rights to restore data.</p> <ol style="list-style-type: none"> <li>1. From the CommCell Browser, click <b>Client Computers   Virtual Server   &lt;instance name&gt;   BackupSet</b>. The default and other subclients (if available) are displayed on the right-hand windowpane.</li> <li>2. From the CommCell Browser, right-click the backupset that contains the data you want to restore. Click <b>All Tasks</b> and then click <b>Browse Backup Data</b>.</li> <li>3. From the Browse Options window, select the <b>Type of Intended Restore</b> and click <b>OK</b>.</li> <li>4. From the browse window, select the data to be restored and click <b>Recover all Selected</b>.</li> <li>5. From the <b>Restore Options for All Selected Items</b> dialog box, click <b>Advanced</b>.</li> <li>6. From the <b>Advanced Restore Options (General)</b> tab, select <b>Impersonate User</b> option.</li> <li>7. In <b>User Name</b> and <b>Password</b> boxes, enter a user name and password which has access privileges. In <b>Confirm Password</b> box, type the password again.</li> <li>8. Click <b>OK</b>.</li> </ol>	
<b>Startup Options</b>	<p>The Job Manager will use the startup priority setting when allocating the required resources. This is useful if you have jobs that are very important and must complete, or jobs that can be moved to a lower priority.</p> <ol style="list-style-type: none"> <li>1. From the CommCell Browser, click <b>Client Computers   Virtual Server   &lt;instance name&gt;   BackupSet</b>. The default and other subclients (if available) are displayed on the right-hand windowpane.</li> <li>2. From the CommCell Browser, right-click the backupset that contains the data you want to restore. Click <b>All Tasks</b> and then click <b>Browse Backup Data</b>.</li> <li>3. From the Browse Options window, select the <b>Type of Intended Restore</b> and click <b>OK</b>.</li> <li>4. From the browse window, select the data to be restored and click <b>Recover all Selected</b>.</li> <li>5. From the <b>Restore Options for All Selected Items</b> dialog box, click <b>Advanced</b>.</li> <li>6. From the <b>Advanced Restore Options (Startup)</b> tab, select <b>Use Default Priority</b> option.</li> <li>7. Select <b>Change Priority</b> option to change the priority for a job, between 0 (highest priority) and 999 (lowest priority).</li> </ol>	Refer to Job Priority and Priority Precedence.

	<ol style="list-style-type: none"> <li>8. Select <b>Start up in Suspended State</b> option to specify the selected job to start in the Job Controller in a suspended state.</li> <li>9. Click <b>OK</b>.</li> </ol>	
<b>Copy Precedence</b>	<p>When you select Restore from copy precedence option, the system recovers or retrieves data from the selected storage policy copy (Synchronous Copy or Selective Copy). If data does not exist in the specified copy, the data recovery or retrieve operation fails even if the data exists in another copy of the same storage policy.</p> <p>When cleared, (or by default) the system recovers or retrieves data from the storage policy copy with the lowest copy precedence. If the data was pruned from the primary copy, the system automatically recovers or retrieves from the other copies of the storage policy in the lowest copy precedence to highest copy precedence order. Once the data is found, it is recovered or retrieved, and no further copies are checked.</p> <ol style="list-style-type: none"> <li>1. From the CommCell Browser, click <b>Client Computers   Virtual Server   &lt;instance name&gt;   BackupSet</b>. The default and other subclients (if available) are displayed on the right-hand windowpane.</li> <li>2. From the CommCell Browser, right-click the backupset that contains the data you want to restore. Click <b>All Tasks</b> and then click <b>Browse Backup Data</b>.</li> <li>3. From the Browse Options window, select the <b>Type of Intended Restore</b> and click <b>OK</b>.</li> <li>4. From the browse window, select the data to be restored and click <b>Recover all Selected</b>.</li> <li>5. From the <b>Restore Options for All Selected Items</b> dialog box, click <b>Advanced</b>.</li> <li>6. From the <b>Advanced Restore Options (Copy Precedence)</b> tab, select <b>Restore from copy precedence</b> option.</li> <li>7. Select the number to change the selected copy's precedence. The numbers will move a copy to a higher or lower precedence in increments of 1.</li> <li>8. Click <b>OK</b>.</li> </ol>	Refer to Recovering Data From Copies.
<b>Data Path Options</b>	<p>Data Recovery operations use a specific data path (Library, MediaAgent, Drive Pool, and Drive) to perform the restore operations as configured in the CommCell. By default, the system automatically identifies the data path for the restore operations. You can change the data path at the restore level by selecting a specific MediaAgent, library, drive pool or drive in the Advanced Restore Options dialog.</p> <p>The following are some of the important situations where you may need to change the data path:</p> <ul style="list-style-type: none"> <li>• To free heavily loaded resources such as MediaAgents and libraries.</li> <li>• A library suffers severe hardware damage and you need to move its media to a different library in order to access data secured by data protection operations.</li> <li>• A drive pool within a library is being used much more frequently than another, and a storage policy copy from the more active drive pool can be assigned to the less active one.</li> </ul> <ol style="list-style-type: none"> <li>1. From the CommCell Browser, click <b>Client Computers   Virtual Server   &lt;instance name&gt;   BackupSet</b>. The default and other subclients (if available) are displayed on the right-hand windowpane.</li> <li>2. From the CommCell Browser, right-click the backupset that contains the data you want to restore. Click <b>All Tasks</b> and then click <b>Browse Backup Data</b>.</li> <li>3. From the Browse Options window, select the <b>Type of Intended Restore</b> and click <b>OK</b>.</li> <li>4. From the browse window, select the data to be restored and click <b>Recover all Selected</b>.</li> <li>5. From the <b>Restore Options for All Selected Items</b> dialog box, click <b>Advanced</b>.</li> <li>6. From the <b>Advanced Restore Options (Data Paths)</b> tab, select the <b>MediaAgent</b> and <b>Library</b> that you wish to perform the restore.</li> <li>7. Select the <b>Drive Pool</b> and <b>Drive</b> for optical and tape libraries.</li> <li>8. Select the name of the <b>Proxy</b> server if you wish to restore using a proxy server.</li> <li>9. Click <b>OK</b>.</li> </ol>	Refer to Change Data Path.
<b>Encryption</b>	<p>You can configure encryption for the specific subclient during the data recovery operation. You must configure encryption at the client level first and then at the subclient level to encrypt data during data recovery operations using the CommCell Console.</p> <p>If you configure data encryption with a Pass-Phrase and do not elect to export the pass-phrase to destination clients, you will be required to enter the pass-phrase during immediate data recovery operations. Scheduled data recovery operations require you to export the pass-phrase.</p> <ol style="list-style-type: none"> <li>1. From the CommCell Browser, click <b>Client Computers   Virtual Server   &lt;instance name&gt;   BackupSet</b>. The default and other subclients (if available) are displayed on the right-hand windowpane.</li> <li>2. From the CommCell Browser, right-click the backupset that contains the data you want to restore. Click <b>All Tasks</b> and then click <b>Browse Backup Data</b>.</li> <li>3. From the Browse Options window, select the <b>Type of Intended Restore</b> and click <b>OK</b>.</li> </ol>	Refer to data encryption.

	<ol style="list-style-type: none"> <li>4. From the browse window, select the data to be restored and click <b>Recover all Selected</b>.</li> <li>5. From the <b>Restore Options for All Selected Items</b> dialog box, click <b>Advanced</b>.</li> <li>6. From the Advanced Restore Options (Encryption) tab, enter a pass-phrase in the <b>Pass Phrase</b> dialog box.</li> <li>7. Enter the pass-phrase again in the <b>Re-enter Pass Phrase</b> dialog box.</li> <li>8. Click <b>OK</b>.</li> </ol>	
<b>Job Retry Options</b>	<p>The restore jobs can be restarted either by a user or automatically by the Job Manager. You can specify the maximum elapsed time before a job can be restarted or killed and the maximum number of restart attempts.</p> <ol style="list-style-type: none"> <li>1. From the CommCell Browser, click <b>Client Computers   Virtual Server   &lt;instance name&gt;   BackupSet</b>. The default and other subclients (if available) are displayed on the right-hand windowpane.</li> <li>2. From the CommCell Browser, right-click the backupset that contains the data you want to restore. Click <b>All Tasks</b> and then click <b>Browse Backup Data</b>.</li> <li>3. From the Browse Options window, select the <b>Type of Intended Restore</b> and click <b>OK</b>.</li> <li>4. From the browse window, select the data to be restored and click <b>Recover all Selected</b>.</li> <li>5. From the <b>Restore Options for All Selected Items</b> dialog box, click <b>Advanced</b>.</li> <li>6. From the <b>Advanced Restore Options (Job Retry)</b> tab, select <b>Enable Total Running Time</b> option.</li> <li>7. Select <b>Enable Number of Retries</b> option.</li> <li>8. Select <b>Kill Running Jobs When Total Running Time Expires</b> option.</li> <li>9. Click <b>OK</b>.</li> </ol>	Refer to Job Management.
<b>ESX Browse selection</b>	<p>Virtual machines can be restored to any datastore on the Xen Server using the credentials of the default Xen Server or the Virtual Center.</p> <p>You can Override the default selection and select the desired location to which the virtual machine will be restored. These options provide the flexibility to distribute restored virtual machines to a location with greater space and resource availability.</p> <ol style="list-style-type: none"> <li>1. From the CommCell Browser, click <b>Client Computers   Virtual Server   &lt;instance name&gt;   BackupSet</b>. The default and other subclients (if available) are displayed on the right-hand windowpane.</li> <li>2. From the CommCell Browser, right-click the backupset that contains the data you want to restore. Click <b>All Tasks</b> and then click <b>Browse Backup Data</b>.</li> <li>3. From the Browse Options window, select the <b>Type of Intended Restore</b> and click <b>OK</b>.</li> <li>4. From the browse window, select the data to be restored and click <b>Recover all Selected</b>.</li> <li>5. From the <b>Restore Options for All Selected Items</b> dialog box, click <b>Advanced</b>.</li> <li>6. From the <b>ESX Browse</b> tab, you can view the default <b>Xen Server Host</b>.</li> <li>7. Select the <b>Override Default Selection</b> to change the default selection.</li> <li>8. Enter the desired <b>Xen Server Host</b> name.</li> <li>9. Select <b>Server Logon Account</b> and enter the <b>User Account</b>.</li> <li>10. Click <b>Configure Password</b> to create a password.</li> <li>11. Click <b>Browse for Storage Repositories</b> option to select the desired location to which the virtual machine will be restored.</li> <li>12. Click <b>OK</b>.</li> </ol>	
<b>Alert</b>	<p>The Alert option is used for setting up the criteria to raise notifications/alerts for job statuses such as failure, success, or any other conditions triggered by the restore job. Adding alerts helps the user or the user group to get the notification automatically about the status of the restore job.</p> <ol style="list-style-type: none"> <li>1. From the CommCell Browser, click <b>Client Computers   Virtual Server   &lt;instance name&gt;   BackupSet</b>. The default and other subclients (if available) are displayed on the right-hand windowpane.</li> <li>2. From the CommCell Browser, right-click the backupset that contains the data you want to restore. Click <b>All Tasks</b> and then click <b>Browse Backup Data</b>.</li> <li>3. From the Browse Options window, select the <b>Type of Intended Restore</b> and click <b>OK</b>.</li> <li>4. From the browse window, select the data to be restored and click <b>Recover all Selected</b>.</li> <li>5. From the <b>Restore Options for All Selected Items</b> dialog box, click <b>Advanced</b>.</li> <li>6. From the <b>Advanced Restore Options (Alerts)</b> tab, Click <b>Add Alert</b>.</li> <li>7. From the Add Alert Wizard window, select the <b>Threshold and Notification Criteria</b>. Click <b>Next</b>.</li> <li>8. Select the <b>Notification Types</b>. Click <b>Next</b>.</li> </ol>	Refer to Alerts.

	<p>9. Select the <b>Users and User Groups</b>. Click <b>Next</b>.</p> <p>10. Verify the <b>Summary</b>.</p> <p>11. Click <b>Finish</b>.</p>	
<b>Command Line Restores</b>	<p>Command Line Interface enables you to perform restore operations from the command line. The qcommands can be executed from the command line or can be integrated into your own scripts or scheduling programs.</p> <p>In addition, you can also generate scripts for specific operations from the CommCell Console using the Save As Script option. These scripts can later be executed using the commands from the command line interface.</p>	Refer to Command Line Interface.
<b>CommCell Readiness Report</b>	CommCell Readiness Report provides you with important information about the potential problems that can impact your restore operations before they occur.	Refer to CommCell Readiness Report.
<b>Restore Job Summary Report</b>	Restore Job Summary Report provides you the summary of all restore jobs during a specified time period for each client. Select Restore option from the Job Summary Report Selection dialog box, to view the Restore Job Summary Report.	Refer to Restore Job Summary Report.

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# Data Aging - Xen

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### Getting Started

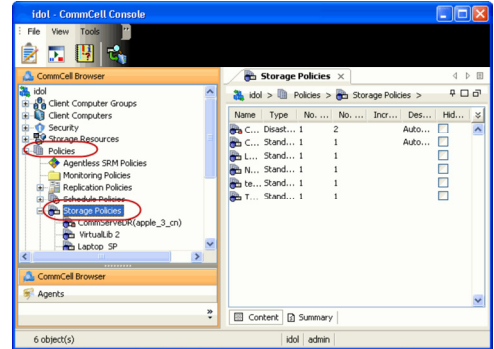
### Extended Retention Rules

## GETTING STARTED

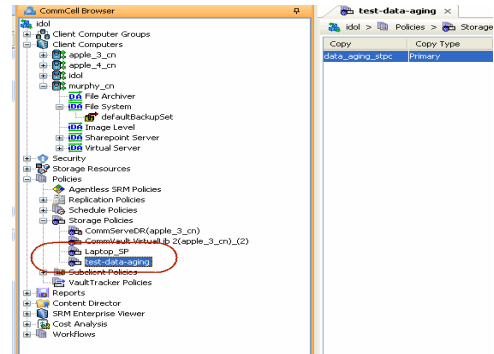
Data Aging is the process of removing old data from secondary storage to allow the associated media to be reused for future backups.

By default, all backup data is retained infinitely. However, you should change the retention of your data based on your needs. Note that if you continue to have infinite retention, you will also need infinite storage capacity.

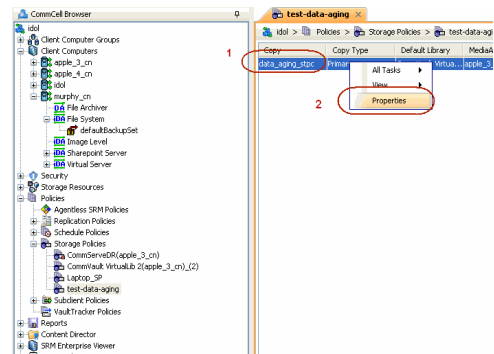
1. From the CommCell Browser, navigate to **Policies | Storage Policies**.



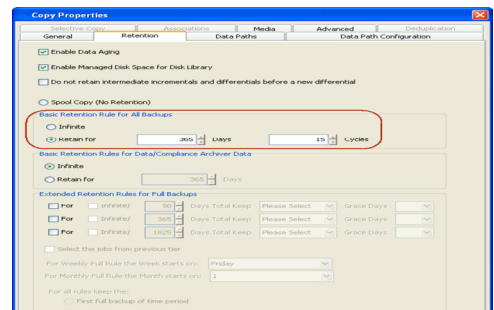
2. Highlight the **Storage Policy**.



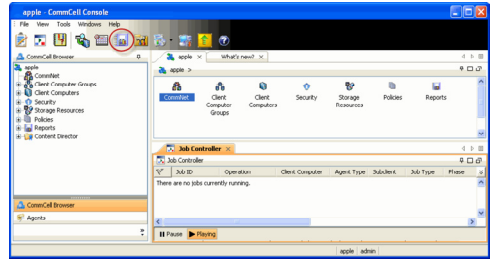
3. From the right pane, right-click the **Storage Policy Copy** and click the **Properties**.



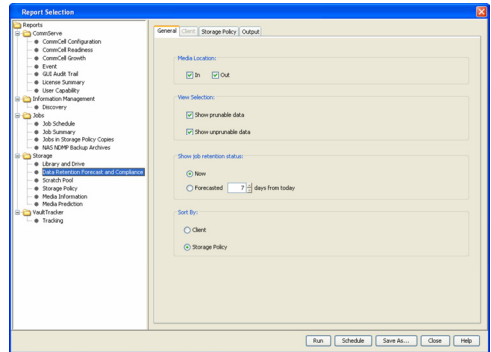
4.
  - Click the **Retention** tab.
  - Click the **Retain For** in the **Basic Retention Rules for All Backups** area.
  - Enter number of days to retain the data.
  - Enter number of cycles to retain the data.
  - Click **OK**.



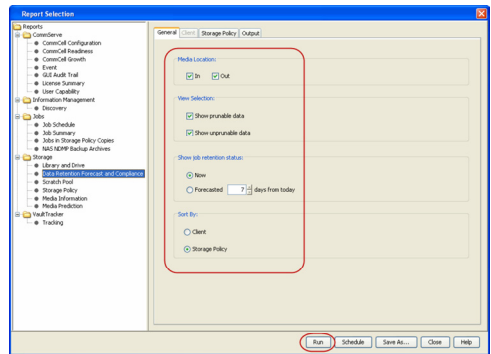
5. From the CommCell Browser, click the **Reports** icon.



6. Expand Reports and select **Data Retention Forecast and Compliance**.



7. Click **Run**.

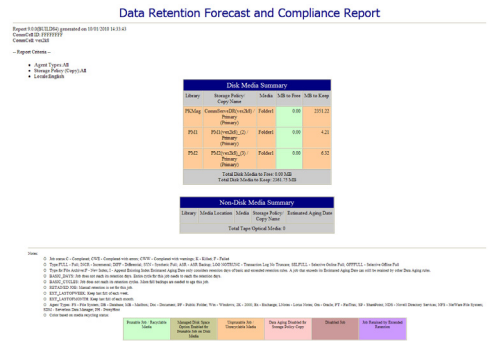


8. The report will display the data to be pruned when a data aging job is run.

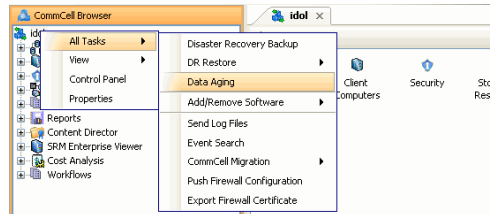
To ensure only data intended for aging is actually aged, it is important to identify the data that will be aged based on the retention rules you have configured. Hence, ensure this report includes only the data you intend to age.

If necessary, fine-tune your rules so that only the intended data is aged.

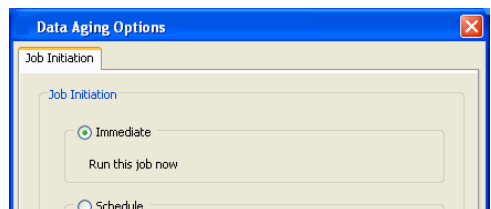
Once you run a data aging job, the data will be lost.



9. From the CommCell Console, right click the CommServe icon and click **All Tasks | Data Aging**.

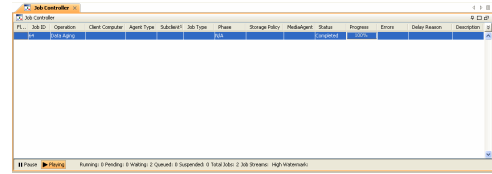


10. Select **Immediate** in the Job Initiation section and click **OK**.



11. You can track the progress of the job from the **Job Controller** window. When the job has completed, the Job Controller displays **Completed**.

Make sure that the job completes successfully. If the job did not complete successfully, re-run the job.



## EXTENDED RETENTION RULES

Extended retention rules allow you to keep specific full (or synthetic full) backups for longer periods of time.

Extended retention rules can be used in the following circumstances:

- If you have a single drive tape library
- If you want to create a hierarchical retention scheme (grandfather-father-son tape rotation)

In all other cases, it is recommended that the Auxiliary Copy feature be used for extended storage as it actually creates another physical copy of the data, thereby reducing the risk of data loss due to media failure.

## UNDERSTANDING EXTENDED RETENTION RULES

Extended retention allows you to retain a specific full (or synthetic full) backup for an additional period of time. For example, you may want to retain your monthly full backups for 90 days.

Extended retention rules allow you to define three additional "extended" retention periods for full (or synthetic full) backups. For example:

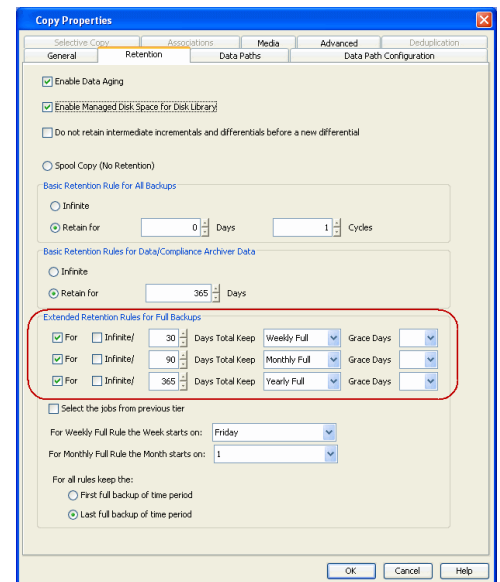
- You may want to retain your weekly full backups for 30 days.
- You may want to retain your monthly full backup for 90 days.
- You may want to retain your yearly full backup for 365 days.

A backup job will be selected for extended retention based on its start time. For example: If a backup job starts at 11:55 pm on August 31st and ends at 1 am on September 1st, then it will be selected as the last full backup for the month of August and will be picked up for extended retention.

## SETTING UP EXTENDED RETENTION RULES

Use the following steps for setting up the extended retention rules:

1. Right-click the storage policy copy and click **Properties**.
2. Click the **Retention** tab.
3. Set the basic retention rules by clicking **Retain for** and entering the number of days and cycles appropriate for your organization.
4. Set the extended retention rules as follows:
  - Click the **For** button.
  - Enter the number of **Days Total** to retain the backup.
  - Click the **Keep** drop-down list, and select the desired backup criteria (e.g., Monthly Full).
  - Click the **Grace Days** drop-down list and select the number of days (e.g., 2).
5. Repeat Step 4 to configure additional extended retention.
6. Click **OK**.



## ADVANCED TOPICS

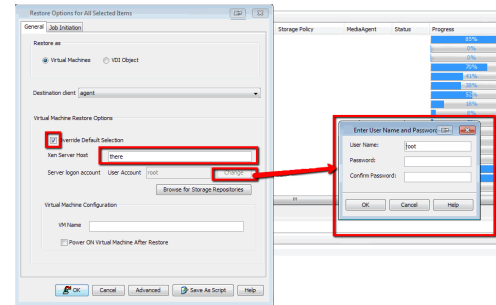
### Data Aging - Advanced

Provides comprehensive information on additional Data Aging capabilities.



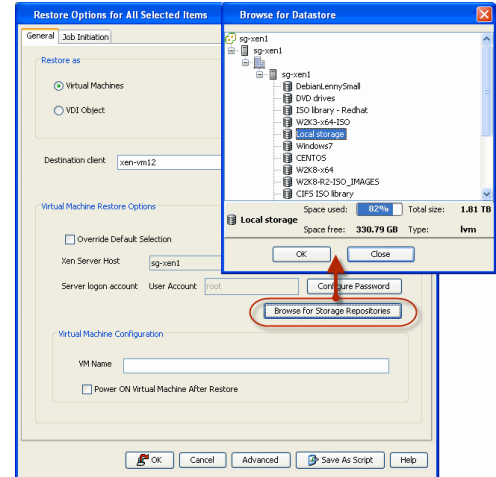


4.
  - Select **Override Default Selection**.
  - Enter the **Xen Server Host**. This host should be the Master Server of the Xen pool.
  - Click **Change**.
  - Enter the user name and password of the Xen Server Host. The credentials entered should be the **root** credentials.

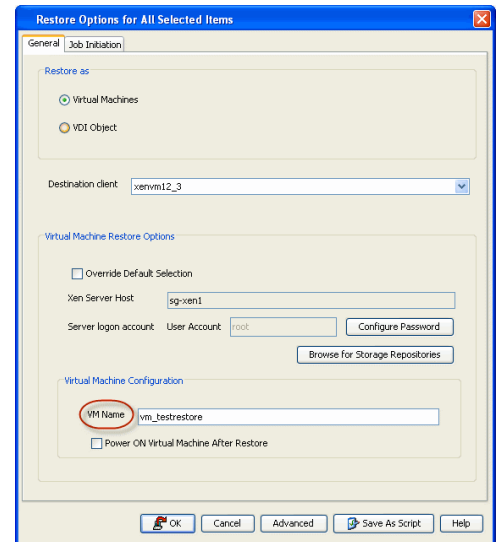


5.
  - Click **Browse for Storage Repositories**.
  - Select a storage repository from the available set of storage devices.
  - Click **OK**.

If the selected storage repository does not meet the minimum requirements needed to restore the virtual machine, you can repeat this step until an acceptable storage repository is found.

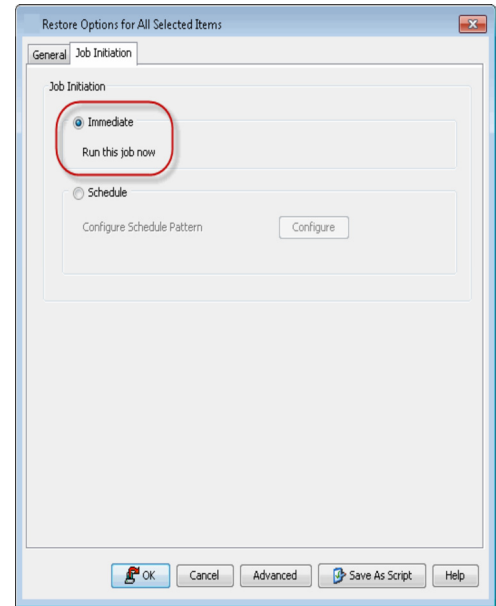


6. Enter the **VM Name** for the virtual machine.  
Ensure that you provide a fully qualified name for the virtual machine. Entering an IP address will cause the restore operation to fail.

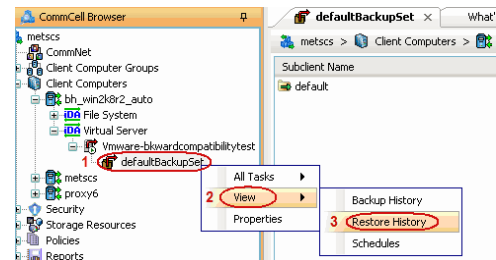
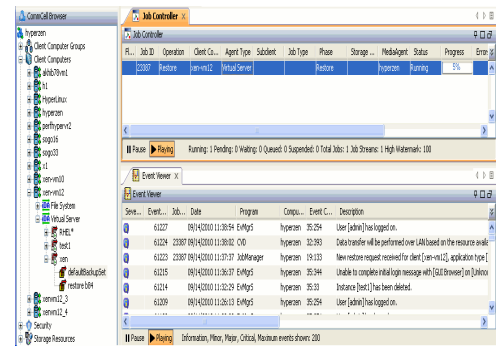


6.
  - Click the **Job Initiation** tab.
  - Select **Immediate** to run the job immediately.
  - Click **OK**.

7. You can monitor the progress of the restore job in the **Job Controller** or **Event Viewer** window of the CommCell Console.



8. Once the restore job has completed, right-click the entity (e.g. agent, instance) and click **View | Restore History**.  
If the entity chosen is the client computer, click **View | Job History**.

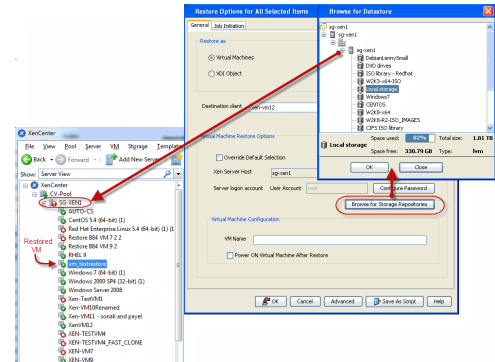
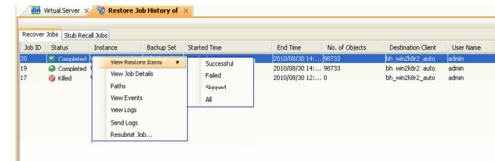
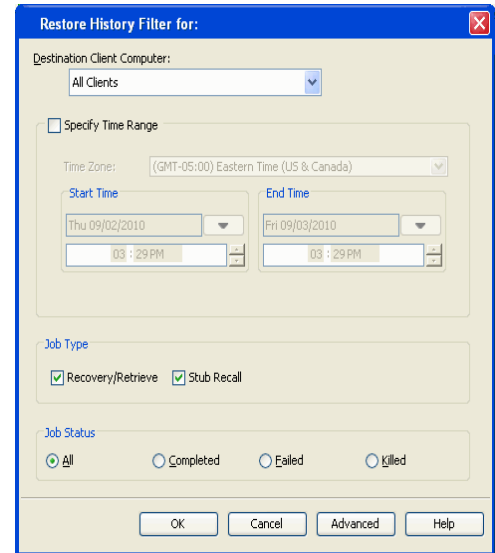


9. Click **OK**.

10. You can view the following details about the job by right-clicking the job:

- View Restore Items  
You can view them as **Successful**, **Failed**, **Skipped** or **All**.
- View Job Details
- View Events of the restore job.
- View Log files of the restore job.

11. Once the virtual machine is restored, it is automatically mounted to the Xen Server Host you specified.



- Configure the restored virtual machines using the appropriate Virtual Server software.

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# Troubleshooting - Xen Backup

[Backup](#) | [Restore](#)

## BACKUP JOBS ARE FAILING DUE TO UNSUCCESSFUL CLEAN-UP ATTEMPTS

Each backup job includes a series of clean-up tasks that are performed by the system. In some cases, these clean-up tasks may not complete successfully, which in turn causes the current backup job, as well as any subsequent backup jobs, to fail. In such scenarios, the clean-up operations must be performed manually before any other backup jobs can complete successfully.

The manual clean-up process consists of three phases.

The steps to complete each phase are described in the following sections.

---

### BEFORE YOU BEGIN

- From the Xen Center console, determine if the proxy virtual machine contains the virtual machine disks to be backed up. These disks will appear in addition to the proxy virtual machine's own disks with a name in the following form:

```
_cvbackupsnpt_<Snapshot_GUID>
```

where *<Snapshot\_GUID>* is a series of numbers and letters. In the following example, the snapshot's GUID is displayed in **bold**:

```
_cvbackupsnpt_491a866d-b916-9389-fa3e-0139b0d5d8d3_200911217212
```

- Note down the snapshot's GUID, as this GUID will be needed during Phase I, below.

---

### PHASE I: DESTROY THE GUIDS OF THE SNAPSHOT, VBDS, AND VDIs

To destroy the GUIDs of the snapshot, VBDS, and VDIs:

- From the Xen Server host's command shell, execute the following command:

```
xe template-list name-label=_cvbackupsnpt_<Snapshot_GUID> params=uuid
```

This command will provide the GUID of the snapshot, as displayed below:

```
[root@<root_name> ~]# xe template-list name-label=_cvbackupsnpt_<GUID> params=uuid
uuid ( RO) : <Snapshot_GUID>
```

- Execute the following command with the GUID of the snapshot:

```
xe vbd-list vm-uuid=<Snapshot_GUID> params=uuid type=Disk
```

This command will provide the VBD GUIDs of the snapshot, as displayed below (this example assumes 3 VBDS are present):

```
[root@<root_name> ~]# xe vbd-list vm-uuid=<Snapshot_GUID> params=uuid type=Disk
uuid ( RO) : <VBD_1_GUID>
uuid ( RO) : <VBD_2_GUID>
uuid ( RO) : <VBD_3_GUID>
```

- For each VBD GUID, execute the following command:

```
xe vdi-list vdi-uuids=<VBD_x_GUID> params=uuid
```

This command will provide the VDIs of each VBD, as displayed below (this example assumes each VBD has one VDI):

```
[root@<root_name> ~]# xe vdi-list vbd-uuids=<VBD_1_GUID> params=uuid
uuid ( RO) : <VDI_1_GUID>

[root@<root_name> ~]# xe vdi-list vbd-uuids=<VBD_2_GUID> params=uuid
uuid ( RO) : <VDI_2_GUID>

[root@<root_name> ~]# xe vdi-list vbd-uuids=<VBD_3_GUID> params=uuid
uuid ( RO) : <VDI_3_GUID>
```

- For each VDI GUID, execute the following command to destroy the VDI GUID:

```
xe vdi-destroy uuid=<VDI_x_GUID>
```

This command will destroy each VDI GUID. The following text is displayed for each VDI GUID:

```
[root@<root_name> ~]# xe vdi-destroy uuid=<VDI_x_GUID>
```

- For each VBD GUID, execute the following command to destroy the VBD GUID:

```
xe vdi-destroy uuid=<VBD_x_GUID>
```

This command will destroy each VBD GUID. The following text is displayed for each VBD GUID:

```
[root@<root_name> ~]# xe vdi-destroy uuid=9<VBD_x_GUID>
```

- Finally, execute the following command to destroy the snapshot:

```
xe vdi-destroy uuid=<Snapshot_GUID>
```

The following text is displayed. Answer yes to all questions in this command:

```
[root@<root_name> ~]# xe template-uninstall template-uuid=<Snapshot_GUID>
```

This command will destroy the snapshot. The following text is displayed:

```
[root@<root_name> ~]# xe template-list name-label=_cvbackupsnpt_<Snapshot_GUID> params=uuid
uuid ( RO) : <Snapshot_GUID>
```

Once the above steps have been completed, move on to Phase II, below.

---

## PHASE II: DELETE THE MOUNTED DISKS FROM THE PROXY VIRTUAL MACHINE

To delete the mounted disks from the proxy virtual machine:

- Execute the following command:

```
xe vbd-list vm-name-label=<Proxy_Virtual_Machine_Name>
```

The above command displays all the VDI UUIDs attached to the proxy virtual machine. In the following example, the proxy virtual machine contains two VDI UUIDs:

```
[root@<root_name> ~]# xe vbd-list vm-name-label=<Proxy_Virtual_Machine_Name>
uuid ( RO) : <UUID_1>
vm-uuid ( RO): <VM_UUID>
vm-name-label ( RO): <Proxy_Virtual_Machine_Name_Label>
vdi-uuid ( RO): <VDI_UUID_1>
empty ( RO): false
device ( RO): hdb
uuid ( RO) : <UUID_2>
vm-uuid ( RO): vm-uuid ( RO): <VM_UUID>
vm-name-label ( RO): <Proxy_Virtual_Machine_Name_Label>
vdi-uuid ( RO): <VDI_UUID_2>
empty ( RO): false
device ( RO): hda
```

- Execute the following command for each disk you want to delete.

```
xe vbd-param-set uuid=<VDI_UUID_x> unpluggable=true;
xe vbd-unplug uuid=<VDI_UUID_x>
xe vbd-destroy uuid=<VDI_UUID_x>
xe vdi-destroy uuid=<VDI_UUID_x>
```

Do not delete any disks of type `hda`. For example, `VDI_UUID_2` displayed in Step 1 is of type `hda` and, as such, should not be removed.

Once the above steps have been completed, move on to Phase III, below.

---

## PHASE III: DELETE FILES FROM THE MOUNT PATH

To delete the files from the mount path:

- Navigate to the mount path. By default, this mount path is the job results directory on the proxy virtual machine.

2. Delete all files within the mount path.

This completes the clean-up process.

## **XEN SERVER STOPS RESPONDING**

---

### **SYMPTOM**

During a Virtual Server iDataAgent backup, the Xen Server becomes unresponsive.

---

### **CAUSE**

If you are performing backup of more than 4 virtual machines simultaneously, the Xen server may stop responding.

---

### **SOLUTION**

If you want to backup more than 4 virtual machines, perform the sequential backups. Otherwise, install Virtual Server iDataAgent on another Xen server for the load balancing. Each server will share the load of the backup job and will not become unresponsive.

## **BACKUP JOB GOES TO PENDING STATE WITH A NETWORK ERROR**

---

### **SYMPTOM**

The backup job goes to pending state with the following error message:

```
No network connection to the host
```

---

### **CAUSE**

The virtual machine, where you have installed the Virtual Server iDataAgent has a xencenter name different than its host name.

---

### **SOLUTION**

Change the xencenter name of the virtual machine where you have installed the Virtual Server iDataAgent. Ensure that the xencenter name is same as the host name.

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# Troubleshooting - Xen Restore

Backup | **Restore**

## RESTORE OF VDI OBJECTS FAILS

### CAUSE

The restore of VDI objects may fail when the configuration files required for VDI objects are not selected for restore.

### SOLUTION

When you select a VDI object for the restore, select all the configuration files required for the VDI object and then perform the restore.

### RESTORE FAILS WITH ERROR: "FAILED TO PLUG IN NEW VBD: --- SR\_HAS\_NO\_PBDS"

This failure occurs when the storage repository selected is not visible to the Xen Server on which the Agent is installed.

In addition to the above-mentioned error message, the following Job Pending Reason will appear in the CommCell Console:

Unable to write data to the Virtual Disk. Please ensure that the proxy is able to communicate with the Virtual Machine Host and that there is sufficient disk space available

To resolve this issue, ensure the storage repository selected is visible to the Xen Server on which the Agent is installed.

### VIRTUAL MACHINE NICs ARE NOT VISIBLE AFTER A RESTORE

After a restore operation, NICs are not automatically restored. You must manually restore NICs, and then all of the old settings will automatically inherit.

### VIRTUAL MACHINE DOES NOT TURN ON AUTOMATICALLY AFTER THE RESTORE

A Production Citrix License is required to automatically turn on the virtual machine. If you are using the evaluation license or free edition of Citrix XenServer, you must manually set the memory usage for the virtual machine, and then turn on the virtual machine.

## RECOVERING DATA ASSOCIATED WITH DELETED CLIENTS AND STORAGE POLICIES

The following procedure describes the steps involved in recovering data associated with the following entities:

- Deleted Storage Policy
- Deleted Client, Agent, Backup Set or Instance

### BEFORE YOU BEGIN

This procedure can be performed when the following are available:

- You have a Disaster Recovery Backup which contains information on the entity that you are trying to restore. For example, if you wish to recover a storage policy (and the data associated with the storage policy) that was accidentally deleted, you must have a copy of the disaster recovery backup which was performed before deleting the storage policy.
- Media containing the data you wish to recover is available and not overwritten.
- If a CommCell Migration license was available in the CommServe when the disaster recovery backup was performed, no additional licenses are required. If not, obtain the following licenses:
  - IP Address Change license
  - CommCell Migration license
 See License Administration for more details.
- A standby computer, which will be used temporarily to build a CommServe.

### RECOVERING DELETED DATA

1. Locate the latest Disaster Recovery Backup which contains the information on the entity (Storage Policy, Client, Agent, Backup Set or Instance) that you are trying to restore.
  - You can check the Phase 1 destination for the DR Set or use Restore by Jobs for CommServe DR Data to restore the data.
  - If the job was pruned and you know the media containing the Disaster Recovery Backup, you can move the media in the **Overwrite Protect Media** Pool. See Accessing Aged Data for more information. You can then restore the appropriate DR Set associated with the job as described in Restore by Jobs for CommServe DR Data.

- o If the job is pruned and you do not know the media containing the Disaster Recovery Backup, you can do one of the following:

If you regularly run and have copies of the Data on Media and Aging Forecast report you can check them to see if the appropriate media is available.

2. On a standby computer, install the CommServe software. For more information on installing the CommServe, see CommServe Deployment.
3. Restore the CommServe database using the CommServe Disaster Recovery Tool from the Disaster Recovery Backup described in Step 1. (See Restore a Disaster Recovery Backup for step-by-step instructions.)
4. Verify and ensure that the **Bull Calypso Client Event Manager Bull Calypso Communications Service (EvMgrS)** is running.
5. If you did not have a CommCell Migration license available in the CommServe when the disaster recovery backup was performed, apply the IP Address Change license and the CommCell Migration license on the standby CommServe. See Activate Licenses for step-by-step instructions.
6. Export the data associated with the affected clients from the standby CommServe as described in Export Data from the Source CommCell.

When you start the Command Line Interface to capture data, use the name of the standby CommServe in the - `commcell` argument.

7. Import the exported data to the main CommServe as described in Import Data on the Destination CommCell.  
This will bring back the entity in the CommServe database and the entity will now be visible in the CommCell Browser. (Press F5 to refresh the CommCell Browser if the entity is not displayed after a successful merge.)
8. If you have additional data that was backed up after the disaster recovery backup and before the deletion of the entity, use the procedure described in Import Metadata from a Tape or Optical Media to obtain the necessary information.
9. You can now browse and restore the data from the appropriate entity.

As a precaution, mark media (tape and optical media) associated with the source CommCell as READ ONLY before performing a data recovery operation in the destination CommCell.

## FILE LEVEL RESTORE FAILS

---

### SYMPTOM

While restoring files and folders from a virtual machine, you may get following error:

```
Volume name not found in the restore source path <source_path>, this is a volume restore.
```

---

### CAUSE

This error appears when you have selected all files and folders in a virtual machine for the restore.

The file level restore of entire contents of the VM is not supported.

---

### SOLUTION

If you want to restore entire contents of a VM, perform a full VM restore.

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# Additional Operations - Xen

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## RELATED TOPICS

### Additional Operations - Concepts

Provides comprehensive information on additional operations procedures contained on this page.

- [Audit Trail](#)
- [Storage Policies](#)
- [Subclient Policies](#)
- [Storage Policy Copies](#)
- [Schedule Policy](#)
- [Auxiliary Copy](#)
- [Operation Window](#)
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## AUDIT TRAIL

The Audit Trail feature allows you to track the operations of users who have access to the CommCell. This capability is useful if a detrimental operation was performed in the CommCell and the source of that operation needs to be determined.

Audit Trail tracks operations according to four severity levels:

- **Critical:** This level records operations that will result in imminent loss of data.
- **High:** This level records operations that may result in loss of data.
- **Medium:** This level records changes to the general configuration of one or more entities. Such changes may produce unintended results when operations are performed.
- **Low:** This level records changes to status, addition of entities, and other operations that have minimal impact on existing CommCell functions.

To set Audit Trail retention periods:

1. From the **Tools** menu in the CommCell Console, click **Control Panel**, and then select **Audit Trail**.
2. From the **Audit Trail** dialog box, select the desired retention time (in days) for each severity level.
3. Click **OK**.

## STORAGE POLICY

A Storage policy defines the data lifecycle management rules for protected data. Storage policies map data from its original location to a physical storage media and determine its retention period.

1. Expand the **Policies** node, right-click **Storage Policies**, and select **New Storage Policy**.
2. Click **Next**.
3. Select **Data Protection and Archiving** to create a regular storage policy or **CommServe Disaster Recovery Backup** to backup the CommServe database and click **Next**.
4. Click **Next**.
5. Enter the name of storage policy and click **Next**.
6. Enter the name of the primary copy and click **Next**.
7. From the drop down box, select the default library for the primary copy and click **Next**.
8. From the drop down box, select the MediaAgent and click **Next**.
9. Enter number of data streams and set the retention period for the policy and click **Next**.
10. Click **Next**.
11. Click **Browse**, browse to your designated deduplication store location and click **Next**.
12. Confirm your selections and click **Finish**.

## SUBCLIENT POLICY

Subclient policies allow you to configure multiple subclients within a CommCell from a centralized template. This alleviates the need to manually configure each

subclient that shares a similar configuration.

1. Expand the **Policies** node, right-click **Subclient Policies** and click **New Subclient Policy**.
2. Enter policy name in the **Name** entry field, then select the appropriate file system type from the **iDataAgent** drop-down list.
3. In the Subclient pane, assign a storage policy for each subclient template by clicking in the drop down box under the **Storage Policy** column.
4. Click **OK**.

## SCHEDULE POLICY

A schedule policy is a defined schedule or group of schedules for specific operations to be performed on associated objects within the CommCell. When the schedules from a policy are run, the specified operations, (e.g., auxiliary copy, backup, etc.) will be performed on the associated CommCell objects.

1. Expand the **Policies** node, right-click **Schedule Policies** and click **Add**.
2. Type the **Name** of the schedule policy.
3. Select the **Type** of schedule policy.
4. Select the **Agent Type**.
5. Type a description of the schedule policy.
6. Click **Add**.
7. Enter a Schedule Name in the **Schedule Pattern** tab.
8. Click **OK**.
9. On the **Associations** tab, select the objects to be associated with the schedule policy.
10. Click **OK**.

## AUXILIARY COPY

An auxiliary copy operation allows you to create secondary copies of data associated with data protection operations, independent of the original copy.

1. Expand the **Policies** node, right-click storage policy for which you want to perform an auxiliary copy, click **All Tasks**, and then click **Run Auxiliary Copy**.
2. If you are starting the auxiliary copy operation from the CommServe level, select the storage policy for which you wish to perform the auxiliary copy.

If you are starting the auxiliary copy operation from the Storage Policy level, the Storage Policy field is already populated with the name of the Storage Policy you selected.

3. If the source copy is configured with a shared library, select the **Source MediaAgent** for the auxiliary copy.
4. Click **OK** to start the auxiliary copy operation. A progress bar displays the progress of the operation.

## OPERATION WINDOW

By default, all operations in the CommCell can run for 24 hours. To prevent certain operations from running during certain periods of the day, you can define operation rules so that these operations are disabled during those times.

When operation rules are configured, operations that are started within the time window specified will go to a queued (as opposed to pending) state. Once the time window specified in the operation rule has elapsed, these queued or running operations will resume automatically.

1. In the CommCell Browser, right-click the appropriate entity, click **All Tasks**, and then click **Operation Window**.
2. Click **Add**.
3. From the **Operation Window** dialog box:
  - o Enter the name of the rule in the **Name** field.
  - o Select either an administration, data protection (either full or non-full), and/or a data recovery operation from the **Operations** pane.
4. Click **OK**.

## OPERATING SYSTEM AND APPLICATION UPGRADES

Operating system upgrades are only supported when upgrading from one version of an OS to a different version of the same OS (e.g., Win2003 to Win2008). The two methods of upgrading are:

- **Seamless Upgrade** - This involves uninstalling the Agent software, upgrading the operating system, and then re-installing the Agent software.
- **Full OS Replacement** - This involves performing a clean install of a new version of the OS, re-installing any application software, then re-installing the CommServe, MediaAgent, and/or Agent software.

For Full OS Replacement, the client computer must be configured to have the CommServe, MediaAgent, and/or Client software re-installed to the same location, the same Fully Qualified Domain Name or short domain name, the same partitions, disk drive format (FAT, NTFS, et. al.), and IP configuration as previously.

If it is necessary to remove Agent software to facilitate an operating system or application upgrade, do not delete the icon for the Agent from the CommCell Console, or all associated backed up data will be lost.

Use the following strategy to upgrade the operating system software:

- Identify the computers you want to upgrade and the CommCell components installed on each of these computers.
- Choose the type of upgrade procedure you want to use on each computer: seamless or full replacement.
- CommServe, MediaAgent, and Client computers can be upgraded in any order.

## UNINSTALLING COMPONENTS

You can uninstall the components using one of the following method:

Method 1: Uninstall Components Using the CommCell Console

Method 2: Uninstall Components from Add or Remove Programs

---

### METHOD 1: UNINSTALL COMPONENTS USING THE COMMCELL CONSOLE

1. From the CommCell Browser, right-click the desired Client Computer and click **All Tasks -> Add/Remove Programs** and click **Uninstall Software**.
2. **Uninstall Software Options** dialog will appear.
3. In the **Uninstall Software** tab, select **Uninstall All** to uninstall all the software packages.
4. In the **Job Initiation** tab, select **Immediate** to run the job immediately.

You can track the progress of the job from the **Job Controller** or **Event Viewer**.

---

### METHOD 2: UNINSTALL COMPONENTS FROM ADD OR REMOVE PROGRAMS

1. Click the **Start** button on the **Windows** task bar and then click **Control Panel**.
2. Double-click **Add/Remove Programs**.  
For Windows Vista/Windows 2008, click Uninstall a Program in the **Control Panel**.
3. Click **Remove** to uninstall the components in the following sequence:
  1. <Agent>
  2. File System iDataAgent
  3. Base Software

## ONLINE HELP LINKS

Use the following links to view the online help for the corresponding tabs in the CommCell Console:

OPERATIONS	ENTITY	ONLINE HELP LINKS	SUB LINKS
<b>CONFIGURATION</b>	Agent	Virtual Server Agent Properties (General) Virtual Server Agent Properties (Version) Virtual Server Agent Properties (Index) Virtual Server Agent Properties (Security) Virtual Server Agent Properties (Activity Control)	
	Instance	Xen Instance Properties (General) Xen Instance Properties (Security)	
	Subclient	Xen Subclient Properties (General) Xen Subclient Properties (Filters) Xen Subclient Properties (Pre/Post Process) Xen Subclient Properties (Security) Xen Subclient Properties (Encryption) Xen Subclient Properties (Storage Device)	

		Xen Subclient Properties (Auto Discover) Xen Subclient Properties (Activity Control) Xen Subclient Properties (Content) Xen Subclient Properties (Rules)	
	BackupSet	Xen BackupSet (General) Xen BackupSet (Guest Hosts Configuration) Xen BackupSet (Security)	
<b>BACKUP</b>	Backup Options	Xen Backup Options	Advanced Backup Options Save As Script Command Line XML Options
	Advanced Backup Options	Xen Advanced Backup Options (Data) Xen Advanced Backup Options (Startup) Xen Advanced Backup Options (Media) Xen Advanced Backup Options (Data Path) Xen Advanced Backup Options (VaultTracking) Xen Advanced Backup Options (Alert)	
<b>BROWSE</b>		Xen Browse Options Xen Advanced Browse Options Xen List Media	
<b>RESTORE</b>	Restore Options	Xen Restore Options (General)	Save As Script Command Line XML Options
	Advanced Restore Options	Xen Advanced Restore Options (General) Xen Advanced Restore Options (Copy Precedence) Xen Advanced Restore Options (Data Path) Xen Advanced Restore Options (Encryption) Xen Advanced Restore Options (Startup) Xen Advanced Restore Options (Alert) Xen Advanced Restore Options (Options) Xen Advanced Restore Options (Browse)	
Operation Window	Operation Window	Xen Operation Window	

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## Online Help Topics

### Agent Properties (General)

Use this dialog box to obtain or provide general and/or user account information for the agent.

**Client Name**

Displays the name of the client computer on which this Agent is installed.

**Billing Department**

Displays the name of the billing department, when the Agent is associated with a billing department.

**iDataAgent**

Displays the identity of the Agent that is installed on the client computer.

**Installed date**

Displays the date on which the Agent was installed or upgraded on the client computer.

**Description**

Use this field to enter a description about the entity. This description can include information about the entity's content, cautionary notes, etc.

---

### Agent Properties (Version)

Use this dialog box to view the software version.

**Version Information**

Displays the Agent software version installed on the computer.

---

### Agent Properties (Index)

Use this tab to establish the parameters for creating new index during backups by the agent.

**Create new index on full backup**

Specifies whether the system will create a new index with each full backup. If cleared, all backups build upon the index from the previous backup.

**Convert to full backup on indexing failures**

Specifies whether the system will create a new index if the index is irretrievable and whether, for agents that support non-full backup types, the system will convert the backup to a full backup. If cleared, the backup will fail if the index is irretrievable.

---

## Security

Use this dialog box to:

- Identify the user groups to which this CommCell object is associated.
- Associate this object with a user group.
- Disassociate this object from a user group.

**Available Groups**

Displays the names of the user groups that are not associated with this CommCell object.

**Associated Groups**

Displays the names of user groups that are associated with this CommCell object.

---

## Activity Control

Use this dialog box to enable or disable data management and data recovery operations on a selected client or client computer group.

### Enable Backup

Specifies whether data management operations will occur from this agent.

If cleared:

- The button **Enable after a Delay** appears to the right side of this operation activity. It allows to pre-determine the date and time at which data management operations will begin on the selected agent.
- Data management operations from this agent cannot be started and are skipped.
- Running and waiting data management operations for this agent run to completion.
- Stopped data management operations for this agent cannot be resumed until this option is enabled.
- Pending data management operations for this agent do not run until this option is enabled.

(Job states are indicated in the Job Controller.)

### Enable Restore

Specifies whether data recovery operations will occur from this agent.

If cleared:

- The button **Enable after a Delay** appears to the right side of this operation activity. It allows to pre-determine the date and time at which data recovery operations will begin on the selected agent.
- Data recovery operations for this agent cannot be started and are skipped.
- Running data recovery operations for this agent run to completion.
- Pending data recovery operations for this agent do not run until data recovery operations are enabled.

(Job states are indicated in the Job Controller.)

---

## Virtual Server Instance Properties (General)

VMware | Microsoft Virtual Servers/Hyper-V | Xen Server

---

Use this dialog box to define a new instance or view the properties of an existing instance.

### Client Name

Displays the name of the client computer on which this instance is found.

### iDataAgent

Displays the name of the iDataAgent to which this instance belongs.

### Instance Name

- When you create a new instance, type the name of the instance.
- For an existing instance, the name of the instance is displayed.

### Vendor Type

- When you create a new instance, select Xen Server.
- For an existing instance, the vendor type is displayed.

### Xen Server

Select this option if this instance will be used for Xen Server virtual server backups.

- **Configure Xen Servers**

Click this button to include the specific Xen Server to this instance.

---

## Security

Use this dialog box to:

- Identify the user groups to which this CommCell object is associated.
- Associate this object with a user group.
- Disassociate this object from a user group.

#### Available Groups

Displays the names of the user groups that are not associated with this CommCell object.

#### Associated Groups

Displays the names of user groups that are associated with this CommCell object.

#### Automatically add New Users to the "View All" Group (CommServe Level Only)

Specifies that all new users will automatically be added to the `View All` user group. This group allows users to view all CommCell objects, regardless of the associations of the other user groups they belong to.

#### Require Authentication for Agent Installation (CommServe Level Only)

Enable this option to prompt users for authentication for any agent installation on the CommCell.

#### Client Owners

Specify a user to allow CommCell user access to this client computer through CommCell Console and allow permission to run Web Console browse and restore operations on this client. Each user must be listed in a separate line.

## Subclient Properties (General)

VMware | Microsoft Virtual Servers/Hyper-V | Xen Server

Use this tab to add, modify or view general information on the selected subclient.

#### Client Name

Displays the name of the Client computer to which this subclient belongs.

#### iDataAgent

Displays the name of the Agent to which this subclient belongs.

#### Backup Set

Displays the name of the Backup Set to which this subclient belongs.

#### Subclient Name

Displays the name of this Subclient. You can use this space to enter or modify the name of the subclient.

#### Number of Data Readers

Use this space to specify the number of simultaneous backup data streams allowed for this subclient. For best performance, this should be set no higher than the number of physical drives that hold this subclient's data, except for specialized hardware such as RAID. For more information, see *Automatic File System Multi-Streaming* in Books Online.

#### Backup Type

Select the backup type for this subclient.

- **Disk Level**  
Select this option if this subclient will be used to back up virtual server disks.
- **Volume Level**  
Select this option if this subclient will be used to back up individual volumes.
- **File Level**  
Select this option if this subclient will be used to back up individual files and/or folders.

#### Description

Use this field to enter a description about the entity. This description can include information about the entity's content, cautionary notes, etc.

## Subclient Properties (Filter)

Volume Level | File Level

Use this dialog box to add or edit data paths to be filtered out of the subclient content and to specify exceptions to the exclusion list.

### Include Global Filters

Displays a list of options for enabling or disabling Global Filters which can be used in addition to the filters set at the subclient level to exclude data from data protection operations for this subclient. To change the setting, select one of the following values from the list:

- **OFF** - Disables Global Filters for this subclient.
- **ON** - Enables Global Filters for this subclient.
- **Use Cell Level Policy** - Enables or disables Global Filters for this subclient depending on whether the **Use Global Filters on All Subclients** option is enabled or disabled on the Control Panel (Global Filters) dialog. If the **Use Global Filters on All Subclients** option is enabled, then the **Use Cell Level Policy** option will enable Global Filters on this subclient. If the **Use Global Filters on All Subclients** option is disabled, then the **Use Cell Level Policy** option will disable Global Filters on this subclient.

### Exclude these files/folders/directories/patterns

Displays entries that will be excluded from data protection operations for this subclient.

## Pre/Post Process

VMware | Microsoft Virtual Servers/Hyper-V | Xen Server

Use the Pre/Post Process tab to add, modify or view Pre/Post processes for the selected subclient.

### Run Post Scan Process for all attempts

Specifies whether this process will execute for all attempts to run the phase. Selecting this option will execute the post scan for all attempts to run the phase, including situations where the job phase is interrupted, suspended, or fails. Otherwise, when the checkbox is cleared the post scan process will only execute for successful, killed, or failed jobs.

### Pre Backup process

Displays the name/path of the backup that you want to run before the respective phase. You can use this space to enter a path for the backup process that will execute before this phase on the subclient, or you can use the **Browse** button to search for and select the name/path of the process. The system allows the use of spaces in the name/path, provided they begin with an opening quotation mark and end with a closing quotation mark.



If you are using the Linux File System iDataAgent to back up VMware virtual machines, you must create a PreBackup process script that will allow the system to create the required REDO files. See "Create Pre/Post Backup Process Scripts to Back up VMware Virtual Machines Using the Linux File System iDataAgent" in Books Online for step-by-step instructions.

### Post Backup process

Displays the name/path of the backup process that you want to run after the respective phase. You can use this space to enter a path for the backup process that will execute after this phase on the subclient, or you can use the **Browse** button to search for and select the name/path of the process. The system allows the use of spaces in the name/path, provided they begin with an opening quotation mark and end with a closing quotation mark.



If you are using the Linux File System iDataAgent to back up VMware virtual machines, you must create a PostBackup process script that will allow the system to post data back to the virtual machines. See "Create Pre/Post Backup Process Scripts to Back up VMware Virtual Machines Using the Linux File System iDataAgent" in Books Online for step-by-step instructions.

### Run Post Backup Process for all attempts

Specifies whether this process will execute for all attempts to run the phase. Selecting this option will execute the post backup process for all attempts to run the phase, including situations where the job phase is interrupted, suspended, or fails. Otherwise, when the checkbox is cleared the specified process will only execute for successful, killed, or failed jobs.



**Run As**

Displays either the Local System Account, or for added security, another account as having permission to run these commands.

**Change**

Click to add or modify the account that has permission to run these commands.

**Browse**

Click to search for and select the Pre/Post Process.

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## Security

Use this dialog box to:

- Associate this object with a user group.
- Disassociate this object from a user group.

**Available Groups**

Displays the names of the user groups that are not associated with this CommCell object.

**Associated Groups**

Displays the names of user groups that are associated with this CommCell object.

## Encryption

Use this dialog box to select the data encryption options for the selected content. When accessing this dialog box from the Subclient Properties Encryption tab, this setting applies only to the selected subclient content for operations run from the CommCell Console. When accessing this dialog box from the Instance Properties Encryption tab, this setting applies only to third-party Command Line operations. The functionality is not propagated to the Subclient Properties Encryption tabs.

**None**

When selected, no encryption will take place during a data protection operations.

**Media Only (MediaAgent Side)**

When selected, for data protection operations, data is transmitted without encryption and then encrypted prior to storage. During data recovery operations, data is decrypted by the client.

When using this setting in conjunction with the client property **With a Pass-Phrase**, you will be required to provide a pass-phrase for data recovery operations unless you export the client pass-phrase to the destination client(s). When using pass-phrase security for third-party Command Line operations or DataArchiver Agents stub recovery operations, you must export the pass- phrase to the destination client.

**Network and Media (Agent Side)**

When selected, for data protection operations, data is encrypted before transmission and is stored encrypted on the media. During data recovery operations, data is decrypted by the client.

When using this setting in conjunction with the client property **With a Pass-Phrase**, you will be required to provide a pass-phrase for data recovery operations unless you export the client pass-phrase to the destination clients.

**Network Only (Agent Encrypts, MediaAgent Decrypts)**

When selected, for data protection operations, data is encrypted for transmission and then decrypted prior to storage on the media. During data recovery operations, data is encrypted by the MediaAgent and then decrypted in the client.

When using this setting in conjunction with the client property **With a Pass-Phrase**, you will not be required to provide a pass-phrase for data recovery operations.

**Script Preview**

Click to display the backup script, based on the current subclient configuration, that will be submitted to RMAN when backups are performed for the selected Oracle subclient.

## Encryption

Use this dialog box to select the data encryption options for the selected content. When accessing this dialog box from the Subclient Properties Encryption tab, this setting applies only to the selected subclient content for operations run from the CommCell Console. When accessing this dialog box from the Instance Properties Encryption tab, this setting applies only to third-party Command Line operations. The functionality is not propagated to the Subclient Properties Encryption tabs.

#### **None**

When selected, no encryption will take place during a data protection operations.

#### **Media Only (MediaAgent Side)**

When selected, for data protection operations, data is transmitted without encryption and then encrypted prior to storage. During data recovery operations, data is decrypted by the client.

When using this setting in conjunction with the client property **With a Pass-Phrase**, you will be required to provide a pass-phrase for data recovery operations unless you export the client pass-phrase to the destination client(s). When using pass-phrase security for third-party Command Line operations or DataArchiver Agents stub recovery operations, you must export the pass- phrase to the destination client.

#### **Network and Media (Agent Side)**

When selected, for data protection operations, data is encrypted before transmission and is stored encrypted on the media. During data recovery operations, data is decrypted by the client.

When using this setting in conjunction with the client property **With a Pass-Phrase**, you will be required to provide a pass-phrase for data recovery operations unless you export the client pass-phrase to the destination clients.

#### **Network Only (Agent Encrypts, MediaAgent Decrypts)**

When selected, for data protection operations, data is encrypted for transmission and then decrypted prior to storage on the media. During data recovery operations, data is encrypted by the MediaAgent and then decrypted in the client.

When using this setting in conjunction with the client property **With a Pass-Phrase**, you will not be required to provide a pass-phrase for data recovery operations.

#### **Script Preview**

Click to display the backup script, based on the current subclient configuration, that will be submitted to RMAN when backups are performed for the selected Oracle subclient.

## **Storage Device**

Use this dialog box to establish the storage device related settings on the selected subclient.

The following tabs are displayed:

- (Data) Storage Policy
- Data Transfer Option
- Deduplication

### **STORAGE POLICY**

Use this tab to select or view storage policy settings on the selected subclient.

#### **Data/Database/Transaction Log Storage Policy**

Displays the storage policy to which this subclient is currently associated. To associate a storage policy to a new subclient or to change the storage policy associated with an existing subclient, click one in the list.

#### **Incremental Storage Policy**

Displays the name of the Incremental Storage Policy associated with this subclient, if the storage policy has the Incremental Storage Policy option enabled.

#### **Data Paths**

Click to view or modify the data paths associated with the primary storage policy copy of the selected storage policy.

#### **Create Storage Policy**

Click to launch the Create a Storage Policy wizard. Once the storage policy has been created, it will be displayed in the list of storage policies to which the selected subclient can be associated.

### **DATA TRANSFER OPTION**

Use this tab to establish the options for data transfer.

### Software Compression

Indicates whether software compression for the subclient or instance is enabled or disabled, and if enabled whether it is performed on the client or MediaAgent computer.

- **On Client**

Click to enable software compression on the client computer.

- **On MediaAgent**

Click to enable software compression on the MediaAgent computer.

- **Off**

Click to disable software compression.

Note that hardware compression has priority over the software compression. Hardware compression is established in the Data Path Properties dialog box. The above software compression option will take effect when the data path is associated with a disk library, or when hardware compression is disabled in the data path associated with tape libraries.



If the subclient is associated with a storage policy copy that is deduplicated, then the compression settings on the storage policy copy takes precedence. See Copy Properties (Deduplication) - Advanced tab for compression settings on deduplicated storage policy copy.

### Resource Tuning

Indicates the processes used by the client to transfer data based and whether bandwidth throttling is enabled or not.

- **Network Agents**

Specifies the number of data pipes/processes that the client uses to transfer data over a network. Increasing this value may provide better throughput if the network and the network configuration in your environment can support it. On non-UNIX computers, the default value is 2 and a maximum of 4 can be established if necessary. On UNIX computers the default value is 1 and a maximum of 2 can be established if necessary.

- **Throttle Network Bandwidth (MB/HR)**

Specifies whether the backup throughput is controlled or not. (By default this option is not selected and therefore the throughput is not controlled). When selected, use the space to specify a value for the throughput. By default, this is set to 500. The minimum value is 1 and there is no limit to the maximum value. (In this case the backup throughput will be restricted to the maximum bandwidth on the network.)

Use this option to set the backup throughput, based on the network bandwidth in your environment. Use this option to reduce the backup throughput, so that the entire network bandwidth is not consumed, especially in slow links. Increasing this value will end up consuming the bandwidth with the maximum throughput limited to the network bandwidth capability.

Note that throttling is done on a per Network Agent basis.

## DEDUPLICATION

Use this tab to establish the options for deduplication on the subclient. It indicates whether deduplication for the subclient is enabled or disabled, and if enabled whether the signature generation (a component of deduplication) is performed on the client or MediaAgent computer.

Note that deduplication is supported on disk storage devices. So the deduplication options are applicable only if the subclient is associated with a Storage Policy containing disk storage.

- **On Client**

Click to enable signature generation on the client computer.

- **On MediaAgent**

Click to enable signature generation on the MediaAgent computer.

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## Subclient Properties (Auto Discover)

Use this tab to view and establish automatically discovered virtual servers.

- **Add Guest Host Name**

Lists the names of the guest hosts currently discovered. Click **Remove** to delete a guest host.

- **Guest Host Name**

Use this space to specify the name of a guest host. Click **Add** to add the guest host to the list of discovered guest hosts.

---

## Activity Control

Use this dialog box to enable or disable backups on a selected subclient.

If data management and data recovery operations are disabled at the client computer group or client level, then these operations below these levels will be disabled. If data management / data recovery operations are enabled at the client computer group or client level, then these operations below these levels will be enabled.

### Enable Backups

Specifies whether Backups will occur from this subclient.

If cleared:

- The button **Enable after a Delay** appears to the right side of this operation activity. It allows to pre-determine the date and time at which data management operations will begin on the selected subclient.
  - Backup operations from this subclient cannot be started and are skipped.
  - Running and waiting data management operations for this subclient run to completion.
  - Stopped data management operations for this subclient cannot be resumed until this option is enabled.
  - Pending data management operations for this subclient do not run until this option is enabled.
- 

## Subclient Properties (SRM Options)

Use this dialog box to specify the Data Collection requirements.

### SRM Data Collection

This option will be enabled if **Enable SRM** option is selected in the agent's Properties tab. You can Enable/Disable SRM Data Collection for an integrated SRM Agent only.

- **Discovery**

Select this option for the collection of less detailed information for the client.

- **Discovery and Analysis**

Select this option for collection of statistical data available for the client.

- **File Level Analytics**

Select this option to view file-level details for the specified client in various SRM Reports.

- **File Filters**

Allows you to either select or clear filters for Data Collection. You can either use global filters or user defined filters from the available options.

- **Use No Filters**

Select this option to define no filters for the selected subclient.

- **Use Global Filters**

Select this option to use predefined filters set up in the Control Panel under SRM Options.

- **Use Following Filters**

Select this option to set filters for the selected subclient.

---

## Subclient Properties (Content)

Use this tab to define the contents of a new subclient or to change the content of an existing subclient. Items included in subclient content are backed up by the subclient.

### Virtual Machine

Displays a list of virtual machines included as content for this subclient.

### Configure

Click this button to configure existing or additional virtual machines for this subclient.

## Subclient Properties (Rules)

Use Subclient Properties (Rules) tab to view or change archiving rules for this subclient.

- File (Selection) Rules
- Stub Rule

### FILE (SELECTION) RULES

Use this tab to create rules that enable or disable the Archiving Rules altogether and that specify criteria such as free space on volumes as a basis for determining whether to scan a volume for archiving or to determine if files are archived based on a file's age and/or size.

#### Disable all rules

Specifies whether the archiving rules for this subclient will be disabled.

#### Begin scan for file selection when free volume is less than *n* %

Use this space to specify the low watermark value for the volume. As the first step in a migration archiving operation, the free space of the volume is checked where the subclient content resides. If the free space on the volume is greater than the specified value, then the volume will not be scanned for archiving.

For example:

- If you entered a value of 40% for this field, and the free space currently on the volume is 50%, then the volume will be skipped and files within it will not be archived.
- If you entered a value of 60% for this field, and the free space currently on the volume is 50%, then the volume will be scanned for files that meet the archiving criteria.

#### End scan if volume is freed to *n* %

Use this space to specify the high watermark value for the volume, which determines the point at which the migration archiving operation will stop archiving files. When a volume or folder/directory is scanned for archiving and files are being archived, the archiving will continue until the free space on the volume is equal to the value specified here. In the case of a very large file, archiving will continue even beyond the specified high watermark value until the entire file has been archived.

For example:

- If you entered a value of 70% for this field, and archiving has freed up 70% of the space on the volume, then archiving of files within that volume will cease. Note that in the case of a very large file, archiving will continue even beyond the specified high watermark value until the entire file has been archived.

#### Archive file access time older than *n* Days

Use this space to specify the number of days elapsed (i.e., the age of the file) since the last accessed time of each file, in order for the file to be archived. If a volume or folder/directory is scanned for archiving, the last accessed date of each file within that volume or folder/directory is checked to see if it is older than the number of days specified here. If the last accessed date of files within a scanned volume or folder/directory is older than the number of days entered in this field, then those files will be archived.

For example:

- If you entered a value of 30 days, then all files older than 30 days in the scanned volume or folder/directory will be archived.

#### Archive file modified time older than *n* Days

Use this space to specify the number of days elapsed (i.e., the age of the file) since the modified time of each file, in order for the file to be archived. If a volume or folder/directory is scanned for archiving, the modified date of each file within that volume or folder/directory is checked to see if it is older than the number of days specified here. If the modified date of files within a scanned volume or folder/directory is older than the number of days entered in this field, then those files will be archived.

For example:

- If you entered a value of 30 days, then all files older than 30 days in the scanned volume or folder/directory will be archived.

#### Archive file if size is greater than *n* KB

Use this space to specify the size a file must be in order for the file to be archived. If a file size within a scanned volume or folder/directory is greater than this value, then it will be archived. If a volume or folder/directory is scanned for archiving, the size of files within that volume or folder/directory are checked to see if they are greater than the size specified here. If a file size within a scanned volume or folder/directory is greater than this value, then it will be archived.

For example:

- If you entered a value of 50 KB, then all files greater than 50 KB in the scanned volume or folder/directory will be archived.

#### Archive if: Any of the file selection rules are satisfied

Specifies whether to archive a file if it satisfies one or more of the criteria established by the rules in the File Selection Rules tab, in addition to any other rules

that may apply. This rule determines whether a file has to satisfy a minimum of one of the rules (i.e., Age or Size) in order to be archived, in addition to satisfying any other rules in the hierarchy. For example:


- If a file is 29 days old and is 1 MB in size, and if the rules are enabled and set to archive files older than 30 days OR larger than 50 KB, then the file would be archived since it met *any of the file selection rules* (i.e., Archive file if size is greater than 50 KB).
- If a file is 31 days old and is 10 KB in size, and if the rules are enabled and set to archive files older than 30 days OR larger than 50 KB, then the file would be archived since it met *any of the file selection rules* (i.e., Archive file older than 30 days).

**Archive if: All of the file selection rules are satisfied**

Specifies whether to archive a file only if it satisfies all of the criteria established by the rules in the File Selection Rules tab, in addition to any other rules that may apply. This rule determines whether a file has to satisfy both rules (i.e., Age and Size) in order to be archived, in addition to satisfying any other rules in the hierarchy.

For example:

- If a file is 29 days old and is 1 MB in size, and if the rules are set to archive files older than 30 days AND larger than 50 KB, then the file would not be archived since it did not meet *all of the file selection rules* (i.e., the rule to "Archive file older than 30 days" was not satisfied since the file is only 29 days old).
- If a file is 31 days old and is 1 MB in size, and if the rules are set to archive files older than 30 days AND larger than 50 KB, then the file would be archived since it satisfied *all of the file selection rules* (i.e., the rule to "Archive file older than 30 days" was satisfied since the file is 31 days old, and the rule to "Archive file if size is greater than 50 KB" was also satisfied since the file size is 1 MB).

	If the only rule that is satisfied is set to 0 then it is not valid and the file will not be archived.
---	--

## STUB RULE

Use this tab to determine when stubs are pruned and to disable stub creation altogether.

**Preserve stubs until the media has been pruned**

Specifies that stubs will not be pruned until the media is aged during a data aging operation.

**Prune stub only after *n* days**

Specifies the number of days that a stub will be retained before it is pruned. You can use this space to change the number of days.

**Archive files only, do not create a stub**

Specifies that a stub won't be created for any archived file. When this option is selected, the archived files will be removed from the computer and a stub recovery is not possible. To recover archived files that do not have stubs, perform a Browse and Recovery procedure from the CommCell Console.

**Disable default index cycles**

Select this option to change the default setting of **Set index cycle to every *n* archive jobs**. Any value other than the default value would be visible the next time the properties tab is accessed.

**Set index cycle to every *n* archive jobs**

Use this space to specify how often a new index is created, based on the number of archive operations.

## Backup Set Properties (General)

VMware | Microsoft Virtual Servers/Hyper-V | Xen Server

Use this dialog box to define a New Backup Set or view and modify the properties of an existing Backup Set.

**Client Computer**

Displays the name of the Client computer to which this Backup Set belongs.

**iDataAgent**

Displays the name of the iDataAgent to which this Backup Set belongs.

**Instance Name**

Displays the name of the instance to which this Backup Set belongs.

The instance name can be modified for an existing Backup Set from the properties dialog box.

**Backup Set / New Backup Set Name**

When creating a new Backup Set, type the name of the Backup Set.

For an existing Backup Set, the name of the Backup Set is displayed.

**Automatically add new VMs that don't qualify for membership in any of the subclients**

Select this option to automatically add virtual machines that don't qualify for membership in any of the existing subclients to this backup set.

**Make this the default Backup Set**

Specifies whether the selected backup set is the default or a user-defined backup. Selecting this option asserts this backup set as the default. The previously designated default backup set is automatically reallocated as a user-defined backup set. Clearing this option, is accomplished by opening the Backup Set Properties dialog box of some other backup set and clicking this option there, thereby designating that backup set as the default.

**Rule based discovery**

Select this option to configure options for rule based discovery.

• **Match guest host names by regular expression**

Select this option to configure discovery rules based on guest host names for the existing subclients of this backup set. Click **Configure** to setup the configuration for this selection.

---

## Backup Set Properties (Guest Hosts Configuration)

VMware | Microsoft Virtual Servers/Hyper-V | Xen Server

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Use this dialog to configure one or more guest hosts for the selected backup set.

**Virtual Machine**

This column displays the virtual machine associated with the selected backup set.

**Subclient Name**

This column displays the subclient associated with the selected Virtual Machine.

**Discover**

Click this button to discover new guest hosts.

**Change all selected Guest Host to**

Use the drop-down menu to change selected server's subclient association. Select **Do Not Backup** if you wish to exclude the selected servers from data protection operations.

**Apply**

Click this button to apply the changes made to the guest host configuration.

---

## Security

Use this dialog box to:

- Identify the user groups to which this CommCell object is associated.
- Associate this object with a user group.
- Disassociate this object from a user group.

**Available Groups**

Displays the names of the user groups that are not associated with this CommCell object.

**Associated Groups**

Displays the names of user groups that are associated with this CommCell object.

**Automatically add New Users to the "View All" Group** (CommServe Level Only)

Specifies that all new users will automatically be added to the `view All` user group. This group allows users to view all CommCell objects, regardless of the associations of the other user groups they belong to.

**Require Authentication for Agent Installation** (CommServe Level Only)

Enable this option to prompt users for authentication for any agent installation on the CommCell.

**Client Owners**

Specify a user to allow CommCell user access to this client computer through CommCell Console and allow permission to run Web Console browse and restore operations on this client. Each user must be listed in a separate line.

## Backup Options

Use this dialog box to schedule or immediately run a backup job.

**Select Backup Type**

- **Full**

Specifies the job as a Full backup, which backs up all data for the selected subclient(s).

- **Incremental**

Specifies the job as an Incremental backup, which backs up only that portion of the data that is new or has changed since the last backup.

- **Differential**

Specifies the job as a Differential backup, which backs up only that portion of the data that is new or has changed since the last full backup.

- **Synthetic Full**

Specifies the job as a Synthetic Full backup, which creates a Full backup from existing backup data for the selected subclient or backup set (if applicable). The Synthetic Full backup consolidates the backup data; it does not actually back up data from the client computer.



If applicable for your agent, the **Verify Synthetic Full** option in the Advanced Backup Options dialog box will include never-changing files in the next backup. This option is enabled by default.

**Run Incremental Backup**

Specifies the options for running an Incremental backup either immediately before a Synthetic Full backup or immediately after a successfully completed Synthetic Full backup when selected. When cleared, an Incremental backup is not automatically run either immediately before or after the Synthetic Full backup.

- **Before Synthetic Full:** Specifies the operation will back up any data that is new or changed since the previous backup in order to have it included as part of the Synthetic Full backup.
- **After Synthetic Full:** Specifies the operation will back up any data that is new or changed since the backup that occurred prior to the Synthetic Full backup.

**Job Initiation**

- **Immediate**

Specifies this job will run immediately.

- **Schedule**

Specifies this job will be scheduled. Click **Configure** to specify the schedule details.

**Advanced**

Click to select advanced backup/archive options, such as create a new index, start new media, and mark media as full.

**Save As Script**

Click to open the Save As Script dialog, which allows you to save this operation and the selected options as a script file (in XML format). The script can later be executed from the Command Line Interface using `qoperation execute` command.

When you save an operation as a script, each option in the dialog will have a corresponding xml parameter in the script file. When executing the script, you can modify the value for any of these XML parameters as per need.

To view the XML values for each of the options in the dialog, see the following:

Command Line XML Options for Virtual Server iDataAgent



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## Advanced Backup Options (Data)

You can select advanced backup/archive data options for the operation. Note that all the options described in this help may not be available and only the options displayed in the dialog box are applicable to the agent or enabler for which the information is being displayed.

### Catalog

Use this section to select index cache sharing and granular restartability options for the job. Note that these options are not applicable for the disaster recovery data protection.

- **Use shared profile if present with transaction logging**

Select this option if you wish to use the shared index cache profile of the MediaAgent (if configured) to save a copy of the job's index cache for index cache sharing *with* transaction logging feature for granular job restartability.

Shared profile with transaction logging provides job restartability in failover situations. This is a recommended configuration.

- **Use shared profile if present without transaction logging**

Select this option if you wish to use the shared index cache profile of the MediaAgent (if configured) to save a copy of the index cache for index cache sharing *without* transaction logging feature for granular job restartability. This is not a recommended configuration.

- **Use transaction logging**

Select this option to use transaction logging feature to provide granular job restartability (without using shared profile for index cache sharing).

- **None**

Select this option to use neither shared profile nor transaction logging.

### Create Backup Copy immediately

Select this option to perform inline backup copy operation.

- **Enable Granular Recovery**

This option is selected by default. It enables recovery of files and folders from the backup copy.

### Enable Granular Recovery

Click to perform Granular Recovery. When clicked, allows recovery of Individual files and folders from the primary copy.

---

## Advanced Backup Options (Startup)

You can specify advanced backup/archive/content indexing startup options for the operation. For more information, select one of the following:

### Set Priority

- **Use Default Priority**

Select this option to use default priority for the job.

- **Change Priority**

Use this option to modify the priority of a job between 0 (highest priority) and 999 (lowest priority). The Job Manager will use the priority setting when allocating the required resources.

### Start job in suspended state

Specifies that this job will start in the Job Controller in a suspended state and cannot run until the job is manually resumed using the **Resume** option.

### Description

Use this field to enter a description about the entity. This description can include information about the entity's content, cautionary notes, etc.

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## Advanced Backup Options (Media)

You can select advanced backup/archive media options for the operation. Note that all the options described in this help may not be available and only the options displayed in the dialog box are applicable to the agent or enabler for which the information is being displayed.

### Start New Media

This option starts the backup/migration/archive operation on a new media, which causes the following to occur:

- If removable media is used, the current active media is marked as Appendable and a new media is used for the backup/migration/archive.
- If disk media is used, a new volume folder is created for the backup/migration/archive.

If cleared, the operation automatically uses the current active media or volume.



When using the Informix iDataAgent, if you are using tape and do all of the following, the tape will be marked full for both the data storage policy and the logical logs storage policy, and new media will be made available for both the logs and data even though you are backing up just the logical logs:

- Define a subclient with different storage policies for the logical logs and the data
- Prepare to back up just the logical logs
- Select the **Start new media** option before you start the backup

#### Mark Media Full after Successful Operation

This option marks media full, 2 minutes after the completion of the backup/archive operation. If any jobs are initiated within the 2 minutes, they are allowed to write to the media. If the job was associated with the prior media, new media (such as a new tape) will be used for subsequent jobs. (Applies to all backup/archive types.)

#### Allow other Schedule to use Media Set

This option allows jobs that are part of a schedule policy or schedule and using a specific storage policy to start a new media and also prevent other jobs from writing to the set of media. It is available only when the **Start New Media** and **Mark Media Full** options are enabled, and can be used in the following situations:

- When one scheduled job initiates several jobs and you only want to start new media on the first job.
- When you want to target specific backups to a media, or a set of media if multiple streams are used.

#### Override Job Retention

- **Infinite:** Select this option to retain this job indefinitely.
- **Number of Days:** Select this option to prune this job after the number of days specified.
- **Storage Policy Default:** Select this option to apply the retention rules of the associated storage policy, which is the default option.

## Advanced Backup Options (Data Path)

Select the data path to be used for the backup/archive operation.

Ensure that the Library, MediaAgent, Drive Pool, and the Drive selected for this operation is available online and is a part of the associated Storage Policy.

#### Use Library

Specifies the name of the library that will be used to perform the backup operation. Use this option when you wish to backup to a specific library.

#### Use MediaAgent

Specifies the name of the MediaAgent that will be used to perform the backup operation. If necessary, you can change the name of the MediaAgent.

For example, if the library is shared and you wish to use a specific MediaAgent (instead of the system selected MediaAgent, or a MediaAgent which may be idle, or less critical) or if you know that the library attached to the specified MediaAgent.

#### Use Drive Pool

Specifies the name of the Drive Pool that will be used to perform the backup operation. Use this option when you wish to backup using a specific Drive Pool.

#### Use Drive

Specifies the name of the Drive that will be used to perform the backup operation. Use this option when you wish to backup using a specific Drive from the selected Drive Pool.

## Vault Tracking

Select options to export and track media, using Vault Tracker.



Vault Tracking Options will be displayed only when a Vault Tracker license is available in the CommServe.

Vault Tracking options are only applicable for data protection operations using a storage policy associated with a library containing removable media (e.g., tape, optical or stand-alone.)

#### Export media after the job finishes

Specifies the media used by the data protection operation and media with the specific Media Status (if specified) will be exported and tracked by Vault Tracker.

#### **Exclude Media Not Copied**

When selected, allows you to exclude media with jobs that have to be copied.

#### **Media Status**

- **All**  
Click to select all media. Clear this option to select media with a specific status.
- **Active**  
Click to select media with its status marked as active.
- **Full**  
Click to select media with its status marked as full.
- **Overwrite Protected**  
Click to select media with its status marked as read-only .
- **Bad**  
Click to select media with its status marked as bad.

#### **Export Location**

Specifies the destination location and lists the stationary locations entered using the **Export Location Details** dialog box.

#### **Track Transit**

Specifies that transit information must be tracked, and lists the transit locations entered using the **Export Location Details** dialog box.

#### **Use Virtual Mail Slots**

Specifies the exported media is stored within the library in the virtual mail slots defined in the **Library Properties (Media)** dialog box.

#### **Filter Media By Retention**

Specifies that the system must automatically filter media based on whether the media has extended retention jobs or not.

- **Media with extended retention job(s)**  
Specifies that media with at least one extended retention job will be exported.
- **Media with no extended retention job(s)**  
Specifies that media with no extended retention jobs will be exported.

## Alert

Use this tab to configure an alert for a schedule policy.

#### **Configure Alert**

- **Alert**  
The currently configured Alert.
- **Add/Modify Alert**  
When clicked, opens the Alert Wizard to configure alerts for this operation.
- **Delete Alert**  
When clicked, deletes any existing alerts that are already configured.

## Browse Options

VMware | Microsoft Virtual Servers/Hyper-V | Xen Server

Use this dialog box to select the basic options under which you want to browse the data secured by a data protection operation in the selected client, agent, instance/partition, or backup set level depending on the functionality of a given agent. The system provides several browse options. These options influence the behavior of the browse operation in the subsequent Browse window.

**Browse the Latest Data**

Specifies whether the browse operation must display data from the most recent data protection operation (from now back to the last full backup) in the Browse window. (This option is selected by default.)

**Specify Browse Time**

Specifies whether the browse operation must display data, up to the specified date and time in the Browse window. Data secured after the specified date and time will be omitted in this window.

- **Browse Data Before/Browse to Point-In-Time**

Specifies the date and time that must be used to display the data in the Browse window.

- **Time Zone**

Lists the time zones. To change the time zone, click one in the list.

**Client Computer**

Lists the client computers available for the browse operation. This option is available only when the browse operation is performed either from the client node in the CommCell Browser, **Browse & Recover** option from the **Tools** menu in the CommCell Console or when the **New Browse** button is clicked in the Browse window.

**Use MediaAgent**

Specifies the name of MediaAgent that will be used to perform the browse (and restore) operation. If necessary, you can change the name of the MediaAgent. For example, if the library is shared and you wish to use a specific MediaAgent (instead of the system selected MediaAgent, or a MediaAgent which may be idle, or less critical) or if you know that the media containing the data you wish to restore is available in the library attached to the specified MediaAgent.

If the media containing the data is not available in the tape/optical library attached to the MediaAgent, the system will automatically prompt you to insert the appropriate media. In the case of a disk library, the operation will fail if the requested data is not available in the disk library attached to the specified MediaAgent.

**Show Deleted Items**

Specifies whether the operation will browse all the data (including deleted items) secured by all data protection operations for the selected backup set as of the specified browse items.

**Page Size**

Use the space to enter the default number of objects to be displayed in the Browse window. This field reverts back to the default setting after use. In the Browse window, you can browse through each page list by selecting the appropriate page number.

**Type of Intended Restore (Virtual Server iDataAgent)**

This section provides the facility to select the type of restore you want to perform following the Browse operation.

- **Individual Files/Folders**

Select this option if you intend on performing a file/folder-level restore.

- **Entire Volume**

Select this option if you intend on performing a volume-level restore.

- **Container Restore**

Select this option if you intend on performing a disk-level restore.

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## Advanced Browse Options

Use this dialog to access additional browse capabilities for the browse window.

**Include Metadata**

Specifies that the browse operation results must also include data containing metadata information.

**Exclude Data Before**

Specifies that the browse operation must return data that has been backed up after the specified date. Also provides a space for you to type the date and time.

- **Time Zone**

Lists the time zones. To change the time zone, click one in the list.

**Browse from copy precedence**

When selected, the system retrieves the data from the storage policy copy with the specified copy precedence number. If data does not exist in the specified copy, the operation fails even if the data exists in another copy of the same storage policy.

When cleared, (or by default) the system retrieves data from the storage policy copy with the lowest copy precedence. If the data was pruned from the primary copy, the system automatically retrieves the data from the other copies of the storage policy starting with the copy with the lowest copy precedence and proceeding through the copies with higher copy precedence. Once the data is found, it is retrieved, and no further copies are checked.

## List Media

Use this dialog box to select the options that must be used to predict the required media.

### Media For the Latest Data

Specifies whether the list media operation must display media associated with the most recent data protection operation (from now back to the last full backup) This option is selected by default.

### Specify Time Range

Specifies whether the whether the list media operation must display media associated with the specified date and time.

- **Data Before/Time Range**

Specifies the date and time that must be used to display media.

- **Time Zone**

Lists the time zones. To change the time zone, click one in the list.

### Advanced

Click to access additional options.

## Restore Options (General)

VMware | Microsoft Virtual Servers/Hyper-V | Xen Server

Use this dialog box to control how the specified data is to be restored. For Xen, Container Level, Volume and File Level restores are available.

### CONTAINER RESTORE OPTIONS

- **Virtual Machine**

The name of the virtual machine to be restored. Selecting this option also allows selecting additional **Virtual Machine Restore Options**.

- **VMDK files**

Select this option to restore the selected content as an entire virtual machine disk file.

- **Destination Client/Computer/Server**

Displays the name of the client computer to which the selected data will be restored. To change the destination computer, select one from the list. The list includes clients:

- Which are established as clients within the CommCell.
- Clients with Operating Systems that support the cross-platform restore operation from this client. (Refer to the topic titled **Cross Platform Restore Operations** in Books Online for additional information.)

By default, data is restored to the same computer from which it was backed up.

- **Destination folder**

Use this space to enter the path on the destination computer to which the data will be restored. If the specified path does not exist, it will be created during the restore process.

- **Browse**

Click to select a path for the **Destination folder**.

### Virtual Machine Restore Options

This section displays additional restore options for Virtual Machines.

- **Virtual Center/ ESX Server Name**

The name of the ESX Server in the Virtual Center.

- **Server logon account**

The name of the server to which the data will be restored. The name entered in this field depends on the which of the following options are selected:

- **User Account**

Displays the User Name configured for Server logon account.

- **Configure Password**

Use this section to enter the credentials for the server selected in the **Virtual Machine Restore Options** section.

- **Browse Virtual Center/ESX Server for destination**

Use this section to browse for Data Store for disk level restore.

- **VM Name**

The name of the virtual machine to be restored.

- **Power ON Virtual Machine After Restore**

Click to power ON Virtual Machine after restore completes.

## VOLUME-LEVEL RESTORE OPTIONS

### Restore As (Volume-Level Restore)

- **Physical Volume**

Select this option to restore the selected content as a complete physical volume.

- **Virtual Hard Disk file**

Select this option to restore the selected content as a virtual hard disk file.

- **VMDK Files**

Select this option to restore the selected content as an entire virtual machine disk file.

- **Destination Client/Computer/Server**

Displays the name of the client computer to which the selected data will be restored. To change the destination computer, select one from the list. The list includes clients:

- Which are established as clients within the CommCell.
- Clients with Operating Systems that support the cross-platform restore operation from this client. (Refer to the topic titled **Cross Platform Restore Operations** in Books Online for additional information.)

By default, data is restored to the same computer from which it was backed up.

## FILE-LEVEL RESTORE OPTIONS

### Restore ACLs (File-Level Restore)

Specifies that the backed up Access Control Lists (ACLs) will be applied to files that have been restored without their ACLs, or to the existing files at the restore destination. Clear this option to restore without ACLs and consequently the data assumes the ACLs of the parent directory.

### Unconditional Overwrite

Specifies whether the restored data is unconditionally written to the specified location.

If cleared:

- Files/directories whose names are the same as those in the restore path and where the backed up data is as old or older are not restored.
- files/directories whose names are the same as those in the restore path and where the backed up data is newer are restored.
- Files/directories whose names are different from those in the restore path are restored.



Avoid using this option whenever you run a Restore by Jobs. Otherwise, an older version of the files might be retrieved.

- **Destination Client/Computer/Server**

Displays the name of the client computer to which the selected data will be restored. To change the destination computer, select one from the list. The list includes clients:

- Which are established as clients within the CommCell.

- Clients with Operating Systems that support the cross-platform restore operation from this client. (Refer to the topic titled **Cross Platform Restore Operations** in Books Online for additional information.)

By default, data is restored to the same computer from which it was backed up.

- **Destination folder**

Use this space to enter the path on the destination computer to which the data will be restored. If the specified path does not exist, it will be created during the restore process.

On Windows computers, UNC path of a shared drive can be specified. (e.g., \\servername\sharename\directory). Click the **Advanced** button, and enter the Windows logon information for this shared drive in the **Advanced Restore Options** dialog box.

- **Browse**

Click to select a path for the **Destination folder**.

#### Preserve Source Paths

Specifies the action taken when the data is restored to another destination. The options are available only when the **Restore to Same Paths** option is cleared.

- **Preserve n levels from end of source path**

Specifies whether the restore operation must keep the specified number of levels at the end of source path of the selected data. For example, if the selected data is Documents\Memos\Sales, this option is set to 1 and the **Destination folder** is temp, the data will be restored as \temp\Sales.



However, if this option is used to restore a file in a path that contains any valid wildcard expression (e.g., Documents\\*\*\Sales), the default value of 1 for the option cannot be changed. Therefore, only the last found occurrence of the file is restored, and the restores for all the other occurrences of the file are overwritten.

- **Remove n levels from beginning of source path**

Specifies whether the restore operation must remove the specified number of levels from the beginning of source path of the selected data. For example, if the selected data is Documents\Memos\Sales, this option is set to 1 and the **Destination folder** is \temp, the data will be restored as \temp\Sales. (This option becomes available only when the **Restore to Same Paths** option is cleared.)

#### Save As Script

Click to open the Save As Script dialog, which allows you to save this operation and the selected options as a script file (in XML format). The script can later be executed from the Command Line Interface using `qoperation execute` command.

When you save an operation as a script, each option in the dialog will have a corresponding xml parameter in the script file. When executing the script, you can modify the value for any of these XML parameters as per need.

To view the XML values for each of the options in the dialog, see the following:

Command Line XML Options

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## Advanced Restore/Recover/Retrieve Options (General)

Use this dialog box to access additional restore/recover/retrieve options. Note that all the options described in this help may not be available and only the options displayed in the dialog box are applicable to the component installed on the client.

#### Automatically Detect Regular Expressions

Specifies whether to use regular expressions in defining the **Source Paths**. This does not apply to **Filter Paths**. When selected, the system will recognize supported regular expressions (wildcards) in the specified **Source Path**. When cleared, the system will read the specified **Source Path** as literal.

#### Skip Errors and Continue

For index-based agents, this advanced restore/recover/retrieve option enables a restore/recover/retrieve job to continue despite media errors. This option also provides an output file that lists the full path names of the files that failed to restore/recover/retrieve.

#### Impersonate (Windows, NetWare) User

Specifies whether to submit the Windows or NetWare logon information for the current restore/recover operation. This information is needed only if you intend to restore/recover data to a mapped network drive, shared network drive, or directory to which you have no write, create, or change privileges, or for restoring to applications.

Depending on the agent, there are as many as three separate User Impersonation accounts: this one for the function described, one for Pre and Post backup/migrate processes, and one for Pre and Post restore/recover processes. Each account operates independently of the other(s).

## Advanced Restore Options (Copy Precedence)

Choose the copy from which you wish to recover or retrieve. Select from the following options:

### Restore/recover from copy precedence

When selected, the system retrieves the data from the storage policy copy with the specified copy precedence number. If data does not exist in the specified copy, the operation fails even if the data exists in another copy of the same storage policy.

When cleared, (or by default) the system retrieves data from the storage policy copy with the lowest copy precedence. If the data was pruned from the primary copy, the system automatically retrieves the data from the other copies of the storage policy starting with the copy with the lowest copy precedence and proceeding through the copies with higher copy precedence. Once the data is found, it is retrieved, and no further copies are checked.

## Advanced Restore Options (Data Path)

Select the data path for the restore/recovery operation. You can specify the MediaAgent, Library, Drive Pool, and Drive from which the restore operation must be performed.

### Use MediaAgent

Specifies the name of the MediaAgent that will be used to perform the restore operation. If necessary, you can change the name of the MediaAgent.

For example, if the library is shared and you wish to use a specific MediaAgent (instead of the system selected MediaAgent, or a MediaAgent which may be idle, or less critical) or if you know that the media containing the data you wish to restore is available in the library attached to the specified MediaAgent.

If the media containing the data is not available in the tape/optical library attached to the MediaAgent, the system will automatically prompt you to insert the appropriate media. In the case of a disk library, the operation will fail if the requested data is not available in the disk library attached to the specified MediaAgent.

### Use Library

Specifies the name of the library that will be used to perform the restore operation. Use this option when you wish to restore using a specific library.

For example, if you know that the media containing the data you wish to restore is available in a specific library.

### Use Drive Pool

Specifies the name of the Drive Pool that will be used to perform the restore operation. Use this option when you wish to restore using a specific Drive Pool.

To restore NAS data, select the drive pool type that was used to perform the backup, *i.e.*, if a drive pool associated with an NDMP Remote Server was used to perform the backup, select a drive pool associated with an NDMP Remote Server. Similarly, if an NDMP drive pool was used, specify an NDMP drive pool.

### Use Drive

Specifies the name of the drive in the drive pool that will be used to perform the restore operation. Use this option when you wish to restore using a specific Drive in the Drive Pool.

### Use Proxy

Specifies the name of the proxy server that will be used to perform the restore operation. Use this option when you wish to restore using a proxy server.

## Advanced Restore Options (Encryption)

### Pass-Phrase

Enter the pass-phrase that is currently assigned to the client, whose data you are restoring. Note that if you have changed the pass-phrase since you secured the client data, you need to provide the new pass-phrase here, not the old one.

### Re-enter Pass-Phrase

Re-enter the pass-phrase for confirmation.

If you attempt an immediate restore of encrypted data that was pass-phrase protected without entering the pass-phrase here, the restore operation will fail.

If you have an exported pass-phrase set up, and you enter the pass-phrase under **Decryption**, you over-ride (not overwrite) the client properties pass-phrase. Thus, if you enter the pass-phrase incorrectly, the restore does not complete successfully.

## Startup

Select from the following options. Note that all the options described in this help may not be available and only the options displayed in the dialog box are



applicable to the operation for which the information is being displayed.

#### Priority

- **Use Default Priority**

If selected, the default priority for this type of job will be used in determining how the Job Manager will allocate resources for this job.

- **Change Priority**

Use this option to manually specify the priority for the job, between 0 (highest priority) and 999 (lowest priority). The Job Manager will use the priority setting when allocating the required resources. This is useful if you have jobs that are very important and must complete, or jobs that can be moved to a lower priority.

#### Start up in suspended state

Specifies that this job will start in the Job Controller in a suspended state and cannot run until the job is manually resumed using the **Resume** option. This option can be used to add a level of manual control when a job is started. For example, you could schedule jobs to start in the suspended state and then choose which scheduled jobs complete by resuming the operation started in the suspended state.

#### Description

Use this field to enter a description about the entity. This description can include information about the entity's content, cautionary notes, etc.

## Alert

Use this tab to configure an alert for a schedule policy.

#### Configure Alert

- **Alert**

The currently configured Alert.

- **Add/Modify Alert**

When clicked, opens the Alert Wizard to configure alerts for this operation.

- **Delete Alert**

When clicked, deletes any existing alerts that are already configured.

## Advanced Restore Options (Options)

Use this dialog box to make modifications in the names and locations of databases for restore.

#### Database

Displays the name of the database. You can edit the name by clicking within the box. Changes cause the data to be restored to a new database on the selected server.

For a detailed description on how to change the name of a SQL database, see the procedure titled "Restore a Database with a Different Name" in *Books Online*.

#### Device Name

Displays the device name of the database.

#### File Name

Displays the name of the database file to be restored.

#### Physical Path

Displays the complete path to the selected database file. You can edit the path by clicking within the box. Changes cause the database files to be restored to a new location. If the specified path does not exist, it will be created during the restore process.

For SQL, if the database file path is changed without changing the name of the database, then the existing database will be overwritten and will point to the new location. For a detailed description, see the procedure titled "Restore with a Different Data File Path" in *Books Online*.

#### Size (MB)

Displays the size of the database file in megabytes.

#### Find & Replace

For SQL, click to change multiple Database Name or Database File Path.

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## Advanced Recover Options (Browse Options)

Use this dialog box to specify advanced restore options.

### Restore Deleted Items

Specifies that the restore/recovery operation will include data that was secured during all backup/archive operations, including deleted items.

### Specify Time Range

Specifies to restore/recover data within a specified time zone and time threshold. Select the checkbox to enable this option. Clearing the checkbox disables this option. If this option is enabled, set the following parameters:

- **Time Zone** - Restores/recovers only those jobs within a specified time zone. Click the pull-down list and click the desired time zone.
  - **Start Time** - Displays the start time for the restore/recovery operation. Click the pull-down arrow and click a date; use the up and down arrows to specify a time.
  - **End Time** - Displays the end time for the restore/recovery operation. Click the pull-down arrow and click a date; use the up and down arrows to specify a time.
- 

## Operation Window

Use this dialog box to add, modify, or delete operation rules for system operations.

### Name

The friendly name assigned to the operation window.

### Operations

The operations included in the rule.

### Days

Displays the days in which the operations in this rule should not be run.

### Do not run intervals

Displays the times in which the operations in this rule should not be run.

### Add

Click this button to add an operation rule from the Operation Rule Details dialog box.

### Modify

Click this button to modify an operation rule from the Operation Rule Details dialog box.

### Delete

Click this button to delete an operation rule.

**Ignore Operation Rules at Higher Levels** (not applicable at the CommServe and Client group level)

Select this option to disable all operation rules set at levels above the currently selected entity.

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