

User Guide - Active Directory *iDataAgent*

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- Offline Mining

Terminology

INTRODUCTION

The Active Directory iDataAgent provides granular backup and restore of individual Active Directory attributes.

KEY FEATURES

The Active Directory iDataAgent offers the following key features:

COMPREHENSIVE DATA PROTECTION AND RECOVERY

The Active Directory iDataAgent along with the Windows File System iDataAgent provides complete data protection for a domain controller and other computers in a domain. It can also secure LDS/ADAM attributes.

POINT-IN-TIME RECOVERY

In the event of a serious system failure, such as the breakdown of hardware, software, or operating systems, the Active Directory iDataAgent provides point-in-time recovery of files at any given time.

EFFICIENT JOB MANAGEMENT AND REPORTING

You can view and verify the status of the backup and recovery operations from the Job Controller and Event Viewer windows within the CommCell Console. You can also track the status of the jobs using reports, which can be saved and easily distributed. Reports can be generated for different aspects of data management. You also have the flexibility to customize the reports to display only the required data and save them to any specified location in different formats. For example, you can create a backup job summary report to view at-a-glance the completed backup jobs. In addition, you can also schedule these reports to be generated and send them on email without user intervention.

BACKUP AND RECOVERY FAILOVERS

In the event that a MediaAgent used for the backup or recovery operation fails, it is automatically resumed on alternate MediaAgents. In such cases, the backup or restore job will not restart from the beginning, but will resume from the point of failure. This is especially useful for backups and restores on large directory server databases.

In the event, that a network goes down, the backup and recovery jobs are resumed on alternate data paths. Similarly, in the event of a device failure, the jobs are automatically switched to alternate disk and tape drives.

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 an object (file, database, etc.) contains blocks of data that are identical to each other, then block level deduplication eliminates storing the redundant data and reduces the size of the object in storage. This way dramatically reduces the backup data copies on both the disk and tapes.

ADD-ON COMPONENT

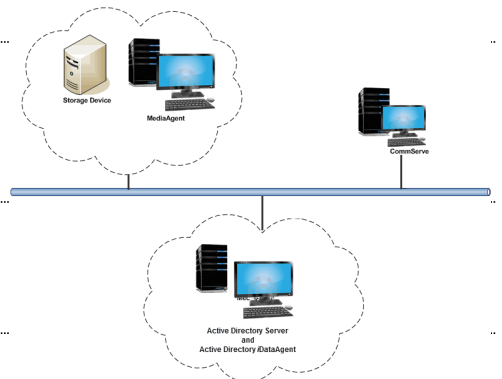
OFFLINE MINING

The Active Directory Offline Mining enables you to browse multiple versions of the directory server database from different points in time. This is useful if you want to compare different versions of a single object or attribute. The value of each attribute is visible in the offline copy, which allows you to easily compare

WHERE TO GO NEXT

Install the Active Directory iDataAgent

Walks you through the process of installing the Active Directory iDataAgent.



attributes and recover the exact version you need.

TERMINOLOGY

The Active Directory documentation uses the following terminology:

CLIENT	The computer in which the iDataAgent is installed and contains the data to be secured.
BACKUPSET	A group of subclients which includes all of the data backed up by the iDataAgent.
SUBCLIENT	The Active Directory Server data to be backed up.



New Features - Active Directory iDataAgent

NEW FEATURES FOR ACTIVE DIRECTORY IDATAAGENT

DATA PROTECTION OPERATIONS

The Active Directory iDataAgent is now supported on Unix MediaAgents.

SUPPORT FOR ACTIVE DIRECTORY PARTITIONS

Active Directory iDataAgent now provides the ability to backup and restore the Configuration, Schema, and ForestDNSZones partitions with certain restrictions on restore capability. For more information, see [What Gets Backed Up](#).

NEW COMMCELL FEATURES SUPPORTED FOR ACTIVE DIRECTORY IDATAAGENT

DEPLOYMENT

CUSTOM PACKAGE

The Custom Package feature is now extended to almost all products in the Calypso suite. Using Custom Packages, you no longer have to push the entire software DVD through a network, which is especially useful for reducing WAN/LAN payload while installing remote clients.

It is also possible to create Custom Packages using a customized `.xml` file.

When used in conjunction with the Install Software from the CommCell Console and Automatic Updates features, WAN bandwidth can be drastically reduced during remote site installations. [Learn more...](#)

INSTALL FROM THE COMMCELL CONSOLE

The software installation for this component can be initiated and managed from the CommCell Console, which facilitates the building of your CommCell and eliminates the need to manually install the software. Additionally, the installation of this component can be scheduled to occur at a time suitable for your environment. For more information, see [Install Software from the CommCell Console](#).

UNINSTALL FROM THE COMMCELL CONSOLE

This component can be uninstalled using the CommCell Console. The Uninstall Software utility allows you to quickly see a list of the software packages installed on the selected computer, from which you can then select the components to uninstall. With this, you can easily manage removing software components from client computers and MediaAgents in your CommCell without having to directly access each computer. For more information, see [Uninstall Components using the CommCell Console](#).

SCHEDULE POLICY

A data protection schedule policy can now be created for this specific agent. For more information, see [Agent-Specific Data Protection Schedule Policy](#).

System Requirements - Active Directory iDataAgent

System Requirements | **Supported Features**

The following requirements are for the Active Directory iDataAgent:

OPERATING SYSTEM

WINDOWS SERVER 2012

Microsoft Windows Server 2012 Editions
Microsoft Windows Server 2012 R2 Editions

WINDOWS SERVER 2008

Microsoft Windows Server 2008 32-bit and x64 Editions

WINDOWS SERVER 2003

Microsoft Windows Server 2003 32-bit, 64-bit and x64 Editions with a minimum of Service Pack 1

HARD DRIVE

1 GB minimum of hard disk space for installing the software.

256 MB of free disk space is required for job result directory.

256 MB of free disk space is required for log directory.

PROCESSOR

All Windows-compatible processors supported

PERIPHERALS

DVD-ROM drive

Network Interface Card

MISCELLANEOUS

NETWORK

TCP/IP Services configured on the computer.

SERVICES

It is recommended that your Active Directory server has DNS services configured.

The File System iDataAgent will be automatically installed during installation of this software, if it is not already installed. For System Requirements specific to the File System iDataAgent, refer to System Requirements - Microsoft Windows File System iDataAgent.

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

Supported Features - Active Directory iDataAgent

System Requirements | Supported Features

The following table lists the features that are supported by this Agent.

FEATURE	SUB-FEATURE	SUPPORT	COMMENTS
ADVANCED BACKUP/ARCHIVE OPTIONS	Data tab - Catalog	✓	
	Data tab - Create New Index	✓	
	Data tab - Verify Synthetic Full	✓	
	Job Retry tab	✓	
	Media tab - Allow other Schedule to use Media Set	✓	
	Media tab - Mark Media Full on Success	✓	
	Media tab - Reserve Resources Before Scan	✓	
	Media tab - Start New Media	✓	
	Startup tab	✓	
	VaultTracking tab	✓	
	Comments		
ADVANCED FILE SYSTEM IDATAAGENT OPTIONS	Automatic File System Multi-Streaming		
	On Demand Data Protection Operation		
	Restore by Jobs		
	Restore Data Using a Map File		
	Comments		
ALERTS AND MONITORING	Global Alerts	✓	
	Job-Based Alerts*	✓	
	Comments		
AUTOMATIC UPDATES	Automatic Updates	✓	
	Comments		
BACKUP/ARCHIVE OPTIONS	Differential Backup	✓	
	Full Backup	✓	
	Incremental Backup	✓	
	Other Backup Types		
	Synthetic Full Backup	✓	
	Comments		
BACKWARD COMPATIBILITY	Version 7	✓	
	Version 8	✓	
	Version 9		
	Comments		
BROWSE	Browse from Copy Precedence	✓	
	Browse the Latest Data	✓	
	Exclude Data Before	✓	
	Find	✓	
	Full Backup Transparent Browse	✓	
	Image Browse	✓	
	No Image Browse	✓	
	Page Size	✓	
	Specify Browse Path		
	Specify Browse Time	✓	
	Subclient Browse	✓	
	Use MediaAgent	✓	
	View All Versions		
	Comments		
	Netware cluster		

CLUSTERING			
	Unix Cluster		
	Windows - Microsoft Cluster (MSCS)		
	Windows - Non-Microsoft Cluster		
	Comments		
COMMAND LINE INTERFACE	Command Line Interface	✓	
	Comments		
COMMAND LINE INTERFACE - SPECIFIC COMMANDS	Qcreate - Backup set/SubClient		
	Qcreate - Instance		
	Qdelete - Backup set/Subclient		
	Qdelete - Client/Agent	✓	
	Qlist globalfilter		
	Qmodify - instance		
	Qoperation - Backup	✓	
	Qoperation - move		
	Qoperation - Restore		
	Comments		
COMMCELL MIGRATION	CommCell Migration	✓	
	Comments		
CONTENT INDEXING	Offline Content Indexing		
	Comments		
DATA AGING	Basic Retention Rules	✓	
	Extended Retention Rules	✓	
	Unique Data Aging Rules		
	Comments		
DATA CLASSIFICATION ENABLER	Data Classification Enabler		
	Comments		
DATA COMPRESSION	Client Compression	✓	
	Hardware Compression	✓	
	MediaAgent Compression	✓	
	Comments		
DATA ENCRYPTION	Data Encryption Support	✓	
	Third-party Command Line Encryption Support		
	Comments		
DATA MULTIPLEXING	Multiplexing	✓	
	Comments		
DEDUPLICATION	MediaAgent Deduplication		
	Source Deduplication		
	Comments		
ERASE BACKUP/ARCHIVED DATA	Erase Data by Browsing		
	Erase Stubs		
	Comments		
GLOBAL FILTERS	Global Filters		
	Comments		
INSTALLATION	Custom Package	✓	
	Decoupled Install		
	Remote Install	✓	
	Restore Only Agents		
	Silent Install	✓	
	Comments		
INSTALLING 32-BIT COMPONENTS ON A MICROSOFT WINDOWS X64 PLATFORM	Install 32-bit On x64		
	Comments		
JOB RESTART - DATA PROTECTION	Not Restartable		

	Restarts from the Beginning		
	Restarts from the Beginning of the Database		
	Restarts from the Point-of-Failure		
	Comments		
JOB RESTART - DATA RECOVERY	Not Restartable		
	Restarts from the Beginning		
	Restarts from the Beginning of the Database		
	Restarts from the Point-of-Failure		
	Comments		
LIST MEDIA	List Media Associated with a Specific Backup Set or Instance	✓	
	List Media Associated with Index	✓	
	List Media Associated with Specific Files and/or Folders	✓	
	List Media Associated with Specific Jobs		
	Comments		
MULTI INSTANCING	Multi Instance	✓	
	Comments		
PRE/POST PROCESSES	Pre/Post Process with Data Protection and Recovery	✓	
	Comments		
RESTORE/RECOVER/RETRIEVE DESTINATIONS	Cross-Application Restores (Different Application version)		
	Cross-Platform Restores - Different Operating System		
	Cross-Platform Restores - Same Operating System - Different Version		
	In-place Restore - Same path/ destination - Same Client	✓	
	Out-of-place Restore - Different path/ destination		
	Out-of-place Restore - Same path/ destination - Different Client		
	Restore Data Using a Map File		
	Restore to Network Drive /NFS-Mounted File System		
	Comments	✓	The Active Directory iDataAgent allows you to perform in-place restores of Active Directory attributes and objects. You cannot restore an Active Directory attribute or object to a different tree path.
RESTORE/RECOVER/RETRIEVE OPTIONS	Automatic Detection of Regular Expressions		
	Filter Data From Recover Operations		
	Rename/ Redirect Files on Restore		
	Restore Data Using Wildcard Expressions		
	Restore Data with Pre/Post Processes		
	Restore from Copies	✓	
	Skip Errors and Continue	✓	
	Use Exact Index		
	Use MediaAgent	✓	
	Comments		
RESTORE/RECOVER/RETRIEVE OVERWRITE OPTIONS	Overwrite Files		
	Overwrite if file on media is newer		
	Restore only if target exists		
	Unconditional Overwrite		
	Unconditionally overwrite only if target is a DataArchiver stub		

	Comments		
SCHEDULE POLICY	Agent Specific Data Protection Schedule Policy	✓	
	All Agent Types Schedule Policy	✓	
	Comments		
STORAGE POLICIES	Incremental Storage Policy*	✓	
	Standard Storage Policies	✓	
	Comments		
STORAGE POLICY COPIES	Data Verification	✓	
	Job Based Pruning	✓	
	Manual Retention	✓	
	Mark Job Disabled	✓	
	Selective Copy	✓	
	Comments		
SUBCLIENT POLICIES	SubClient Policy		
	Comments		
UPGRADE	Netware - Local		
	Unix - Remote (Push)		
	Unix/Linux/Macintosh - Local		
	Unix/Linux/Macintosh - Silent		
	Upgrade from CommCell Console	✓	
	Windows - Local	✓	
	Windows - Remote (Push)	✓	
	Windows - Silent	✓	
	Comments		
USER ADMINISTRATION AND SECURITY	Backup Set/Archive Set	✓	
	Subclient	✓	
	Comments		

Additional features are listed below:

Activity Control	Auxiliary Copy
CommCell Console	Deconfiguring Agents
GridStor	Languages
Log Files	MediaAgent
Operation window	QR Volume Creation Options
Robust Network Layer	Scheduling
SnapProtect Backup	Snapshot Engines
VaultTracker Enterprise	VaultTracker
Report Output Options	Restore/Recover/Retrieve - Other Options
Cloud Storage	Job Restart - Data Collection

Getting Started - Active Directory Deployment

WHERE TO INSTALL

Install the software on a computer where Active Directory Server resides and which satisfies the minimum requirements specified in the System Requirements.

Follow the steps given below to install the Active Directory iDataAgent.

INSTALLATION

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

METHOD 1: INTERACTIVE INSTALL

Use this procedure to directly install the software from the installation package or a network drive.

METHOD 2: INSTALL SOFTWARE FROM COMMCELL CONSOLE

Use this procedure to install remotely on a client computer.

METHOD 1: INTERACTIVE INSTALL

1. Run **Setup.exe** from the **Software Installation Package**.
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**.

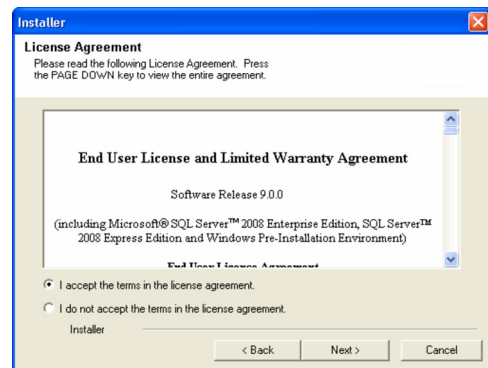
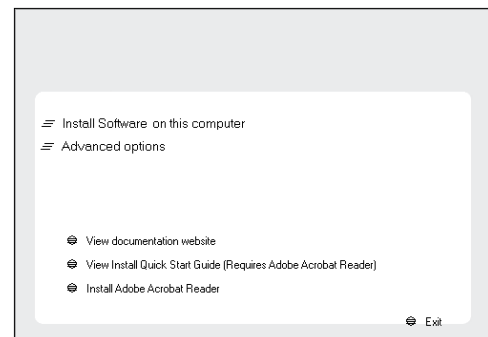
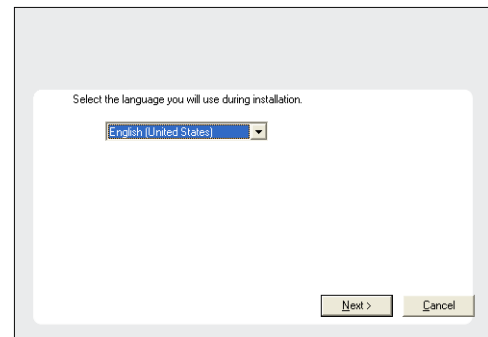
BEFORE YOU BEGIN

Download Software Packages

Download the latest software package to perform the install.

Verify System Requirements

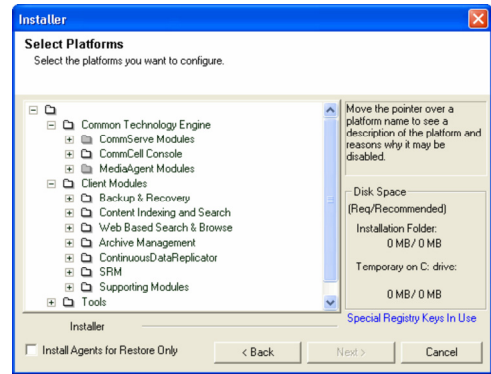
Verify that the computer in which you wish to install the software satisfies the System Requirements.



- Expand **Client Modules | Backup & Recovery | File System** and select **Active Directory iDataAgent**

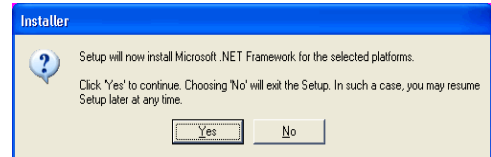
Click **Next**.

Windows File System iDataAgent is installed by default when you install the Active Directory iDataAgent.



- Click **YES** to install Microsoft .NET Framework package.

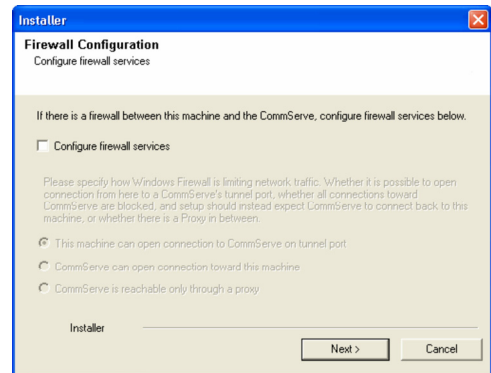
- This prompt is displayed only when Microsoft .NET Framework is not installed.
- Once the Microsoft .NET Framework is installed, the software automatically installs the Microsoft Visual J# 2.0 and Visual C++ redistributable packages.



- If this computer and the CommServe is separated by a firewall, select the **Configure firewall services** option and then click **Next**.

For firewall options and configuration instructions, see Firewall Configuration and continue with the installation.

If firewall configuration is not required, click **Next**.

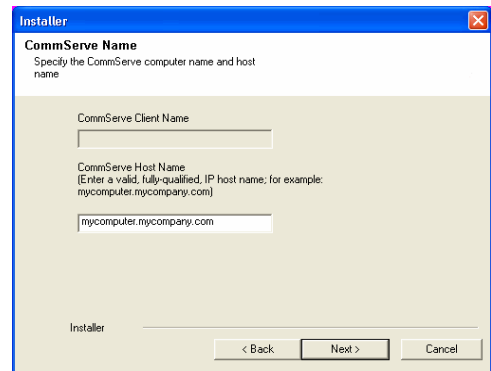


- Enter the fully qualified domain name of the **CommServe Host Name**.

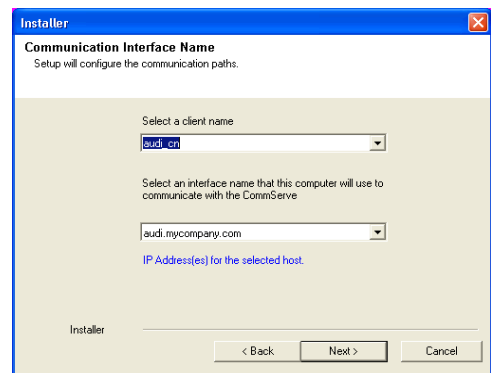
Click **Next**.

Do not use space and the following characters when specifying a new name for the CommServe Host Name:

`\ | ' ~ ! @ # $ % ^ & * () + = < > / ? , [] { } ; ' " ' "`



- Click **Next**.

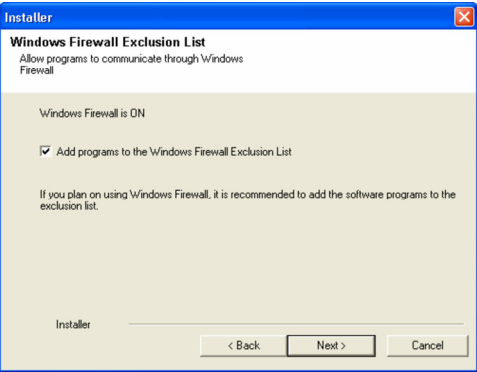


- Select **Add programs to the Windows Firewall Exclusion List**, to add CommCell programs and services to the Windows Firewall Exclusion List.

Click **Next**.

This option enables CommCell operations across Windows firewall by adding CommCell programs and services to Windows firewall exclusion list.

It is recommended to select this option even if Windows firewall is disabled. This will allow the CommCell programs and services to function if the Windows firewall is enabled at a later time.



11. Verify the default location for software installation.

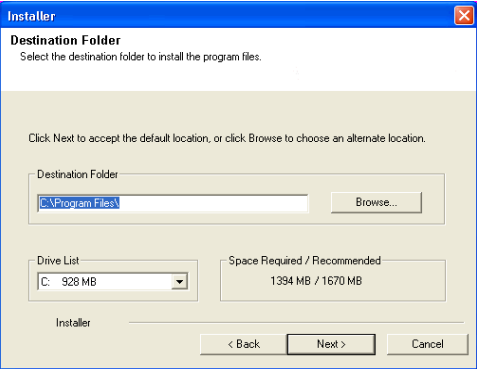
Click **Browse** to change the default location.

Click **Next**.

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

/ : * ? " < > | #

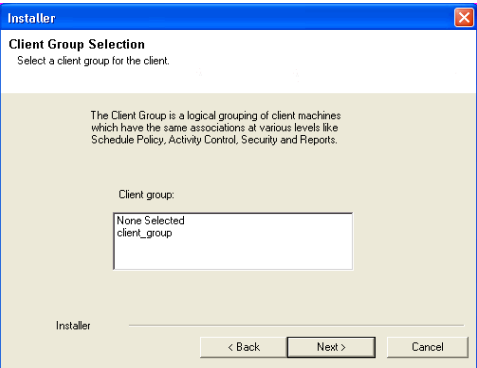
It is recommended that you use alphanumeric characters only.



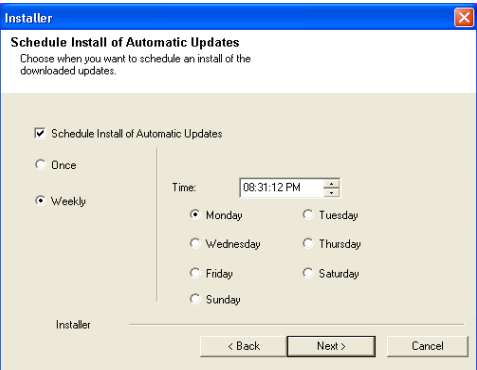
12. Select a Client Group from the list.

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** from the drop-down list. Click **Next**.

Select the **Configure for Laptop or Desktop Backup** option to install **Backup Monitor** utility. This utility allows you to view the backup job summary from the client computer without opening the CommCell Console. See Monitor - Laptop User for more information.

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

Click **OK**.

You can create the Storage Policy later in step 21.

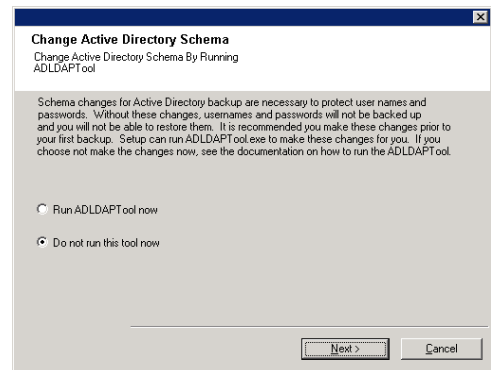
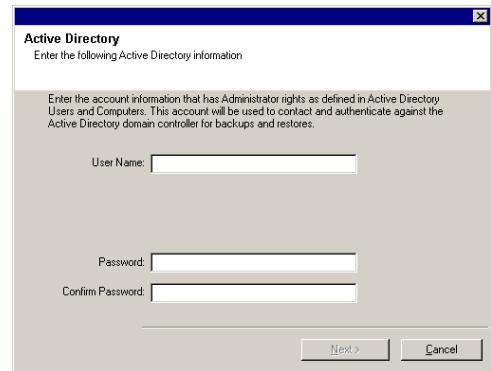
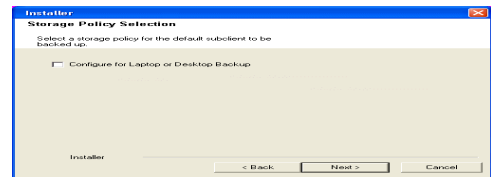
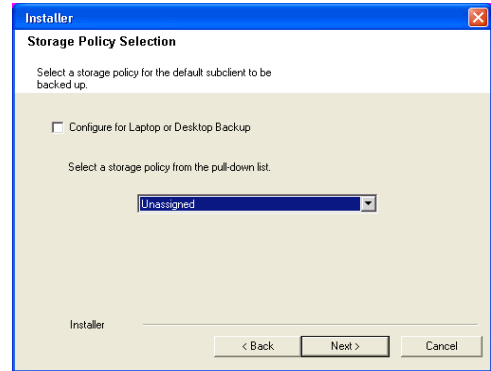
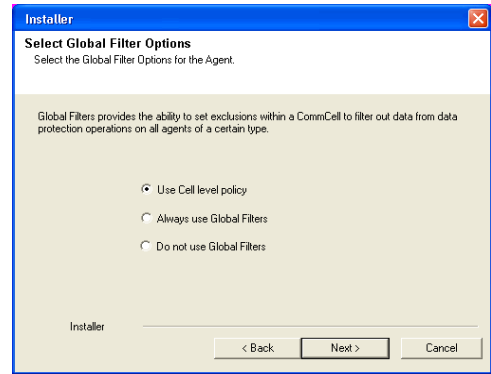
16. Enter the account information which will be used to verify the rights to backup and restore data and then click **Next** to continue.

- Enter the account information associated with an account that has Administrator rights in Domain Controller.
- If you are using the Chinese language, you must manually type in Administrator in English language if you are using the default value.

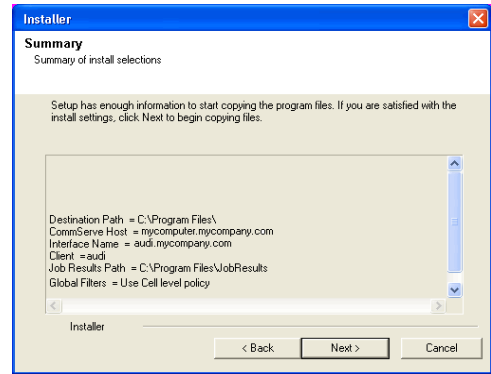
17. Click **Next**.

The ADLDAPTool will modify the Active Directory Schema to enable restore of passwords. For more information about this tool, refer to Enabling Restore of Passwords.

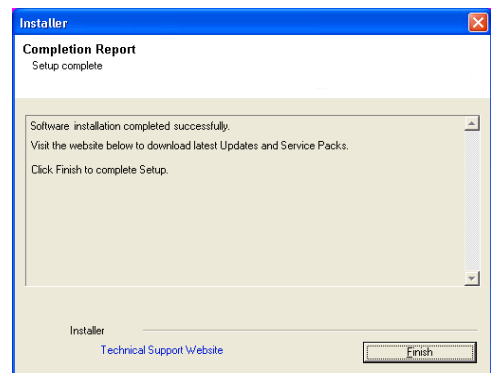
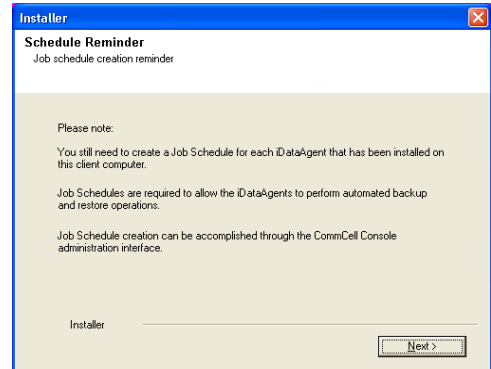
18. Click **Next**.



19. Click **Next**.



20. Click **Finish**.

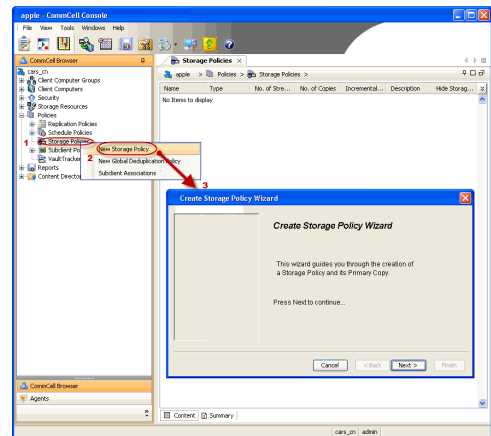


If you already have a storage policy selected in step 15, Click **Next >** button available at the bottom of the page to proceed to the **Configuration** section.

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

21. 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 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.

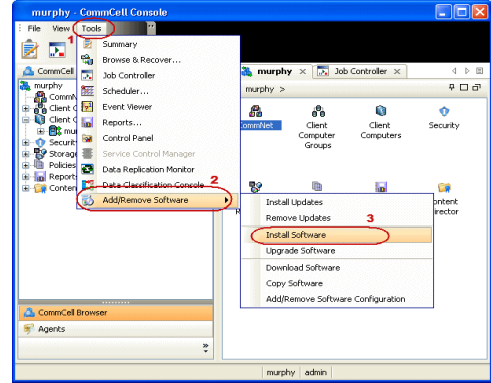


Type the name of the folder in which the deduplication database must be located in the Deduplication Store Location or click the Browse button to select the folder and then click **Next**.

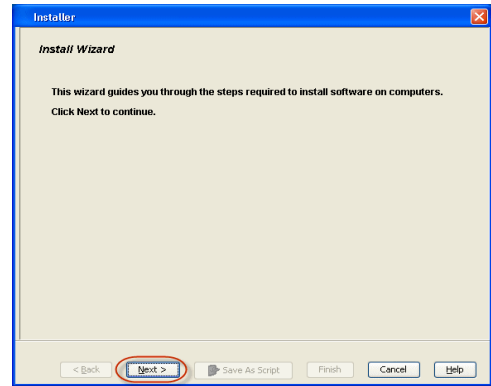
- o Review the details and click **Finish** to create the Storage Policy.

METHOD 2: INSTALL SOFTWARE FROM COMMCELL CONSOLE

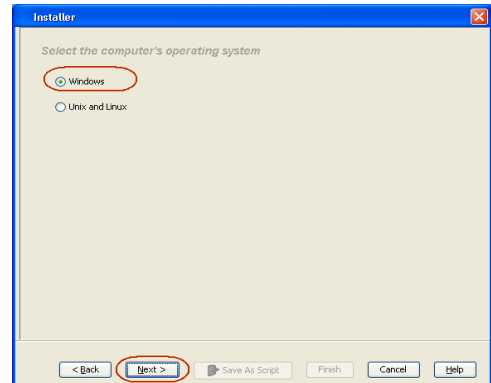
1. From the CommCell Browser, select **Tools | Add/Remove Software | Install Software**.



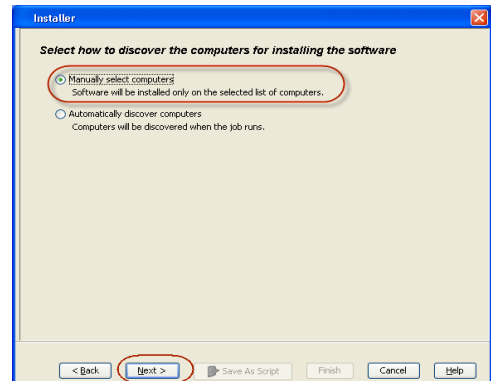
2. Click **Next**.



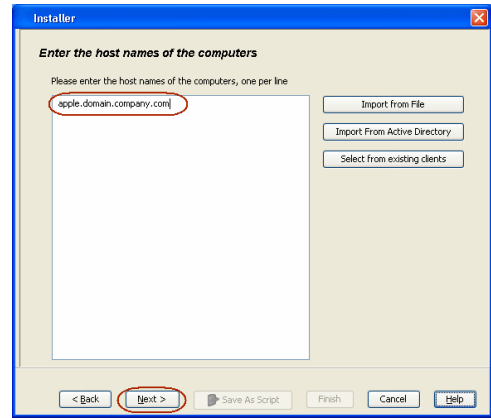
3. Select **Windows**.
Click **Next**.



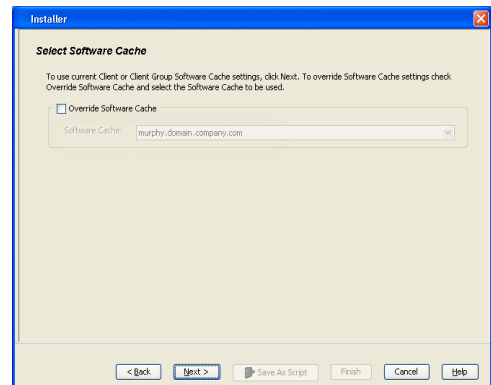
4. Select **Manually Select Computers**.
Click **Next**.



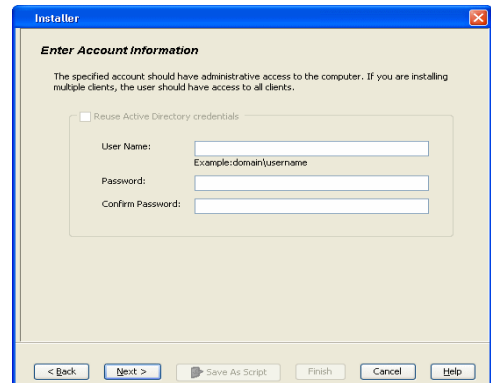
- Enter the fully qualified domain name of the client computer.
For example: apple.domain.company.com
Click **Next**.



- Click **Next**.

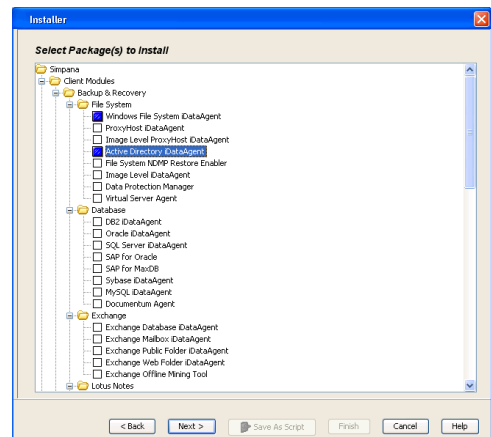


- Specify **UserName** and **Password** that must be used to access the client computer.
Click **Next**.



- Select **Active Directory iDataAgent**.
Click **Next**.

Windows File System iDataAgent is installed by default when you install the Active Directory iDataAgent.

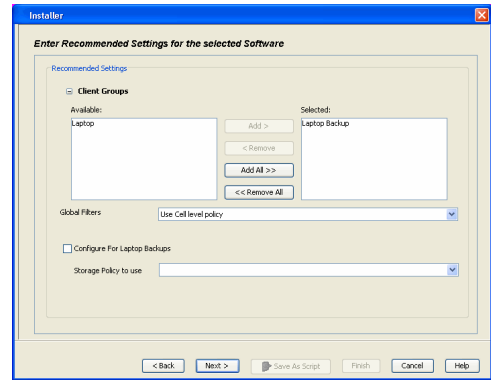


- Select **Client Group** from **Available** and click **Add**.
 - Select a **Storage Policy** from the drop-down list. Click **Next**.

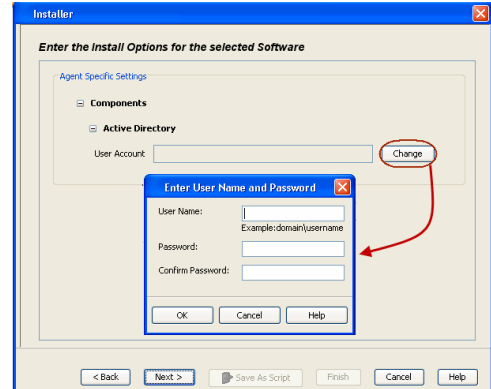
Select the **Configure for Laptop or Desktop Backup** option to install

Backup Monitor utility. This utility allows you to view the backup job summary from the client computer without opening the CommCell Console. See Monitor - Laptop User for more information.

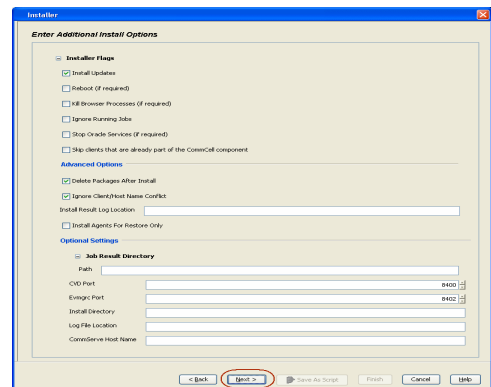
10.
 - Enter the account information associated with an account that has Administrator rights in Domain Controller.
 - Click **Next**.



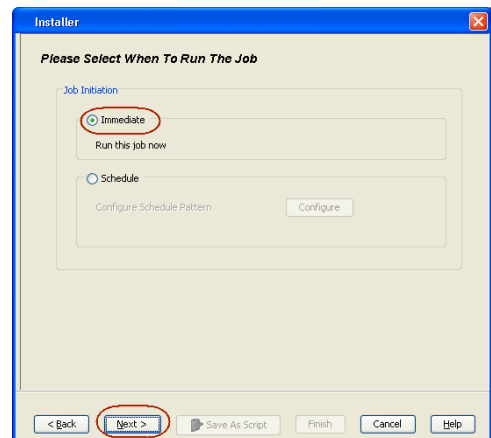
11. Click **Next**.



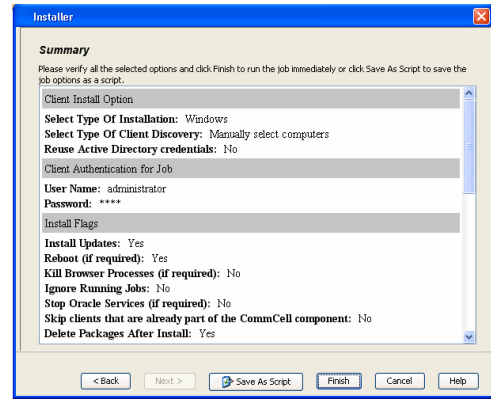
12. Select **Immediate**.
Click **Next**.



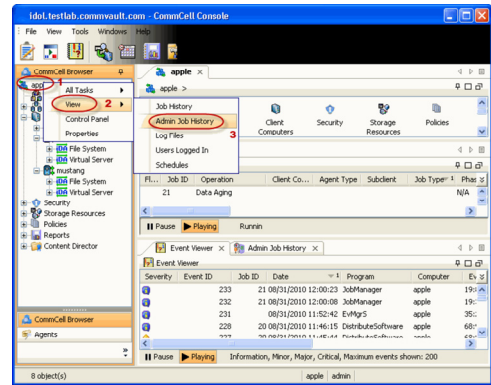
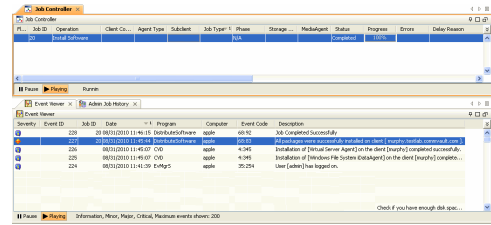
13. Click **Finish**.



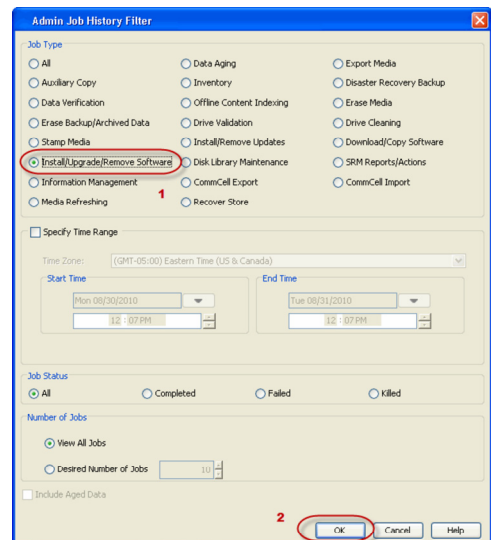
13. You can track the progress of the job from the **Job Controller** or **Event Viewer** window.



14. Once the job is complete, right-click the **CommServe** computer, click **View** and then click **Admin Job History**.

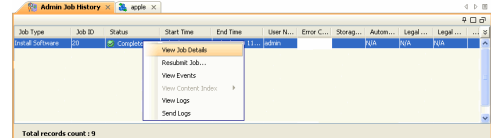


15. Select **Install/Upgrade/Remove Software**.
Click **OK**.



16. 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



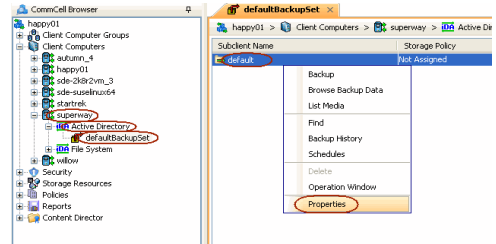
Getting Started - Active Directory Configuration



CONFIGURATION

Once installed, follow the steps given below to assign a storage policy with the default subclient:

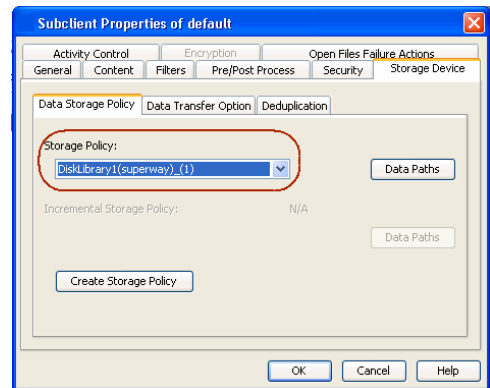
- From the CommCell Browser, navigate to **Client Computers | <Client> | Active Directory | defaultBackupSet**.
 - Right-click the default subclient and then click **Properties**.



- Click the **Storage Device** tab.
 - In the **Storage Policy** box, select a Storage Policy name.
 - Click **OK**.

Click **Next** to continue.

If you do not have Storage Policy created, follow the step given below to create a storage policy.



- Click **Create Storage Policy**.
 - Follow the prompts displayed in the Storage Policy Wizard. The required options are mentioned below:

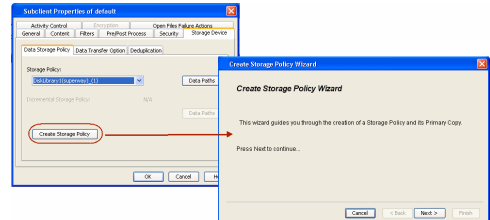
- Select the Storage Policy type as **Data Protection and Archiving** and click **Next**.
- Enter the name in the **Storage Policy Name** box and click **Next**.
- From the **Library** list, click the name of a disk library to which the primary copy should be associated and then click **Next**.

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 - Active Directory Backup

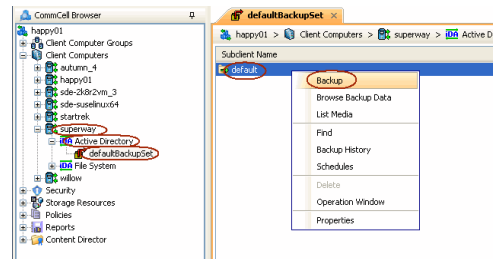
Once the storage policy is configured, you are ready to perform your first backup.

Active Directory iDataAgent can backup the following data types, modifiable, and non-modifiable attributes of an object.

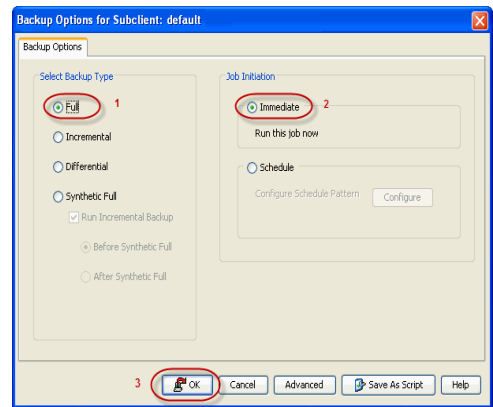
SUPPORTED DATA TYPES	NON-MODIFIABLE ATTRIBUTES OF AN OBJECT
Attributes on each supported Windows object	ObjectGUID
Computer	ObjectSid
Contact	PrimaryGroupID
Group	BadPasswordTime
IntetOrgPerson	LastLogoff
MSMQ Queue Alias	LastLogon
Organizational Unit	MemberOf
Printer	PwdLastSet (only if adldaptool.exe was executed before the backup)
User	USNChanged
Shared Folder	USNCreated
Configuration	WhenChanged
Schema	WhenCreated
ForestDNSZones	DistinguishedName
	UserAccountControl
	Delete Objects
	rootDSE object

The following section provides step-by-step instructions for performing your first backup:

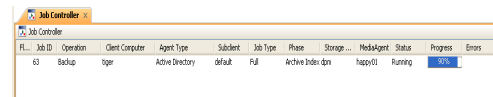
- From the CommCell Browser, navigate to **Client Computers | <Client> | Active Directory | defaultBackupSet**.
 - Right-click the default subclient and click **Backup**.



- Click **Full** as backup type and then click **Immediate**.
 - Click **OK**.

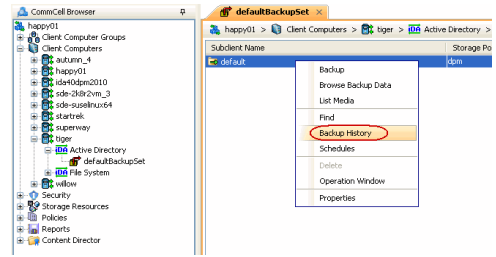


- You can track the progress of the job from the **Job Controller** window of the CommCell console.



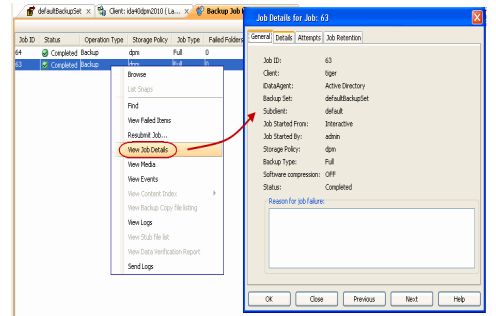
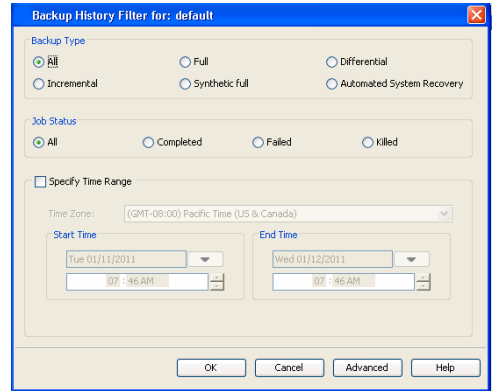
- Once the job is complete, view the job details from the **Backup History**. Right-click the **Subclient** and select **Backup History**.

5. 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 - Active Directory Restore

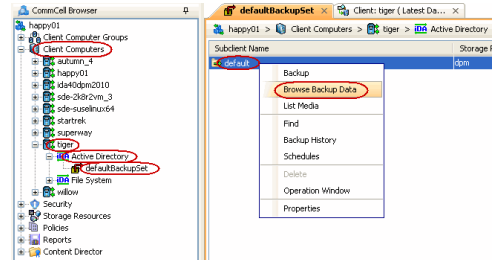
After your first backup, you are ready to perform your first restore.

WHAT GETS RESTORED	WHAT DOES NOT GET RESTORED
Attributes on each supported Windows object	ObjectGUID
Computer	ObjectSid
Contact	PrimaryGroupID
Group	BadPasswordTime
IntetOrgPerson	LastLogoff
MSMQ Queue Alias	LastLogon
Organizational Unit	MemberOf
Printer	PwdLastSet (only if adldaptool.exe was executed before the backup)
User	USNChanged
Shared Folder	USNCreated
Configuration	WhenChanged
Schema	WhenCreated
ForestDNSZones	DistinguishedName
	UserAccountControl
	Delete Objects
	rootDSE object

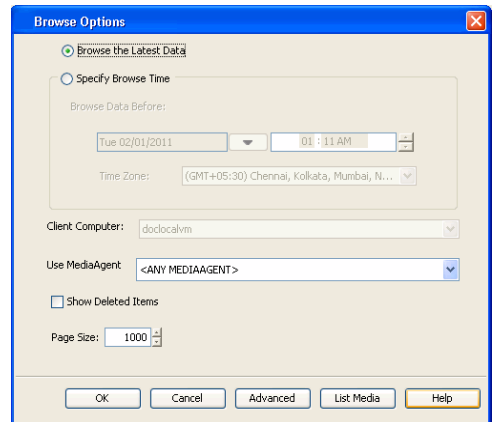
PERFORM A RESTORE

It is recommended that you perform a restore operation immediately after your first full backup to understand the process. Keep in mind that any object or attribute is restored to the same location from where it is backed up. The following section explains how to restore the Common Name (CN) **Guests**.

- From the CommCell Browser, navigate to **Client Computers | <Client> | Active Directory | defaultBackupSet**
 - Right-click the default subclient and then click **Browse Backup Data**.



- Click **OK**.



- Expand the **defaultBackupSet** and navigate to the required Domain Component.
 - Select the CN **Guest**.

All the attributes of the object are selected by default.

For the first restore job, select any object with smaller data size.

- Click **Recover All Selected**.

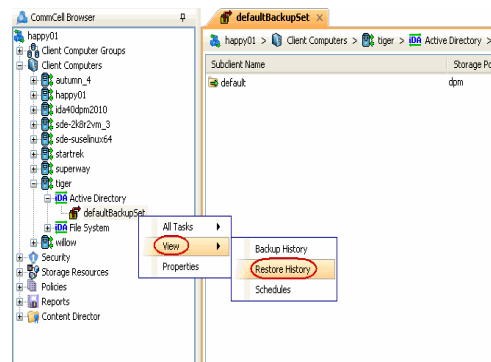
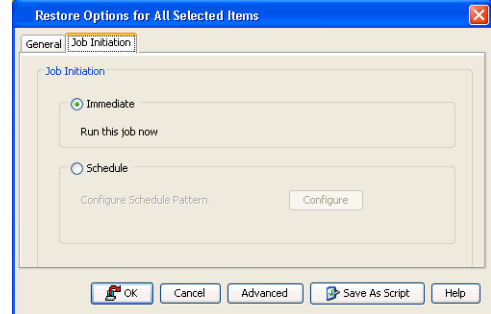
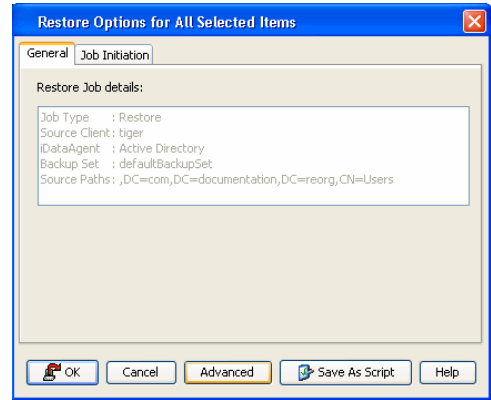
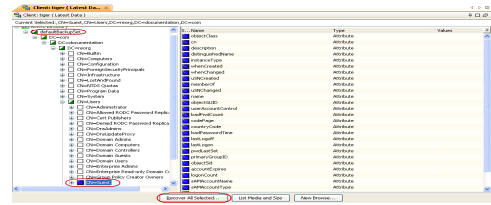
- By default, the object and its attributes are restored to the same location from where they are backed up.
If you have modified the object or attribute after the first backup, you may lose the changes.

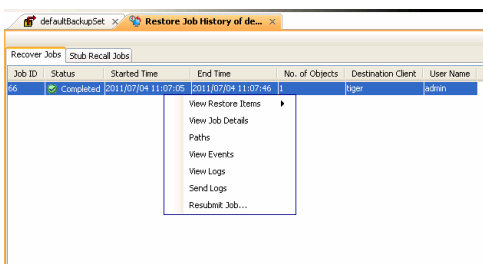
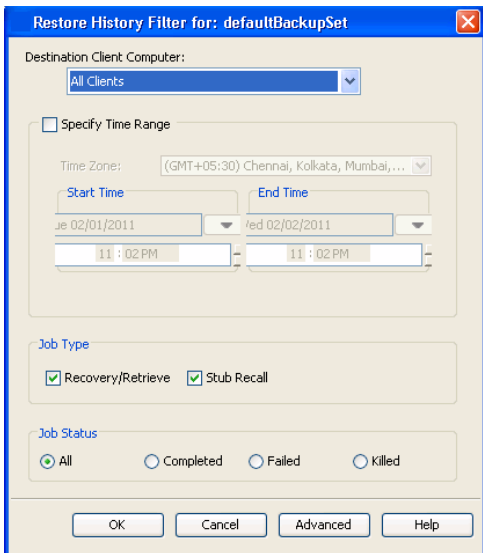
- Click the **Job Initiation** tab.
 - Select **Immediate** to run the job immediately.
 - Click **OK**.

- You can monitor the progress of the restore job in the **Job Controller** window of the CommCell Console.

- Once the restore job has completed, right-click the **defaultBackupSet**, point to **View** and then click **Restore History**.

- Click **OK**.





9. 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

10. Once the restore jobs complete successfully, verify that the restored objects/attributes are available in the domain controller.

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 - Active Directory Configuration

TABLE OF CONTENTS

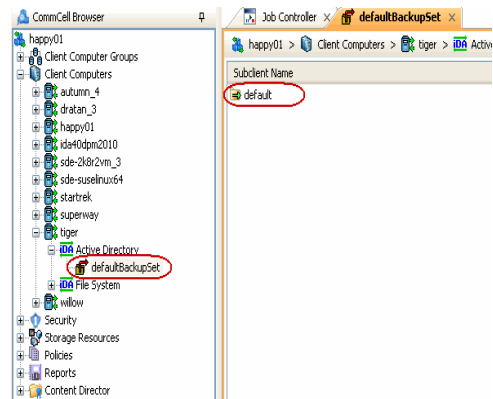
- Understanding the CommCell Console**
- Creating a Subclient to Backup Specific Organizational Units**
- Modifying User Accounts for Active Directory**
- Enabling Restore of Passwords**
- Configuring Pre/Post Processing for Backups**
 - Setting up Pre/Post Processes
 - Setting up Pre/Post Processes to Run During Failures
 - Changing User Account for Executing Pre/Post Commands
- Modifying an Agent, BackupSet or Subclient**
- Deleting an Agent, BackupSet or Subclient**

UNDERSTANDING THE COMMCELL CONSOLE

Active Directory iDataAgent uses following main components to perform backup and restore operations from the CommCell Console.

Backup Set - collective information of all the data that needs to be backed up for the client.

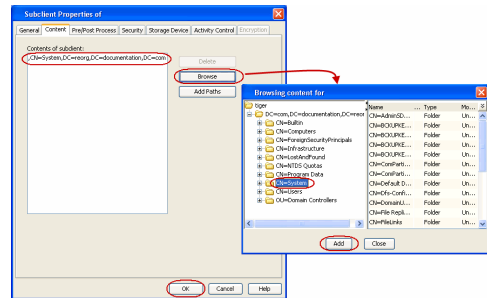
Subclient - defines the data to be backed up.



CREATING A SUBCLIENT TO BACKUP SPECIFIC ORGANIZATIONAL UNITS

The default subclient contains the entire active directory database. You can create user defined subclient to manage and back up specific Domain Components (DC), Organizational Units (OU) or Common Names (CN).

1. From the CommCell Browser, navigate to **Client Computers | <Client> | Active Directory | Backup Set**.
2. Right-click the **Backup Set**, point to **All Tasks** and then click **New Subclient**.
3. In the **Subclient Name** box, type a name.
4. Click the **Storage Device** tab.
5. In the **Storage Policy** list, click a storage policy name.
6. Click the **Content** tab.
7. Click **Browse**.
8. Select the organizational unit to be backed up and click **Add**.
Repeat this step to include all the organizational units to be backed up.
When you add an organizational unit to a subclient, it is automatically excluded from the default subclient.
9. Click **Close**.
10. Click **OK**.

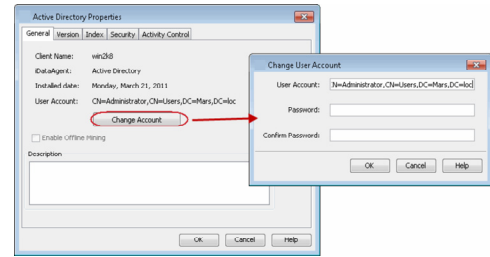


MODIFYING USER ACCOUNT FOR THE ACTIVE DIRECTORY SERVER

The Active Directory account information is used to verify the rights to back up and restore data from the Active Directory Server. During the deployment you can specify the user account information. However, if the user account information for the active directory server changes, you must update the user account information.

1. From the CommCell Browser, navigate to **Client Computers | <Client>**.

2. Right-click the **Active Directory** and click **Properties**.
3. Click **Change Account**.
4. Enter the username and password for the user account which has rights to back up and restore data from the Active Directory Server.
5. Click **OK**.
6. Click **OK**.



ENABLING RESTORE OF PASSWORDS

You must run `adLdapTool.exe` on the client before your first backup to enable restores of passwords for Users and Computers. Follow the steps given below to run this utility:

1. Login to client computer using the user account, which has administrative privileges for the domain and Active Directory Schema.
2. Open the Command Prompt and navigate to the following location:

```
<Install Directory>\Base
```

3. Enter the following command:

```
adLdapTool.exe <domain_name\domain_administrator_user_name> <password> -hostserver <fully_qualified_directory_host_server_name> -port 389 <LDAP_port_number> -setschema 1
```

If you are running the `adLdapTool.exe` utility on a ADAM or LDS Server, enter the following command:

```
adLdapTool.exe <domain_name\domain_administrator_user_name> <password> -hostserver <fully_qualified_directory_host_server_name> -port <instance_LDAP_port_number> -adam -setschema 1
```

The `adLdapTool` sets following values to the searchFlags attributes of "Unicode-Pwd" and "SID-History" found under CN=Schema and Cn=Configuration:

```
Value for Unicode-Pwd - 0x00000008
```

```
Value for SID-History - 0x00000009
```

Due to this setting, Active Directory will preserve these two attributes on deletion.

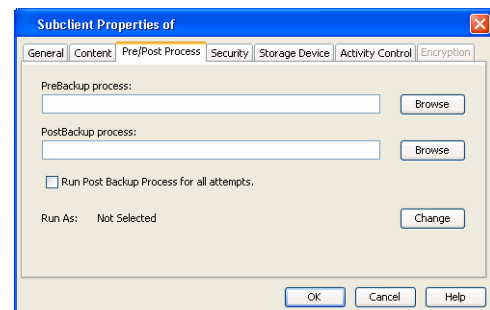
CONFIGURING PRE/POST PROCESSING FOR BACKUPS

SETTING UP PRE/POST PROCESSES

You can add and modify Pre/Post processes for a subclient. These are batch files or shell scripts that you can run before or after certain job phases. For example, you can use an `echo` command to check the level of a backup. Similarly, you can include a `case` statement within a script to run specific operations based on the level of the backup job.

A **Save As Script** file can also be run as a pre/post process, if you include the absolute path of the associated input file in the script file.

1. From the CommCell Browser, navigate to **Client Computers | <Client> | Active Directory | BackupSet**.
2. Right-click the **<Subclient>** in the right pane, and then click **Properties**.
3. Click the **Pre/Post Process** tab.
4. Depending on the process you want to set up, click the corresponding **Browse** button.
5. Select the batch file or shell script and then click **OK**.



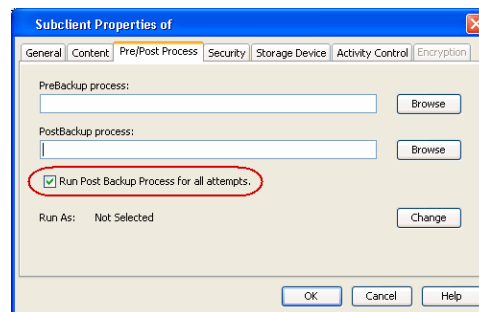
SETTING UP POST PROCESSES TO RUN DURING FAILURES

By default, a specified post process command is executed only on successful completion of the scan or backup operation or if the job is killed.

Use the following steps to run a post process even if the scan or backup operation did not complete successfully. For example, this may be useful to bring a database online or release a snapshot.

1. From the CommCell Browser, navigate to **Client Computers | <Client> | Active Directory | BackupSet**.

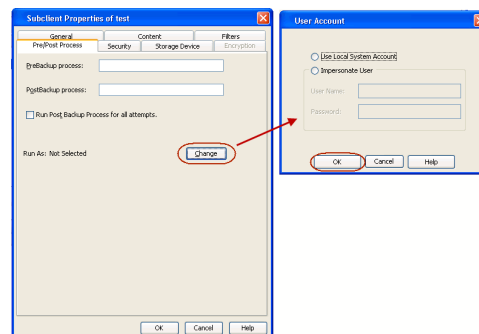
2. Right-click the <Subclient> in the right pane, and then click **Properties**.
3. Click the **Pre/Post Process** tab.
4. Select the **Run Post Backup Process for all attempts** check box.
5. Click **OK**.



CHANGING USER ACCOUNTS FOR EXECUTING PRE/POST COMMANDS

You must specify the user account and password required for executing the Pre/Post commands.

1. From the CommCell Browser, navigate to **Client Computers | <Client> | Active Directory | BackupSet**.
2. Right-click the <Subclient> in the right pane, and then click **Properties**.
3. Click the **Pre/Post Process** tab.
4. Click **Change**.
5. Select one of the following user accounts:
 - o **Use Local System Account** - Select this option to use the local system account on the MediaAgent for executing the Pre/Post Process commands.
 - o **Impersonate User** - Select this option to use an authenticated user account for executing Pre/Post commands. However, if the specified user account is not available on the MediaAgent, backup jobs using Pre/Post commands will fail.
6. Click **OK**.



MODIFYING AN AGENT, BACKUPSET OR SUBCLIENT

The following table describes the properties that can configured from the agent, backup set and subclient levels.

OPTION	DESCRIPTION	RELATED TOPICS
Create New Index on Full Backup	<p>This option accelerates Full or On Demand backups and is enabled by default. Subsequently, when you perform a browse and restore operation, the default browse displays data up to the most recent full backup. To browse and restore older data you have to use the options to browse before or between specific dates.</p> <p>When disabled, Full or On Demand backups may be slower. However, the default browse displays all data in the entire retention period; not just one full backup cycle.</p> <p>Use the following steps to configure this option for all subclients. This option can also be set for the individual backups when initiating the job.</p> <ol style="list-style-type: none"> 1. From the CommCell Browser, navigate to Client Computers <Client>. 2. Right-click the Active Directory and click Properties. 3. Click the Index tab. 4. Select the Create new index on Full Backup check box. 5. Click OK. 	
Convert to Full Backup on Indexing Failure	<p>Use this option to ensure that the backup does not fail if the index is irretrievable. When disabled, the backup will fail if the index is irretrievable.</p> <ol style="list-style-type: none"> 1. From the CommCell Browser, navigate to Client Computers <Client>. 2. Right-click the Active Directory and click Properties. 3. Click the Index tab. 4. Select the Convert to full backup on indexing failures check box. 5. Click OK. 	
Change Storage Policies	<p>You can modify the storage policies in any of the following situations:</p> <ul style="list-style-type: none"> • To include a different media for the backup operation. • To use a storage policy with a different retention criteria. <p>You can change the storage policies from the subclient level.</p> <ol style="list-style-type: none"> 1. From the CommCell Browser, right-click the subclient. 2. Click Properties. 	Refer to Storage Policies.

	<ol style="list-style-type: none"> 3. Click Storage Device. 4. Select the Storage policy from the drop-down menu. 5. Click OK. 	
Rename a Backup Set or Subclient	<p>You can rename backup sets and subclients.</p> <p>Renaming BackupSet:</p> <ol style="list-style-type: none"> 1. From the CommCell Browser, navigate to Client Computers <Client> Active Directory. 2. Right-click the <Backup Set>, and then click Properties. 3. In the Backup Set box, type a name. 4. Click OK. <p>Renaming subclient:</p> <ol style="list-style-type: none"> 1. From the CommCell Browser, navigate to Client Computers <Client> Active Directory <Backup Set>. 2. Right-click the <user-defined Subclient>, and then click Properties. 3. In the Storage Policy list, click a storage policy name. 4. Click OK. 	
Data Transfer Options	<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"> • Enable or disable Data Compression either on the client or the MediaAgent. • Configure the transfer of data in the network using the options for Network Bandwidth Throttling and Network Agents. <p>You can configure the data transfer options.</p> <ol style="list-style-type: none"> 1. From the CommCell Browser, navigate to Client Computers <Client> Active Directory BackupSet. 2. Right-click the <Subclient> in the right pane, and then click Properties. 3. Click the Storage Device tab. 4. Click the Data Transfer Option tab. 5. Choose the appropriate software compression option for this subclient. 6. Select the Throttle Network Bandwidth check box, and set the required bandwidth. 7. Click OK. 	Refer to Data Compression and Network Bandwidth Throttling.
View Data Paths	<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"> 1. From the CommCell Browser, navigate to Client Computers <Client> Active Directory BackupSet. 2. Right-click the <Subclient> in the right pane, and then click Properties. 3. Click the Storage Device tab. 4. In the Storage Policy list, click a storage policy name. 5. Click Data Paths. 	
Configure Activity Control	<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"> 1. From the CommCell Browser, navigate to Client Computers <Client> 2. Right-click the <Client> or <Subclient> in the right pane, and then click Properties. 3. Click the Activity Control tab and select or clear option(s) as desired. 4. Click OK. 	Refer to Activity Control.
Configure User Security	<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"> • 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. <ol style="list-style-type: none"> 1. From the CommCell browser, right-click the subclient. 2. Click Properties. 3. Click Security. 4. Select the appropriate user groups to which you want to associate to the CommCell object from the Available Groups pane, and then move the user group to the Associated Groups pane. 	Refer to User Administration and Security.

	5. Click OK .	
Enable/Disable Data Encryption	You can enable data encryption from the subclient level. Encryption must be enabled at the client level prior to configuring any instances residing on that client. <ol style="list-style-type: none"> 1. From the CommCell browser, right-click the subclient. 2. Click Properties. 3. Click Encryption. 4. Select the desired encryption. 5. Click OK. 	Refer to Data Encryption.
View Software Version and Installed Updates	The Version tab, at the Agent level displays the software version and post-release service packs and updates installed for the component. <ol style="list-style-type: none"> 1. From the CommCell browser, right-click the agent. 2. Click Properties. 3. Click Version. 4. Click OK. 	
CommCell Configuration Report	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. <ol style="list-style-type: none"> 1. From the CommCell Browser, double-click Reports icon. 2. Select CommCell Configuration. 3. Click Run. 	Refer to CommCell Configuration.

DELETING AN AGENT, BACKUPSET OR SUBCLIENT

The following sections describe the steps involved in deleting an agent, backupset 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 AGENT

You need to uninstall or DeConfigure the agent software from the client computer before deleting from CommCell Browser. After you delete the client software, you can either leave the corresponding data intact for appropriate action or you can remove the data immediately. If you choose to remove the data immediately, you must delete the agent from the CommCell Browser. If you delete the agent, all of the agent's data is irretrievably lost.

- You cannot delete an agent while operations for that agent are running.
1. From the CommCell Browser, navigate to **Client Computers | <Client>**.
 2. Right-click the **<Agent>**, and then click **Delete**.

3. A confirmation message is displayed with the following message:

This operation will permanently delete the data backed up from this level and it cannot be restored.

4. Click **OK** to continue with the deletion operation., or click **No** to abort the deletion.

DELETING A BACKUPSET

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, navigate to **Client Computers | <Client> | <Agent>**.
 2. Right-click the **<Backup Set>**, and then click **Delete**.

3. A confirmation message is displayed, asking if you want to delete the Backup Set.

Click **No** to cancel the deletion and retain the Backupset, 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.

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Advanced – Active Directory Backup

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FULL BACKUP

Full backups provide the most comprehensive protection of data.

1. From the CommCell Browser, navigate to **<Client> | Active Directory | defaultBackupSet**.
2. Right click the **<Subclient>** and click **Backup**.
3. Select **Full** as backup type and **Immediate** to run the job immediately.
4. Click **OK**.

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

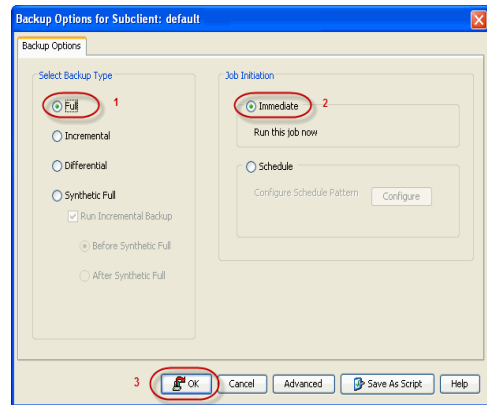
RELATED TOPICS

Scheduling

Provides comprehensive information on scheduling jobs.

Job Management

Provides comprehensive information on managing jobs.

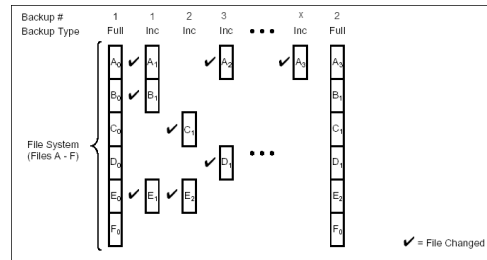


INCREMENTAL BACKUP

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 less media and use less resources than full backups.

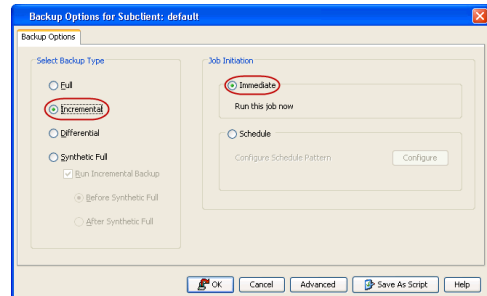
The illustration on the right clarifies the nature of full and incremental backups.

Follow steps given below to perform an incremental backup:



1. From the CommCell Browser, navigate to **<Client> | Active Directory | defaultBackupSet**.
2. Right click the **<Subclient>** and click **Backup**.
3. Select **Incremental** as backup type and **Immediate** to run the job immediately.
4. Click **OK**.

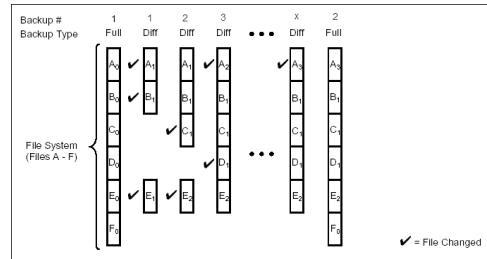
You can track the progress of the job from the **Job Controller**. When the backup has completed, the **Job Controller** displays **Completed**.



DIFFERENTIAL BACKUP

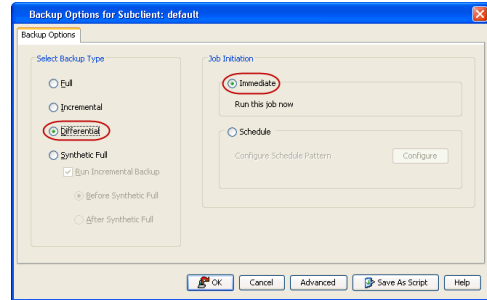
A differential backup contains only the data that is new or has changed since the last full backup. Like incremental backups, differential backups also consume less media and use less resources than full backups. Differential backups are cumulative. This means that each differential backup contains all 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.



1. From the CommCell Browser, navigate to **<Client> | Active Directory | defaultBackupSet**.
2. Right click the **<Subclient>** and click **Backup**.
3. Select **Differential** as a backup type and **Immediate** to run the job immediately.
4. 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**.



SYNTHETIC FULL BACKUP

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.

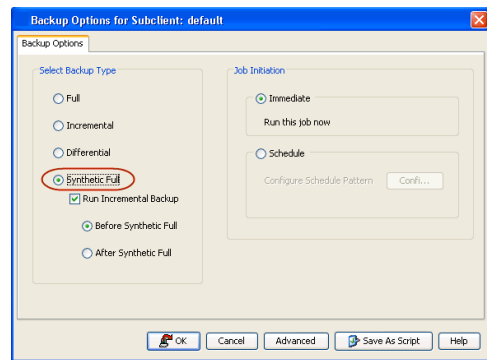
Synthetic full backups are media-based; they read backup data from one media and simultaneously write (restore) the result to the new active media within the same media group. As a result, synthetic full backups require that at least two media drives for the same storage policy be available at the time 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> | Active Directory | 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.

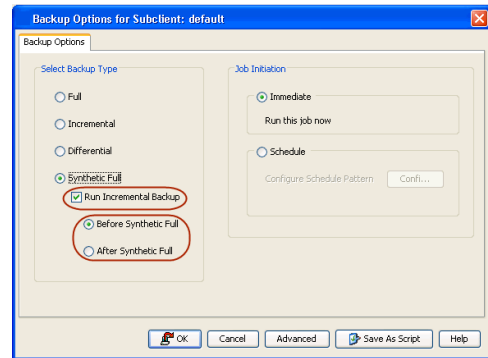
The sections below describe the steps to run an incremental backup before or after a synthetic full backup:

1. From the CommCell Console, navigate to **<Client> | Active Directory |**

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**.



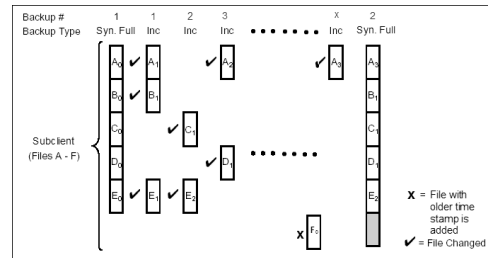
VERIFYING SYNTHETIC FULL BACKUPS

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.

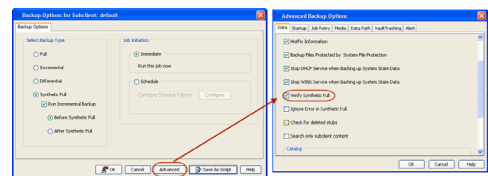
For example: If you perform the conventional full backup only once for a given subclient and then perform incremental (or differential) backups and periodic synthetic full backups. After the conventional full backup, a file is added to the subclient and the file has a time stamp older than the time of 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:



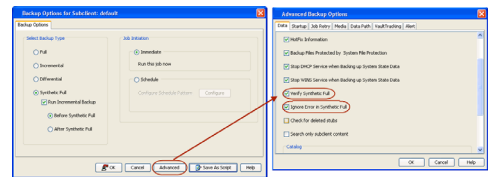
1. From the CommCell Console, navigate to **<Client> | Active Directory | defaultBackupSet**.
2. Right click the **<Subclient>** and click **Backup**.
3. From the **Backup Options** dialog box, select **Synthetic Full**.
4. Click **Advanced**.
5. In the **Advanced Backup Options** dialog box, click the **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> | Active Directory | 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)

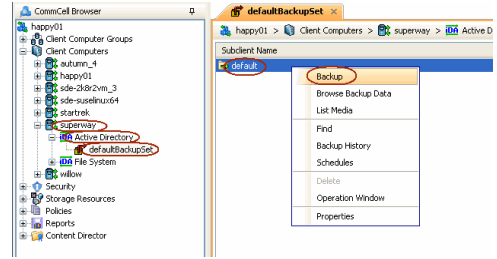
When a storage policy copy is deduplicated, synthetic full backups can be created in an accelerated mode to significantly reduce the copy duration. This is done by identifying and transferring the data signatures (instead of the data itself) to the target wherever possible.

Learn more...

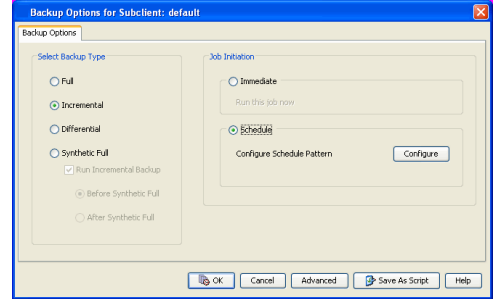
SCHEDULING A BACKUP

Follow the steps given below to schedule a data protection operation:

- From the CommCell Console, navigate to **<Client> | Active Directory | defaultBackupSet**
 - Right-click the **Subclient** and click **Backup**



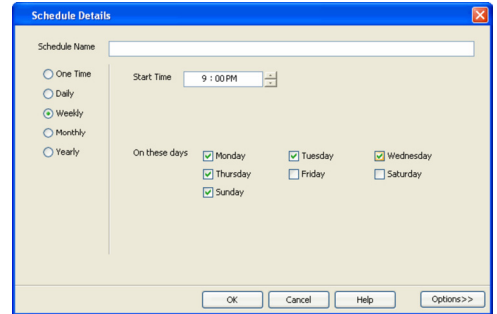
- Select the **Backup type**.
 - Click **Schedule**.
 - Click the **Configure** button.



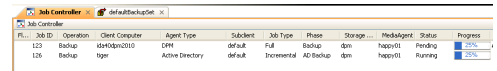
- Select the appropriate scheduling options.

For example, use the following steps to create a weekly schedule:

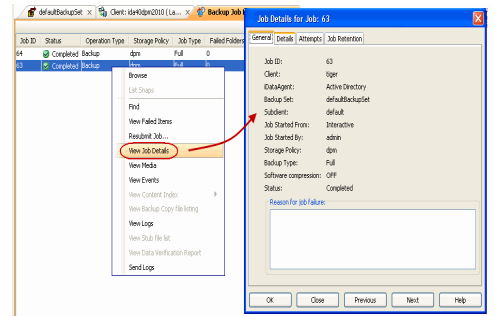
- Type a name for the schedule in the **Schedule Name** box.
- Click **Weekly**.
- In the **Start Time** box type or select the schedule start time.
- Click and select the days to run the schedule.
- Click **OK**.



- When the schedule is run, the **Job Controller** window will display the job as shown in the sample image.



- Once the job is complete, you can view the job details from the **Backup History**.
 - Right-click the **Subclient** and select **View Job Details**.



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

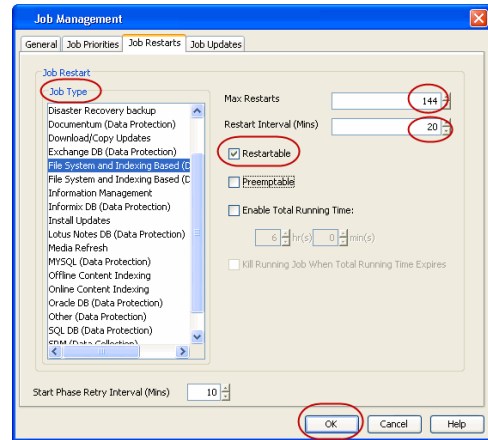
Jobs that fail to complete successfully are automatically restarted based on the job restartability configuration set in the Control Panel. Keep in mind that changes made to this configuration will affect all jobs in the entire CommCell.

To Configure the job restartability for a specific job, you can modify the retry settings for the job. This will override the setting in the Control Panel. 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

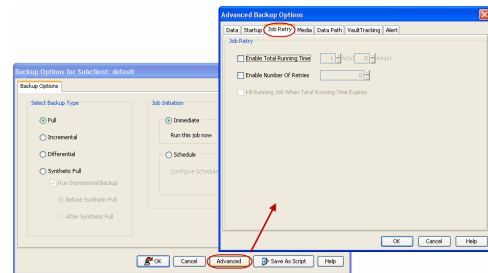
1. From the CommCell Browser, click **Control Panel** icon.
2. Select **Job Management**.
3. Click **Job Restarts** tab and select a **Job Type**.
 - o Select **Restartable** to make the job restartable.
 - o Change the value for **Max Restarts** to change the maximum number of times the Job Manager will try to restart a job.
 - o Change the value for **Restart Interval (Mins)** to change the time interval between attempts for the Job Manager to restart the job.
4. Click **OK**.



CONFIGURE JOB RESTARTABILITY FOR AN INDIVIDUAL JOB

1. From the CommCell Console, navigate to **<Client> | Active Directory | <Backup Set>**.
2. Right-click the **Subclient** and select **Backup**.
3. Click **Advanced**.
4. In the **Advanced Backup Options** dialog box, click the **Job Retry** tab.
5. Select **Enable Total Running Time** and specify the maximum elapsed time before a job can be restarted or killed.

Select **Kill Running Jobs When Total Running Time Expires** to kill the job after reaching the maximum elapsed time.
6. Select **Enable Number Of Retries** and specify the number of retries.
7. Click **OK**.



CONTROLLING JOBS

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

SUSPEND	Temporarily stops a job. A suspended job is not terminated; it can be restarted at a later time.
RESUME	Resumes a job and returns the status to Waiting, Pending, Queued, or Running. The status depends on the availability of resources, the state of the Operation Windows, or the Activity Control setting.
KILL	Terminates a job.

SUSPENDING A JOB

1. From the Job Controller of the CommCell Console, right-click the job and select **Suspend**.
2. The job status may change to **Suspend Pending** for a few moments while the operation completes. The job status then changes to **Suspended**.

RESUMING A JOB

1. From the Job Controller of the CommCell Console, right-click the job and select **Resume**.
2. As the Job Manager attempts to restart the job, the job status changes to **Waiting, Pending, or Running**.

KILLING A JOB

1. From the Job Controller of the CommCell Console, right-click the job and select **Kill**.
2. 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.

ADDITIONAL OPTIONS

The following table describes the available additional options to further refine your backup operations:

OPTION	DESCRIPTION	RELATED TOPICS
Startup Options	The Startup Options are used by the Job Manager to set priority for resource allocation. This is	Refer to Job Priority and

	<p>useful to give higher priority to certain jobs. You can set the priority as follows:</p> <ol style="list-style-type: none"> 1. From the CommCell Browser, navigate to Client Computers <Client> Active Directory Backup Set. 2. Right-click the Subclient in the right pane and click Backup. 3. Click Advanced and click Startup tab. 4. Select the Change Priority checkbox. 5. Enter a priority number - 0 is the highest priority and 999 is the lowest priority. 6. Select the Start up in suspended State check box to start the job in a suspended state. 7. Click OK. 	Priority Precedence.
Alerts	<p>This option enables users or user groups to get automatic notification on the status of the data protection job. Follow the steps given below to set up the criteria to raise notifications/alerts:</p> <ol style="list-style-type: none"> 1. From the CommCell Browser, navigate to Client Computers <Client> Active Directory Backup Set. 2. Right-click the Subclient in the right pane and click Backup. 3. Click Advanced and select the Alert tab. 4. Click Add Alert. 5. From the Add Alert Wizard dialog box, select the required threshold and notification criteria and click Next. 6. Select the required notification types and click Next. 7. Select the recipients and click Next. 8. Click Finish. 9. Click OK. 	Refer to Alerts.
Command Line Backups	<p>Command Line Interface enables you to perform backups or restore from the command line. The commands can be executed from the command line or can be integrated into scripts.</p> <p>You can also generate command line scripts for specific operations from the CommCell Browser using the Save As Script option.</p>	Refer to Command Line Interface.
CommCell Readiness Report	<p>The CommCell Readiness Report provides you with vital information, such as connectivity and readiness of the Client, MediaAgent and CommServe. It is useful to run this report before performing the data protection or recovery job. Follow the steps given below to generate the report:</p> <ol style="list-style-type: none"> 1. From the Tools menu in the CommCell Console, click Reports. 2. Navigate to Reports CommServe CommCell Readiness. 3. Click the Client tab and click the Modify button. 4. In the Select Computers dialog box, clear the Include All Client Computers and All Client Groups check box. 5. Select the client from the Exclude list. 6. Click the Include > button. 7. Click OK. 8. Click the MediaAgent tab. 9. Clear the Include All MediaAgents checkbox. 10. Select the MediaAgent from the Exclude list. 11. Click Include >. 12. Click Run. <p>The generated report is displayed.</p>	Refer to CommCell Readiness Report.
Backup Job Summary Report	<p>The Backup Job Summary Report provides you with information about all the backup jobs that are run in last 24 hrs for a specific subclient. You can get information such as status, time, data size etc. for each backup job. It is useful to run this report after performing the backup. Follow the steps given below to generate the report:</p> <ol style="list-style-type: none"> 1. From the Tools menu in the CommCell Console, click Reports. 2. Navigate to Reports Jobs Job Summary. 3. Click Data Management on the General tab in the right pane. 4. Select the Computers tab. 5. Click Subclient and select the Edit tab. 6. Navigate to Client Computers <Client> File System Backup Set Subclient. 7. Click Run. 	Refer to Backup Job Summary Report.
Data Path Options	Data Protection operations use a default Library, MediaAgent, Drive Pool, and Drive as the Data	Refer Change Data Path.

	<p>Path. You can use this option to change the data path if the default data path is not available. Follow the steps given below to change the default data path:</p> <ol style="list-style-type: none"> 1. From the CommCell Browser, navigate to Client Computers <Client> Active Directory Backup Set. 2. Right-click the Subclient in the right pane and click Backup. 3. Click Advanced and select the Data Path tab. 4. Select the MediaAgent and Library. 5. Select the Drive Pool and Drive for optical and tape libraries. 6. Click OK. 	
Index Cache Server	<p>Index Cache Server provides the facility to automatically continue data protection operations when there are job failures due to loss of connectivity to the index. You can configure the Index Cache Server as follows:</p> <ol style="list-style-type: none"> 1. From the CommCell Browser, navigate to Storage Resources MediaAgent. 2. Right-click the <MediaAgent> and click Properties. 3. Click the Catalog tab and ensure that the Index Cache Server is configured. 4. From the CommCell Browser, navigate to Client Computers <Client> Active Directory Backup Set. 5. Right-click the Subclient in the right pane and click Backup. 6. Click Advanced. 7. Make sure that the Use shared profile if present with transaction logging option is selected. 8. Click OK. 	Refer to Index Cache Server for more information.
Start New Media	<p>The Start New Media option enables you to start the data protection operation on a new media. This feature provides control over where the data physically resides. Use the following steps to start the data protection operation on a new media:</p> <ol style="list-style-type: none"> 1. From the CommCell Browser, navigate to Client Computers <Client> Active Directory Backup Set. 2. Right-click the Subclient in the right pane and click Backup. 3. Click Advanced and select the Media tab. 4. Select the Start New Media check box. 5. Click OK. 	Refer to Start New Media.
Mark Media Full	<p>This option marks the media as full, two minutes after the successful completion of the data protection job. This option prevents another job from writing to this media. Follow the steps given below:</p> <ol style="list-style-type: none"> 1. From the CommCell Browser, navigate to Client Computers <Client> Active Directory Backup Set. 2. Right-click the Subclient in the right pane and click Backup. 3. Click Advanced and select Media tab. 4. Select the Mark Media Full on Success check box. 5. Click OK. 	Refer to Export Media.
Allow other Schedules to use Media Set	<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"> 1. From the CommCell Browser, navigate to Client Computers <Client> Active Directory Backup Set. 2. Right-click the Subclient in the right pane and click Backup. 3. Click Advanced and select the Media tab. 4. Select the Allow Other Schedules To Use Media Set check box. 5. Click OK. 	Refer to Creating an Exportable Media Set.
Reserve Resources Before Scan	<p>Media is reserved for a job when the job is ready to write data. You can use this option to reserve the media during the initial phase of the job. Follow the steps given below to reserve media:</p> <ol style="list-style-type: none"> 1. From the CommCell Browser, navigate to Client Computers <Client> Active Directory Backup Set. 2. Right-click the Subclient in the right pane and click Backup. 3. Click Advanced and select the Media tab. 4. Select the Reserve Resources before Scan check box. 	

	<ol style="list-style-type: none"> 5. Click OK. 	
<p>Extended Data Retention</p>	<p>This option allows you to extend the expiration date of a specific job. This will override the default retention set at the corresponding storage policy copy. Follow the steps given below to extend the expiration date:</p> <ol style="list-style-type: none"> 1. From the CommCell Browser, navigate to Client Computers <Client> Active Directory Backup Set. 2. Right-click the Subclient in the right pane and click Backup. 3. Click Advanced and select the Media tab. 4. Select one of the following options: <ul style="list-style-type: none"> o Infinite - Select this option to extend the expiration date by infinite number of days o Number of day - Select this option to specify the number of days to extend the expiration date and then enter the number of days. 5. Click OK. 	<p>Refer to Extended Retention Rules.</p>
<p>Vault Tracker</p>	<p>This feature provides the facility to manage media that is removed from a library and stored in offsite locations. Depending on your VaultTracker setup, select the required options. Use the following steps to access and select the VaultTracker options.</p> <ol style="list-style-type: none"> 1. From the CommCell Browser, navigate to Client Computers <Client> Active Directory Backup Set. 2. Right-click the Subclient in the right pane and click Backup. 3. Click Advanced and select the VaultTracking tab. 4. Select the required options. 5. Click OK. 	<p>Refer to VaultTracker or VaultTracker Enterprise.</p>

Browse Data - Active Directory

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UNDERSTANDING THE BROWSE WINDOW

Browse provides an easy-to-use convenience to search and restore data.

You can open the browse window from client, agent, backup-set or subclient level. The sub levels displayed in the browse window is based on where you start the browse operation.

SELECTING OBJECTS FROM THE BROWSE WINDOW FOR RESTORE

The browse window displays objects and consists of two parts:

- The left pane displays the object tree at the selected level.
- The right pane displays the contents of the selected object.

Note that the window displays only the data that was obtained by a backup. Data that is excluded by a filter, or data which did not exist as of the specified browse time does not appear in the window.

Selections follow these rules:

- All selections are recursive.
- Clicking a box again causes the selection to be cleared.
- If you select an object in the left pane, then all of its contents are selected.
- You can select a specific object in the right pane.

Selection status is revealed by the selection icons as follows:

<input type="checkbox"/>	Indicates that the object is not selected for restoration.
<input checked="" type="checkbox"/>	Indicates that a portion of the object is selected for restoration. i.e., only some of the child object(s) within the selected object.
<input checked="" type="checkbox"/>	Indicates that the entire object, including all of its child objects, are selected for restoration.

BROWSE DATA

The option to browse the backup data provides the facility to view and restore the data that was backed up. The following sections explain how to browse the backup data.

LATEST DATA

Follow the steps given below to view the latest data backed up by a backup set:

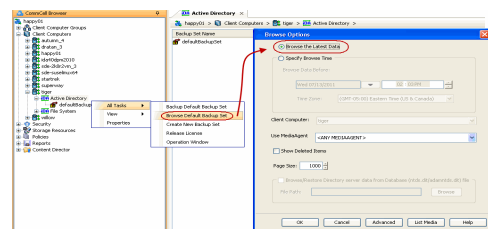
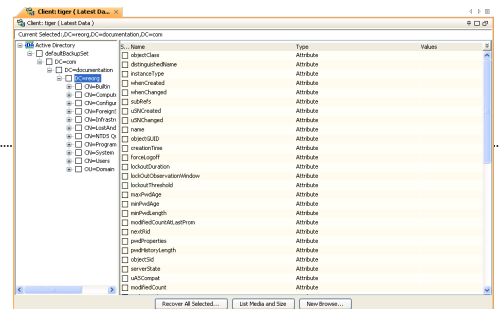
1. From the CommCell Browser, navigate to **Client Computers | <Client> | Active Directory**.
2. Right-click a Backup Set and click **All Tasks | Browse/Browse Backup Data**.
3. Click **OK**.

The latest data backed up by all the subclients is displayed in the **Client Browse** tab.

RELATED TOPICS

List Media

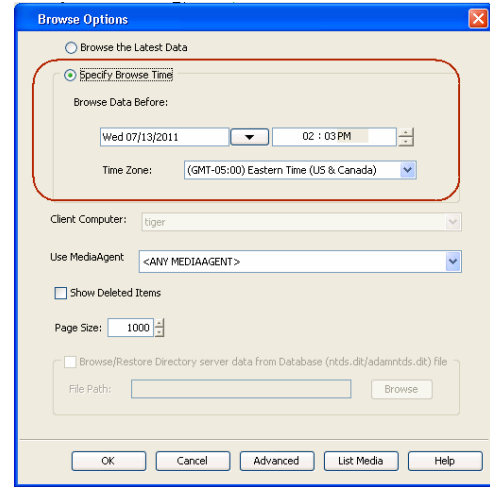
Provides comprehensive information on media management and prediction.



DATA BEFORE A SPECIFIED TIME

You can initiate multiple browse operations to compare objects and attributes from different point-in-time. Follow the steps given below to browse the data backed up before specified time:

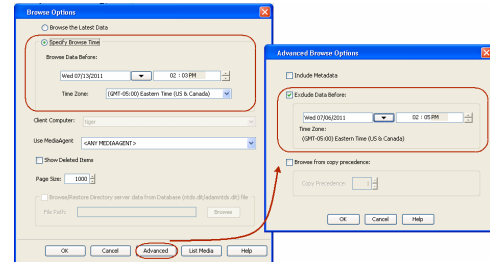
1. From the CommCell Browser, navigate to **Client Computers | <Client> | Active Directory**.
2. Right-click a Backup Set and click **All Tasks | Browse/Browse Backup Data**.
3. Select **Specify Browse Time**.
4. Select a date and time to **Browse Data Before** it.
5. Click **OK**.



DATA BETWEEN A SPECIFIED TIME

You can initiate multiple browse operations to compare objects and attributes from different point-in-time. Follow the steps given below to browse data between specified time:

1. From the CommCell Browser, navigate to **Client Computers | <Client> | Active Directory**.
2. Right-click a Backup Set and click **All Tasks | Browse/Browse Backup Data**.
3. Select **Specify Browse Time**.
4. Select a date and time to **Browse Data Before** it.
5. Click **Advanced**.
6. In the **Advanced Browse Options** dialog box, select **Exclude Data Before**.
7. Select the date and time to exclude the data before it from the browse operation.
8. Click **OK** in the **Advanced Browse Options** dialog box .
9. Click **OK** in the **Browse Options** dialog box.



BROWSE FROM COPIES

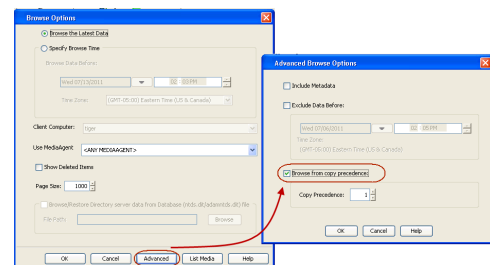
By default, when a browse operation is requested, the software attempts to browse from the storage policy copy with the lowest copy precedence. If the data that you want to browse was already pruned from the primary copy, the software searches the other copies of the storage policy, starting from the copy with the lowest copy precedence to a copy with the highest copy precedence.

This feature is useful in the following conditions:

- The media containing protected data for a particular copy has been removed from the storage library, you can choose to browse from a copy whose media are inside the library.
- Allows browsing from a copy that accesses faster disk media rather than slower tape media.
- When media drives used by a particular copy are busy with another operation, this helps in browsing from a different copy to avoid resource conflicts.

1. From the CommCell Browser, navigate to **Client Computers | <Client> | Active Directory**.
2. Right-click a Backup Set and click **All Tasks | Browse/Browse Backup Data**.
3. From the **Browse Options** dialog box, click **Advanced**.
4. In the **Advanced Browse Options** dialog box select the **Browse from copy precedence** option.

If you specify a copy precedence number for a browse operation, the software searches only the storage policy copy with that precedence number in all storage policies used for



securing the data. If data does not exist in the specified copy, the browse operation fails even if the data exists in another copy of the same storage policy.

5. Specify the precedence number in **Copy Precedence**.
6. Click **OK** in the **Advanced Browse Options** dialog box .
7. Click **OK** in the **Browse Options** dialog box.

LIST MEDIA

List media option is useful to predict media required to restore the index required to browse data. This is useful when the index is not available in the index cache.

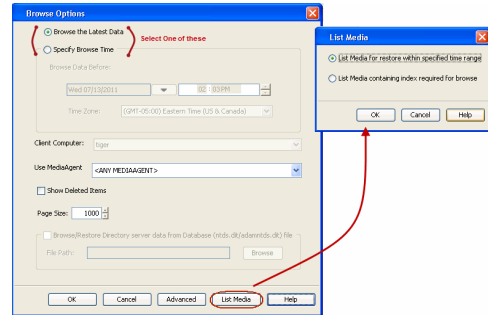
The following section describes how to perform this operation.

1. From the CommCell Browser, navigate to **Client Computers | <Client> | Active Directory**.
2. Right-click a Backup Set and click **All Tasks | Browse/Browse Backup Data**.
3. From the **Browse Options** dialog box, if required, select the following options:
 - o Click **Browse the Latest Data** to list media associated with the most recent data protection cycle.
 - o 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.
 - o Click **Advanced** and then click **Exclude Data Before** and then select the date and time from which you wish to list media associated with data protection operations.

Note that you can use the **Specify Browse Time** and **Exclude Data Before** options to list media between a specified date and time range.

4. Click **List Media**.
5. From the **List Media** dialog box, click **List Media for restore within specified time range**.
6. Click **OK**.

The appropriate media is listed in the **Media** dialog box.



FULL BACKUP TRANSPARENT BROWSE

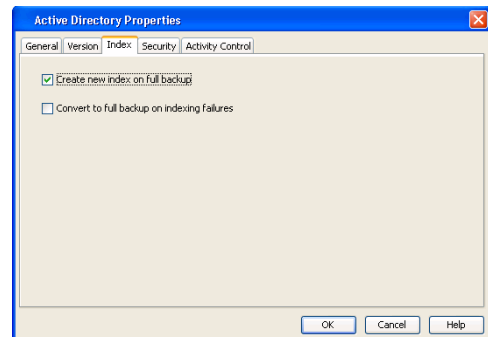
The browse searches described so far are confined to one full backup cycle, either the most recent (by default) or some previous cycle. Usually, this provides the desired results because generally you may want to restore either the latest version or the latest version as of some specified date.

If, however, you want to view all available versions that has not yet been pruned, then the browse cannot access data beyond it in a single operation.

Full backup transparent browses enable you to browse all the data within the entire retention period, not just one full backup cycle. When you use the **View All Versions** option, the browse operation displays all versions available in the backup.

By default, the Full Backup Transparent Browse is not enabled. Use the following steps to enable this option on a client before performing a backup:

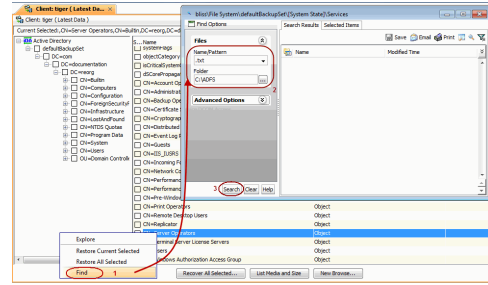
1. From the CommCell Browser, navigate to **Client Computers | <Client>**.
2. Right-click the Agent and click **Properties**.
3. Click **Index** and then clear **Create new index on Full Backup**.
4. Click **OK**.



FIND A FILE OR DIRECTORY

Use Find to find a file or directory name or a name pattern. Find has the capability to browse multiple indexes which allows you to find beyond the last full backup (or new index) as long as the data resides on an index that exists within the retention period.

1. From the CommCell Browser, navigate to **Client Computers | <Client> | Active Directory**.
2. Right-click a Backup Set and click **All Tasks | Browse/Browse Backup Data**.
3. Click **OK**. The latest data backed up by all the subclients is displayed in the **Client Browse** tab.
4. Right-click the selected content and click **Find**.
5. Enter the file name and the location of the file to be searched in the **Name/Pattern** and **Folder** fields and click **Search**.

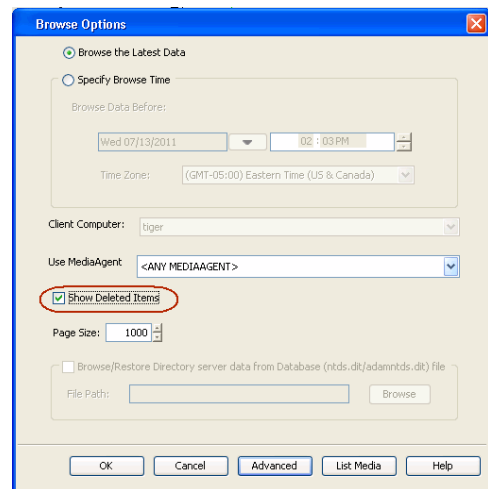


IMAGE/NO-IMAGE BROWSE

Image browse displays the structure of the entity as it existed as of some specified time. When you browse data in the image mode, the system by default returns the requested data based on the latest image available. The image browse can only restore the latest version. If the requested version was deleted before the most recent full backup, the default browse will not find the data.

The no-image browse is useful for retrieving data that may have been deleted at some unknown time. It is also useful to retrieve a previous backup version.

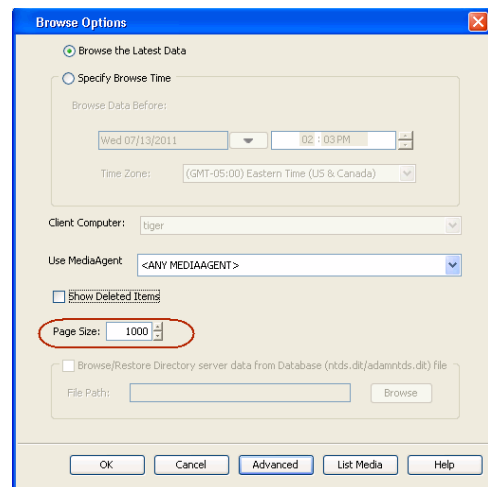
1. From the CommCell Browser, navigate to **Client Computers | <Client> | Active Directory**.
2. Right-click a Backup Set and click **All Tasks | Browse/Browse Backup Data**.
3. From the **Browse Options** dialog box, select one of the following options:
 - o Click and select the **Show Deleted Items** option to perform a no-image browse of the data.
 - o Clear the **Show Deleted Items** option to perform an image browse of the data.
4. Click **OK**.



ESTABLISH THE PAGE SIZE FOR A BROWSE

The Page Size option allows you to specify the number of objects to be displayed in the browse window. You can browse through each page list by selecting the appropriate page number in the Browse window. This field reverts back to the default setting after use.

1. From the CommCell Browser, navigate to **Client Computers | <Client> | Active Directory**.
2. Right-click a Backup Set and click **All Tasks | Browse/Browse Backup Data**.
3. From the **Browse Options** dialog box, enter a value for **Page Size**.
4. Click **OK**.

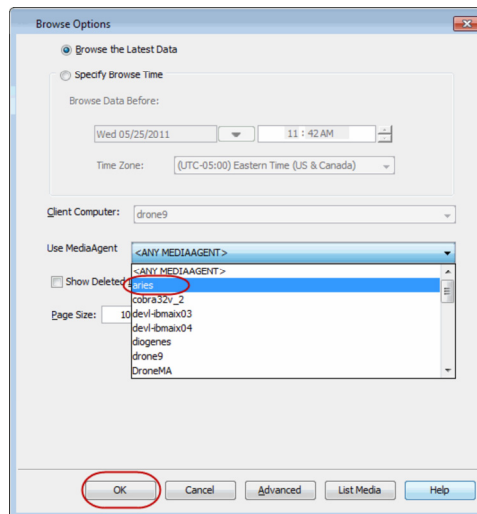


BROWSE USING MEDIA AGENT

Data can be restored from any compatible library and drive type in the CommCell. By default, the system automatically identifies and restores data from any configured library in the CommCell, even if the media is not available in the original library in which the data protection operation was performed. Use this

procedure to Browse using a specific MediaAgent.

1. From the CommCell Browser, navigate to **Client Computers | <Client> | Active Directory**.
2. Right-click a Backup Set and click **All Tasks | Browse/Browse Backup Data**.
3. From the **Browse Options** dialog box, choose the **MediaAgent** that must be used to perform the browse.
4. Click **OK**.



Advanced - Active Directory Restore

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Restoring Attributes of a Deleted Object

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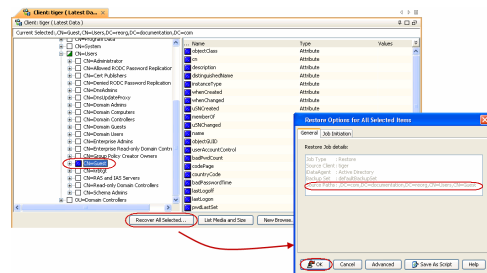
RESTORING OBJECTS

Follow the steps given below to restore an active directory object:

1. From the CommCell Browser, navigate to **Client Computers | <Client> | Active Directory | <Backup Set>**.
2. Right-click the **<Subclient>** in the right pane and then click **Browse Backup Data**.
3. Click **OK**.
4. Select the object that you want to restore. All the attributes of the object are selected automatically.

The object and its attributes will be restored to the same location from where it is backed up. Ensure that the Organization Unit (OU) of the object still exists on the source computer.

5. Click **Recover All Selected**.
6. Click **OK**



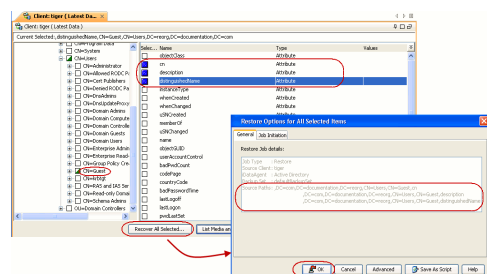
RESTORING ATTRIBUTES

You can restore attributes of an existing object in the active directory tree. You can perform an in-place restore of the attribute.

1. From the CommCell Browser, navigate to **Client Computers | <Client> | Active Directory | <Backup Set>**.
2. Right-click the **<Subclient>** in the right pane and then click **Browse Backup Data**.
3. Click **OK**.
4. Navigate to the object for which you want to restore the attribute.
5. Select the attributes that you want to restore and click **Recover All Selected**.

The attributes will be restored to the same location from where they are backed up.

6. Click **Recover All Selected**.
7. Click **OK**.



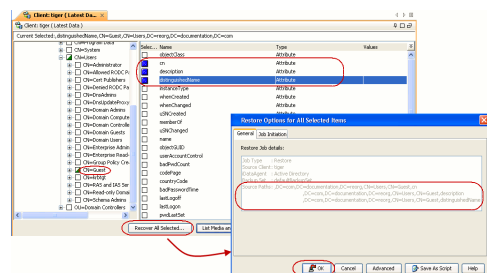
RESTORING ATTRIBUTES OF A DELETED OBJECT

You can restore attributes of a deleted object in the active directory tree. You can perform an in-place restore of the attribute.

1. From the CommCell Browser, navigate to **Client Computers | <Client> | Active Directory | <Backup Set>**.
2. Right-click the **<Subclient>** in the right pane and then click **Browse Backup Data**.
3. Click **OK**.
4. Navigate to the object for which you want to restore the attribute.
5. Select the attributes that you want to restore and click **Recover All Selected**.

The attributes will be restored to the same location from where they are backed up. The object will be recreated while restoring the attributes. Ensure that the Organization Unit (OU) of the object still exists on the source computer.

6. Click **Recover All Selected**.



RELATED TOPICS

Scheduling

Provides comprehensive information on scheduling jobs.

Job Management

Provides comprehensive information on managing jobs.

List Media

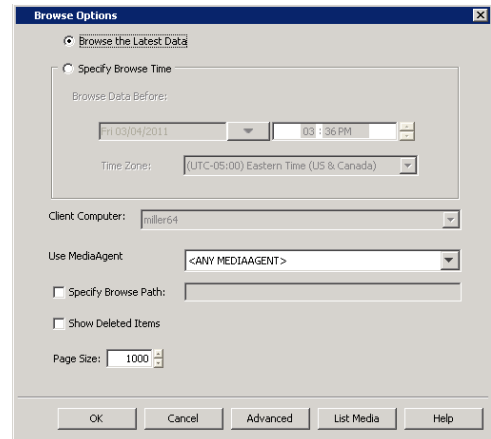
Provides comprehensive information on media management and prediction.

7. Click **OK**.

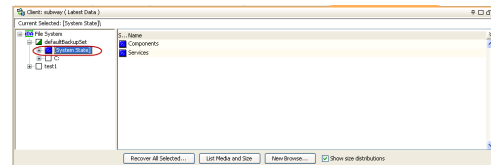
SCHEDULING A RESTORE

Follow the steps given below to schedule a restore job:

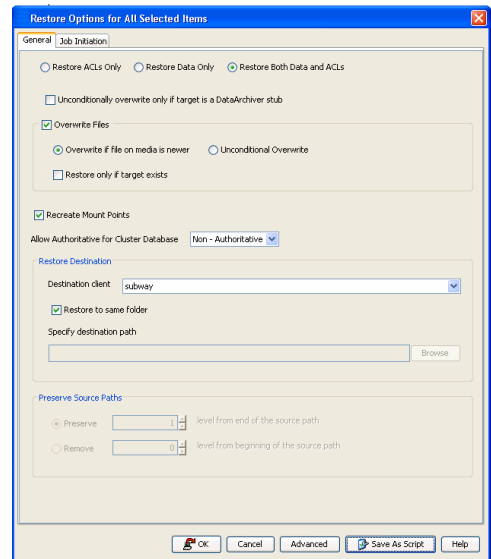
1.
 - From the CommCell Console, navigate to **Client Computers** | <client> | **Active Directory**.
 - Right-click a backup set and click **All Tasks** | **Browse Backup Data**.
 - Click **OK**.



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

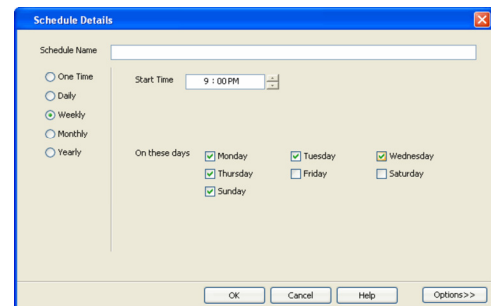
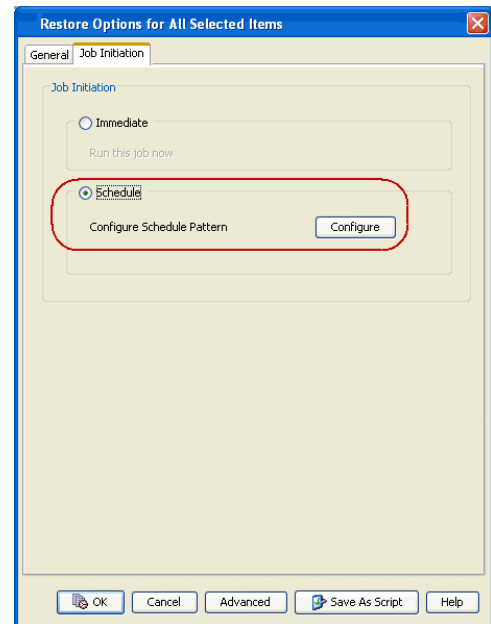


3. Select the name of the client computer from the **Destination Client** list. Click **OK**.



4.
 - Click **Job Initiation** tab and click **Schedule**.
 - Click **Configure**.

5. 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.



MANAGING 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:

RESTARTING JOBS

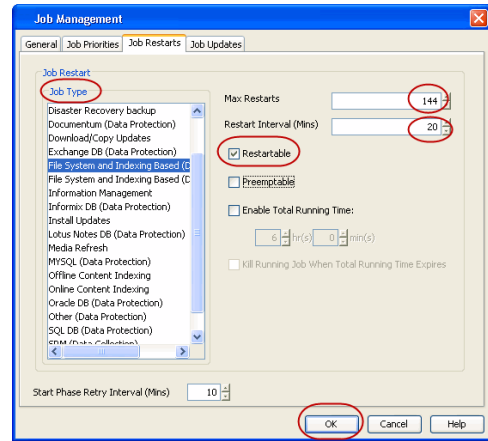
Jobs that fail to complete successfully are automatically restarted based on the job restartability configuration set in the Control Panel. Keep in mind that changes made to this configuration will affect all jobs in the entire CommCell.

To Configure the job restartability for a specific job, you can modify the retry settings for the job. This will override the setting in the Control Panel. 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. From the CommCell Browser, click **Control Panel** icon.
2. Select **Job Management**.
3. Click **Job Restarts** tab and select a **Job Type**.
 - o Select **Restartable** to make the job restartable.
 - o Change the value for **Max Restarts** to change the maximum number of times the Job Manager will try to restart a job.
 - o Change the value for **Restart Interval (Mins)** to change the time interval between attempts for the Job Manager to restart the job.
4. Click **OK**.



CONTROLLING JOBS

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

SUSPEND	Temporarily stops a job. A suspended job is not terminated; it can be restarted at a later time.
RESUME	Resumes a job and returns the status to Waiting, Pending, Queued, or Running. The status depends on the availability of resources, the state of the Operation Windows, or the Activity Control setting.
KILL	Terminates a job.

SUSPENDING A JOB

1. From the Job Controller of the CommCell Console, right-click the job and select **Suspend**.
2. The job status may change to **Suspend Pending** for a few moments while the operation completes. The job status then changes to **Suspended**.

RESUMING A JOB

1. From the Job Controller of the CommCell Console, right-click the job and select **Resume**.
2. As the Job Manager attempts to restart the job, the job status changes to **Waiting, Pending, or Running**.

KILLING A JOB

1. From the Job Controller of the CommCell Console, right-click the job and select **Kill**.
2. 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.

ADDITIONAL RESTORE OPTIONS

The following table describes the available additional options to further refine your restore operations:

OPTION	DESCRIPTION	RELATED TOPIC
Skip Errors and Continue	<p>This option enables you to continue the restore job regardless of media errors and create a file that lists the full path names of the files that failed to get restored. Follow the steps given below to set this option:</p> <ol style="list-style-type: none"> 1. From the CommCell Browser, click Client Computers Active Directory. 2. Right-click the <Backup set> that contains the data you want to restore, point to All Tasks and then click Browse Backup Data. 3. In the Browse Options dialog box, click OK. 4. In the Client Browse tab, select the data to be restored and click Recover all Selected. 5. In the Restore Options for All Selected Items dialog box, click Advanced. 6. In the Advanced Restore Options dialog box, click General. 7. On the General tab, select the Skip errors and continue check box. 8. Click OK. 	
Startup Options	<p>The Startup Options are used by the Job Manager to set priority for resource allocation. This is useful to give higher priority to certain jobs. You can set the priority as follows:</p>	Refer to Job Priority and Priority Precedence.

	<ol style="list-style-type: none"> 1. From the CommCell Browser, click Client Computers Active Directory. 2. Right-click the <Backup set> that contains the data you want to restore, point to All Tasks and then click Browse Backup Data. 3. In the Browse Options dialog box, click OK. 4. In the Client Browse tab, select the data to be restored and click Recover all Selected. 5. In the Restore Options for All Selected Items dialog box, click Advanced. 6. In the Advanced Restore Options dialog box, click Startup. 7. On the Startup tab, select Change Priority. 8. Enter a priority number - 0 is the highest priority and 999 is the lowest priority. 9. Select the Start up in suspended State check box to start the job in a suspended state. 10. Click OK. 	
<p>Copy Precedence</p>	<p>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 data 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 retrieved, and no further copies are checked.</p> <p>You can retrieve data from a specific storage policy copy (Synchronous Copy or Selective Copy). If data does not exist in the specified copy, the data retrieve operation fails even if the data exists in another copy of the same storage policy. Follow the steps given below to retrieve the data from a specific storage policy copy:</p> <ol style="list-style-type: none"> 1. From the CommCell Browser, click Client Computers Active Directory. 2. Right-click the <Backup set> that contains the data you want to restore, point to All Tasks and then click Browse Backup Data. 3. In the Browse Options dialog box, click OK. 4. In the Client Browse tab, select the data to be restored and click Recover all Selected. 5. In the Restore Options for All Selected Items dialog box, click Advanced. 6. In the Advanced Restore Options dialog box, click Copy Precedence. 7. On the Copy Precedence tab, select the Restore from copy precedence check box. 8. Enter the copy precedence number. 9. Click OK. 	<p>Refer to Recovering Data From Copies.</p>
<p>Data Path Options</p>	<p>The data recovery operations use a default Library, MediaAgent, Drive Pool, and Drive as the Data Path. You can use this option to change the data path if the default data path is not available. Follow the steps given below to change the default data path:</p> <ol style="list-style-type: none"> 1. From the CommCell Browser, click Client Computers Active Directory. 2. Right-click the <Backup set> that contains the data you want to restore, point to All Tasks and then click Browse Backup Data. 3. In the Browse Options dialog box, click OK. 4. In the Client Browse tab, select the data to be restored and click Recover all Selected. 5. In the Restore Options for All Selected Items dialog box, click Advanced. 6. In the Advanced Restore Options dialog box, click Data Path. 7. On the Data Path tab, select the MediaAgent and Library. 8. Select the Drive Pool and Drive for optical and tape libraries. 9. Select the name of the Proxy server if you wish to restore using a proxy server. <p>You can select the Proxy server only when you are restoring from a snapshot. This option is not available for a regular restore.</p> <ol style="list-style-type: none"> 10. Click OK. 	<p>Refer to Change Data Path.</p>
<p>Encryption</p>	<p>If the client's data is encrypted with a pass phrase, you must enter the pass-phrase to start the data recovery operation. Follow the steps given below to enter the pass-phrase:</p> <ol style="list-style-type: none"> 1. From the CommCell Browser, click Client Computers Active Directory. 2. Right-click the <Backup set> that contains the data you want to restore, point to All Tasks and then click Browse Backup Data. 3. In the Browse Options dialog box, click OK. 4. In the Client Browse tab, select the data to be restored and click Recover all Selected. 5. In the Restore Options for All Selected Items dialog box, click Advanced. 	<p>Refer to Data Encryption.</p>

	<ol style="list-style-type: none"> 6. In the Advanced Restore Options dialog box, click Encryption. 7. Enter the Pass Phrase. 8. Click OK. 	
Browse Options	<p>Deleted files can be manually restored by the user. You can specify the time range for the deleted items to be restored.</p> <ol style="list-style-type: none"> 1. From the CommCell Browser, click Client Computers Active Directory. 2. Right-click the <Backup set> that contains the data you want to restore, point to All Tasks and then click Browse Backup Data. 3. In the Browse Options dialog box, click OK. 4. In the Client Browse tab, select the data to be restored and click Recover all Selected. 5. In the Restore Options for All Selected Items dialog box, click Advanced. 6. From the Browse Options tab, select Restore deleted items option. 7. Select Specify Time Range option to specify the time zone, start time and end time for the deleted items to be restored. 8. Click OK. 	Refer to Job Management.
Alerts	<p>This option enables users or user groups to get automatic notification on the status of the data recovery job. Follow the steps given below to set up the criteria to raise notifications/alerts:</p> <ol style="list-style-type: none"> 1. From the CommCell Browser, click Client Computers Active Directory. 2. Right-click the <Backup set> that contains the data you want to restore, point to All Tasks and then click Browse Backup Data. 3. In the Browse Options dialog box, click OK. 4. In the Client Browse tab, select the data to be restored and click Recover all Selected. 5. In the Restore Options for All Selected Items dialog box, click Advanced. 6. In the Advanced Restore Options dialog box, click Alerts. 7. Click Add Alert. 8. From the Add Alert Wizard dialog box, select the required threshold and notification criteria and click Next. 9. Select the required notification types and click Next. 10. Select the recipients and click Next. 11. Click Finish. 12. Click OK. 	Refer to Alert.
CommCell Readiness Report	<p>The CommCell Readiness Report provides you with vital information, such as connectivity and readiness of the Client, MediaAgent and CommServe. It is useful to run this report before performing the data protection or recovery job. Follow the steps given below to generate the report:</p> <ol style="list-style-type: none"> 1. From the Tools menu in the CommCell Console, click Reports. 2. Navigate to Reports CommServe CommCell Readiness. 3. Click the Client tab and click the Modify button. 4. In the Select Computers dialog box, clear the Include All Client Computers and All Client Groups check box. 5. Select the client from the Exclude list. 6. Click the Include > button. 7. Click OK. 8. Click the MediaAgent tab. 9. Clear the Include All MediaAgents checkbox. 10. Select the MediaAgent from the Exclude list. 11. Click Include >. 12. Click Run. <p>The generated report is displayed.</p>	Refer to CommCell Readiness Report.
Restore Job Summary Report	<p>The Restore Job Summary Report provides you with information about all the data recovery jobs that are run in last 24 hours for a specific client and agent. You can get information such as failure reason, failed objects, job options etc. It is useful to run this report after performing the restore. Follow the steps given below to generate the report:</p> <ol style="list-style-type: none"> 1. From the Tools menu in the CommCell Console, click Reports. 	Refer to Restore Job Summary Report.

2. Navigate to **Reports | Jobs | Job Summary**.
3. Click **Data Recovery** on the **General tab** in the right pane.
4. On the **Computers** tab, select the client and the agent for which you want to run the report.
5. Click **Run**.

Data Aging - Active Directory iDataAgent

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Getting Started

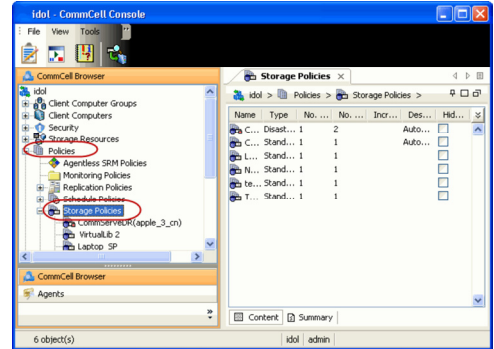
Extended Retention Rules

GETTING STARTED

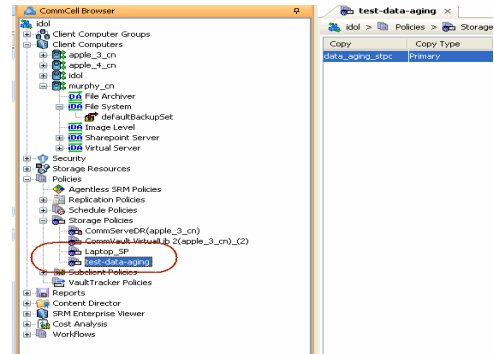
Data Aging is the process of removing old data from secondary storage to allow the associated media to be reused for future backups.

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.

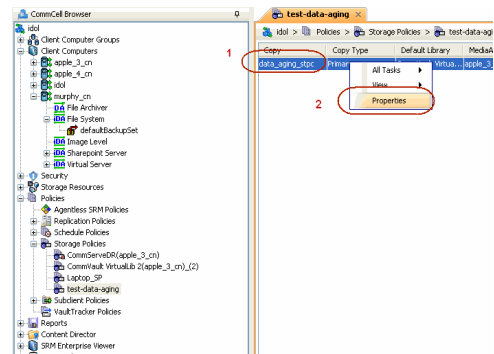
1. From the CommCell Browser, navigate to **Policies | Storage Policies**.



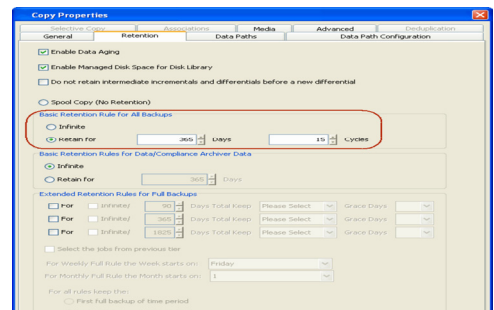
2. Highlight the **Storage Policy**.



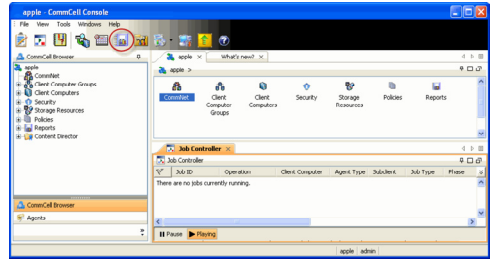
3. From the right pane, right-click the **Storage Policy Copy** and click the **Properties**.



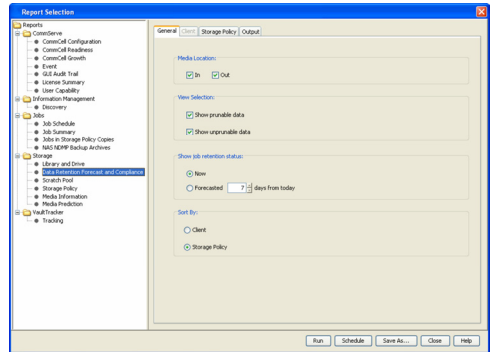
4.
 - Click the **Retention** tab.
 - Click the **Retain For** in the **Basic Retention Rules for All Backups** area.
 - Enter number of days to retain the data.
 - Enter number of cycles to retain the data.
 - Click **OK**.



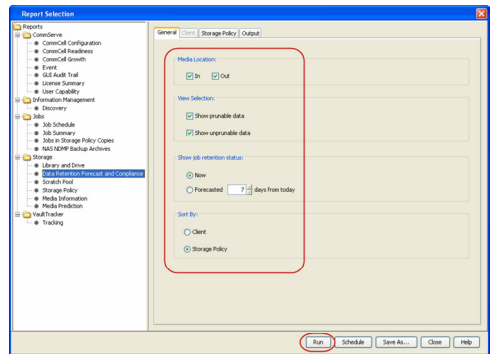
5. From the CommCell Browser, click the **Reports** icon.



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



7. Click **Run**.

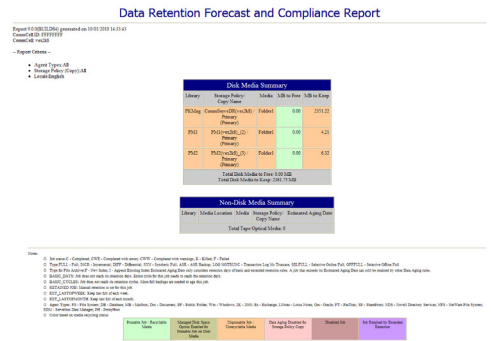


8. The report will display the data to be pruned when a data aging job is run.

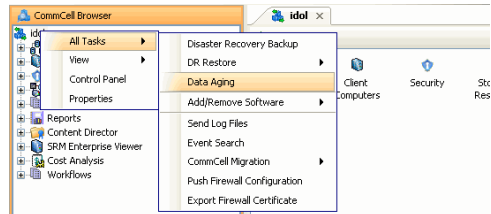
To ensure only data intended for aging is actually aged, it is important to identify the data that will be aged based on the retention rules you have configured. Hence, ensure this report includes only the data you intend to age.

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

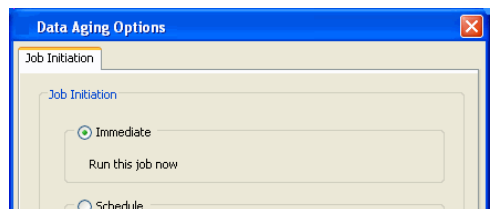
Once you run a data aging job, the data will be lost.



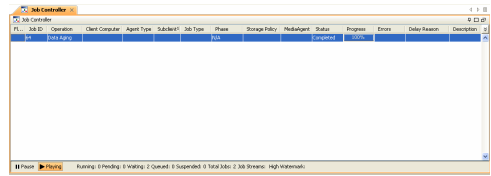
9. From the CommCell Console, right click the CommServe icon and click **All Tasks | Data Aging**.



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:

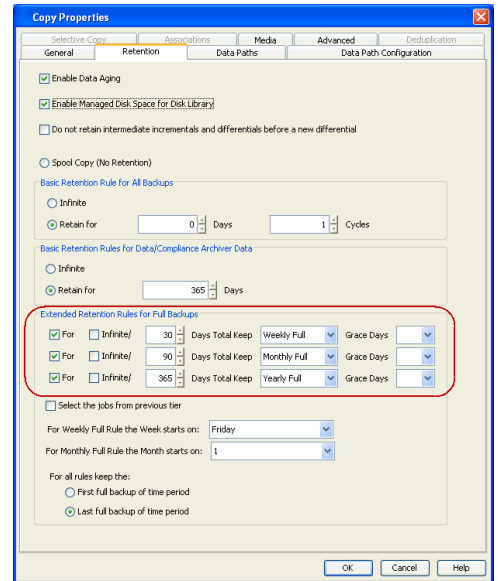
- You may want to retain your weekly full backups for 30 days.
- You may want to retain your monthly full backup for 90 days.
- You may want to retain your yearly full backup for 365 days.

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.

Disaster Recovery - Active Directory

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Full System Restore of a Domain Controller on Windows Server 2008

Replicating Active Directory Data to all the Domain Controllers in a Domain

PLANNING FOR A DISASTER RECOVERY

The Active Directory can be fully restored only through a full restore of the Windows File System iDataAgent.

Before you begin a disaster recovery, make sure to do the following:

- Perform regular backups of the Windows file system or schedule the backups to run at regular intervals.
- On any Windows operating system, perform a restore to the same platform that you used for performing the backup. For example, you cannot do a full system restore on an x64 platform if you are using a 32-bit iDataAgent for backup.

CREATING A CHECKLIST

If the operating system of your client is corrupted, you need to re-build the operating system.

During the rebuild you will be prompted for the following system information. Since the computer will be down during the operating system rebuild, you may not be able to access necessary information about the system. It is important to record such information before a disaster occurs.

SYSTEM INFORMATION	HOW TO GET IT
Windows Operating System	Use Windows installation discs, CD, required service packs (SPs) and Hot fixes to install the Windows Operating System.
Windows File System iDataAgent	Use Windows File System iDataAgent installation disc to install the Windows File System iDataAgent.
Drives	Use the Disk Management utility to record the volumes and sizes of the hard drives in the system, which are needed to recreate the disk configuration in case of hard drive failure. Hard drives must be configured before restoring System State or file system data.
Computer name	Use the same computer name and avoid changing other configuration settings.
Network Interface Card configuration and settings	<ol style="list-style-type: none"> 1. Click Start Programs Accessories System Information. 2. In the System Information dialog box, click Components Network Adapter. 3. Note down the Network Adapter and Drivers information.
TCP/IP Settings	On the command prompt give following commands: <ul style="list-style-type: none"> • <code>hostname</code> - Note down the fully qualified network name • <code>ipconfig</code> - Note down the IP address, Subnet mask, TCP/IP domain name for the network, IP address of the domain name server (DNS) settings.
Video settings	Note down the video settings if the resolution and color depth are important.
Domain information	Note down the domain in which this computer resides.
Domain password	Note down this information if you are restoring a domain controller.
Local admin password	Note down this information to log on to the computer once it is restored.

WHAT GETS RESTORED

You can restore any one or all of the following components during full system restore:

- File System
- System State
- Office Communications Server

WHAT DOES NOT GET RESTORED

By default, the Calypso files and registry entries are excluded from the restore. After the full system restore, when you install Calypso, all the latest patches will be available.

If the backup contains all the latest patches, create the `nDisableGalaxyMerge` registry key and set the value to 1 to restore the registry entries for Calypso.

FULL SYSTEM RESTORE OF A DOMAIN CONTROLLER ON WINDOWS SERVER 2003

1. Rebuild the system hardware if necessary.
2. Configure hardware devices such as disk arrays and ensure connectivity to all drives.
3. Using the instructions provided with the software, install Windows operating system and include any previously installed Service Packs and Hot Fixes.
Do not install IIS Services. These services will be restored automatically during the restore.
Do not include the server in the domain. Keep it in the workgroup.
4. Format and partition the hard drives to match their previous configurations.

When recreating partitions, you can Browse the backup data to determine the previous size of the partitions. When you browse the backup set, each drive letter will have its size noted in the Browse window.

5. If the client was installed with a fully qualified domain name, perform the following tasks, otherwise, skip to the next step.
 - o Change the Computer name to the fully qualified domain name to avoid a naming resolution conflict when the client is restored.
 - o Add the IP address and the fully qualified domain name and a short name of the Client, MediaAgent and CommServe to the host file of the client in the following format:

```
<ip address> <fully qualified domain name> <short name>
```

Until the DNS server is restored, there is no domain name resolution and the client will be unable to communicate with the CommServe and MediaAgent computers unless this information is added to the host file.

Similarly, add the CommServe, MediaAgent and Client names and their IP addresses to the Host file of the MediaAgent, and CommServe when restoring a Domain Name Server.

6. Enable and configure TCP/IP support.
7. Configure the Network Interface Card(s).

Ensure that the Network Interface Card used is the first card listed in the network binding order when restoring a client with multiple Network Interface Cards.

8. Run the following command to verify network communications between the client computer and the CommServe:

```
ping <CommServe name>
```

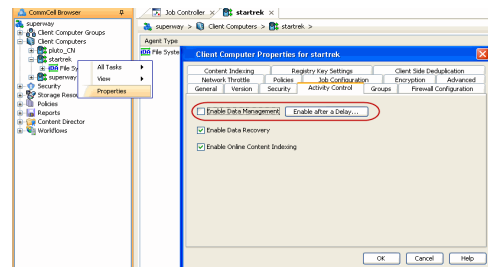
9. Run the following command to verify network communications between the client computer and the MediaAgent:

```
ping <MediaAgent name>
```

10. Install the Windows File System iDataAgent all applicable updates on the default install partition of the client computer.

Restart the computer in Directory Services mode after installing Windows File System iDataAgent.

11. Open the CommCell Console.
12. From the CommCell Browser, right-click the **<Client>** and select **Properties**.
13. Click the **Activity Control** tab.
14. Clear the **Enable Data Management** check box. This will disable backup jobs for the client and any scheduled backup jobs for the client will not start during the full system restore.
15. Click **OK**.



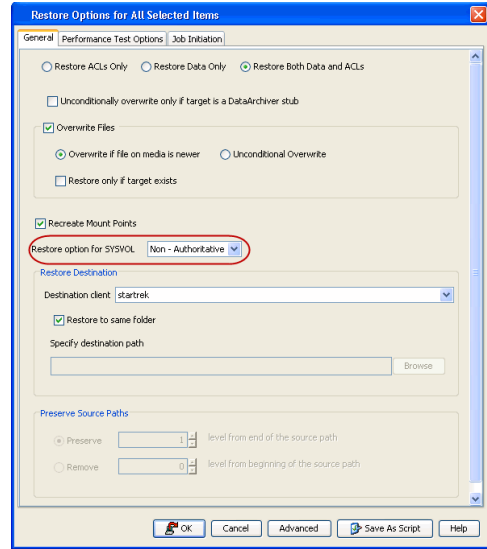
16. From the CommCell Browser, navigate to **Client Computers | <Client> | File System**.
17. Right-click the **<Backupset>** that contains the system state data and all the drives and then click **Browse Backup Data**.
18. Select the required options from the **Browse Options** dialog box and click **OK**.
19. Select the **<Backupset>** box from the **Client Browse** tab which contains system state data and all the drives.
20. Click **Recover All Selected**.
21. Select one of the following from the **Restore option for SYSVOL** list:
 - o **Primary** - Select this option when you are restoring for a standalone domain controller or the first domain controller restored in the network



- **Non-Authoritative** - Select this option to restore the domain controller without replicating any changes to the other domain controllers on the network
- **Authoritative** - Select this option to restore the domain controller and also replicate any changes to the other domain controllers on the network. You must run the **ntdsutil** to replicate the changes to the other domain controllers.

If the hardware of the destination computer is drastically different than the hardware of the source computer, do not select **Unconditional Overwrite** option.

Select the other required options and click **OK**.



22. Click **Compare** to view the Service Pack information of source and destination computer.



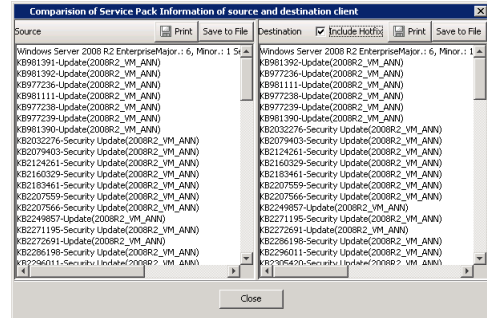
23. Note down the service packs that are not installed on the destination computer and click **Close**.

The **Include Hotfix** check box will be available for the source computer if you have chosen the **Include Hotfix Information** option during the backup.

24. Click **No** if the source computer and the destination computer has different service packs. Install the required service packs and hot fixes on the destination computer.

Click **Yes** if all the service packs on the source and destination computer are same. The full system restore starts.

25. Click **OK** to restart the computer.
26. Re-install any agents that were previously installed on the restored client computer.
27. Enable the backup jobs for the client by selecting the **Enable Data Management** check box from the **Activity Control** tab of the **Client Properties** dialog box.



REPLICATING ACTIVE DIRECTORY DATA TO ALL THE DOMAIN CONTROLLERS IN A DOMAIN

The system performs a non-authoritative restore of the Active Directory by default, ensuring that any Active Directory data that has changed since the last backup is not replicated to other domain controllers. However, you can force an authoritative restore of the Active Directory and replicate all the restored data to all the remaining domain controllers in the domain by running the **ntdsutil**.

It is recommended that you review all Microsoft instructions and methods before replicating the data to all domain controllers.

Follow the steps given below to run the **ntdsutil** :

1. Perform the Authoritative full system restore of a domain controller.
2. Restart the computer in the Directory Services mode.
3. From the Command Prompt, type **ntdsutil**.
4. At the **ntdsutil** prompt, type **Authoritative Restore**.
5. At the Authoritative Restore prompt, type **Restore Database**.
6. Click **Yes** to confirm this operation.
7. Type **quit** to exit the Authoritative Restore prompt.
8. Type **exit** to end the **ntdsutil** session.
9. Type **exit** to exit the command prompt.
10. Restart the computer in normal mode and wait for replication to complete.

If you are performing an Authoritative restore of the SYSVOL without performing the full system restore, you must run the **ntdsutil**. When you run this utility, the policies and scripts will be accessible from Active Directory Users and Computers.

FULL SYSTEM RESTORE OF A DOMAIN CONTROLLER ON WINDOWS SERVER 2008

1. Rebuild the system hardware if necessary.
2. Configure hardware devices such as disk arrays and ensure connectivity to all drives.
3. Using the instructions provided with the software, install Windows operating system and include any previously installed Service Packs and Hot Fixes.
Do not install IIS Services. These services will be restored automatically during the restore.
Do not include the server in the domain. Keep it in the workgroup.
4. Format and partition the hard drives to match their previous configurations.

When recreating partitions, you can Browse the backup data to determine the previous size of the partitions. When you browse the backup set, each drive letter will have its size noted in the Browse window.

5. If the client was installed with a fully qualified domain name, perform the following tasks, otherwise, skip to the next step.
 - o Change the Computer name to the fully qualified domain name to avoid a naming resolution conflict when the client is restored.
 - o Add the IP address and the fully qualified domain name and a short name of the Client, MediaAgent and CommServe to the host file of the client in the following format:

```
<ip address> <fully qualified domain name> <short name>
```

Until the DNS server is restored, there is no domain name resolution and the client will be unable to communicate with the CommServe and MediaAgent computers unless this information is added to the host file.

Similarly, add the CommServe, MediaAgent and Client names and their IP addresses to the Host file of the MediaAgent, and CommServe when restoring a Domain Name Server.

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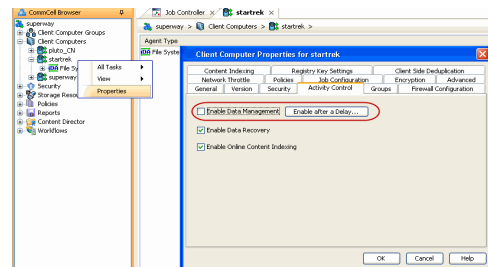
9. Run the following command to verify network communications between the client computer and the MediaAgent:

```
ping <MediaAgent name>
```

10. Install the Windows File System iDataAgent all applicable updates on the default install partition of the client computer.

Restart the computer in Directory Services mode after installing Windows File System iDataAgent.

11. Open the CommCell Console.
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13. Click the **Activity Control** tab.
14. Clear the **Enable Data Management** check box. This will disable backup jobs for the client and any scheduled backup jobs for the client will not start during the full system restore.
15. Click **OK**.



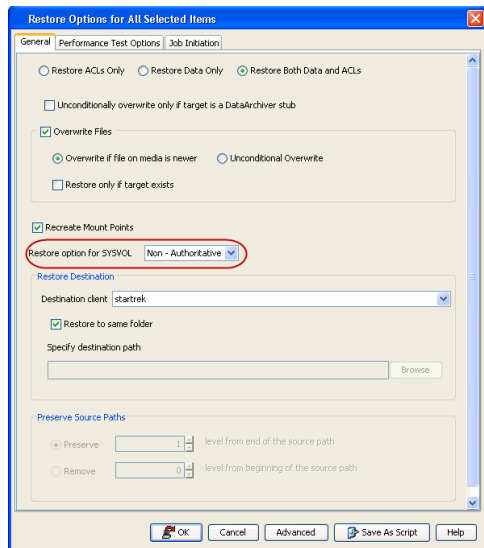
16. From the CommCell Browser, navigate to **Client Computers | <Client> | File System**.
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18. Select the required options from the **Browse Options** dialog box and click **OK**.
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20. Click **Recover All Selected**.
21. Select one of the following from the **Restore option for SYSVOL** list:
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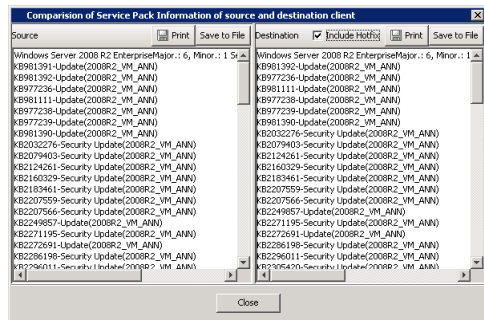
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Follow the steps given below to run the **ntdsutil** :

1. Perform the Authoritative full system restore of a domain controller.
2. Restart the computer in the Directory Services mode.
3. From the Command Prompt, type **ntdsutil**.
4. At the **ntdsutil** prompt, type **Activate instance NTDS**.
5. At the **ntdsutil** prompt, type **Authoritative Restore**.
6. At the Authoritative Restore prompt, type **Restore Subtree DistinguishedName**.

where **DistinguishedName** is the name of the subtree that is to be marked authoritative.

For example: **Restore subtree: DC=DomainName,DC=COM** will restore **domainname.com**.

7. Click **Yes** to continue.

The restore process will complete and a message confirming the creation of one text and 2 LDAP Data Interchange Format (LDIF) files will be displayed.

8. Restart the computer in normal mode and allow time for replication to complete.
9. To run an LDIF file to recover back-links, type the following command at the command prompt.

```
ldifde -i -k -f FileName (where the FileName is the name of the LDIF file)
```

10. Repeat step 5 and 6 for each additional domain.

Additional Operations - Active Directory iDataAgent

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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**.

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.

GLOBAL FILTERS

Global Filters are exclusions that filter data from backups across all Agents in a CommCell that support the feature. Global Filters serve as a template for files, folders, and entities that should always be excluded from all (or most) backups in a CommCell, such as temporary data a computer does not retain or data that is recoverable by means other than a restore. This saves space on media and enhances backup performance.

By default, filters configured for a particular subclient override any Global Filters configured for the CommCell. You can, however, configure subclients to include global filters along with any filters already configured for the subclient.

CONFIGURE GLOBAL FILTERS

1. From the CommCell Browser, right-click the CommServe, click **Control Panel**, and then click **Global Filters**.

2. Select **Use Global Filters on All Subclients**.
3. Click **Browse** to locate the files or folders to be excluded from backups and click **OK**.
4. Click **OK** to save your changes.

ENABLE/DISABLE GLOBAL FILTERS FOR A SUBCLIENT

1. From the CommCell Browser, right-click the subclient for which you want to enable Global Filters and click **Properties**.
2. Click the **Filters** tab.
3. Select one of the following values from the **Include Global Filters** list:
 - o **ON** to enable Global Filters for this subclient.
 - o **OFF** to disable Global Filters for this subclient.
4. Click **OK**.

LICENSE ADMINISTRATION

REQUIRED LICENSES

The Active Directory iDataAgent requires the **iDataAgent for Active Directory** license.

CONVERTING EVALUATION LICENSES TO PERMANENT LICENSES

If you installed the software using an Evaluation License, you can upgrade to a Permanent License as follows:

1. From the CommCell Browser, right-click the CommServe icon, click **Control Panel**, and then click **License Administration**.
2. Select the **Update License** tab and then click **Convert**.
3. Check the box that corresponds to the evaluation license you would like to upgrade and then click **Convert**.

The license information is updated in the **License Administration** window.

USING CAPACITY-BASED LICENSING

License Usage by Capacity is a licensing mechanism that allows you to obtain licenses based on the amount of data you back up. It provides the following features:

- Flexibility of usage on all agents, rather than being tied to number of server, agents, etc.
- Allows you to purchase licenses based on your data protection needs

Both **Core** and **Enterprise** license types are available. Refer to License Usage by Capacity for comprehensive information on utilizing this method.

RELEASING A LICENSE

If you no longer require a license on a computer, such as cases where the computer is being retired, you can release the license and use it later for another computer. Backup data from the retired computer can still be restored after the license is released provided the data is not aged.

1. From the CommCell Browser, right-click the name of the client from which you want to release a license, click **All Tasks**, and then click **Release License for Client**.
2. Click **OK** to continue releasing the license
3. Click **Yes** to confirm you want to release the license or **No** to abort.

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
CONFIGURATION	Agent	Active Directory Properties (General) Active Directory Properties (Version) Active Directory Properties (Index) Active Directory Properties (Security) Active Directory Properties (Activity Control)	Change Account
	Subclient	Active Directory Subclient Properties (General) Active Directory Subclient Properties (Content)	

		Active Directory Subclient Properties (Pre/Post Process) Active Directory Subclient Properties (Security) Active Directory Subclient Properties (Storage Device) Active Directory Subclient Properties (Activity Control)	
	BackupSet	Active Directory BackupSet (General) Active Directory BackupSet (Security)	
BACKUP	Backup Options	Active Directory Backup Options	Save As Script
	Advanced Backup Options	Active Directory Advanced Backup Options (Data) Active Directory Advanced Backup Options (Startup) Active Directory Advanced Backup Options (Job Retry) Active Directory Advanced Backup Options (Media) Active Directory Advanced Backup Options (Data Path) Active Directory Advanced Backup Options (VaultTracking) Active Directory Advanced Backup Options (Alert)	
RESTORE	Restore Options	Active Directory Restore Options (General) Active Directory Restore Options (Job Initiation)	Save As Script
	Advanced Restore Options	Active Directory Advanced Restore Options (General) Active Directory Advanced Restore Options (Startup) Active Directory Advanced Restore Options (Copy Precedence) Active Directory Advanced Restore Options (Data Path) Active Directory Advanced Restore Options (Browse Options) Active Directory Advanced Restore Options (Alert)	
Operation Window	Operation Window	Active Directory Operation Window	Operation Rule Details

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.

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**.

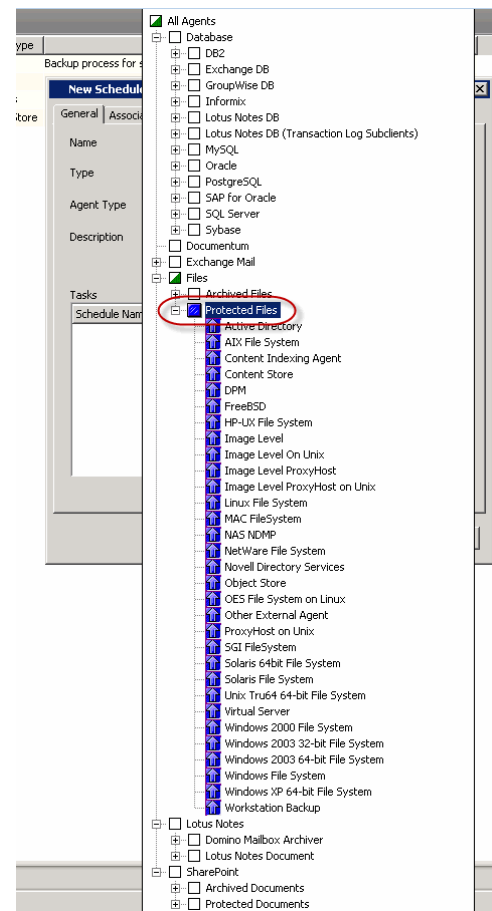
SCHEDULE POLICY

An agent specific data protection schedule policy can be used as a scheduling template for data protection operations for Backup iDataAgents in a CommCell.

This type of data protection policy is useful when there are many clients or subclients within the CommCell that require same schedules for specific data protection operations. Additionally this policy provides the ability to granularly define advanced data protection options specific to the Backup iDataAgents.

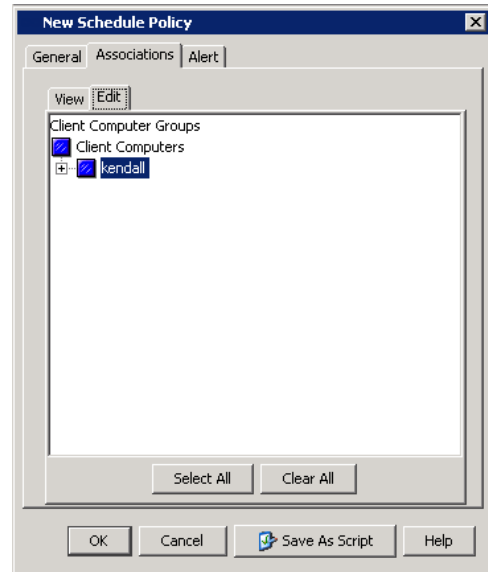
Use the steps given below to create a data protection schedule policy:

1. From the CommCell Browser, navigate to **Policies**.
2. Right-click **Schedule Policies** and click **Add**.
3. Type a name for the schedule policy in the **Name** field.
4. From the **Agent Type** list, expand **Files | Protected Files** and select the specific agent.
5. Type an appropriate description in the **Description** field.
6. Click the **Add** button.
7. Type a name in the **Schedule Name** box.
8. Select the appropriate scheduling options.
9. Type the **Start Time** to start the schedule.
10. Click the **Backup Options** tab and click **Incremental**.
11. Optionally, click the **Advanced** button to define advanced backup options for the agents.
12. Click **Ok**.



13. Click the **Associations** tab.
14. Click and select the **Client Computers** that you wish to associate with the schedule policy.

Note that you can associate the schedule policy from the client, backup set and subclient level as well.
15. 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**.

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

ADVANCED TOPICS

Provides comprehensive information about additional capabilities for the following features:

- Audit Trail
- Auxiliary Copy
- Global Filters
- License Administration
- License Usage by Capacity
- Operation Window
- Schedule Policy
- Storage Policies
- Subclient Policies
- Uninstalling Components

Provides comprehensive information about additional capabilities for the following features:

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Offline Database Restore

System State Method	Replication Method	SnapProtect Method	FAQs
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The Active Directory offline mining enables you to browse and recover directory server database objects and their attributes from an offline copy of the directory databases. This feature is useful when you want to restore specific objects or attributes from a live active directory database without restoring the entire database. You can browse multiple versions of the database to compare values of attributes and then recover the required version of the attribute.

The system state method of creating an offline copy of the directory server database consists of following steps:

1. Ensure that the source and destination computer satisfy the prerequisites.
2. Create an Offline Copy.
3. Mine and Restore the required attributes and objects from the offline database to the live active directory (source) database.

PREREQUISITES

Before creating the offline copy, ensure that the source and destination clients satisfy the following requirements:

SOURCE COMPUTER	DESTINATION COMPUTER
Ensure that the computer has one of the following Windows operating systems: <ul style="list-style-type: none"> • Microsoft Windows Server 2003 • Microsoft Windows Server 2008 	Ensure that the Microsoft Windows Server 2008 and Active Directory iDataAgent are installed on the destination computer. Do not run the <code>adLdapTool.exe</code> utility on the destination computer. Do not turn off the LDS role on the destination computer.

LICENSE REQUIREMENTS

The Active Directory Offline Mining feature requires the **Offline Mining Enabler for Active Directory** license. See License Administration for more information.

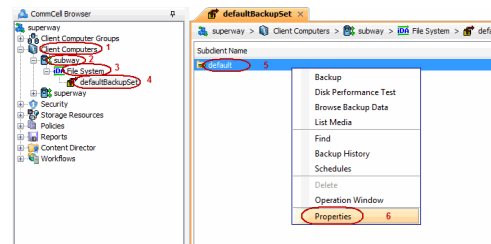
CREATING AN OFFLINE COPY OF THE DATABASE

You can use the Windows File System iDataAgent to backup the system state on the Active Directory Server. The system state data includes the active directory component. You can use this component to create an offline copy of the directory server database. Follow the steps given below to create an offline copy on the destination computer.

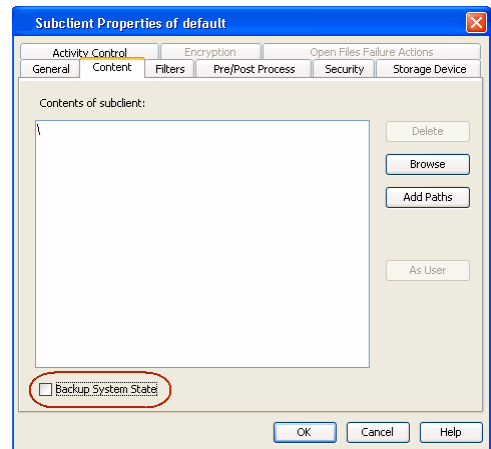
CONFIGURING SYSTEM STATE BACKUP

By default, system state data is backed up along with file system data by the default subclient. You can also create a separate subclient to back up the system state. Within any backup set, however, only one subclient can back up the system state. Follow the steps given below to configure a subclient for system state backup:

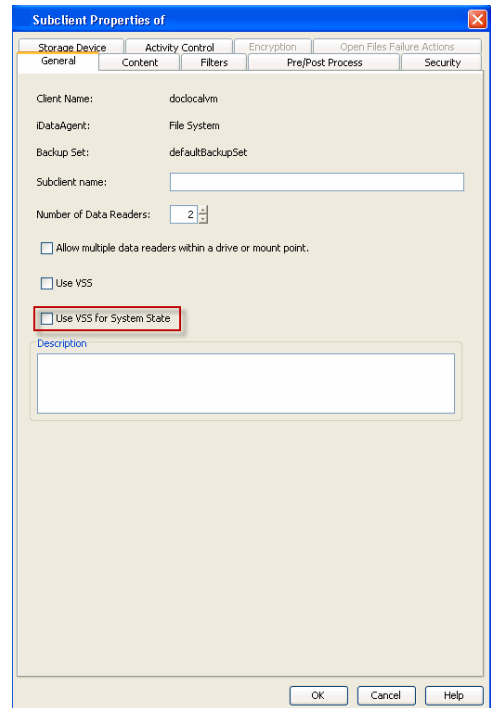
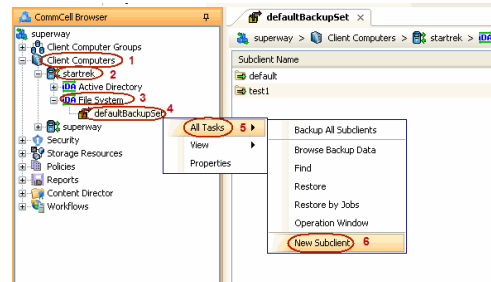
1.
 - From the CommCell Console, navigate to **Client Computers | <Client> | File System | defaultBackupset**.
 - Right-click default subclient and select **Properties**.
2.
 - Click the **Content** tab.
 - Clear the **Backup System State** check box.
 - Click **OK**.



2.
 - From the CommCell Console, navigate to **Client Computers | <Client> | File System**.
 - Right-click the **defaultBackupset** and then click **All Tasks | New Subclient**.



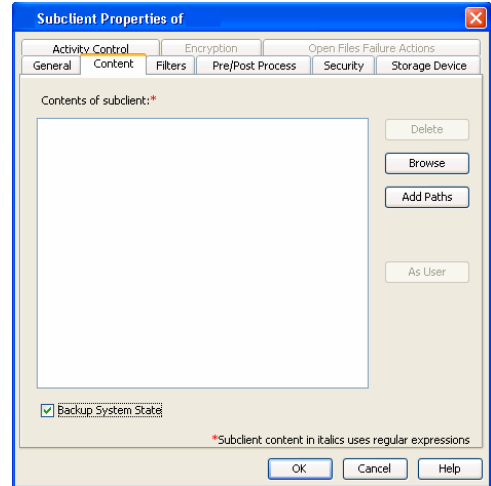
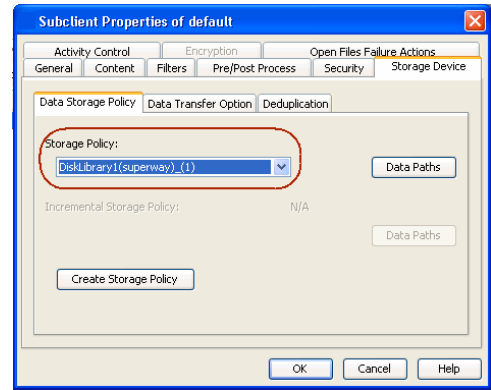
3.
 - Enter the name of the new subclient
 - Select **Use VSS for System State** check box.



4.
 - Click the **Storage Device** tab.
 - In the **Storage Policy** box, select a Storage Policy name.
 - Click **OK**.

5.
 - Click the **Content** tab.
 - Select the **Backup System State** check box.
 - Click **OK**.

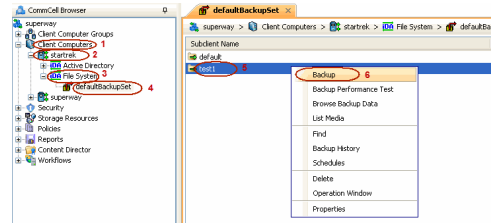
This new subclient will be used to backup the system state.



PERFORMING THE SYSTEM STATE BACKUP

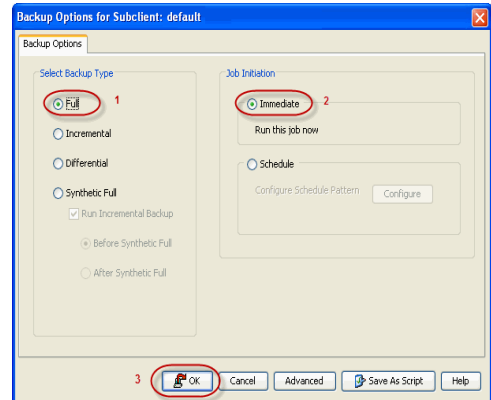
Follow the steps given below to backup the system state data:

6.
 - From the CommCell Browser, navigate to **Client Computers | <Client> | File System | defaultBackupSet**.
 - Right-click the subclient that you have configured to backup the system state and click **Backup**.



7.
 - Click **Full** as backup type and then click **Immediate**.
 - Click **OK**.

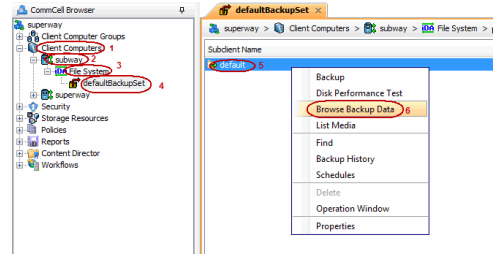
You can track the progress of the job from the **Job Controller** window of the CommCell console.



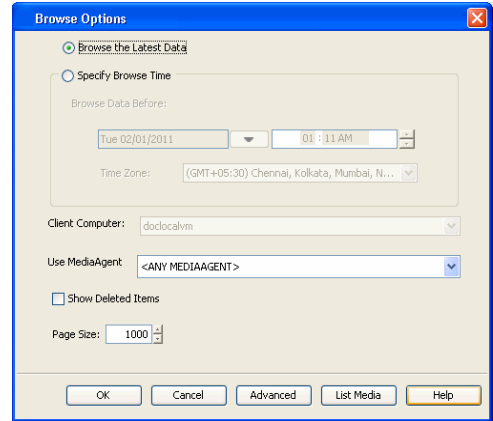
RESTORING THE ACTIVE DIRECTORY COMPONENT

Follow the steps given below to create an offline copy of the directory server database on the destination computer:

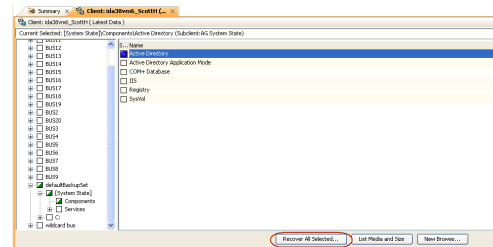
8.
 - From the CommCell Browser, navigate to **Client Computers | <Client> | File System | defaultBackupSet**
 - Right-click the default subclient and then click **Browse Backup Data**.



9. Click **OK**.



10.
 - Expand the **defaultBackupSet** and navigate to **System State | Components**
 - Select **Active Directory** component.
 - Click **Recover All Selected**.

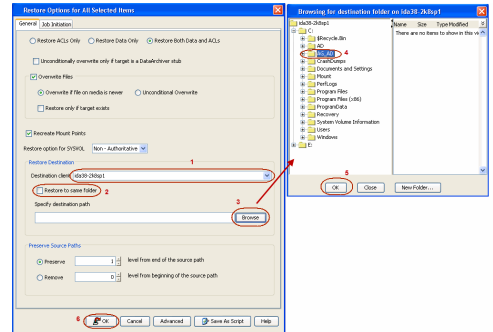


11.
 - Select the **Destination client**.

Ensure that the source client and the destination client are in the same CommCell and the destination computer has the Windows 2008 and Active Directory iDataAgent installed on it.

- Clear the **Restore to same folder** check box.
- Click **Browse** and select a folder on the destination client where you want to store the offline copy of the database.
- Click **OK**.
- Click **OK** to start the restore.

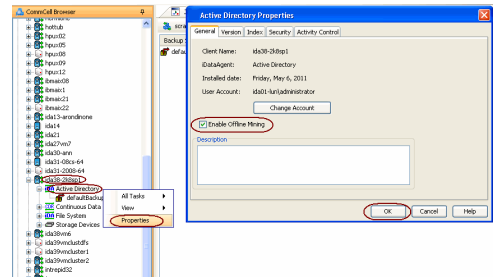
You can monitor the progress of the restore job in the **Job Controller** window of the CommCell Console.



MINING AND RESTORING FROM THE OFFLINE DATABASE

You can browse the offline copy of directory server database on the destination computer and then restore the required attributes and objects to the source computer (live active directory server).

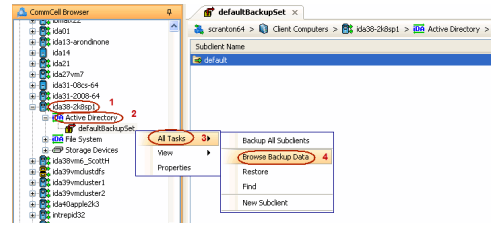
12.
 - From the CommCell Browser, navigate to **Client Computers | <Destination Client>**.
 - Right-click **Active Directory** and select **Properties**.
 - Select the **Enable Offline Mining** check box.
 - Click **OK**.



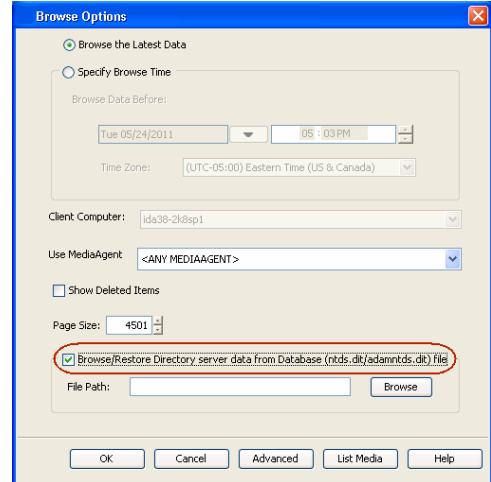
13.
 - From the CommCell Browser, navigate to **Client Computers | <Destination**

Client> | Active Directory.

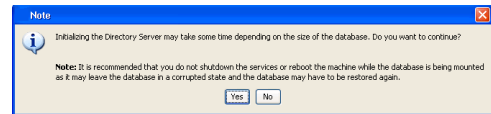
- Right-click the **defaultBackupSet** and then click **Browse Backup Data**.



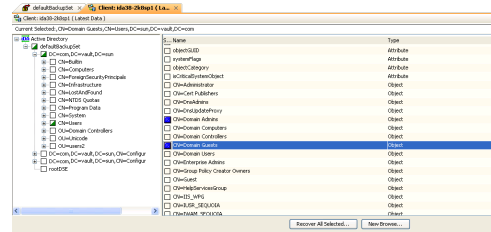
14.
 - Select the **Browse/Restore Directory server data from Database (ntds.dit/admntds.dit) file** check box.
 - Click **Browse** and navigate to the folder on the destination client where you have restored the Active Directory components.
 - Select the **ntds.dit** file and click **OK**.
 - Click **OK**.



15. Click **Yes** to continue.



16.
 - Select the required objects and attributes from the offline database.
 - Click **Recover All Selected**.

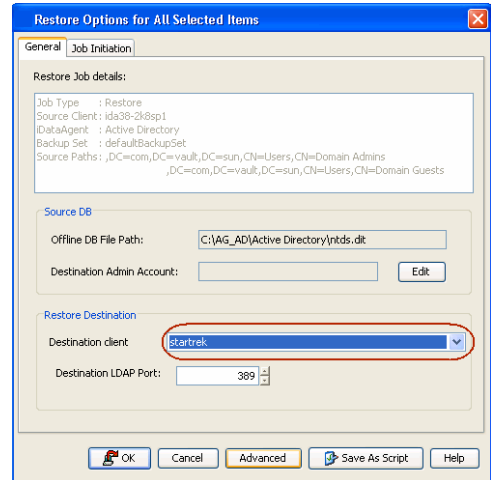


17.
 - Select the client where you want to restore the selected objects and attributes from the **Destination client** list.
 - Click **Edit** and enter the username and password for a user account on the destination computer.

The user account must be the domain controller administrator account. Enter the username in the following format:

```
<domain_name>\<domain_controller_administrator_user_name>
```

 - Click **OK**.
 - Click **OK** to start the restore.



Offline Database Restore

- System State Method
- Replication Method
- SnapProtect Method
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The Replication Method provides the facility to mine directory database objects and attributes from replicated copies of the directory database. The Replication Method utilizes the ContinuousDataReplicator to provide continuous replicated copies of the directory database to the destination computer. This method is useful if you are already using ContinuousDataReplicator for data replication in your environment. This method consists of the following steps:

1. Ensure that the source and destination computer satisfy the prerequisites.
2. Create an Offline Copy.
3. Mine and Restore the required attributes and objects from the Offline Database to the live active directory (source) database.

PREREQUISITES

Before creating the offline copy, ensure that the source and destination clients satisfy the following requirements:

SOURCE COMPUTER	DESTINATION COMPUTER
Ensure that the computer has one of the following Windows operating systems: <ul style="list-style-type: none"> ● Microsoft Windows Server 2003 ● Microsoft Windows Server 2008 Ensure that the Volume Shadow Services (VSS) are installed on the source computer.	Ensure that the Microsoft Windows Server 2008 and Active Directory iDataAgent are installed on the destination computer. Do not run the adLdapTool.exe utility on the destination computer. Do not turn off the LDS role on the destination computer.

LICENSE REQUIREMENTS

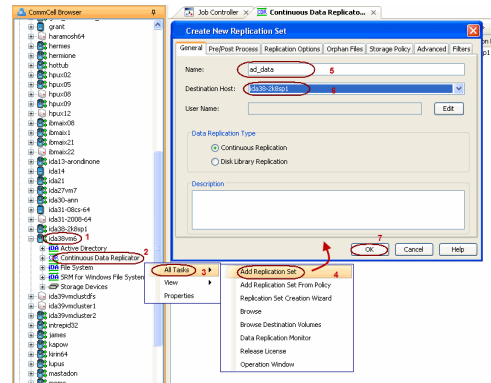
- The **Offline Mining Enabler for Active Directory** license.
- The ContinuousDataReplicator license. See License Administration for more information.

CREATING AN OFFLINE COPY OF THE DATABASE

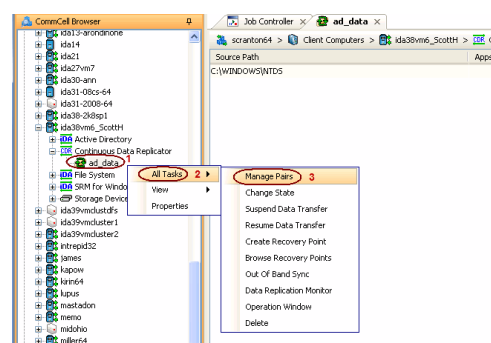
Follow the steps given below to create a replicated copy of the directory database:

1.
 - From the CommCell Console, navigate to **Client Computers** | **<Source Client>**.
 - Right-click **ContinuousDataReplicator** and select **All Tasks** | **Add Replication Set**.
 - Enter the Name of the replication set.
 - From the **Destination Host** list, select the destination computer where you want to replicate the offline copy of the database.
 - Click **OK**.

If the source computer contains more than one ADAM Server instance, create separate replication sets for each instance.

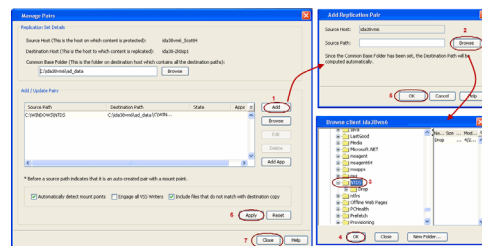


2.
 - From the CommCell Console, navigate to **Client Computers** | **<Source Client>** | **ContinuousDataReplicator**.
 - Right-click the **<Replication Set>** and select **All Tasks** | **Manage Pairs**.



3.
 - Click **Add**.
 - Click **Browse** on the **Add Replication Pair** dialog box.
 - Select the folder that contains the directory server database.

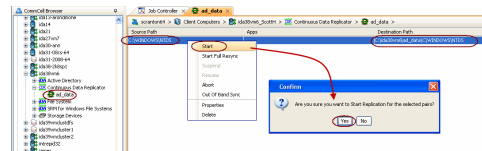
- Click **OK**.
- Click **Apply**
- Click **Close**.



- From the CommCell Console, navigate to **Client Computers** | **<Source Client>** | **ContinuousDataReplicator** | **<Replication Set>**.
 - Right-click the **<Replication Pair>** in the right pane and select **Start**.
 - Click **Yes** on the **Confirmation** dialog box.

All the data is replicated from the **Source Path** to the **Destination Path**.

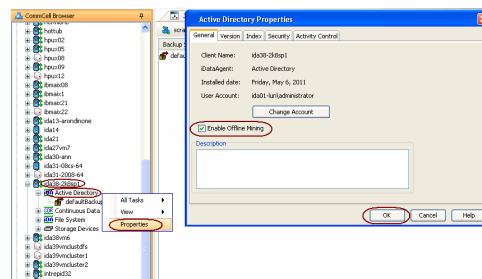
 - Note down the **Destination Path**.



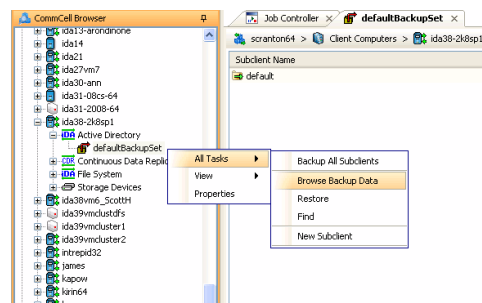
MINING AND RESTORING FROM THE OFFLINE DATABASE

You can browse the offline copy of directory server database on the destination computer and then restore the required attributes and objects to the source (live active directory server) database.

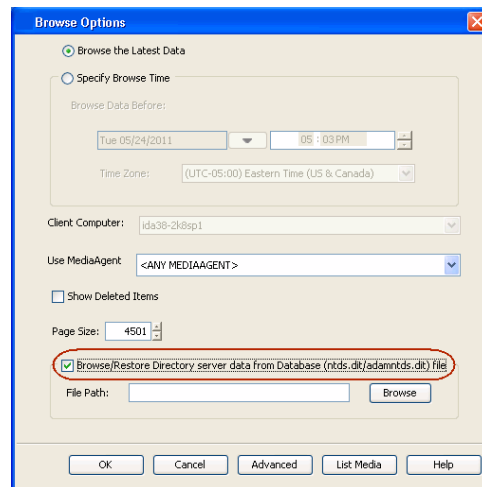
- From the CommCell Browser, navigate to **Client Computers** | **<Destination Client>**.
 - Right-click **Active Directory** and select **Properties**.
 - Select the **Enable Offline Mining** check box.
 - Click **OK**.



- From the CommCell Console, navigate to **Client Computers** | **<Source Client>** | **Active Directory**.
 - Right-click the **<defaultBackupSet>** and click **All Tasks** | **Browse Backup Data**.

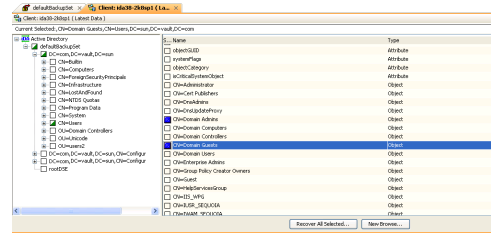
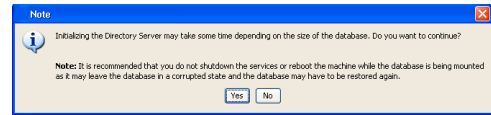


- Select the **Browse/Restore Directory server data from Database (ntds.dit/admntds.dit) file** check box.
 - Click **Browse** and navigate to the folder on the destination client where you have replicated the data from the source computer. Refer to the Destination Path that you noted down in step 4.
 - Select the **ntds.dit** file and click **OK**.
 - Click **OK**.



- Click **Yes** to continue.

9.
 - Select the required objects and attributes from the offline database.
 - Click **Recover All Selected**.

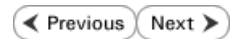
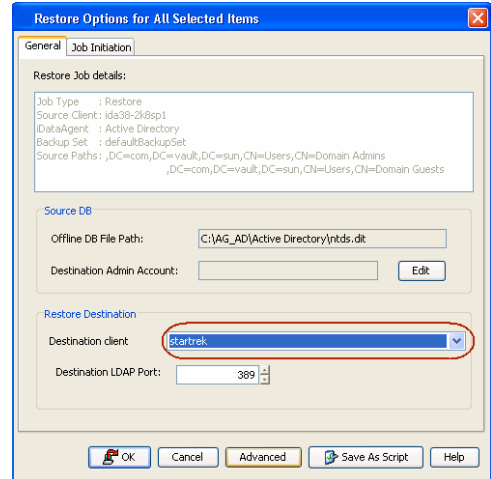


10.
 - Select the client where you want to restore the selected objects and attributes from the **Destination client** list.
 - Click **Edit** and enter the username and password for a user account on the destination computer.

The user account must be the domain controller administrator account. Enter the username in the following format:

<domain_name>\<domain_controller_administrator_user_name>

- Click **OK**.
- Click **OK** to start the restore.



Offline Database Restore

System State Method Replication Method SnapProtect Method FAQs

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The Snapshot Method provides the facility to mine directory database objects and attributes using the SnapProtect backup. This method is useful if you are already using the SnapProtect backup in your environment. Perform the following to restore the Active Directory data from the SnapProtect backup:

1. Ensure that the source and destination computer satisfy the prerequisites.
2. Create an Offline Copy.
3. Mine and Restore the required attributes and objects from the Offline Database to the live active directory (source) database.

PREREQUISITES

Before creating the offline copy, ensure that the source and destination clients satisfy the following requirements:

SOURCE COMPUTER	DESTINATION COMPUTER
Ensure that the computer has one of the following Windows operating systems: <ul style="list-style-type: none"> • Microsoft Windows Server 2003 • Microsoft Windows Server 2008 	Ensure that the Microsoft Windows Server 2008 and Active Directory iDataAgent are installed on the destination computer. Do not run the <code>adLdapTool.exe</code> utility on the destination computer. Do not turn off the LDS role on the destination computer.

LICENSE REQUIREMENTS

- The **Offline Mining Enabler for Active Directory** license.

CREATING AN OFFLINE COPY OF THE DATABASE

You can take a snapshot of the live active directory database and restore it to the destination computer to create the offline database

CREATING A SNAPSHOT

Follow the steps given below to create database snapshots:

- Configure the Microsoft Windows File System iDataAgent <Client>. See Microsoft Windows File Configuration for more details.
- Configure the available arrays. See Storage Array Configuration for more details.
- Perform a SnapProtect™ backup of the Windows File System iDataAgent. See Windows File System iDataAgent Backup for more information.

RESTORING THE SNAPSHOT

Once you have the database snapshot, you can select from either one of the methods to create offline copy of the database:

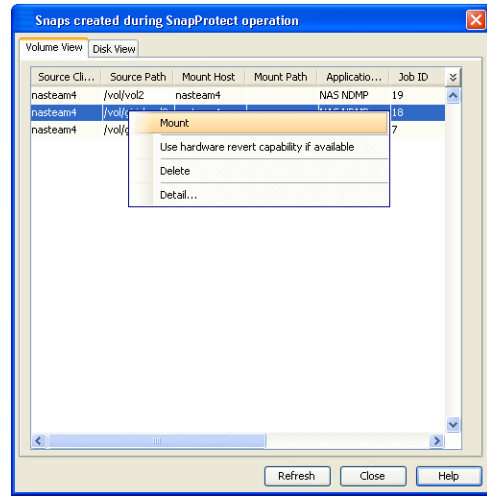
METHOD 1: MOUNT AND COPY FILES

METHOD 2: PERFORM OUT-OF-PLACE RESTORE

METHOD 1: MOUNT AND COPY FILES

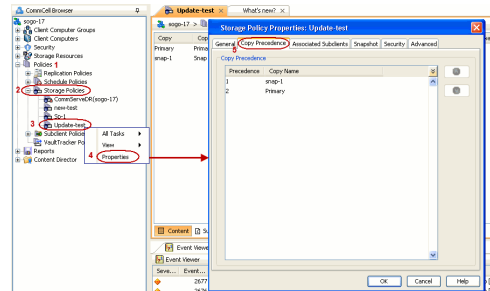
1. From the CommCell Browser, right-click the entity that contains the snapshots.
2. Click **All Tasks | List Snaps**.
3. Right-click the snapshot that you wish to mount and click **Mount**.
4. Click **Yes**.
5. In the **Mount Path** dialog box, specify the destination client and the path on the client in the **Destination Client** and **Destination Path** fields.
On a Windows platform, enter a **CIFS Share Name** for the Agent.
6. If you do not wish to save any changes made to the mounted snapshot after the snapshot is unmounted, select **Protect Snapshot during mount**.
7. Click **OK**.
8. Click **Close** on the **Snaps created during SnapProtect operation** dialog box.

If you do not select **Protect Snapshot during mount**, the changes made to snapshot when it is mounted will be retained after the snapshot is unmounted and the snapshot can no longer be used for restore.

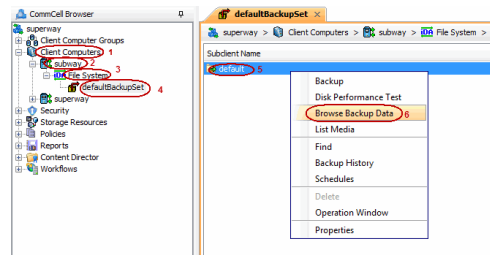


METHOD 2. PERFORM OUT-OF-PLACE RESTORE

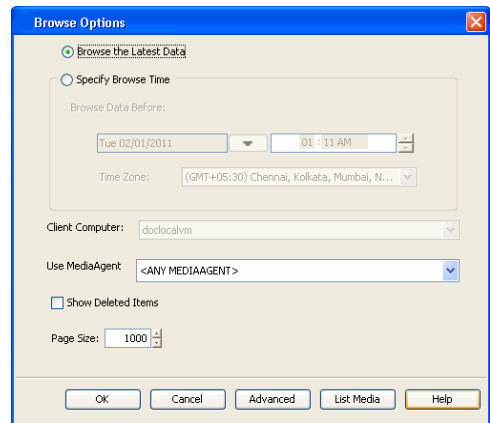
- From the CommCell Console, navigate to **Policies | Storage Policies**.
 - Right-click the **<storage policy>** and click **Properties**.
 - Click the **Copy Precedence** tab.
 - By default, the snapshot copy is set to 1 and is used for the operation.
You can also use a different copy for performing the operation. For the copy that you want to use, set the copy precedence as 1.
 - Click **OK**.



- From the CommCell Browser, navigate to **Client Computers | <Client> | File System | defaultBackupSet**.
 - Right-click the default subclient and then click **Browse Backup Data**.

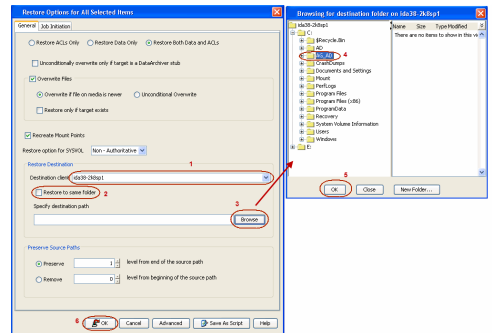
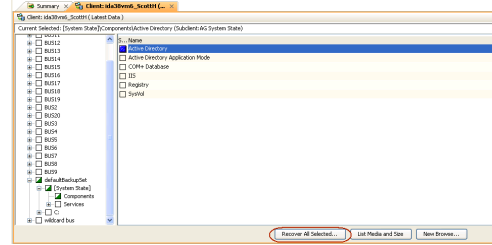


- Click **OK**.

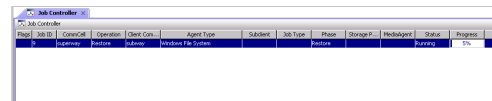


- Expand the **defaultBackupSet** and navigate to **System State | Components**
 - Select **Active Directory** component.
 - Click **Recover All Selected**.

- Select the **Destination client**.
Ensure that the source client and the destination client are in the same CommCell and the destination client has the Active Directory iDataAgent installed on it.
 - Clear the **Restore to same folder** check box.
 - Click **Browse** and select a folder on the destination client where you want to store the offline copy of the database.
 - Click **OK**.
 - Click **OK** to start the restore.



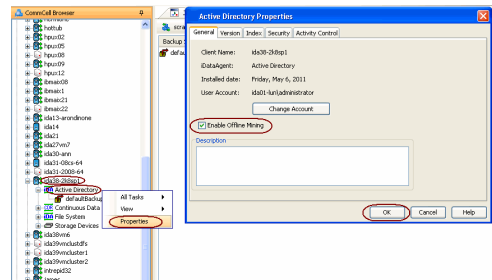
- You can monitor the progress of the restore job in the **Job Controller** window of the CommCell Console.



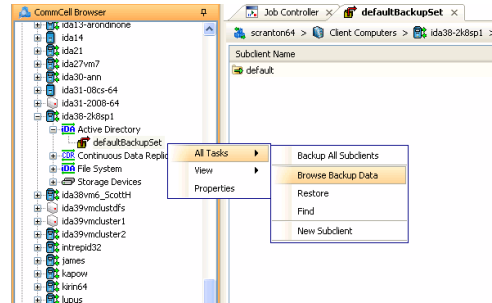
MINING AND RESTORING FROM THE OFFLINE DATABASE

You can browse the offline copy of directory server database on the destination computer and then restore the required attributes and objects to the source computer (live active directory server).

- From the CommCell Browser, navigate to **Client Computers | <Destination Client>**.
 - Right-click **Active Directory** and select **Properties**.
 - Select the **Enable Offline Mining** check box.
 - Click **OK**.



- From the CommCell Console, navigate to **Client Computers | <Source Client> | Active Directory**.
 - Right-click the **<defaultBackupSet>** and click **All Tasks | Browse Backup Data**.

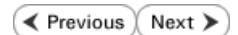
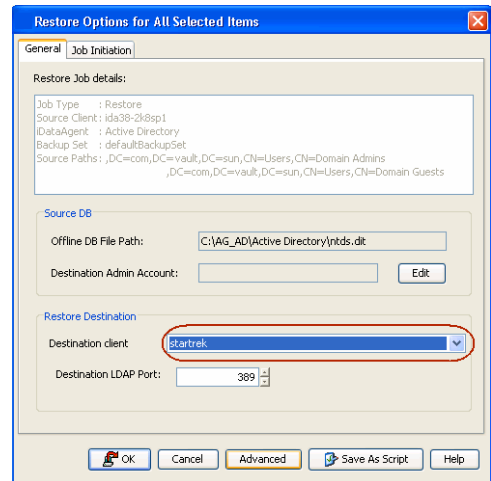
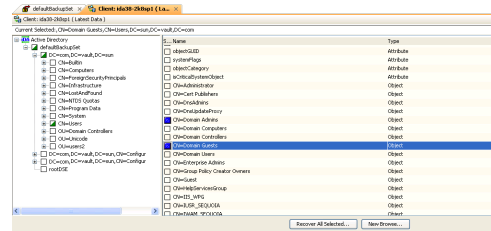
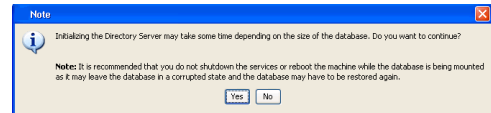
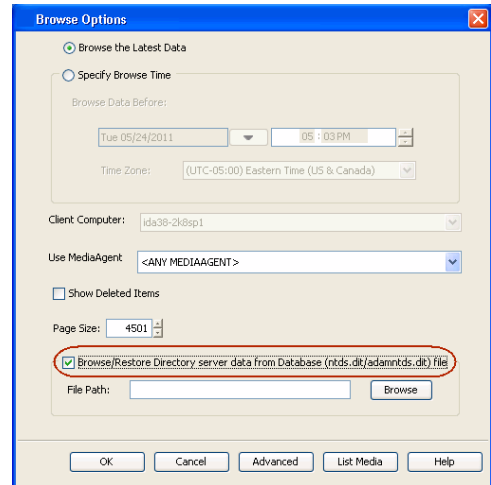


- Select the **Browse/Restore Directory server data from Database (ntds.dt/admntds.dit) file** check box.
 - Click **Browse** and navigate to the folder on the destination client where you have mounted the snapshot of the source computer. Refer to the **Destination Path** that you entered in step 5.
 - Select the **ntds.dit** file and click **OK**.
 - Click **OK**.

4. Click **Yes** to continue.

- 5.
- Select the required objects and attributes from the offline database.
 - Click **Recover All Selected**.

- 6.
- Select the client where you want to restore the selected objects and attributes from the **Destination client** list.
 - Click **Edit** and enter the username and password for a user account on the destination computer.
- The user account must be the domain controller administrator account. Enter the username in the following format:
- <domain_name>\<domain_controller_administrator_user_name>
- Click **OK**.
 - Click **OK** to start the restore.



Offline Database Restore - Frequently Asked Questions

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CAN I PERFORM OFFLINE MINING FOR ADAM AND AD LDS DATABASES?

You can perform the offline mining for a ADAM or AD LDS database using the replication method or SnapProtect method. Before performing the offline mining, perform the following:

- Run the `adLdapTool.exe` utility on the source computer separately for each ADAM/LDS instance.
- Each ADAM/LDS instance must include the domain administrator account as a local instance administrator.

If the ADAM/LDS Administrator credentials are different than the domain administrator credentials, then each ADAM/LDS instance must be configured to include the domain administrator account as an administrator for the instance. This account must then be added to the ADAM/LDS database.

Objects and attributes can only be restored to an ADAM database if the original partition from which they were backed up exists. Data from partitions that have been deleted cannot be restored.

Parent and child domains, as well as other domains within the same forest, share schema and configuration partitions. However, within a forest there is only one domain controller that serves as the schema/configuration owner. Only this owner can make changes or write to a schema or configuration partition. Thus, to restore any objects in schema or configuration partitions, the restore must be conducted by the domain controller serving as the schema or configuration partition owner.

WHAT IS THE DEFAULT LOCATION OF THE DIRECTORY SERVER DATABASES?

By default, the directory server databases are always located in the following location on the source computer:

Active Directory Server Database:

`<drive_letter>:\WINDOWS\NTDS\ntds.dit`

ADAM/LDS Directory Server Database:

`<drive_letter>:\Program Files\Microsoft ADAM\<instance_name>\DATA\adamntds.dit`

HOW MUCH TIME IS REQUIRED TO MOUNT THE DATABASE ON THE DESTINATION COMPUTER FOR OFFLINE MINING?

The following table specifies the required mount time based on the size of the database and available memory on the destination computer:

DATABASE SIZE	AVAILABLE MEMORY ON THE DESTINATION COMPUTER	ESTIMATED DATABASE MOUNT TIME
3.5 GB	1GB	Approximately 4 minutes
7 GB	2 GB	Approximately 8 minutes
15 GB	4 GB	Approximately 16 minutes

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Best Practices

DISTRIBUTING SUBCLIENT CONTENT FOR AN ACTIVE DIRECTORY CLIENT

Distributing the client data using user defined subclients can improve backup performance as well as facilitate efficient storage resource billing by department. A useful way to distribute the subclient content of an Active Directory client is by departments, corresponding to Organizational Units, as shown in the example below:

Client-A contains the following departments that are set up as Organizational Units in the Active Directory database:

- Accounting
- IS
- HR
- Customer Service

After installing the Active Directory iDataAgent, the default subclient content included all of these OU's. The data can then be distributed across subclients to better balance the backup load. For example, three new user-defined subclients were created, each containing backup data for a particular department, resulting in the following subclient content configuration for the client:

SUBCLIENT	CONTENT
User-defined subclient: IS	,OU=IS,DC=generic,DC=company,DC=com
User-defined subclient: HR	,OU=HR,DC=generic,DC=company,DC=com
User-defined subclient: Customer Service	,OU=CS,DC=generic,DC=company,DC=com
default subclient	, The comma indicates that this subclient's content contains all portions of the database on the client not assigned to other subclients. In this example, the comma (,) represents the following LDAP paths: ,CN=Computers,DC=generic,DC=company,DC=com ,CN=Users,DC=generic,DC=company,DC=com ,OU=Accounting-Department,DC=generic,DC=company,DC=com

RECONFIGURING DEFAULT SUBCLIENT

It is recommend that you do not re-configure the content of a default subclient because this would disable its capability to serve as "catch-all" entity for client data. As a result, some data may not get backed up.

OFFLINE MINING

Do not perform offline mining on a live production database. Offline mining should always be performed with offline copies of the database.

Frequently Asked Questions - Active Directory

CAN I RESTORE ACTIVE DIRECTORY PARTITIONS?

You can restore active directory partitions. However, while restoring the objects and attributes within a Schema partition, keep in mind the restrictions on the schema extension. For more information about restrictions on the schema extensions, refer to [http://msdn.microsoft.com/en-us/library/ms677924\(v=vs.85\).aspx](http://msdn.microsoft.com/en-us/library/ms677924(v=vs.85).aspx).

CAN I RESTORE THE ACTIVE DIRECTORY APPLICATION MODE (ADAM) AND ACTIVE DIRECTORY LIGHTWEIGHT DIRECTORY SERVICES (AD LDS)?

During installation of the software, any existing ADAM attributes are automatically discovered and assigned to the default subclient, provided the credentials for each instance are identical. Instances may then be added or removed at a later time as you would any other instance.

HOW TO RESTORE BACK-LINKS FOR AUTHORITATIVELY RESTORED OBJECTS?

If you have authoritatively restored objects that have back-links in another domain, you need to create LDAP Data Interchange Format (LDIF) file and then run the LDIF file on any domain controller in the same domain. Do not run the LDIF file on the same domain controller where you created the file. For more information on how to create and run the LDIF file, refer to [http://technet.microsoft.com/en-us/library/cc778643\(Ws.10\).aspx](http://technet.microsoft.com/en-us/library/cc778643(Ws.10).aspx).

Troubleshooting

TIMEOUT ERROR

SYMPTOM

The restore job for a directory server object or attribute stops with a time out error.

SOLUTION

Increase the timeout value for page search APIs using PageTimeout registry key.

RESET PASSWORD PROMPT ON WINDOWS SERVER 2003

SYMPTOM

When you restore attribute of an undeleted object on Windows Server 2003 and then try to log on to the client, a prompt appears to reset password.

CAUSE

When restoring the attributes of an undeleted object on Windows Server 2003, the system brings back the user account as enabled, but the operating system security marks it as disabled.

SOLUTION

You must run the `adldaptool.exe` utility prior to backing up the Active Directory. The passwords will be restored and there will be no need to reset them. For more information, refer to Enabling Restore of Passwords.

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 licenseSee 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.
 - 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.