Simpana® Backup and Recovery for Virtual Machines: Evaluation Guide

*Virtual Server Agent (VSA) for Microsoft Hyper-V*
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Additional considerations regarding minimum requirements and End of Life policies from application and operating system vendors are also applicable.

Support

For support, send an email to HyperVBackupAdvisor@commvault.com.
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Backup and Recovery for Hyper-V Virtual Machines

Simpana® Backup and Recovery for Virtual Machines and the Virtual Server Agent (VSA) for Microsoft Hyper-V provide a comprehensive solution to protect Hyper-V virtual machines. This package contains all components that are required to protect virtual machines, in a compact configuration that can be used for evaluation and to provide ongoing protection.

This free 90-day evaluation package supports backups and restores for up to 2 TBs of data.

Support
Please register your product during installation to receive 90 days of free configuration and technical support, including answers to any questions you have during the trial period. To schedule a review session with a Systems Engineer to conduct a product overview, discuss best practices, design concepts, or general administration, or if you are having issues installing the software or are receiving error messages that require assistance, please submit a request to HyperVBackupAdvisor@commvault.com.

Key Features
- Performs off-host streaming backups for hundreds of virtual machines, to support continuity of operations and disaster recovery.
- Includes granular backup and recovery options.
- Includes all components required to protect virtual machines in cluster shared volume (CSV) storage attached to Hyper-V servers.
- Enables backups of Hyper-V nodes without requiring that an agent be installed in each node.
- Includes automatic cluster awareness with full integration of CSVs and Live Migration protection for VMs that migrate to a new node.
- Provides embedded source or target-side deduplication to reduce backup storage requirements and network traffic.
- Provides application consistent protection to enable rapid recovery of applications running inside virtual machines.
- Includes monitoring and reporting tools for intelligent VM data analytics.
- Enables scheduled backup and restore jobs; virtual machines are automatically protected without user intervention.
- Provides a Getting Started interface to configure storage, host connectivity, and backups in a matter of minutes, and back up selected virtual machines immediately. The Getting Started tab also provides the ability to restore virtual machine data.
- Includes advanced configuration and management options.
Components
Simpana® Backup and Recovery for Virtual Machines includes the following components:

- **CommServe® software** - Provides configuration and management of virtual machine protection; the software includes the CommCell® Console, which provides a graphical user interface (GUI).
- **Virtual Server Agent (VSA) for Microsoft Hyper-V** - Backs up and restores virtual machine data on the host computer system.
- **MediaAgent (MA)** - Enables data movement and content indexing; serves as the backup media library manager to host index data.
- **Storage for backed up data** - For evaluation purposes, the CommServe server or Hyper-V client node can provide storage for backups. In a production environment you should provide external disk or tape storage for disaster recovery, regular backups, and deduplication stores.

The CommServe software is installed on a physical computer or virtual machine that is not part of the Hyper-V cluster. The VSA and MA are installed on a node in the Hyper-V cluster.

How To Use These Pages
The sections in this document are designed to be used in sequence:

1. **System Requirements** - Review system requirements for the CommServe system and the Hyper-V client.
2. **Deployment** - Install the software.
3. **Configuration, Backup, and Recovery** - Configure the system; execute a backup; restore a complete VM; recover files.
4. **Explore Further** - Understand the configuration produced by Getting Started; explore additional options.
System Requirements

CommServe System

<table>
<thead>
<tr>
<th>Component</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simpana® software</td>
<td>Service Pack 6A or higher</td>
</tr>
<tr>
<td>Operating systems</td>
<td>Microsoft Windows Server 2008 x64 or higher</td>
</tr>
<tr>
<td>Hard drive</td>
<td>100 GB of disk volume</td>
</tr>
<tr>
<td></td>
<td>The software installation requires 10 GB of disk space on the operating</td>
</tr>
<tr>
<td></td>
<td>system drive. This space is used for temporary files copied during the</td>
</tr>
<tr>
<td></td>
<td>installation or upgrade of the CommServe and Microsoft SQL Server software.</td>
</tr>
<tr>
<td>Memory</td>
<td>8 to 16 GB RAM memory</td>
</tr>
<tr>
<td>Processor</td>
<td>Dual Core with minimum of 2.2 GHz required</td>
</tr>
<tr>
<td>Cluster</td>
<td>Windows - Microsoft Cluster (MSCS)</td>
</tr>
<tr>
<td>Internet Explorer</td>
<td>Microsoft Internet Explorer (IE) version 8.0, 9.0</td>
</tr>
<tr>
<td>Database</td>
<td>Microsoft SQL Server 2008 Express Edition (included)</td>
</tr>
<tr>
<td></td>
<td>The SQL Server application that is installed on the computer must be</td>
</tr>
<tr>
<td></td>
<td>dedicated to support the software and cannot be shared by other applications.</td>
</tr>
<tr>
<td></td>
<td>In a clustered environment, SQL Server Express with the appropriate</td>
</tr>
<tr>
<td></td>
<td>service pack must be installed and clustered prior to installing the</td>
</tr>
<tr>
<td></td>
<td>CommServe software. The CommServe software automatically uses the default</td>
</tr>
<tr>
<td></td>
<td>or named instance created during SQL Server installation.</td>
</tr>
<tr>
<td></td>
<td>For Service Accounts, use the same Local System account for each service</td>
</tr>
<tr>
<td></td>
<td>and enable auto-start for SQL services. On clustered environments, use an</td>
</tr>
<tr>
<td></td>
<td>account with administrator privileges (such as a member of the Administrator</td>
</tr>
<tr>
<td></td>
<td>local group of the computer or domain).</td>
</tr>
</tbody>
</table>

For additional details about optional requirements, see CommServe System Requirements.
Hyper-V Node for Virtual Server Agent and MediaAgent

Install the Virtual Server Agent (VSA) and MediaAgent on a Hyper-V cluster node that satisfies the following system requirements:

| Operating systems | • Microsoft Hyper-V Server 2012 R2 with latest Microsoft HotFixes installed |
| Hard drive | 100 GB recommended. If performing backups with the granular recovery option enabled, the location of the Job Results folder should contain additional space to accommodate at least 2 percent of the total amount of data being backed up. |
| Memory | 16 to 24 GB RAM minimum required beyond the requirements of the operating system and running applications. |
| Processor | All Windows-compatible processors supported |
| NTFS volumes | The cluster size or the allocation unit size of an NTFS volume in a virtual machine must be multiple of 1024 bytes. You can set the cluster size before formatting a volume. The default cluster size is 4096 bytes. |

Storage Requirements

• Sufficient space for backups of all virtual machines
• Minimum of 400 GB for deduplication database

Recommendations for Using Virtual Machines

When installed on a virtual machine, the CommServe component generally performs at about 60% capacity, compared to physical machines with similar configurations.

Memory

• Allocate multiple virtual CPUs to a virtual machine if the anticipated SQL Server workload can take advantage of all virtual CPUs.
• Memory page sharing and memory ballooning must be enabled on the virtual machine.

Storage

SQL Data files and log files must reside on different disks (different VMFS). Place the log files on RAID 1+0 or RAID 1 disks.
Network

Use the VMXNET virtual network adapter and separate virtual switches, each connected to its own physical network adapter.

Installing on a Hyper-V Environment

When installing the CommServe on a Hyper-V virtual machine, consider the following recommendations for optimal performance:

- Hyper-V Server 2008 R2 with Service Pack 1 (or higher) should be used to host the virtual machine.
- The virtual machine on which the CommServe will be installed should have:
  - Minimum 4 64-bit vCPUs
  - Minimum 16 GB RAM
  - All Hyper-V Integration tools installed using the latest versions
- Provide fast dedicated storage and fast network interfaces for optimal performance of the CommServe SQL Server database.
Deployment
The CommServe software is installed on a physical computer or virtual machine that is not part of the Hyper-V cluster that is being backed up.

The VSA and MA are automatically installed on a Hyper-V node as part of Virtual Server Agent configuration. The Hyper-V node must have access to cluster shared volume (CSV) storage; the VSA can back up VMs on that CSV that are owned by other nodes in the same cluster.

Before You Begin
Verify that the computer in which you wish to install the CommServer software satisfies the minimum requirements specified in System Requirements.

During the installation, the following components are installed if they are not already available.

- Java 7 Update 17
- Microsoft .NET Framework 4.0
- Microsoft SQL Server 2008 Express Edition
- Microsoft Visual C++ Redistributables (2005, 2008, and 2010; can co-exist with other versions of this software)

Notes
- The CommServe component is a resource intensive application and should be installed on a dedicated server. Do not install the CommServe component on a computer running other applications, such as Microsoft Exchange Server or an Oracle database.
- Do not install the software to a mapped network drive or on a compressed drive.
- The computer on which the software is installed must have a static IP address. The software does not support Dynamic Host Configuration Protocol (DHCP).
- When specifying the destination folder, use only alphanumeric characters. Do not use the characters `/ : * ? " < > | #`
- Server Manager cannot be running during the installation.
- Disaster recovery files enable recovery of the database, registry, and firewall configuration. They should be backed up to removable storage media that can be stored offsite.
- By default, the Simpana software uses the name of the server computer (where the CommServe component is installed) as the CommServe name. You can specify a different name during installation; but do not include the word "commcell" in the CommServe name.
- Ensure that the installation path for SQL Server database files meets the following requirements:
  - Ensure that the drive has at least 1 GB of free space.
  - Do not specify a mapped network drive or a FAT drive.
  - Do not save database files to a compressed drive.
Download Software Package

After registering for the evaluation offer, follow the instructions in the Welcome email to download the necessary installation files.

Install the CommServe Software (approximately 30 minutes)

1. Log on to the CommServe machine as an Administrator or as a member of the Administrator group on that computer.

2. From the location where you downloaded the installation package, right-click the package and select Run as administrator, then click Yes on the User Account Control dialog to enable the program to make changes on the computer.

3. On the License Agreement page, select I accept the terms in the license agreement and click Next.

4. On the Destination Folder page, verify the Destination Folder for software installation. If necessary, click Browse to change the default path, then click Next.

   The installer downloads installation files and checks for prerequisite software.
   After installing .NET Framework, the installer installs the software and database engine.

5. For the Configure step in the installation, verify the path for storing disaster recovery (DR) backup files (by default, C:\dr). To change the default, you can browse to a network or local path or enter path information directly.

   If you select Use Network Path, you must provide:
   o Network share username for a user who has administrative rights to the network path, in the form domain\username
   o Network share password for the specified user

6. Click Next.

7. If necessary, configure firewall rules as described in Firewall Configuration.

   The installer customizes firewalls on the CommServe machine, configures the Virtual Server Agent (VSA), initializes the database, and applies any required service pack updates.

8. When the setup is complete, click Finish.
Configuration, Backup, and Recovery

Opening the Administrative Console
CommCell® Console is the graphical user interface that you use to run backups, restores, and other operations to manage your data.

To open the CommCell Console:

1. From the Programs menu, select CommVault | vPod Administrative Console.

2. Enter admin as the user name and leave the password blank, then click OK.

   If you have not activated the license yet, you receive a reminder. You can register your product to receive 90 days of free configuration and technical support, including answers to any questions you have during the trial period.

3. Click OK.

   The CommCell Console opens. By default, the Console includes the following elements:
   - The top of the Console shows ribbon menus.
   - The left side shows objects in the CommCell Browser.
   - The body pane displays tabs for information about selected objects or operations; the Getting Started tab is displayed by default when you first open the Console.

Before You Begin
Verify that the computer in which you wish to install the software satisfies the minimum requirements specified in Hyper-V Node for Virtual Server Agent and MediaAgent.

Getting Started
A node in the Hyper-V cluster runs backups for all Hyper-V nodes that are connected to CSV storage. Configuring the Hyper-V server automatically installs the Virtual Server Agent on the specified Hyper-V server. The VSA can initiate backup and restore operations for any virtual machines that reside on the CSV, whether the VMs are owned by the node with the VSA or by other Hyper-V nodes in the cluster.

Configure the Virtual Server Agent (VSA)
1. Open the CommCell Console and display the Getting Started tab.

2. Under Configure Hyper-V Server, click Add Virtual Server Agent.

   The Install Wizard launches.

3. Click Next.

4. When prompted to select the operating system, keep the Windows option and click Next.

5. When asked how to discover computers, click Manually Select Computers and click Next.
6. Enter the fully qualified domain name of the client computer and specify the user name and password that must be used to access the client computer.
   
   For example: **mycomputer.mydomain.mycompany.com**
   
   The user must be an Administrator or a member of the Administrator group on that computer.

7. Click **Next**.

8. When prompted to select packages to install, accept the default list ([Media Agent], [VSS Provider], and [VirtualServer Agent]); then click **Next**.

9. Leave the default selections on the Recommended Settings page and click **Next**.

10. On the Additional Install Options page, you can click **Disable Windows Firewall** if no firewall is required.

11. On the Optional Settings page, click **Next**.

12. On the Firewall Configuration page, select one of the following:
   
   - If firewall configuration is not required, click **Next**.
   - If this computer and the CommServe are separated by a firewall, click **There is Firewall between Client machine and CommServe**.
     
     For firewall options and configuration instructions, follow the instructions in **Firewall Configuration**, then continue with the installation.

13. When prompted on when to run the job, keep the **Immediate** value and click **Next**.

14. Review the Summary page and click **Finish**.

15. You can track the progress of a running job from the **Job Controller** tab of the CommCell Console.

   From the **Home** menu, click **Job Controller**.

16. After a job is complete, you can view job details from the Admin Job History.

   a. Right-click the `<CommServe>` (the top level object in the CommCell Browser), point to **View**, and click **Admin Job History**.

   b. Click **Select Install/Upgrade/Remove/Repair Software**.

   c. Click **OK**.

   You can view the following by right-clicking the job:
   
   - Details of the job
   - Option to resubmit the job
   - Events associated with the job
   - Logs associated with the job
   - Option to send the logs associated with the job
Configure Storage
For evaluation purposes, you can use a local drive or folder to store backups. Provide sufficient space to hold backups of all virtual machines.

1. Under Getting Started | Configure Storage, click Add New Storage.
2. On the Add Disk Library dialog, enter the name and location for a disk library to store backups.
3. Click OK.

Configuring a disk library automatically creates storage policies for disaster recovery and the disk library.

Configure the Hyper-V Client
1. Under Getting Started | Configure Backup Client, click Add Microsoft Hyper- Client.
2. For the client name., enter the Hyper-V cluster name.
3. Provide user credentials with administrator privileges sufficient to perform backup operations for all Hyper-V nodes in the cluster.
4. Click Add to add the virtualization client node.
5. Click OK.

Add Virtual Machines to Protect
1. Under Getting Started | Configure Backup Client, click Add Content.
2. From the Browse dialog, select one or two virtual machines to back up; then click OK.
3. On the Content tab, verify the list of virtual machines to back up; then click OK.

After testing the basic backup and restore workflow, you can reconfigure the content entry to use the default entry ‘\’ (which automatically discovers all VMs on CSV storage).

Back Up Virtual Machines
1. Under Getting Started | Configure Backup Client, click Backup.
2. On the Backup Options for Subclient dialog, click OK.

The default is to perform an immediate incremental backup. A full backup is always performed for the first backup of each virtual machine.
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Restore a Virtual Machine
1. Under Getting Started | Configure Backup Client, click Restore.
3. Click View Content.
   The contents of the latest backup for the subclient are displayed in a Client content tab in the right pane of the Console.
4. Expand the content tree in the left section of the Client content tab and select a virtual machine.
5. Click Recover All Selected.
6. On the Restore Options for All Selected Items dialog:
   a. Under Restore Location, select New folder; then click in the Destination Path column and browse to select a destination folder.
   b. Click in the Change VM display name to column and enter a new name for the virtual machine.
   c. If needed, select the Power ON Virtual Machine after restore option.
7. Click OK.
   The job runs immediately.

Restore Files
1. Under Getting Started | Configure Backup Client, click Restore.
2. On the Restore Options dialog, select Guest Files and Folders.
3. Click View Content.
   The contents of the latest backup for the default subclient are displayed in a Client content tab in the right pane of the Console.
4. Expand the content tree in the left section of the Client content tab and select one or more files or folders.
   The content for the selected items is displayed in the right section of the Client content tab.
5. Click Recover All Selected.
6. On the Restore Options for All Selected Items dialog, select a target machine from the Destination client field; then click Browse to select a target folder for the Specify destination path field.
7. On the resulting dialog, select a folder, and click OK.
8. Click OK.
   The job runs immediately.
Explore Further

Results of Installation and Getting Started

After you install the CommServe module, Virtual Server Agent, and MediaAgent, then use the Getting Started tab to configure storage, connect to a Hyper-V server, and select virtual machines to back up, the following objects are accessible through the CommCell Browser. To view the settings for any of these objects, you can right-click the object and select Properties.

- Installation and client configuration create the following objects:
  - The tree in the CommCell Browser is created; the parent node is named using the host name of the CommServe machine.
  - A MediaAgent is created and can be accessed through Client Computer Groups | MediaAgents or through Storage Resources | MediaAgents.
  - A client computer is created and can be accessed under the Client Computers branch of the CommCell Browser. Underneath the client are entries named File System (including a defaultBackupSet) and Virtual Server to represent the MediaAgents installed on a Hyper-V node. Backup and restore operations are enabled by default.
  - A master user group is created for administrators. The master group is accessible through Security | CommCell User Groups. The master group is assigned on the Security tab for all objects.
- The Add Storage step creates a disk library and two storage policies: one for disaster recovery (DR) and another for the disk library you added. The disk library is added under Storage Resources | Libraries. Storage policies are added under Policies | Storage Policies. A Primary object for the storage policy contains parameters to control storage for the backup; it identifies the proxy used for backups and includes data retention controls, data path information, and other controls. View the properties for the Primary copy to get an idea of how the storage policy controls the backup process. (To create auxiliary copies, you can have additional copy objects for a storage policy.)
- The Add Microsoft Hyper-V Client step creates the following objects:
  - A client is displayed under the Client Computers entry in the CommCell Browser.
  - A virtualization client named Virtual Server is displayed under the client.
  - A Hyper-V virtual server instance displays under the virtualization client. The instance includes a proxy representing the MediaAgent, which runs backups for the client.
  - A defaultBackupSet object is displayed under the Hyper-V instance.
  - A subclient named default is displayed under the defaultBackupSet entry. The virtual machines to be backed up are specified on the Content tab of the subclient.

By default, the Content tab contains a single entry \ that enables auto-discovery of all virtual machines on the Hyper-V nodes; but that entry is replaced with the virtual machine you select during the Add Content step.
The **Add Content** step customizes the subclient content to specify the virtual machines that are to be backed up and automatically selects the storage policy associated with your disk library.

In a production environment, you can restore the ’\’ entry on the **Content** tab of the subclient to automatically protect all virtual machines on the Hyper-V nodes. You can also add different subclients to provide customized controls for different classes of virtual machines in your environment. For example, one subclient can be used for frequent backups of VMs that have high transaction or high input/output requirements, and another for daily backups of less critical VMs. Each subclient can have an appropriate schedule and storage policy associated with it.

Running the first backup creates a full backup of the virtual machine you selected. After virtual machines are backed up, you can recover complete virtual machines or files.

Configuring the Simpana software, running a backup, and performing restores provides a complete experience of the basic backup cycle.

**Components, Controls, and Concepts**

**Components**
The components of a backup and restore solution for virtual machines are one or more Hyper-V nodes (one with the VSA and MA installed), a machine running the CommServe software, and storage resources. The Simpana software provides resources to ensure continued protection for virtual machines, improve the speed of protection operations, and minimize the impact of backups and restores on production systems.

**Controls**
The **Getting Started** tab of the CommCell Console provides support for basic configuration and operations. You can use it to configure storage, provide Hyper-V server connection information, and select virtual machines to be backed up. You can also use it to recover virtual machines or files.

The CommCell Console and Browser provide access to more advanced functions and objects. Menu options in the CommCell Console provide access to functions. Objects can be accessed through the CommCell Browser, with right-click options for properties and appropriate tasks.

The Control Panel provides access to system-level settings, including the following:

- **Add/Remove Software (Tools)**: Product update connections and controls.
- **User Preferences (Tools)**: Interface controls, job retention, event display, virtual machine display.
- **Alerts (Configure)**: Add, edit, delete, or disable email alerts.
- **E-Mail & Web Server Configuration (Monitoring)**: Email and IIS configuration (used for alerts and reports) and online help settings.
- **System Owner Capabilities (Monitoring)**: Control access to specific operations for all system users.

- **DR Backup Settings (System)**: Disaster recovery settings.

Property settings for the CommCell (top level object in the CommCell Browser) provide additional system-level settings.

Jobs that are active or recently completed, including backup and restore jobs, can be monitored and controlled using the **Job Controller** tab in the CommCell Console. Job history can be viewed at different levels of the client hierarchy; higher level objects provide history for administrative jobs as well as protection operations. You can use right-click options to view detailed information for jobs or to perform job-related tasks (such as restoring data from a backup job). Jobs can be run immediately, or they can be scheduled at the job level or by creating a schedule policy.

The Event Viewer can be used to monitor key events.

**Concepts**

**Backups** provide full protection for virtual machines and data. **Full backups** are performed initially and can be scheduled on a periodic basis; **incremental backups** can be performed more frequently to capture changes since the last previous backup. In configuring backups, you can choose whether to enable granular recovery from backups; granular recovery is enabled by default.

**Job streams** move content identified in a subclient to a MediaAgent, which manages **data streams** to storage resources. Subclient properties can specify the optimal number of readers or streams; the actual number of job streams is determined by the associated storage policy and the available data paths. Multiple job streams can be included in each data stream. Stream data can use compression, encryption, and deduplication.

**Deduplication** identifies each block of data that is backed up and ensures that it is only stored once. Deduplication is automatically enabled for the Simpana software, and is managed through the storage policy and its copies.

**Retention** determines how long backed up data is retained. Retention controls are available at the subclient, job, media, and policy levels. Retention controls can be used to determine what storage media (for example, disk or tape) are used for different types of data, and when **data aging** can be used to remove or overwrite backed up data.
## Key Objects
You can create and manage the following key objects through the CommCell Browser. (This is not a complete list of Simpana software objects.)

<table>
<thead>
<tr>
<th>Object</th>
<th>Description</th>
<th>CommCell Browser Path</th>
<th>More Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client Groups</td>
<td>Provide control, management, and reporting capabilities for multiple clients. Clients can belong to multiple groups and inherit properties or activities from the group. User groups can be associated with client groups, and clients in the client group inherit those associations.</td>
<td>Client Computer Groups</td>
<td>Client Computer Groups</td>
</tr>
<tr>
<td>Clients</td>
<td>Clients include the CommServe machine and a Hyper-V server with the VSA and MA. A client for a Hyper-V server includes subordinate objects: Virtual Server, Hyper-V (instance), one or more backup sets, and one or more subclients. Backup sets provide a container to manage or view data sets. Subclients identify data content (virtual machines) to be backed up and associate the content with a storage policy that provides management options. Content can be identified using patterns, and filters can be used to exclude content. Additional clients can be added by right-clicking Client Computers and selecting New Client</td>
<td>Client Computers</td>
<td>Client</td>
</tr>
<tr>
<td></td>
<td>Virtualization</td>
<td>Microsoft Hyper-V.</td>
<td></td>
</tr>
<tr>
<td>Object</td>
<td>Description</td>
<td>CommCell Browser Path</td>
<td>More Information</td>
</tr>
<tr>
<td>------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------</td>
<td>---------------------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Users</td>
<td>Include both internal and external users:</td>
<td>Security</td>
<td>CommCell Users</td>
</tr>
<tr>
<td></td>
<td>- CommCell users (define internally)</td>
<td>User Administration and Security</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Microsoft Active Directory (external)</td>
<td>User Administration and Security</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- IBM Domino Directory Server (external)</td>
<td>User Administration and Security</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Users can be assigned to one or more groups.</td>
<td>User Administration and Security</td>
<td></td>
</tr>
<tr>
<td>User Groups</td>
<td>Provide capabilities for users in the group.</td>
<td>User Administration and Security</td>
<td></td>
</tr>
<tr>
<td></td>
<td>User groups can be associated with objects (such as a client, library, or storage policy) to provide authorized access.</td>
<td>User Administration and Security</td>
<td></td>
</tr>
<tr>
<td></td>
<td>External users or groups can be associated with CommCell user groups, with single sign on as an option.</td>
<td>User Administration and Security</td>
<td></td>
</tr>
<tr>
<td>Name Servers</td>
<td>Enable domain support for external users through a name server or Active Directory.</td>
<td>Security</td>
<td>Name Servers</td>
</tr>
<tr>
<td>Libraries</td>
<td>Libraries represent storage resources (disk or tape). They provide controls for data streams, capacity thresholds and aging, mount paths, and number of data writers.</td>
<td>Storage Resources</td>
<td>Libraries</td>
</tr>
<tr>
<td>MediaAgents</td>
<td>Provide data transport for backups and restores, writers to disk devices, and device control over media changers and removable media devices. MediaAgents also manage content indexes that are used to locate content for restores.</td>
<td>Storage Resources</td>
<td>Libraries</td>
</tr>
<tr>
<td>Schedule Policies</td>
<td>Provide timing rules for different types of jobs and agents. Schedule policies can be associated with specific objects (such as clients, backup sets, or subclients), and can trigger alerts.</td>
<td>Policies</td>
<td>Schedule Policies</td>
</tr>
<tr>
<td>Object</td>
<td>Description</td>
<td>CommCell Browser Path</td>
<td>More Information</td>
</tr>
<tr>
<td>------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-----------------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>Storage Policies</td>
<td>Manage physical data paths for storage media and implement business rules for management and data retention. Each storage policy has a Primary copy, and can have additional copies when multiple backups of the same data are required. Retention, data paths, deduplication controls, and other media specific settings are specified on each copy.</td>
<td>Policies</td>
<td>Storage Policy</td>
</tr>
<tr>
<td>Reports</td>
<td>Provide standard (Classic) or custom reports about different aspects of data management. Reports can be accessed through the CommCell Console menu tabs or through the CommCell Browser.</td>
<td>Reports</td>
<td>Reports Overview</td>
</tr>
</tbody>
</table>
Explore Additional Options

CommCell Management

For more information about managing and scheduling backup and restore operations, refer to the following:

- Scheduling
- Job Management
- Job History
- Alerts and Notifications
- Log Files
- Reports Overview
- Scheduling
- User Account and Password Management
- User Administration and Security
- Command Line

Media Management

For more information about configuring storage and creating additional copies of the data, refer to the following:

- Storage Policy
- Storage Policy Copies
- Data Aging
- Deduplication
- Library and Drive Configuration

Virtual Server Agent

For more information about selecting virtual machines for backups and additional backup and restore configurations, refer to the following:

- Advanced Configuration
- Advanced Backup
- Advanced Restore

Online Help

Online help is available by clicking the Help button on any dialog.