Features - SRM Server

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Overview - Storage Resource Management (SRM)

Overview

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OVERVIEW

Storage Resource Management (SRM) encompasses several distinct but interrelated areas:

- **Asset Management** - The ability to discover, identify, and track available storage resources such as disks, file systems, and network shares. In addition to these, SRM adds the ability to track application-specific resource types such as Exchange Mailbox and Public Folder Stores.
- **Capacity Management and Planning** - The ability to locate, monitor, and analyze the usage and availability of storage resources over time. SRM provides numerous customizable reports which illustrate the current and historical usage patterns of file systems and application-specific resources, thus helping administrators plan for future growth in storage demand by analyzing historical trends. Administrators can also identify wasted and unallocated space to optimize the utilization of present resources.
- **Provisioning** - Defining and acting on allocation policies for available storage capacity and bandwidth. SRM provides the tools to monitor the availability and usage of storage continuously and to automatically invoke external applications (e.g. a Logical Volume Manager) according to user-defined rules.

To better understand how the components of SRM interact, think of the SRM reporting process as a pipeline:

- **Data Collection** - The agent gathers statistics about the local storage resources and transmits them to the SRM Server, where they are placed in the Repository. The exact types of data collected are determined by a template that may be configured for each agent. Because some statistics require more expensive processing on the client host, Analysis level data collection templates may be run during off-peak hours while Discovery level templates are run periodically throughout the day.
- **Report Generation (or Analysis)** - The Report Engine extracts relevant statistics from the Repository tables, applies suitable analysis (e.g. trending), and produces a report. As a post-processing step, the Report Engine checks for any Notifications set for the report, and invokes the configured handlers if the notification conditions are met. The report itself is then made available for viewing.
- **Presentation** - The Console retrieves the report and displays it in a web browser, where custom filters may be applied to the data and a variety of charts and graphs can be generated. Reports can be exported in a variety of formats, or you can even generate a document-quality report combining the tabular data and selected charts in PDF format.
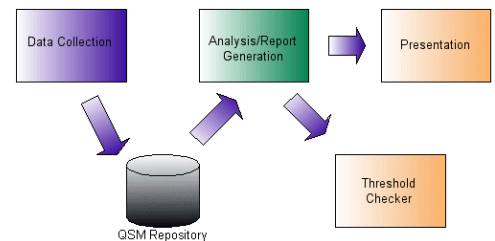
Note that data collection and Report Generation jobs are scheduled independently, at different times and intervals. Thus, the administrator may collect statistics nightly, or even hourly, but generate reports only once per week if desired. The Presentation phase happens on demand, when the user opens a previously generated report from the Console.

COMPONENTS OF SRM

SRM SERVER

- The SRM Server provides a centralized data repository of information gathered by the SRM Agents, and a set of administrative functions including Job Control, Event Management, and User Management. The SRM Server generates the necessary reports from the data stored in the centralized data repository.

SRM AGENTS

- SRM Agents are software modules that perform data collection operations for specific operating systems or applications. The SRM system provides a variety of agents, each designed to handle a different kind of data. See Agents.

COMMCELL CONSOLE

- CommCell Console provides administrators with an interface to administer and generate reports on the SRM system. The Console may be installed as a standalone application on the administrator's workstation, or as a remotely accessible applet from the SRM server. (IIS is needed on the SRM Server

computer, to display the CommCell Console as a Java Applet.) See CommCell Console for more information.

SRM Deployment

SRM may be deployed in a typical enterprise environment, where the SRM Server and all client hosts are interconnected via a TCP/IP network as illustrated below.

For more information, see Installation.

SRM Summaries and Reports

Summaries provide vital information at a glance for entities in the SRM system. The summaries appear in the console's main window when an entity is highlighted in the Resource Browser to the left of the main window.

SRM Reports provide detailed information about the resources of SRM Client computers, with each report tailored to a particular aspect of resource management. Information is presented in a logically grouped, tabular format and can be viewed in a web browser, easily filtered, printed, and exported to a variety of formats. Where useful, information is also presented in a variety of chart formats. In addition, custom reports can be created with standard Microsoft tools, such as Visual Studio. For more information, see SRM Reports.

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System Requirements - SRM Server

The following requirements are for the SRM Server:

OPERATING SYSTEM

See CommServe - Operating System support

CLUSTER - SUPPORT

The software can be installed on a Cluster if clustering is supported by the above-mentioned operating systems.

For information on supported cluster types, see Clustering - Support.

HARD DRIVE

In addition to CommServe - Hard Disk requirements, the following space is required for SRM Server:

600 MB of local disk space for the SRM Server software.

600 MB of local disk space for the SRM database. (This is a prerequisite for installing and upgrading the SRM Server.)

1.8 GB of local disk space for the SRM database growth.

> In time, you may need to provide additional space (several GB) to allow for growth in the SRM Server metadata. The size of the metadata depends on the number of computers, the data collection policies and database aging policies implemented in the SRM system.

MEMORY

In addition to CommServe - Memory requirements, the following memory is required for SRM Server:

1 GB RAM minimum required; 2 GB RAM recommended.

PROCESSOR

See CommServe - Processor support

DATABASE ENGINE

CommNet Sever must be installed on Microsoft SQL Server 2008 (Enterprise Edition). CommNet installations are not supported on any other Microsoft SQL Server versions. See **Database Engine** under System Requirements - CommServe - Enterprise Version for more information.

PERIPHERALS

DVD-ROM drive

Network Interface Card

SRM Server is supported on Enterprise version and not on Express versions.

The MediaAgent will be automatically installed during installation of the SRM Server if it is not already installed. Note that the `MediaAgent` cannot be deselected.

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

Install the SRM Server

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INSTALL REQUIREMENTS

The following procedure describes the steps involved in installing the CommServe, MediaAgent and SRM Server. The SRM Server software must be installed in the same computer in which the CommServe software resides. The SRM Server software must be installed before installing the SRM Agents.

A Microsoft SQL Server 2008 database instance (Enterprise Edition) with the appropriate service pack will be automatically installed while installing the software.

SRM Server cannot be installed on a computer with the Express version of the software, which uses the Microsoft SQL Desktop Engine (MSDE).

Verify that the computer in which you wish to install the software satisfies the minimum requirements specified in System Requirements - CommServe and System Requirements - SRM Server.

Review the following Install Requirements before installing the software:

GENERAL

● Ensure that you have an available license for the SRM Server.

● You have the appropriate Software Installation Disc.

● Close all applications and disable any programs that run automatically, including antivirus, screen savers and system utilities. Some of the programs, including antivirus software, may be running as a service. Stop and disable such services before you begin. You can re-enable them after the installation.

● Verify that you have the software installation disc that is appropriate to the destination computer's operating system.

  Make sure that you have the latest software installation disc before you start to install the software. If you are not sure, contact your software provider.

CLUSTER SPECIFIC

● In the clustered environment, the SRM Server can be installed from the active node in the cluster group using the following procedure. The software can also be automatically installed on all available passive nodes when the software is installed in the cluster group, or you can choose to install any passive node(s) separately.

BEFORE YOU BEGIN

● Log on to the client as local Administrator or as a member of the Administrators group on that computer.

INSTALL PROCEDURE

GETTING STARTED

1. Place the Software Installation Disc for the Windows platform into the disc drive.

 After a few seconds, the installation program is launched.

  If the installation program does not launch automatically:

  ● Click the **Start** button on the Windows task bar, and then click **Run**.

  ● Browse to the installation disc drive, select **Setup.exe**, click **Open**, then click **OK**.

  NOTES

  ● If you are installing on Windows Server Core editions, mount to Software Installation Disc through command line, go to the **AMD64** folder and run **Setup.exe**.
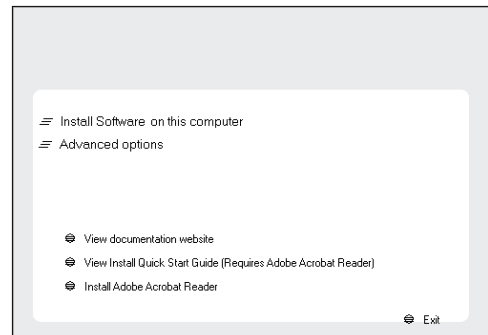
2. Choose the language you want to use during installation. Click the down arrow and select the desired language from the drop-down list, and click **Next** to continue.
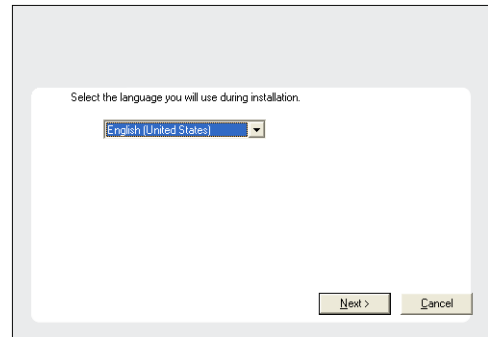
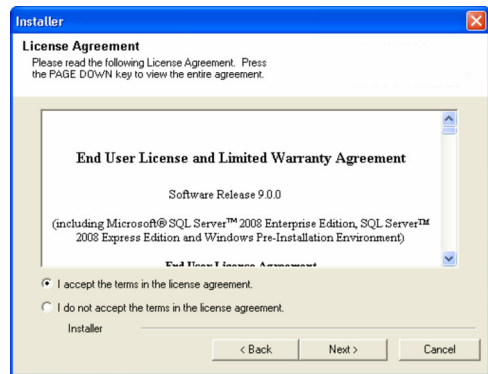**3.** Select the option to install software on this computer.

NOTES

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

4. Read the license agreement, then select **I accept the terms in the license agreement**.

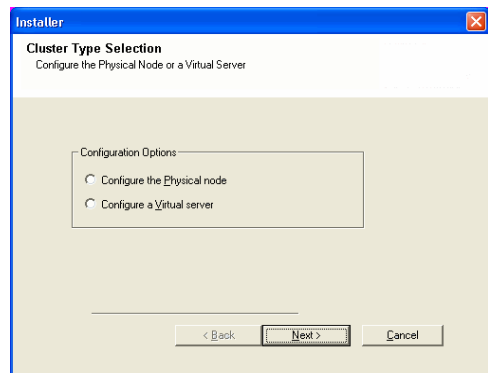Click **Next** to continue.

CLUSTER SELECTION

If you are installing in clustered environment, follow the steps below. For non-clustered environment, skip to Select Components for Installation.
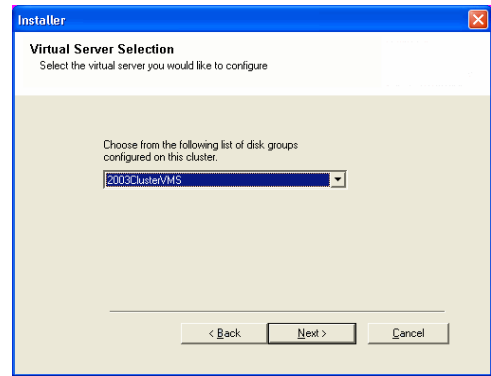
5. Select **Configure a Virtual Server**.

Click **Next** to continue.

6. Select the disk group in which the cluster group resides.

Click **Next** to continue.

SELECT COMPONENTS FOR INSTALLATION

7. Select the component(s) to install.

NOTES

- Your screen may look different from the example shown.
- Components that either have already been installed, or which cannot be installed, will be dimmed. Hover over the component for additional details.
- If you wish to install the agent software for restore only, select **Install Agents for Restore Only** checkbox. See Installing Restore Only Agents for more information.
- The **Special Registry Keys In Use** field will be highlighted when `GalaxyInstallerFlags` registry key is enabled. Move the mouse pointer over this field to see a list of registry keys that have been created in this computer.

Click **Next** to continue.

To install the SRM Server Expand `Common Technology Engine` and then expand `CommServe Modules` then select the following:

- `SRM Server`

When you select the `SRM Server` for install, the `CommServe and MediaAgent` are automatically selected for install, if it is not already installed. Note that the `MediaAgent` cannot be deselected.

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

NOTES

- Follow the on-screen prompts for installing the Microsoft .NET Framework package.
- If you are prompted to install the Service Pack for the Microsoft .NET Framework, click **Yes**.
- 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 package.
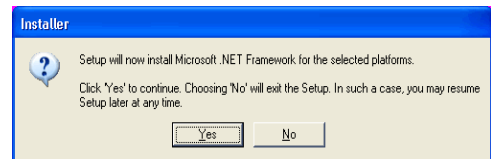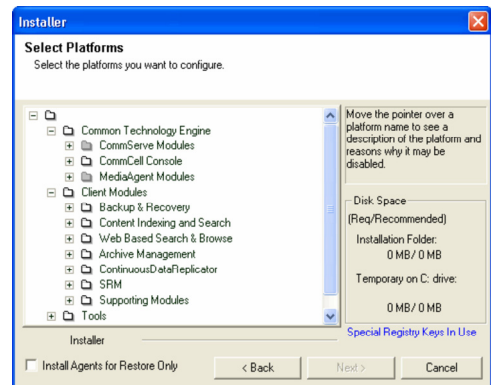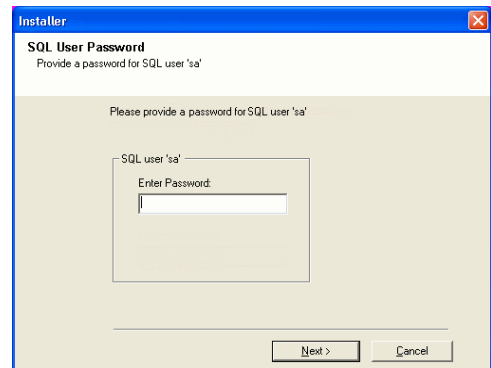

SET UP MICROSOFT SQL SERVER INSTANCE

9. Specify the SQL Server System Administrator password.

NOTES

- This is the password for the administrator's account created by SQL during the installation.

Click **Next** to continue.

10. Click **Yes** to set up a dedicated instance of Microsoft SQL Server for the CommNet Server.

NOTES

- This prompt will only be displayed if SQL Server database instance is not installed on this computer.
- Clicking **No** will exit the install program.

11. Enter the Installation Path for the Database Engine.
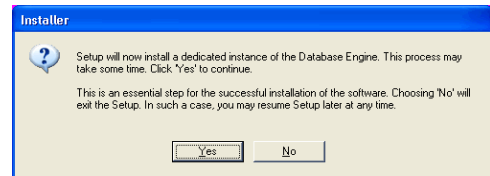
NOTES

- This is the location where you want to setup the Microsoft SQL Server System databases.

Click **Browse** to change directories.

Click **Next** to continue.

The install program installs the database instance.

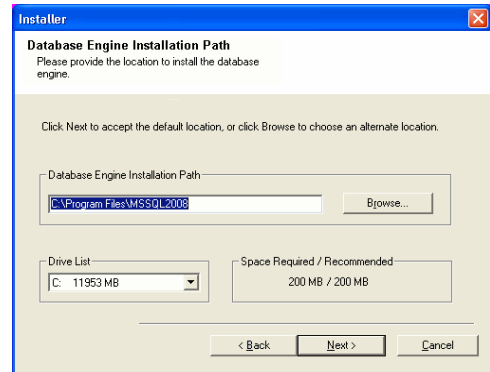**12.** Enter the MSSQL Server Installation Path.

NOTES

- This is the location where you want to install Microsoft SQL Server.

Click **Browse** to change directories.

Click **Next** to continue.

This step may take several minutes to complete.

13. Enter the **CommServe Client Name** and the **CommServe Host Name**.

NOTES

- The CommServe client name is the name of the computer. This field is automatically populated.
- The CommServe host name is the TCP/IP network interface name of the CommServe computer. This field is automatically populated.
- Do not use the following characters in the CommServe client name or the CommServe host name:
  \|`~!@#$%^&*()+=<>/?,[]{}:;'"

Click **Next** to continue.
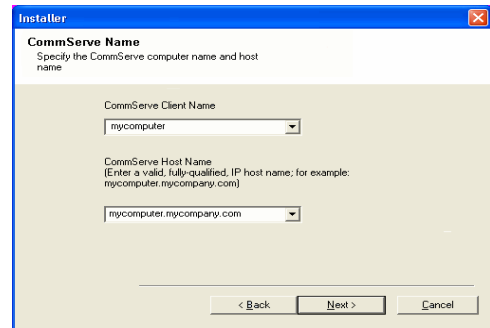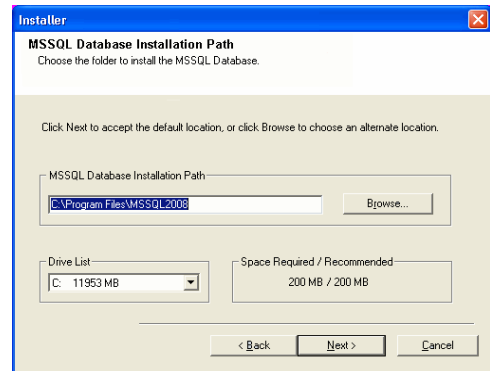
CONFIGURATION OF OTHER INSTALLATION OPTIONS

14. Select **Add programs to the Windows Firewall Exclusion List**, if you wish to add CommCell programs and services to the Windows Firewall Exclusion List.

NOTES:

- If Windows Firewall is enabled on the computer, this option is selected by default and must be enabled to proceed with the installation.
- If Windows Firewall is disabled on the computer, you can select this option to add the programs and services to enabled CommCell operations across the firewall, if the firewall is enabled at a later time.

  You can either select this option during install or add the programs and services after installation. For adding the programs and services after installation, see Configure Windows Firewall to Allow CommCell Communication.

Click **Next** to continue.
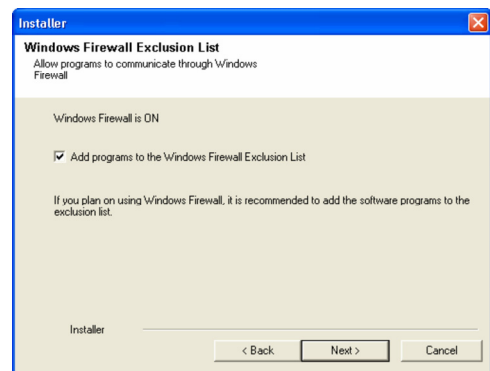
15. Specify the location where you want to install the software.

NOTES

- 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.
- If you intend to install other components on this computer, the selected installation directory will be automatically used for that software as well.
- If a component has already been installed, this screen may not be displayed if the installer can use the same install location as previously used.

Click **Browse** to change directories.

Click **Next** to continue.

16. Specify the location of the database.

NOTES

- Do not specify a mapped network drive.
- You can either accept the default or select a different location on a local disk drive. However, you must ensure that the drive has at least 1GB of free space.
- The directory file path selected should not be located on a FAT drive. A FAT drive cannot be supported as the location fo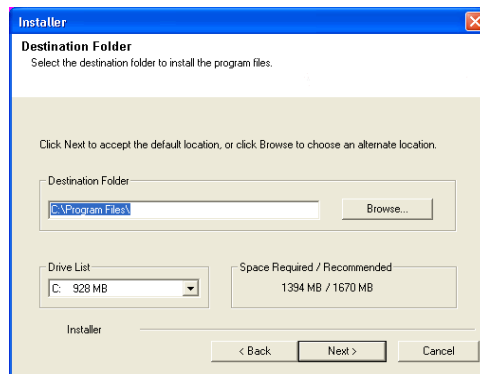r this database because it does not allow a temporary sparse file to be generated when creating the database snapshot, which is required for data verification.
- If the default metadata database directory is low in disk space, provide a path that is not associated with another application.

Click **Browse** to change directories.

Click **Next** to continue.
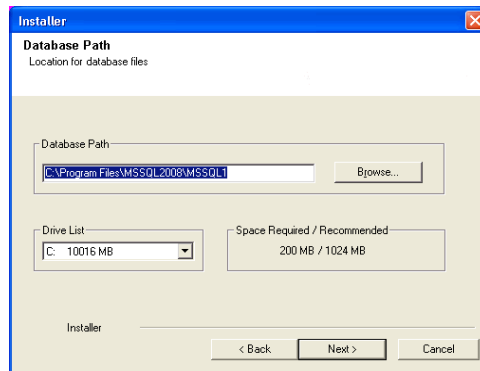
17. Enter the network or local path where Disaster Recovery Backup files should be stored.

NOTES

- For cluster, specify a shared drive.
- If you selected **Use Network Path**, you must enter the **Network share username** and the **Network share password**.
  ○ The Network share username is the domain\username of the user that has administrative rights to the Disaster Recovery Backup destination path.
  ○ The Network share password is the password of the network share username.

Click **Next** to continue.
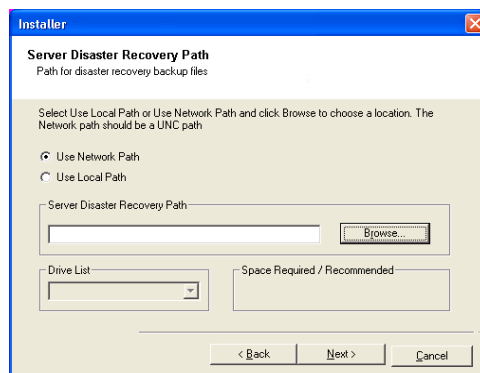
SET USER NAMES AND PASSWORDS

18. Enter the **CommCell Username** and **CommCell Password**.

NOTES

- The CommCell username and password will be used by the Administrator user to log on to the CommCell Console. This user is automatically created during installation and, by default, has the necessary capabilities to perform all functions. Additional CommCell users with the same or less security rights can be created after the installation of the software.

Click **Next** to continue.
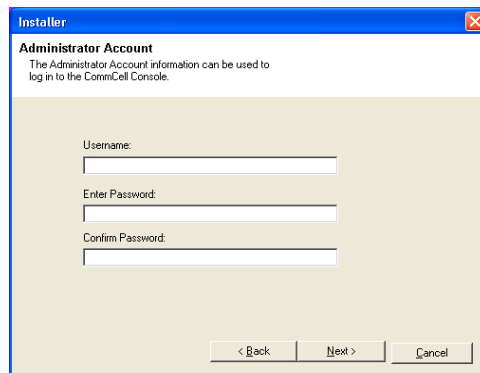
19. Select **Setup Software Cache** option to download the software updates automatically.

Select **Schedule FTP Download of Automatic Updates** option to schedule automatic FTP downloading of software updates.

Click **Next** to continue.

20. Schedule to download the latest software updates from the FTP site.

   NOTES

   - This screen will appear, when you select the **Schedule FTP Download of Automatic Updates** option in the above step.
   - Automatic Updates Schedule allows automatic downloading of software updates on a single or weekly basis.
   - If you do not select this option, you can schedule these updates later from the CommCell Console.

   Click **Next** to continue.
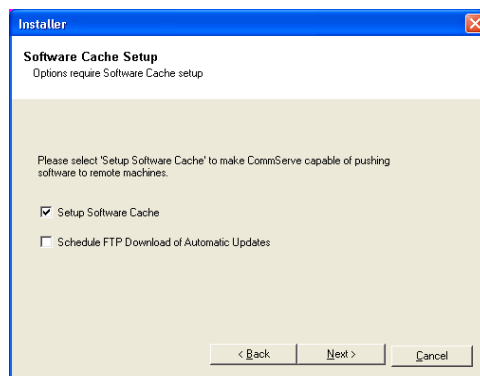
21. Specify the path where the update files from the FTP site should be stored.

   NOTES

   - This prompt will only be displayed if the **Setup Software Cache** option was enabled.

   Click **Next** to continue.
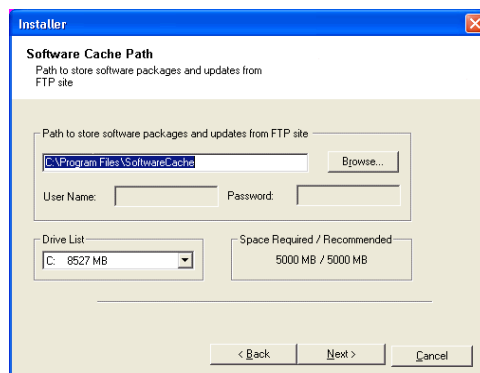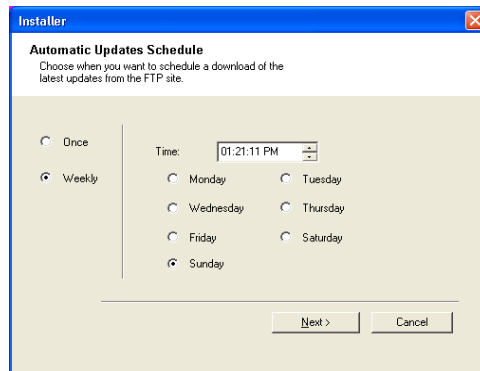
SCHEDULE AUTOMATIC UPDATES

22. If necessary, select this option to schedule an automatic installation of software updates.

   NOTES

   - Schedule Install of Automatic Updates allows automatic installation of the necessary software updates on the computer on a single or weekly basis. If you do not select this option, you can schedule these updates later from the CommCell Console.
   - To avoid conflict, do not schedule the automatic installation of software updates to occur at the same time as the automatic FTP downloading of software updates.
   - If a component has already been installed, this screen will not be displayed; instead, the installer will use the same option as previously specified.

   Click **Next** to continue.
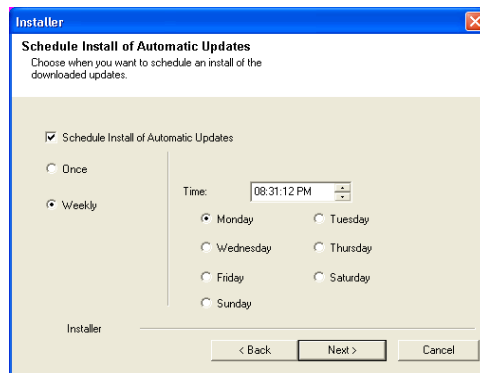
23. Select **Yes** to stop Removable Storage Services on the MediaAgent.

   NOTES

   - This prompt will not appear if Removable Storage Services are already disabled on the computer.

   Click **Next** to continue.
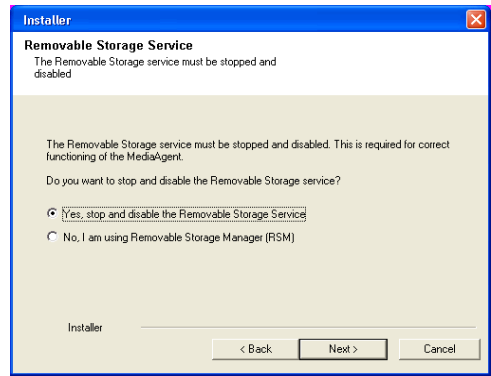
VERIFY SUMMARY OF INSTALL OPTIONS

24. Verify the summary of selected options.

NOTES

- The **Summary** on your screen should reflect the components you selected for install, and may look different from the example shown.

Click **Next** to continue or **Back** to change any of the options.

The install program now starts copying the software to the computer. This step may take several minutes to complete.
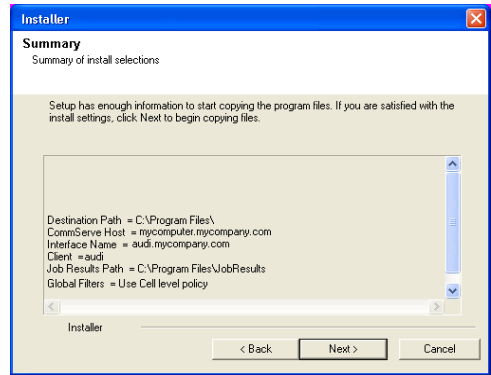
INSTALL REMAINING CLUSTER NODES

If you are installing in clustered environment, follow the steps below to install on remaining nodes of the cluster. For non-clustered environment, skip to Setup Complete.

25. To install/upgrade the software on the remaining nodes of the cluster, click **Yes**.

To complete the install for this node only, click **No**.
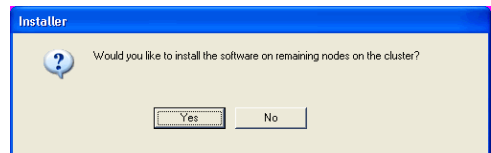
26. Select cluster nodes from the **Preferred Nodes** list and click the arrow button to move them to the **Selected Nodes** list.

NOTES

- The list of **Preferred Nodes** displays all the nodes found in the cluster; from this list you should only select cluster nodes configured to host this cluster group server.
- Do not select nodes that already have multiple instances installed. For more information, see Multi Instancing.

When you have completed your selections, click **Next** to continue.
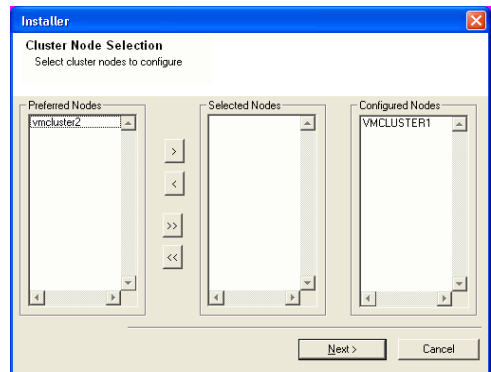
27. Type the **User Name** and **Password** for the Domain Administrator account, so that the installer can perform the remote install/upgrade of the cluster nodes you selected in the previous step.

Click **Next** to continue.

28. The progress of the remote install for the cluster nodes is displayed; the install can be interrupted if necessary.

Click **Stop** to prevent installation to any nodes after the current ones complete.

Click **Advanced Settings** to specify any of the following:

- Maximum number of nodes on which Setup can run simultaneously.
- Time allocated for Setup to begin executing on each node, after which the install attempt will fail.
- Time allocated for Setup to complete on each node, after which the install attempt will fail.

NOTES

- If, during the remote install of a cluster node, setup fails to complete or is interrupted, you must perform a local install on that node. When you do, the install begins from where it left off, or from the beginning if necessary. For procedures, see Manually Installing the Software on a Passive Node.

29. Read the summary for remote installation to verify that all selected nodes were installed successfully.

NOTES

- If any node installation fails, you must manually install the software on that node once the current installation is complete. (See Manually Installing the Software on a Passive Node for step-by-step instructions.)
- The message displayed on your screen will reflect the status of the selected nodes, and may look different from the example.

Click **Next** to continue.
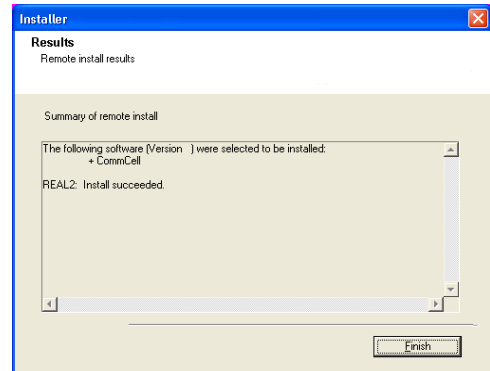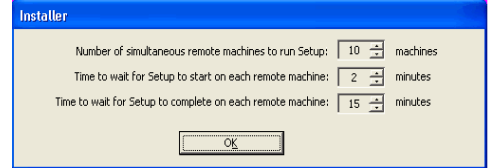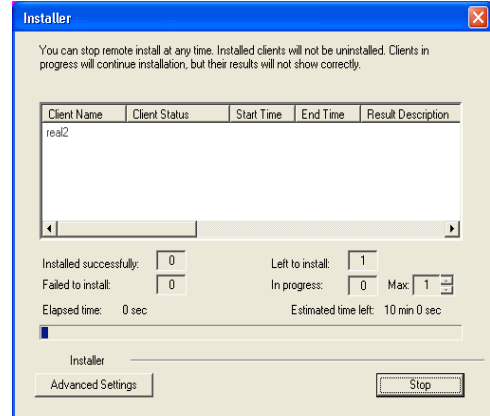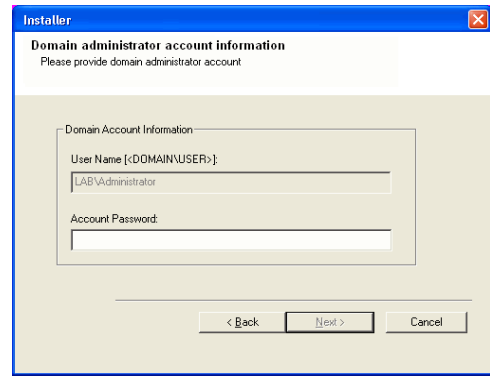
SETUP COMPLETE

30. Setup displays the successfully installed components.

NOTES

- The **Setup Complete** message displayed on your screen will reflect the components you installed, and may look different from the example shown.
- If you install an Agent with the CommCell Console open, you need to refresh the CommCell Console (F5) to see the new Agents.
- If **Reboot Now** button is displayed make sure to reboot the computer before performing any other operations from the computer.

Click **Finish** to close the install program.

The installation is now complete.
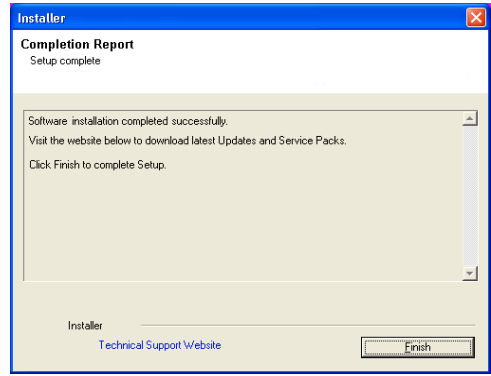
POST-INSTALL CONSIDERATIONS

GENERAL

Install post-release updates or Service Packs that may have been released after the release of the software. Alternatively, you can enable Automatic Updates for quick and easy installation of updates in the CommCell® console.

SRM Advisories

Topics | How To

Overview

SRM Exchange Agent

SRM NetWare Agent

SRM Network Attached Storage Agent

SRM Oracle Agent

SRM SharePoint Agent

SRM SQL Agent

SRM UNIX File System Agent

SRM Virtual Server Agent

SRM Windows File System Agent

OVERVIEW

An Advisory is a brief text message describing an actual or potential problem detected by SRM and the suggested corrective action. Advisories can be warnings, such as a file system reaching full capacity, or recommendations, such as a configuration change that might improve performance. SRM includes a set of predefined heuristics for each application or resource type that can be applied during data collection to generate Advisories. Once posted, Advisories may be viewed, hidden, or cleared; also, for each predefined Advisory type, you may choose to display or hide Advisories of that type based on your Advisory Type Management settings. In the interest of better performance, not all Advisories are enabled by default.

For a step-by-step instructions, see Enable/Disable Advisories.

SRM EXCHANGE AGENT

The following Advisories are available for Exchange 2000/2003 Servers:

Description	Level
Failing monitoring services of Exchange Server	Warning
Excessive CPU utilization of Exchange Server	Warning
Failure of Exchange Server clustered resources	Warning
Low memory for Exchange Server	Warning
Exchange Mailbox Store Dismounted	Warning
Disk space limited for Exchange Server	Warning
Exchange Public Folder Store Dismounted	Warning

Advisories are not available for Exchange Server 2007.

SRM NETWARE AGENT

The following Advisories are available for NetWare File Systems:

Description	Level
Pool is full	Warning
User is close to storage space limit	Warning

SRM NETWORK ATTACHED STORAGE AGENT

The following Advisories are available for NAS File Servers:

Description	Level
NAS filer is not reachable	Warning
NAS logical volume is full	Warning
NAS logical volume is unavailable	Warning
NAS CIFS share logical volume is unavailable	Warning
NAS CIFS share logical volume is full	Warning

NAS NFS share logical volume is unavailable	Warning
NAS NFS share logical volume is full	Warning
NAS Celerra is not reachable	Warning
NAS Celerra Data Mover is not available	Warning
NAS Celerra Primary Data Mover has no standby	Warning
NAS Celerra VDM is not replicated	Warning
NAS Celerra slice volume is not in Storage Pool/Meta Volume	Warning
NAS Celerra stripe volume is not in Storage Pool/Meta Volume	Warning
NAS Celerra Meta Volume has no client volume or file system	Warning
NAS Celerra Storage Pool is full	Warning
NAS Celerra Automatic extension is disabled for Storage Pool	Warning
NAS Celerra disk volumes cannot be added to Storage Pool	Warning
NAS Celerra Storage Pool is overcommitted	Warning
NAS File system is full	Warning
NAS File system is mounted but not shared	Warning
NAS Celerra maximum number of nested mount points under NMFS root	Warning
NAS Celerra checkpoint name has invalid extension	Warning
NAS Celerra quota policy is wrong for CIFS	Warning
NAS CIFS share: file system is unavailable	Warning
NAS Celerra CIFS share: CIFS server is unavailable	Warning
NAS Celerra CIFS share: Data Mover is unavailable	Warning
NAS CIFS share: file system is full	Warning
NAS Celerra CIFS share: Storage Pool is full	Warning
NAS File system hosting iSCSI LUNs is exported via CIFS share	Warning
NAS Celerra NFS Share: Data Mover is unavailable	Warning
NAS NFS Share: file system is full	Warning
NAS Celerra NFS Share: Storage Pool is full	Warning
NAS file system is not mounted	Warning
NAS storage quota on quota tree exceeded Celerra maximum limit	Warning
NAS storage quota for user exceeded Celerra maximum limit	Warning
NAS storage quota for group exceeded Celerra maximum limit	Warning
NAS vFiler of filer is not available	Warning
NAS Aggregate is full	Warning
NAS Aggregate is unavailable	Warning
NAS Aggregate is overcommitted	Warning

SRM ORACLE AGENT

The following Advisories are available for Oracle Databases:

Description	Level
Database has too few control files	Warning
Database has guessable passwords	Warning
Database public account has system privileges	Warning
Database has users with unlimited login attempts	Warning
Database public has execute privileges	Warning
Database has no spfile	Warning
Database has dictionary managed tablespaces	Warning
System tablespace has rollback	Warning
Instance does not have archiving mode	Warning
Instance does not have auto undo	Warning
Instance does not have assm	Warning
Tablespace has unlimited extension	Warning
Tablespace has both rollback and data	Warning
Tablespace has little free space	Warning
Segment has too many extents	Warning
Instance does not have enough redo space	Warning
Instance has average waits that are too long	Warning
User has a temporary tablespace as permanent	Warning
User has system tablespace as default	Warning
System tablespace has user data	Warning
Table has too many indexes	Warning
Table has many chained rows	Warning

SRM SHAREPOINT AGENT

The following Advisories are available for SharePoint:

Description	Level
The current server configuration is invalid*	Warning
Usage Analysis Processing is not enabled	Warning
Usage Logging is not enabled	Warning
Site Database is not online	Warning
Content Database site warning	Warning
Site Collection quota size exceeded	Warning
Site Collection has no usage quota assigned	Warning
Virtual Server has RecycleBin Disabled**	Warning
Virtual Server has RecycleBinCleanUp Disabled**	Warning

* Applicable for SharePoint Portal Server 2003 only.

** Applicable for SharePoint Server 2007 only.

SRM SQL AGENT

The following Advisories are available for SQL Servers:

Description	Level
Auto create statistics is disabled	Warning
Auto update statistics is disabled	Warning
Autoclose is enabled	Warning
Autoshrink is enabled	Warning
Database in single-user mode	Warning
Database log not backed up	Warning
Database not backed up	Warning
Extent scan fragmentation for Index exceeds limit	Warning
Logical scan fragmentation for Index exceeds limit	Warning
Simple recovery mode of production database	Warning

SRM UNIX FILE SYSTEM AGENT

The following Advisories are available for UNIX File Systems:

Description	Level
Unused disk space	Warning
Partition is almost full**	Warning
Logical Volume is almost full	Warning
Volume Group offline	Warning
Logical Volume offline	Warning
User exceeded file count soft limit quota	Warning
Group exceeded file count soft limit quota	Warning
User exceeded file count hard limit quota	Warning
Group exceeded file count hard limit quota	Warning
User exceeded block soft limit quota	Warning
Group exceeded block soft limit quota	Warning
User exceeded block hard limit quota	Warning
Group exceeded block hard limit quota	Warning

**This Advisory does not apply to AIX or HP-UX.

Data collection jobs will not collect advisories for Unix Agentless SRM and Unix File System *i*DataAgent with SRM enabled.

SRM VIRTUAL SERVER AGENT

SRM WINDOWS FILE SYSTEM AGENT

The following Advisories are available for Windows File Systems:

Description	Level

Volume is full	Warning
Disk is not used	Warning
Windows automatic updates are disabled	Warning
Anti virus software might not be installed	Warning
Software Firewall might not be installed	Warning
User exceeded storage space soft limit.	Warning
User exceeded storage space hard limit.	Warning
Group exceeded storage space soft limit.	Warning
Group exceeded storage space hard limit.	Warning
File system quotas not enabled.	Warning

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SRM Advisories - How To

Topics | How To

Enable/Disable Advisories

View Advisories

Block Advisories

ENABLE/DISABLE ADVISORIES

Required Capability: See Capabilities and Permitted Actions

▶ To enable/disable advisories:

1. In the **Control Panel**, select SRM Advisory Types.

2. Select the desired Agent in the **Application Type** field, the advisories associated with the selected Agent will populate in the Advisory Types section and all advisories will be enabled by default.

3. Select the **Enabled** option to display the Advisories you want.

   Clear the **Enabled** option to disable the Advisories you do not want to be displayed.

4. Click **OK**.

VIEW ADVISORIES

Required Capability: See Capabilities and Permitted Actions

▶ To view advisories:

1. Right-click and expand **SRM Enterprise Viewer** in the **CommCell Browser** and expand **Advisories** under Summary.

2. To delete an Advisory from the display, select it and click **Clear**. (If the condition still exists at the next Data Collection, the Advisory will be redisplayed.)

BLOCK ADVISORIES

Required Capability: See Capabilities and Permitted Actions

▶ To block Advisories for SRM SharePoint Agent:

1. On the machine on which the SharePoint Agent is installed, create a `blockedAdvisories.txt` file under the `SRMReports\System` directory.

2. On a new line in the `blockedAdvisories.txt` file, enter the Advisory and follow it with a full stop (.) at the end of the line. For example, you can block the following Advisories by entering:

   ```
   The current server configuration is invalid.
   Content Database site warning.
   ```

When a data collection job is run for the SharePoint Agent, the `blockedAdvisories.txt` file is read and the Advisories that are listed in the file are not sent to the SRM server. Also, the Advisories will not be viewable in the Advisories section of the SRM Enterprise Viewer. This feature is useful to suppress an Advisory (e.g., `Site Collection quota size exceeded`) that is applicable to many sites, but which could overburden the Server.

Cost Analysis

CommNet | CommCell | How To | Example | Troubleshoot | Related Topics

Overview

- CommNet Mode
- Local Mode

Cost Categories

- Primary Storage Resource
- Secondary Storage Resource

Billable Entities

Setting up Cost Analysis

- CommNet Mode
- Local Mode

Important Considerations

- Rules for Assigning Cost Categories to SRM UNIX Clients
- Rules for assigning Cost Category for Shared File system configuration

OVERVIEW

The Cost Analysis feature set allows you to calculate the cost of storage and assign these costs to the appropriate Billable Entity that is using that storage. Logical or application-level objects (such as subclients, SQL databases, and Oracle databases) are associated with Billable Entities (e.g. departments or business units), and physical storage resources (e.g. primary storage entities such as disks, UNIX logical volumes, etc. and/or secondary storage entities such as, tape/optical media, disk storage, etc.) are assigned to Cost Categories. This organization allows you to compute the total cost of storage.

The Cost Analysis model may be configured in one of two available modes as described below:

COMMNET MODE

CommNet Mode allows you to establish a common set of definitions for Cost Analysis throughout the enterprise, both for primary and secondary storage.

In the CommNet Mode, the CommServe will receive a set of Billable Entity and Cost Category definitions from the CommNet Server and use these definitions exclusively. Any previously defined local definitions and associations will be discarded.

The CommNet mode which includes the Billable Entity and Cost Category definitions are available to a CommCell, as soon as the CommServe is registered with the CommNet Server. Any subsequent additions or modifications to these definitions are also updated and available immediately to the CommServe.

LOCAL MODE

Local Mode allows you to establish an independent costing model for each CommServe for SRM (primary storage) entities.

In the Local mode Billable Entities and Cost Categories are established within CommCell and hence these Local Mode definitions exist within the scope of the local CommCell only. Local Mode is the default setting for a CommCell and can be overridden to use the CommNet Mode.

Within the CommCell (both Local and CommNet mode) there are several available Cost Analysis Reports for SRM entities (primary storage) which show costs and usage throughout your enterprise. For more information, see Reports - Cost Analysis.

COST CATEGORIES

The cost to store data on a type of storage entity can be defined in a Cost Category, and assigned as a defined unit cost that can be used to group physical storage resources (e.g. disks, UNIX logical volumes) by their relative expense based on acquisition cost, Total Cost of Ownership (TCO), or some other measure. Bear in mind that a particular physical disk (or UNIX logical volume) can have only one cost category assigned to it. For agents that support subclients, the contents of a single physical disk, logical volume or storage group can be divided among multiple subclients, which allow different billable entities to be assigned to their respective portions of the resource. In the case of NAS, multiple physical disks can comprise a volume which is included in subclient content, and thus cost categories are assigned to subclients containing those volumes, but not disks.

PRIMARY STORAGE RESOURCE

Cost categories defined for primary storage can be associated with actual primary storage resources in the CommCell Console for SRM entities both in the Local and CommNet mode. Primary storage resources include:

- Disks
- Unix logical volumes
- NAS volumes
- SharePoint databases
- NetWare pools

SECONDARY STORAGE RESOURCE

Data protection operations that create protected copies of primary storage data are managed from the CommCell Console. Cost categories can be assigned to these storage resources in the CommNet Server and then can be viewed from a CommCell Console, once that CommCell is registered with the CommNet Server. Secondary storage resources include:

- Tape, optical, and disk media
- Quick Recovery scratch volume pools

BILLABLE ENTITIES

A named entity representing a department or other organizational unit that can be used to group application storage objects (databases, etc.) for the purposes of Cost Analysis. A Billable Entity can be associated with the following objects:

- **CommCell Objects -** The following types of CommCell objects can be associated with billable entities in the CommCell Console:
  - Clients
  - Agents
  - Databases
  - Backup Sets
  - Instances
  - Subclients
  - Shares
  - Folders (for SRM Windows File System, SRM UNIX File System and SRM NAS Agents only)

SETTING UP COST ANALYSIS

COMMNET MODE

The following section provides the steps for setting up cost analysis in the CommNet Mode:

1. Define the Cost Categories and Billable Entities in the CommNet Server. See **Cost Analysis** in **Calypso Monitor Books Online** for more information.
2. Register the CommServe in the CommNet Server. See **CommCells** in **Calypso Monitor Books Online** for more information.
3. Assign the following:
   - Cost Categories for secondary storage devices - See Assign Cost Category to Secondary Storage Device for step-by-step instructions.
   - Billable Entities to CommCell Objects- See Assign Billable Entity to a CommCell Object for step-by-step instructions.
4. Synchronize the CommCells in the CommNet Server. See **CommCells** in **Calypso Monitor Books Online** for more information.
5. Run the necessary reports.
   - See **Cost Analysis** in **Calypso Monitor Books Online** for more information on Costing reports available in the CommNet Server.
   - See Reports - Cost Analysis for more information on the costing reports available for primary storage in the CommCell.

LOCAL MODE

The following section provides the steps for setting up cost analysis in the Local Mode:

1. Define the Cost Categories and Billable Entities in the CommCell.
   - Cost Categories - See Create a Cost Category for step-by-step instructions.
   - Billable Entities - See Create a Billable Entity for step-by-step instructions.
2. Assign the following:
   - Resource to a Cost Category - See Assign Resource to a Cost Category for step-by-step instructions.
   - Resource to a Billable entities - See Assign a Resource to a Billable Entity for step-by-step instructions.
   - Billable Entities to CommCell Objects- See Assign Billable Entity to a CommCell Object for step-by-step instructions.
3. Run the necessary reports.
   - See Reports - Cost Analysis for more information on the costing reports available for primary storage in the CommCell.

IMPORTANT CONSIDERATIONS

RULES FOR ASSIGNING COST CATEGORIES TO SRM UNIX CLIENTS

Prior to assigning a cost categories, ensure that the following holds true:

- The Cost Category **Not Defined** counts as an assignment.
- Cost Categories can be assigned to both physical disks and logical volumes. However the following conditions apply:

o A Cost Category should be assigned to a Logical Volume only (if it exists). If a Cost Category is assigned to the Physical Volume and not the Logical Volume, it will not be counted.

o Cost Category assignment to a Physical Disk is valid only when no Logical Volume(s) exist.

RULES FOR ASSIGNING COST CATEGORY FOR SHARED FILE SYSTEM CONFIGURATION

In a shared file system configuration (e.g. Veritas Cluster File System), two clients would be using the same disks/volume/file systems. The Operating System might present the same underlying storage with a different naming convention. When a cost category is assigned to a disk visible from one client, the same cost category is populated for the other disk visible from second client. In the case of the Logical Volume, the user has to manually assign the same cost category for the both volumes visible from the two clients.

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Cost Analysis - How To

CommNet | CommCell | How To | Example | Troubleshoot | Related Topics

Create a Billable Entity

Edit a Billable Entity

Delete a Billable Entity

Assign a Resource to a Billable Entity

Create a Cost Category

Edit a Cost Category

Delete a Cost Category

Assign Resource to a Cost Category

Assign Billable Entity to a CommCell Object

Remove Association of a Billable Entity from a CommCell Object

Assign Cost Category to Secondary Storage Device

View or Modify the Cost Category of a Drive Pool

View or Modify the Cost Category of a Disk Library

View or Modify the Cost Category of a QR Scratch Volume

View the Billing Department of a CommCell Object

CREATE A BILLABLE ENTITY

Billable Entity can be created, edited and deleted for SRM components in Local Mode only.

Required Capability: See Capabilities and Permitted Actions

To create a billable entity:

1. In the **CommCell Browser**, expand **Cost Analysis**, and select **Billable Entities**.

2. In the **Cost Analysis** window, click **Add**.

3. In the Billable Entity Properties dialog box, make appropriate entries and click **OK**.

EDIT A BILLABLE ENTITY

Billable Entity can be created, edited and deleted for SRM components in Local Mode only.

Required Capability: See Capabilities and Permitted Actions

To edit a billable entity:

1. In the **CommCell Browser**, expand **Cost Analysis**, and select Billable Entity Manager.

2. Select the Billable Entity that you want to edit and click **Edit**.

3. In the Billable Entity Properties dialog box, make any changes and click **OK**.

DELETE A BILLABLE ENTITY

Billable Entity can be created, edited and deleted for SRM components in Local Mode only.

Required Capability: See Capabilities and Permitted Actions

▶ To delete a billable entity:

1. In the **CommCell Browser**, expand **Cost Analysis**, and select Billable Entity Manager.

2. Select the Billable Entity that you want to delete, then select **Delete** and click **Yes** to confirm deletion.

ASSIGN A RESOURCE TO A BILLABLE ENTITY

Required Capability: See Capabilities and Permitted Actions

▶ To assign a resource to a billable entity:

1. In the **CommCell Browser**, expand **Cost Analysis**, and select Billable Entity Manager.

2. Select the Billable Entity to which you want to assign resource(s) and then select one of the SRM Agents.

3. Click **Assign.**

4. In the Assign Billable Entity dialog box select the appropriate resource or groups of resources, and click **OK**.

CREATE A COST CATEGORY

- Cost Category can be created, edited and deleted for SRM components in Local Mode only.

- For UNIX systems (e.g., AIX and HP-UX) where file systems are positioned on top of logical volumes (and not partitions), be sure to assign cost categories at the logical volume level. Assigning cost categories at the physical disk level will have no effect on the Cost Analysis reports for the associated clients.

Required Capability: See Capabilities and Permitted Actions

▶ To create a cost category:

1. In the **CommCell Browser**, expand **Cost Analysis**, and select **Cost Categories**.

2. In the **Cost Analysis** window, click **Add**.

3. In the Cost Category Properties dialog box, make appropriate entries and click **OK**.

EDIT A COST CATEGORY

- Cost Category can be created, edited and deleted for SRM components in Local Mode only.

- For UNIX systems (e.g., AIX and HP-UX) where file systems are positioned on top of logical volumes (and not partitions), be sure to assign cost categories at the logical volume level. Assigning cost categories at the physical disk level will have no effect on the Cost Analysis reports for the associated clients.

Required Capability: See Capabilities and Permitted Actions

▶ To edit a cost category:

1. In the **CommCell Browser**, expand **Cost Analysis**, and select Cost Category Manager.

2. Select the Cost Category that you want to edit and click **Edit**.

3. In the Cost Category Properties dialog box, make any changes and click **OK**.

DELETE A COST CATEGORY

- Cost Category can be created, edited and deleted for SRM components in Local Mode only.

- For UNIX systems (e.g., AIX and HP-UX) where file systems are positioned on top of logical volumes (and not partitions), be sure to assign cost categories at the logical volume level. Assigning cost categories at the physical disk level will have no effect on the Cost Analysis reports for the associated clients.

Required Capability: See Capabilities and Permitted Actions

▶ To delete a cost category:

1. In the **CommCell Browser**, expand **Cost Analysis**, and select Cost Category Manager.

2. Select the Cost Category that you want to delete, then select **Delete** and click **Yes** to confirm deletion.

ASSIGN RESOURCE TO A COST CATEGORY

- For UNIX systems (e.g., AIX and HP-UX) where file systems are positioned on top of logical volumes (and not partitions), be sure to assign cost categories at the logical volume level. Assigning cost categories at the physical disk level will have no effect on the Cost Analysis reports for the associated clients.

Required Capability: See Capabilities and Permitted Actions

► To assign resource to a cost category:

1. In the **CommCell Browser**, expand **Cost Analysis**, and select Cost Category Manager.

2. Select the Cost Category to which you want to assign disk or NAS volume and then select one of the SRM Agents.

3. Click **Assign.**

4. In the Assign Cost Category dialog box select the appropriate disk or NAS volume, and click **OK**.

ASSIGN BILLABLE ENTITY TO A COMMCELL OBJECT

Billable Entity can be assigned to CommCell objects only when the CommCell is registered with the CommNet Server.

Required Capability: See Capabilities and Permitted Actions

► To assign billable entity to a CommCell object:

1. Select **Control Panel** from the **CommCell Console** and click Billing Configuration.

2. Select a CommCell object, then select a billing department (as defined in the CommNet Browser) and click **Apply**.

3. Click **OK**.

REMOVE ASSOCIATION OF A BILLABLE ENTITY FROM A COMMCELL OBJECT

Association of a Billable Entity can be removed from CommCell objects only when the CommCell is registered with the CommNet Server.

Required Capability: See Capabilities and Permitted Actions

► To dissociate a billable entity associated with a CommCell object:

1. Select **Control Panel** from the **CommCell Console** and click Billing Configuration.

2. Select a CommCell object whose billable entity you wish to remove and click **Clear**.

3. Click **OK**.

ASSIGN COST CATEGORY TO SECONDARY STORAGE DEVICE

Cost Category can be assigned to secondary storage devices only when the CommCell is registered with the CommNet Server.

Required Capability: See Capabilities and Permitted Actions

► To assign cost category to secondary storage device:

1. In the **CommCell Browser**, expand **Storage Resources**, and select **Libraries**.

2. Right click a storage device and click **Properties**.

3. Select the Library Properties (Cost Category) dialog box and click **Details**.

4. Select a cost category from the drop down list and click **OK** to close the **Details** dialog box.

5. Click **OK**.

VIEW OR MODIFY THE COST CATEGORY OF A DRIVE POOL

Required Capability: See Capabilities and Permitted Actions

To view or modify the cost category of a drive pool:

1. From the appropriate CommCell Console, right-click a master drive pool and then click **Properties**.

2. From the **Master Drive Pool Properties** dialog box, click the **Drive Pools** tab.

3. From the **Drive Pools** tab, select a drive pool from the **Associated Drive Pools** pane, and then click **Detail**.

4. From the **Drive Pool Properties** dialog box, click the **Cost Category** tab.

5. The cost category assigned to this type of media is displayed in the **Cost Category** field. The cost category is appended with the word **<auto>** if it has been automatically assigned to the drive type based on the association in the software. You can select another cost category from the list, if necessary.

6. Click **OK**.

   - A CommCell must be registered with a CommNet Server in order to inherit cost categories for a drive pool. You can see these cost categories after a CommCell is successfully registered.
   - If another cost category is assigned to this drive type, the cost for the completed data protection operations using this drive type will be charged to the new cost category.

VIEW OR MODIFY THE COST CATEGORY OF A DISK LIBRARY

Required Capability: See Capabilities and Permitted Actions

To view or modify the cost category of a disk library:

1. From the appropriate CommCell Console, right-click a disk library and then click **Properties**.

2. From the **Library Properties** dialog box, click the **Cost Category** tab.

3. The cost category assigned to this disk library is displayed in the **Cost Category** column. Click **Detail** to select another cost category from **Cost Category Detail** dialog box.

4. Click **OK**.

   A CommCell must be registered with a CommNet Server in order to inherit cost categories for a disk library. You can see these cost categories after a CommCell is successfully registered.

VIEW OR MODIFY THE COST CATEGORY OF A QR SCRATCH VOLUME POOL

Required Capability: See Capabilities and Permitted Actions

To view or modify the cost category of a QR scratch volume pool:

1. From the appropriate CommCell Console, right-click a QR scratch volume pool, and then click **Set Cost Category**. If this is a new scratch volume, from the **Volume Configuration** dialog box, click **Assign** from the Cost Category field of the **General** tab.

2. From the **Select Cost Category for Scratch Volume** dialog box, select a cost category from the list.

3. Click **OK**.

   A CommCell must be registered with a CommNet Server in order to inherit cost categories for a QR scratch volume. You can see these cost categories after a CommCell is successfully registered.

VIEW THE BILLING DEPARTMENT OF A COMMCELL OBJECT

Required Capability: See Capabilities and Permitted Actions

To view the billing department of a CommCell client, *i*DataAgent, backup set, or subclient:

1. From the appropriate CommCell Console, right-click a client, *i*DataAgent, backup set, or subclient, and then click **Properties**.

2. From the **General** tab of the appropriate **Properties** dialog box, the **Billing Department** field displays the name of the billing department.

3. Click **OK**.

   - A billing department must first be defined to be displayed in the **Properties** dialog box of the appropriate CommCell object.
   - To view the billing department, the CommCell must be registered with the CommNet Server, and a CommNet Agent must be installed on the CommServe computer of the CommCell.

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SRM Database Aging

Topics | How To

OVERVIEW

Database Aging is the removal of older SRM data that was collected through Data Collection and History data collected through Bull Calypso Communications Services. Removal of this data reduces the sizes of databases. Number of days for data retention can be set in order to retain data before it is automatically aged.

SRM Database Aging is 2 step process:

1. You must first enable the data aging and configure the retention periods. For step-by-step instructions, see Configure Database Aging.

2. You can then schedule/run a Data Aging job to prune the SRM Database and it also specifies the number of days that the data is retained before it is automatically aged. For step-by-step instructions, see Data Aging.

If you set the retention period earlier than your schedule setting, data may be aged before you want it to be aged.

The following data items can be aged:

- **Reports**

  Reports created using SRM Report Schedules.

- **Windows File System**

  Windows File system data gathered from clients on which data collection jobs are run.

- **Microsoft Exchange Server**

  Microsoft Exchange Server data gathered from clients on which data collection jobs are run.

- **NAS**

  NAS data gathered from NAS clients on which data collection jobs are run.

- **Microsoft SQL Server**

  SQL Server data gathered from clients on which data collection jobs are run.

- **UNIX File System**

  UNIX File System data gathered from clients on which data collection jobs are run.

- **Oracle**

  Oracle Database data gathered from clients on which data collection jobs are run.

- **NetWare**

  NetWare data gathered from NetWare clients on which data collection jobs are run.

- **Microsoft SharePoint**

  Microsoft SharePoint data gathered from clients on which data collection jobs are run.

- **Virtual Server**

  Select to age Virtual Server data gathered from clients on which data collection jobs are run.

- **Performance**

  Real Time Data gathered by the clients on which Bull Calypso Communications Services are run.

SRM Database Aging - How To

Topics | How To

CONFIGURE DATABASE AGING

Required Capability: See Capabilities and Permitted Actions

▶ To Configure Database Aging:

1. In the **Control Panel**, select SRM Options.

2. In the SRM Options - Data Aging tab, select/clear a component to enable/disable Database Aging for it.

3. Select a Retention Period (in Days) to set the number of days for which the data is retained before it is automatically aged for each of the selected components.

4. Click **OK**.

SRM Reports - Overview

Topics | How To | Filters | Troubleshoot | Related Topics

Overview

Report Features

- Options
- Actions
- Filters
- Forecasting
- File Level Analytics
- Copy Chart

Customizing Reports

- File Categories
- Time Categories
- Category Counts for Top 'N' Reports

Generate SRM Reports

- Run, Schedule, or Save Reports

Available Reports

Important Considerations

OVERVIEW

Managing storage resources is a critical job for any organization, which can be challenging because these resources are distributed across the network. SRM Reports simplify this complex task by presenting a consolidated view of all storage resources, including logical and physical components, providing unified tools to analyze storage requirements and plan storage infrastructure for the purposes of asset management, capacity management, content management, and historical data management across the entire enterprise.

SRM reporting provides a sleek, versatile, and easy-to-use reporting framework that enables you to easily and effectively choose, view, and analyze vital data. Reports are generated by selecting Options and either displaying the report immediately or scheduling it run daily, weekly, monthly, etc. Reports can be saved in various output formats (HTML, EXCEL, PDF) and in a supported language. When scheduling or running a report, notifications can also be configured so it can be emailed, sent via an SNMP trap, or an RSS feed. Customized reports per need basis can be saved as template reports as well.

REPORT FEATURES

The following features are provided by SRM Reports.

OPTIONS

Customized reporting is available through the selection of filter criteria (e.g., individual columns, specific clients, specific client computer groups, etc.). Each report in turn allows selecting the following Filters:

Client Selection. Select one or more Clients and/or Client Computer Groups to generate a report. This is required.

Column selection. The columns vary according to the report selected (e.g., Microsoft SharePoint). Select a category (e.g., Disk Details) first to display the available columns (e.g., Allocated Space) for that category. Then select one of more columns to include in the report. For the initial templates, the columns are preselected, but can be adjusted as necessary.

Report Options. Controls how data is presented in the report with these options:

General:

- Determine the Data Size Units (e.g., Bytes, KB, MB, GB, MB, TB, PB) that are used in Tables and Adhoc Queries. Or, select to have the data sizes converted automatically.
- In **Limit number of Rows to Output**, enter the number of rows to display in the report. Default is **100**.
- For the the columns that have been selected, determine the sorting order for each by selecting **ASC** for ascending, **DESC** for descending, or **OFF** for no sorting order.

Chart Options:

- Enter the Data Size Units (e.g., Bytes, KB, MB, GB, MB, TB, PB).
- Enter the Maximum number of Bar Points per chart you want displayed, or select **Draw all Bar Points** to have all possible bar points drawn. Default is **10**.
- **Filters**. For the columns selected, a SQL Query can also be applied to further refine the data in the report.
- **Get SQL Query**. For the filter criteria specified, selecting **Get Query** will display the SQL query that will be used to get the data and generate the report. The query that is displayed is Read-only and can be used in a third-party SQL application, such as SQL Server Management Studio.

Once the report is generated, you can group and filter the data, add and remove labels, save the report in various output formats, schedule it and have it emailed or sent to an SNMP trap or RSS feed, or save the report as a template for running it at a later point.

ACTIONS

When reports are run or scheduled, notifications can be configured so the report can be emailed, sent in an SNMP trap, a page, or sent in an RSS feed. A Run Command can be executed as well when a report is scheduled or run.

E-MAIL/PAGER ADDRESS

Reports can be e-mailed to selected recipients. The recipient can be either a CommCell user, a CommCell user group, a domain or external user (e.g., yahoo, gmail, etc.), or a pager address. If more than one recipient is specified, separate the addresses with a comma.

To send an email notification:

1. Click **Select [Email/Pager] for notification**.

2. Create the message to send:
   o Click **Use default message** to send the default message as displayed on the screen.
   o Customize the message by selecting a token from the pulldown menu and clicking **Add Token**. The tokens will be converted to text in the body of the email message.

SNMP TRAPS

Reports can be sent by a CommServe, using the SNMP protocol, to other computers in the form of SNMP traps, provided that the SNMP Enabler software is installed on the CommServe computer. See SNMP Enablers for more information. SNMP traps can be customized by adding tokens to the trap.

To send an SNMP Trap notification:

1. Click **Select [SNMP] for notification**.

2. Create the SNMP Trap to send:
   o Click **Use default message** to send the default trap as displayed on the screen.
   o Customize the trap by selecting a token from the pulldown menu and clicking **Add Token**. The tokens will be converted to text in the trap.

EVENT VIEWER

A message can be sent to the Event Viewer on the CommServe when a report is run or scheduled. Event Viewer notifications can be customized by adding token arguments to the message. The tokens will be included in the body of the alert notification message.

To send an Event Viewer notification:

1. Click **Select [Event Viewer] for notification**.

2. Create the message to send:
   o Click **Use default message** to send the default message as displayed on the screen.
   o Customize the message by selecting a token from the pulldown menu and clicking **Add Token**. The tokens will be converted to text in the message.

RUN COMMAND

A notification when a report is run or scheduled can be sent by configuring a Run Command. The script can be run on the CommCell or a client machine. The script can optionally be configured with arguments.

To send an Run Command notification:

1. Click **Select [Run Command] for notification**.

2. Click either **Run on CommCell** or **Run on Client**.

3. Click **Change** to specify a Windows User Account with the appropriate privileges to access the scripts directory. User impersonation requires that the specified user have write permissions to the scripts directory; otherwise, the user impersonation account may not take effect. This is especially true if the associated computer is not part of a domain and if the user is not a domain user.

4. Click **Use Local Drive** or **Use Network Share** for the location of the script.

5. Click **Browse** to specify a **Command Script Location**.

6. Optionally, click **Browse** to specify arguments for the script. In the Run Command Script Arguments dialog box, select a token and click **Add Token**. Click Close when finished.
   o Click **Use default message** to send the default message as displayed on the screen.
   o Customize the message by selecting a token from the pulldown menu and clicking **Add Token**. The tokens will be converted to text in the message.

RUN DATA ARCHIVER

A notification when a report is run or scheduled can be sent for Archiving Operations using SRM. If a supported Archiver Agent is installed on the client computer and an On Demand Archive Set is configured with SRM enabled, the list of files and directories will be read and an archive operation will be performed on the default subclient of the archive set.

To run a Data Archiver operation notification:

1. Click **Select [Run Data Archiver] for notification**.

RSS FEEDS

A message can be sent in an Really Simple Syndication (RSS) feed when a report is scheduled or run. The RSS feed can be automatically integrated with your Web Browser. RSS Feeds can be customized by adding tokens to the feed.

To send an RSS Feed notification:

1. Click **Select [RSS Feed] for notification**.

2. Create the message to send:

- ○ Click **Use default message** to send the default message as displayed on the screen.
- ○ Customize the message by selecting a token from the pulldown menu and clicking **Add Token**. The tokens will be converted to text in the message.
- ○ Enter the feed location in **Select/Enter the FeedLocation** field. Default is `alerts.rss`.

FILTERS

Run-time SQL queries can also be applied to the data to provide further filtering, such as to display files of a certain size or with a particular file extension (e.g., mp3).

The full SQL query can be generated if necessary after adding the condition and selecting the **Get SQL Query** tab. This can be used in a third-party tool (e.g., SQL Server Management Studio) and used there to collect and report data.

For more information, see Filters for SRM Reports.

FORECASTING

Forecasting is prediction of data usage in future, based on the usage pattern in the past. Since Prediction allows visualizing data usage in future, it helps make business decisions accordingly. Prediction is available on history reports and can be done on Daily/weekly/Monthly data. In the graphs, the predicted data is shown in the shaded area.

With trend analysis, you can predict and eliminate problems before they occur. For example, using the File System Usage History template, you will be able to use historical data that has been collected to predict when the infrastructure can no longer handle current data levels and when new hardware may be needed. Predictive reporting can also help in scheduling regular updates to avoid unexpected emergency downtime by lessening the possibility of servers crashing because disks are low on space.

Prediction is available only for templates and columns that provide historical data.

**TO GENERATE A SRM REPORT WITH PREDICTIVE TRENDING:**

The following procedure is an example of enabling the Trending options for a Windows File System Using History report:

1. From the CommCell Browser, click **Reports**, and then click **SRM Report Manager**.

2. Click **File Systems** and then click **Windows**. Then click **Usage and History** and then the **File System Usage History** template.

3. Click the **Client Selection** tab and select the client computers or client computer group. This is a required step.
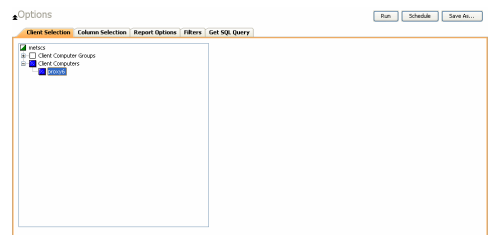
4. Click **Column Selection** tab.

   For an out-of-the-box template, the columns are displayed here. To change the columns, select a category and click **Add** or **Remove** to move the columns between the **Available** and **Selected** boxes. Clicking **Remove All** will remove all previously selected filters for the reports.
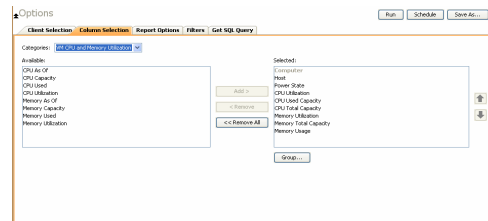
5. Click **Report Options** tab and enable **Include Trending**. For this example, the default selections are used:
   - Interval between data points is **Daily** and **1** day.
   - Predict for the next **3** days Using **2** days of data in the past.
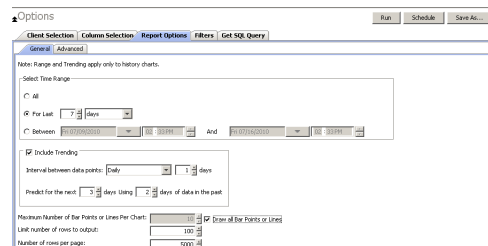
6. Click **Run** to generate the report immediately and view the results. The predicted data is shown in the shaded area.
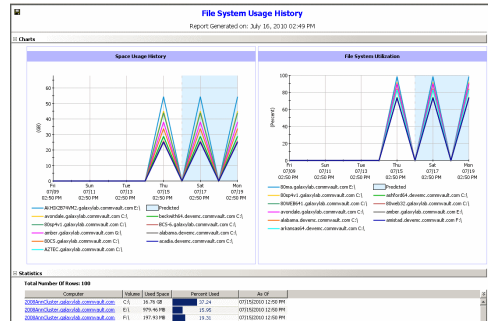
FILE LEVEL ANALYTICS

File Level Analytics allows you to see properties of files (e.g., file size, file name, type, file locations) in your storage environment by clicking on data points such as volume level. A detailed view of all the folders and files for that volume is displayed. The data can be sorted by size of files, or type, for example, to identify large files that can be deleted to increase your storage capacity. This can be combined with Filters where you can filter the data further to display files of a certain size or with a particular file extension (e.g., mp3). For more information, see SRM File Level Analytics.

COPY CHART

When viewing a report in the CommCell Console, you can copy any chart to the clipboard in `.bmp` format by right-clicking the chart and selecting Copy Chart. This allows you to easily copy a chart into other applications like emails, presentations.

CUSTOMIZING REPORTS

Reports can be customized as follows.

FILE CATEGORIES

File Categories are used to generate reports on groups of files and are configurable for each SRM File System Agent (Windows, UNIX, NetWare, and NAS). Each File Category is comprised of an editable list of file types. After performing an Analysis level data collection job, you can generate reports with detailed information based on these File Categories.

For example, the Multimedia Types category contains a list of file types that are commonly associated with media. After an Analysis level data collection job, you can generate reports which detail how much space is dedicated to media files on a given client.

If you edit the File Categories for a given agent, you must run another Analysis level data collection job before reports will reflect the changes.

For step-by-step instructions, see File Type Categories for Reports.

DEFAULT FILE CATEGORIES

The following table details the default file categories reported by each SRM Agent. Refer to File Type Categories for Reports to make changes to these lists. Default File Categories are configurable only for SRM File System Agents (Windows, UNIX, NetWare, and NAS.)

File Category	SharePoint	NetWare File System	Network Attached Storage	UNIX File System	Windows File System
Prohibited Files	jpeg mp3 mpeg qt	jpeg mp3 mpeg qt	jpeg mp3 mpeg qt	jpeg mp3 mpeg qt	jpeg mp3 mpeg qt
Executable Types	bat dll exe msi msp	bat dll exe msi msp	bat dll exe msi msp	N/A	bat dll exe msi msp
Multimedia Types	avi bmp gif jpeg jpg mid mp3 mp4 mpeg mpg png qt wav wmv	avi bmp gif jpeg jpg mid mp3 mp4 mpeg mpg png qt wav wmv	avi bmp gif jpeg jpg mid mp3 mp4 mpeg mpg png qt wav wmv	avi bmp gif jpeg jpg mid mp3 mp4 mpeg mpg png qt wav wmv	avi bmp gif jpeg jpg mid mp3 mp4 mpeg mpg png qt wav wmv
Archive Types	arj	arj	arj	arj	arj

	bz2 cab cpio gz jar rar tar tgz Z zip	bz2 cab cpio gz jar rar tar tgz Z zip	bz2 cab cpio gz jar rar tar tgz Z zip	bz2 cab cpio gz jar rar tar tgz Z zip	bz2 cab cpio gz jar rar tar tgz Z zip
Document Types	csv doc docx dot mpp pdf ppt pptx ps rtf txt xls xlsx	csv doc docx dot mpp pdf ppt pptx ps rtf txt xls xlsx	csv doc docx dot mpp pdf ppt pptx ps rtf txt xls xlsx	csv doc docx dot mpp pdf ppt pptx ps rtf txt xls xlsx	csv doc docx dot mpp pdf ppt pptx ps rtf txt xls xlsx
Exchange Personal Folders	N/A	pst	pst	N/A	pst
Junk File Types	N/A	N/A	swp	#*# ~* core* swp	N/A
System Files	ini sys	ini sys	ini sys	ini sys	ini sys
Web Page Files	asp aspx htm html jsp mht xml	asp aspx htm html jsp mht xml	asp aspx htm html jsp mht xml	asp aspx htm html jsp mht xml	asp aspx htm html jsp mht xml
Temporary Files	tmp	tmp	tmp	tmp	tmp

For Junk File Types in UNIX Agents, the extensions represent regular expressions used to match file names. For example, core* will try to match all file names which begin with the word "core".

TIME CATEGORIES

Time Categories are supported by the SRM File System Agents (Windows, UNIX, NetWare, SharePoint, and NAS) to allow custom grouping within time-based distribution reports, such as the *File Distribution by Modification Time* report.

When custom Time Categories are defined, time-based distribution reports will group information by Time Category, and additional sorting can be performed using the Time Category as one of the parameters. This allows information to be grouped in a manner that is meaningful to a particular environment.

When Time Categories are modified, it is necessary to first run an All File System Resources (Analysis) data collection job on affected clients to update the SRM database, and then new reports must be run. The pre-existing reports in the database will continue to show data based on the old Time Category definitions; if you modify Time Categories and then generate reports without running an Analysis data collection job, the data reported will be incorrect.

For step-by-step instructions, see Time Categories for Reports.

CATEGORY COUNTS FOR TOP 'N' REPORTS

The category count can be specified for reports of the top 'N', such as the Largest File report, affecting the number of entries to be displayed, e.g., top 10, top 20, etc. This parameter is specified separately for each Agent with Top 'N' reports, so that you can, for instance see the top 50 in all such reports for Windows, and the top 10 for UNIX reports.

If Top 'N' Category Counts for Reports are changed for returning more rows, data collection job must be run for the changes to take effect.

The following reports can be configured for category counts:

SRM Agent	Reports
Windows File System	Largest Files Least Recently Used Files Oldest Files
Network Attached Storage	Largest Files Least Recently Used Files Oldest Files
Novell NetWare	Largest Files Least Recently Used Files

UNIX File System	Largest Files Least Recently Used Files
Microsoft SharePoint	Top 10 Documents by Size Top 10 Documents by Version Size Top 10 Lists by Document Size

For instructions in how to configure category counts, see Top 'N' Category Counts for Reports.

GENERATE SRM REPORTS

Before an SRM Report can be generated and viewed, a data collection job needs to be run. SRM Reports can be scheduled to follow Data Collection; this can be accomplished by configuring a Schedule as described below.

After data collection, you can generate an SRM report by specifying filter criteria. This criteria includes client computers, columns, display units, etc. Optionally, filters can be defined using SQL queries for more refined filtering. Once the criteria is specified, a report can be generated.

RUN, SCHEDULE, OR SAVE REPORTS

After specifying criteria for the report, these options are available to view or schedule the report:

- Click **Run** to generate the report immediately and view the results in the CommCell Console. Minimally, at least one client computer needs to be selected.
- Click **Schedule** to generate and schedule the report on a daily, weekly, monthly, yearly, or even one time basis. Specify the report language (see Languages - Support for the list of languages supported in Reports), format (HTML, EXCEL, PDF), and location. Additionally, notifications (e.g., email, SNMP Trap, RSS Feed) can be configured.

  When scheduling, patterns can also be applied to the report so it runs on a specific time, repeated every so many days, or run for a particular number of times. Some reports allow enabling Forecasting by specifying default trending interval and number of data points on which the trending interval is based. For more information on trending, see Forecasting.
- Click **Save As...** to save the report filter criteria, schedule information, notifications to a template so it can be used to generate a report at a later date. All report templates are saved under **My Reports**.

See Run, Schedule, or Save a Report Manager Report for step-by-step instructions.

> TIFF is no longer a supported output format. SRM supports saving Reports in these formats: HTML, EXCEL, and PDF.

AVAILABLE REPORTS

SRM Reports allow you to easily view and analyze data related to various aspects of the different entities in an enterprise. The information available in each report is based on the types of data and information it gathers.

From the CommCell Console, the SRM Report Manager provides these types of reports:

- Computer Inventory
- Cost Analysis
- Applications

Initial templates are provided for each type (e.g., Cost History by Application, Capacity by File System, etc.) where columns have been preselected. The only requirement before generating and displaying the report is to specify one or more client computers. For most reports, a data collection job must also have been run prior to generating the report.

Reports can be customized by adding or removing columns in the initial templates or specifying additional Filter Criteria.

APPLICATION REPORTS

These reports are available and can be tailored for a given set of installed client resources:

- SRM Computer Inventory
- SRM Exchange Server Reports
- SRM NetWare File System Reports
- SRM NAS Reports
- SRM Oracle Reports
- SRM SharePoint Reports
- SRM SQL Server Reports
- SRM UNIX File System Reports
- SRM Windows File System Reports
- SRM Cost Analysis Reports

COST HISTORY AND USAGE HISTORY REPORTS

Data for the Cost History and Usage History reports (e.g., Cost History by Application, Usage History by Application) is compiled at regular intervals by a

background process on the SRM Server. The default interval is one week, which means the Cost History reports will show one data point per week, no matter how often data collection is scheduled for them; thus, data collection for these reports should be synchronized to the summary interval. You can configure the interval using the SRM Options (General) dialog box which is located in the control panel of CommCell Console.

For a newly installed SRM Server, no data will appear in these reports until either the default interval, or a user-specified interval has elapsed from the time of installation, at which time the first summary process will run, and data will be available for these reports.

IMPORTANT CONSIDERATIONS

Review the following considerations:

- Entities with '+' in the name field are not supported by SRM. SRM will only report on fixed disk assets. Removable disks and their contents are not reported.
- Reports exported to TIFF format, which is an image format, may yield unpredictable results with charts, page margins, and page breaks.
- To generate SRM reports, a user must have admin rights. Admin rights can be provided at the CommCell Console by adding user to the built in Master group.
- See NSS Pool Characteristics for information on how NSS pool characteristics are summarized in the **Attributes** column of the *Pools* report for the SRM NetWare Proxy Agent.

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Save a Report Template

RUN, SCHEDULE, OR SAVE A SRM REPORT MANAGER REPORT

Before You Begin

Required Capability: Capabilities and Permitted Actions

▶ To generate, save, or schedule an SRM Report Manager Report:

1. In the **CommCell Browser**, expand **Reports** and then **SRM Report Manager**, click a report type**.**

2. Select one or more **Client Computers** or **Client Computer Groups** from the **Client Selection** tab. This is a required step.

3. Click the **Column Selection** tab, select a **Category** and then one or more **Available** category/columns and click on **Add**.

   To remove a previously selected category, click on the selected filter from **Selected** column and click **Remove**.

   Remove All will remove all previously selected categories for the reports.

4. Click the **Report Options** tab and configure these settings in the report:
   - From the **General** tab set **Select Time Range** and **Include Trending options**.

     These two options apply to history charts.

     For all reports, the **Maximum number of Bar Points Per Chart** may be increased or decreased from the default value of 10 and **Draw All Bar Points or Lines** option may be selected. The default of 100 rows to output may be increased or decreased by specifying a number in **Limit number of rows to output**. The default of 5000 rows per page may be increased or decreased by specifying the desired number in **Limit number of rows per page**.
   - Click the **Advanced Options** tab and set the **Data Size Unit** for the Table and/or Chart (GB, MB, etc.). Also, the **Output Locale** may be changed from the default that is English. The ordering of the report may be changed by moving columns in **Set Sorting Order of Rows to Return**.

5. Optionally, click the **Get SQL Query** tab to generate the query for the filter criteria specified. This will display the SQL query that will be used to get the data and generate the report. The query that is displayed is Read-only and can be used in a third-party SQL application, such as SQL Server Management Studio.

6. Choose one of these options to generate the report:
   - Click **Run** to generate the report immediately and view the results in the CommCell Console.
   - Click **Schedule** to generate and schedule the report on a daily, weekly, monthly, yearly, or even one time basis. Specify the report language (see Languages - Support for the list of languages supported in Reports), format (HTML, EXCEL, PDF), and location. Optionally, notifications can be configured so the report can be emailed, sent to an SNMP trap, or RSS feed.

When scheduling, patterns can also be applied to the report so it runs on a specific time, repeated every so many days, or run for a particular number of times. Some reports allow enabling Forecasting by specifying default trending interval and number of data points on which the trending interval is based. For more information on trending, see Forecasting.

- ○ Click **Save As...** to save the report filter criteria, schedule information, notifications to a template so it can be used to generate a report at a later date. All report templates are saved under **My Reports**.

FILE TYPE CATEGORIES FOR REPORTS

Required Capability: Capabilities and Permitted Actions

▶ To configure file type categories for reports:

1. In the **CommCell Browser** expand **Reports** and right-click **SRM Report Manager** and select **File Type Categories.**

2. In the Configure File Categories dialog box:
   - ○ Select the agent for which you want to configure File Categories.
   - ○ Select a **File Category** to add, delete, or edit associated extensions.
     - To add an extension, type the new extension, and click **Add** to save it.
     - To delete an extension, select it from the list, and click **Delete**.
     - To edit an extension, select it from the list, make the changes, then click **Edit** to save your changes.
   - ○ Optionally, click **Reset** to return all categories to their default configuration (see Default File Categories).

3. Click **OK** to save your changes and close the Configure File Categories dialog box. You can also click **Apply** to save any changes to the current Agent configuration, and then repeat this procedure from step 2 to configure File Categories for other agents.

TIME CATEGORIES FOR REPORTS

Required Capability: Capabilities and Permitted Actions

▶ To configure Time Categories for reports:

1. In the **CommCell Browser** expand **Reports** and right-click **SRM Report Manager** and select **Time Categories.**

2. In the Configure Time Categories dialog box, select an Agent for which you want to modify Time Categories.

3. For each Interval:
   - ○ Specify a Name for each custom Time Category.
   - ○ Select the minimum number of days in the time range, or select **None**.
   - ○ Select the maximum number of days in the time range, or select **Unlimited**.

4. Click **OK** to save your changes and close the Configure Time Categories dialog box, or click **Apply** to save your changes for the currently selected Agent, and repeat this procedure from Step 2 to configure Time Categories for other Agents.

TOP 'N' CATEGORY COUNTS FOR REPORTS

Required Capability: Capabilities and Permitted Actions

▶ To configure category counts for Top 'N' reports:

1. In the **CommCell Browser** expand **Reports** and right-click **SRM Report Manager** and select **Top 'N' Categories.**

2. In the Configure Top 'N' Category Counts dialog box, change the count for each Agent for which you want to modify the Category Count in reports.

3. Click **OK** to save your changes and close the Configure Top 'N' Category Counts dialog box.

CONFIGURE IIS FOR WINDOWS SERVER 2008

Required Capability: Capabilities and Permitted Actions

▶ To configure IIS and enable appropriate roles for Windows Server 2008:

1. Click **Start**, and then click **Server Manager**.

2. In **Server Manager**, right click **Roles**, and then click **Add roles**. The **Add Roles Wizard** window is displayed.

3. In the **Add Roles Wizard**, click **Server Roles.**

4. Select the **Web Server (IIS)** check box from Server Roles, and click **Next** to continue.

   When the **Web Server (IIS)** check box is selected, the **File Server** check box is automatically selected due to role dependency.

5. On the **Role Services** page, expand **Common HTTP Features**, and select the following check boxes:
   - ○ Static Content
   - ○ Default Document
   - ○ Directory Browsing
   - ○ HTTP Errors
   - ○ HTTP Redirection

6. Expand **Application Development**, and select the **ASP.NET, ASP,** and **CGI** check boxes.

   If you are prompted to add required role services, click **OK**.

7. Expand **Security**, and select the **Basic Authentication** and **Windows Authentication** check boxes.

8. Expand **Management Tools**, expand **IIS 6 Management Capability**, and select the following check boxes:
   - ○ IIS Metabase Compatibility
   - ○ IIS 6 WMI Compatibility
   - ○ IIS 6 Scripting Tools
   - ○ IIS 6 Management Console

9. Click **Next**, and then click **Install**.

SAVE A REPORT TEMPLATE

Required Capability: Capabilities and Permitted Actions

▶ To save a report template:

1. In the **CommCell Browser**, expand **Reports** and then select **SRM Report Manager** and select a report type.

   The specified Report Window will appear.

2. At the top of the window, click **Save As...**

3. In the Save Template dialog box, enter the name of the report and click **OK** to exit the screen.
   The report template name displays in the **My Reports** node of the CommCell Browser.

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- CommCellSRMEnterpriseFileSystemUtilization
- CommCellSRMEnterpriseFileTypeDistribution
- CommCellSRMEnterpriseInactiveDataByAccessTimeDistribution
- CommCellSRMEnterpriseInactiveDataByModificationTimeDistribution
- CommCellSRMEnterpriseTotalFileSystemUserUsage
- CommCellSRMEnterpriseUserUsageReport

OVERVIEW

The SRM Views provide a way to query information on the SRM components directly from the SQL database. These views are provided in addition to the SRM Reports.

You can use these default views, or you can create or customize the existing views to reflect the data in your organization. The views are created by querying the database. These query are by default displayed in SQL Enterprise Manager. You can also use products such as Crystal Reports, Microsoft Reporting Services and/or Microsoft Excel to format your query output.

If you modify a view or create a new view, you must reapply them after each new release.

VIEW

The following views are available in the SRM:

COMMCELLSRMENTERPRISEFILESYSTEMUSAGEDISTRIBUTION

The CommCellSRMEnterpriseFileSystemUsageDistribution view provides information about File System Usage Distribution.

The following image displays a sample CommCellSRMEnterpriseFileSystemUsageDistribution view:

Column	Description
categoryName	The File System utilized under certain percentage value.
numberOfComputers	The number of computers used by the File Systems.
numberOfFileSystems	The number of File Systems in use.
percentageOfFileSystems	The percentage of the File Systems in use.
totalCapacityMB	The total amount of Capacity available in the media.
availableSpaceMB	The amount of space available in the media.
usedSpaceMB	The amount of space in use.
percentageSpaceUsed	The percentage of the space used.
percentageSpaceAvailable	The percentage of the space available.

COMMCELLSRMENTERPRISEFILESYSTEMUTILIZATION

The CommCellSRMEnterpriseFileSystemUtilization view provides information about File System Utilization.

The following image displays a sample CommCellSRMEnterpriseFileSystemUtilization view:

Column	Description
totalNumberOfComputer	The total number of Computer in use for File System Utilization.

totalNumberOfFileSystems	The total number of File System in use.
totalCapacityMB	The total amount of capacity.
usedSpaceMB	The amount of space in use.
availableSpaceMB	The amount of space available.
percentageSpaceUsed	The percentage of the space used.
percentageSpaceAvailable	The percentage of the space available.
avgTotalCapacityPerComputerMB	The average amount of capacity for each computer.
avgUsedSpacePerComputerMB	The average amount of space used by each computer.
avgAvailableSpacePerComputerMB	The average amount of space available for each computer

COMMCELLSRMENTERPRISEFILETYPEDISTRIBUTION

The CommCellSRMEnterpriseFileSystemUsageDistribution view provides information about the File Type Distribution across the Entire SRM Server.

The following image displays a sample CommCellSRMEnterpriseFileTypeDistribution view:

	categoryName	categoryFileCount	categoryUsedSpaceMB	percentageFileCount	percentageUsedSpace
1	PST Files	10098	3398	29.817	47.873
2	Multimedia Files	481	4	1.42	0.056
3	Archive Files	129	226	0.381	3.184
4	Document Files	1693	161	4.999	2.268
5	All Other Files	21466	3309	63.383	46.619
6	Total:	33867	7098	100	100

Column	Description
categoryName	The name of file type.
categoryFileCount	The count of number of file type.
categoryUsedSpaceMB	The amount of space used by the file type.
percentageFileCount	The percentage of total count of files used by all categories by each category file count.
percentageUsedSpace	The percentage of total amount of space used by all categories by amount of space used by each category.

COMMCELLSRMENTERPRISEINACTIVEDATABYACCESSTIMEDISTRIBUTION

The CommCellSRMEnterpriseInactiveDataByAccessTimeDistribution view provides information about Inactive data by Last Access Time Distribution.

The following image displays a sample CommCellSRMEnterpriseInactiveDataByAccessTimeDistribution view:

	categoryName	categoryFileCount	categoryUsedSpaceMB	percentageFileCount	percentageUsedSpace
1	Less Than or Equal to One Day	0	0	0	0
2	Over One Day to One Week	10850	4324	32.037	60.927
3	Over One Week to One Month	7796	349	23.019	4.918
4	Over One Month to One Year	15004	2421	44.303	34.113
5	Greater Than One Year	217	3	0.641	0.042
6	Total:	33867	7097	100	100

Column	Description
categoryName	The access time distribution category.
categoryFileCount	The count of the number of files accessed.
categoryUsedSpaceMB	The space used by each time category.
percentageFileCount	The percentage of total count of files used by all categories by each category file count.
percentageUsedSpace	The percentage of total amount of space used by all categories by amount of space used by each category.

COMMCELLSRMENTERPRISEINACTIVEDATABYMODIFICATIONTIMEDISTRIBUTION

The CommCellSRMEnterpriseInactiveDataByModificationTimeDistribution view provides information about Inactive data by Last Modification Time Distribution.

The following image displays a sample CommCellSRMEnterpriseInactiveDataByModificationTimeDistribution view:

Column	Description
categoryName	The modification time limit.
categoryFileCount	The count of the number of files modified
categoryUsedSpaceMB	The amount of space used by each time category.
percentageFileCount	The percentage of total count of files used by all categories by each category file count.
percentageUsedSpace	The percentage of total amount of space used by all categories by amount of space used by each category.

COMMCELLSRMENTERPRISETOTALFILESYSTEMUSERUSAGE

The CommCellSRMEnterpriseUserUsageReport view provides information about Storage Utilization File Type Distribution for Multimedia, Document or Other file types.

The following image displays a sample CommCellSRMEnterpriseTotalFileSystemUserUsage view:

Column	Description
totalFSUserUsageClientID	The CommCell Client Id. If this is not applicable then it displays -1.
totalFSUserUsageClientName	The CommCell Client Name or Server Name. If this is not applicable then it is empty.
totalFSUserUsageFileSystemID	The SRM File System Id. If this is not applicable then it displays -1.
totalFSUserUsageFileSystemName	The SRM File System Name - Windows Drive mapping. If this is not applicable then it is empty.
totalFSUserUsageUserId	The SRM User Id.
totalFSUserUsageUserName	The SRM User Name - Windows form of [Domain	Computer] \ Account Name.
totalFSUserUsageFileCount	Total number of files owned by a user. It is a summation at the appropriate level based on type column.
totalFSUserUsageTotalFileBytes	Total space used by a user. It is a summation at the appropriate level based on type column.
totalFSUserUsageAverageFileBytes	The average file size owned by a user. It is an average value at the appropriate level based on type column.
totalFSUserUsageMaxFileBytes	The largest file based on size owned by a user. It is the maximum value at the appropriate level based on type column.

COMMCELLSRMENTERPRISEUSERUSAGEREPORT

The CommCellSRMEnterpriseUserUsageReport view provides information about the File System Usage by User across the Entire SRM Server.

The following image displays a sample CommCellSRMEnterpriseUserUsageReport view:

| Column	Description
Titletype	Level of detail: Enterprise(1), Server(2), FileSystem(3)
Titlename	Title associated to type for a readable description
totalFSUserUsageClientId	The CommCell Client Id. If this is not applicable then it displays -1.
totalFSUserUsageClientName	The CommCell Client Name or Server Name. If this is not applicable then it is empty.
totalFSUserUsageFileSystemId	The SRM File System Id. If this is not applicable then it displays -1.
totalFSUserUsageFileSystemName	The SRM File System Name - Windows Drive mapping. If this is not applicable then it is empty.
totalFSUserUsageUserId	The SRM User Id.
totalFSUserUsageUserName	The SRM User Name - Windows form of [Domain	Computer] \ Account Name.
totalFSUserUsageFileCount	Total number of files owned by a user. It is a summation at the appropriate level based on type column.
totalFSUserUsageTotalFileBytes	Total space used by a user. It is a summation at the appropriate level based on type column.
totalFSUserUsageTotalAverageFileBytes	The average file size owned by a user. It is an average value at the appropriate level based on type column.
totalFSUserUsageTotalMaxFileBytes	The largest file based on size owned by a user. It is the maximum value at the appropriate level based on type column.

SRM Views - How To

Topics | How To |

ACCESS THE SRM VIEWS

This section describes the steps involved in accessing the SRM Views using **SQL Server Management Studio**.

To access the SRM Views:

1. Select **Start** | **Programs** | **Microsoft SQL Server 2008** | **SQL Server Management Studio**.

    The following image displays a sample of the SQL Server Management Studio window.
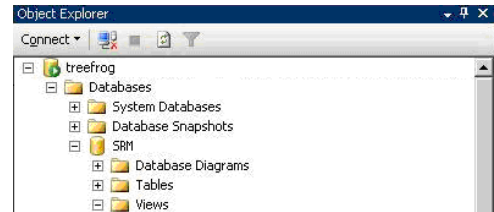
2. By expanding the tree in the left pane, go to the following location:

    Databases | **SRM** | **Views**.
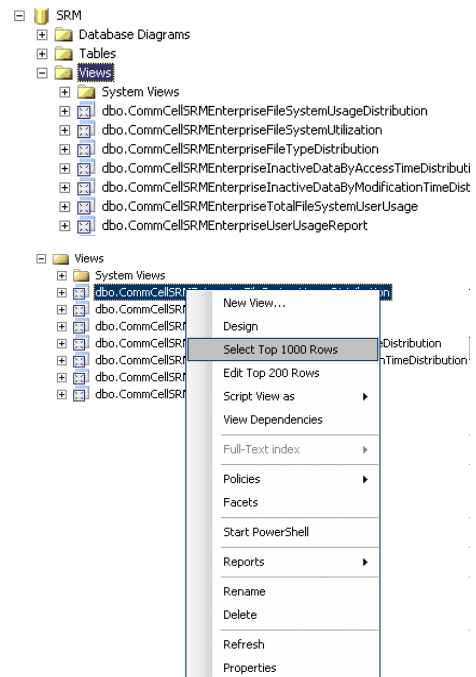
    The available SRM Views are listed in the left pane.

    NOTES

    - For a cluster, instead of the database instance, there will be a default or Named instance.

3. To open a view, right-click the **View** and then select **Select Top 1000 Rows**.

SRM Disaster Recovery

Topics | How To | Related Topics

Overview

SRM Server Recovery

SRM Agents Recovery

OVERVIEW

The SRM Server is installed on the same computer in which the CommServe is installed. This page contains information on recovering the SRM Server and the CommServe.

Ensure that you have set up a disaster recovery plan for the CommServe and SRM Server computer. For more information see, Disaster Recovery Using a Hot-Site - Planning.

SRM SERVER RECOVERY

The SRM Server software stores metadata in the CommServe Database Engine. The metadata are automatically backed up when you perform a Disaster Recovery Backup. See Disaster Recovery Backup, for detailed information. For step-by-step instructions for performing a Disaster Recovery Backup, see Schedule a Disaster Recovery Backup or Start a Disaster Recovery Backup.

In the event of a disaster, the CommServe and SRM Server must be built together and can be rebuilt to the same computer with the same host name and IP address or to a new computer with a different host name and IP address.

You can also rebuild the computer as follows:

- From a non-clustered to another non-clustered computer. For step-by-step instruction, see Rebuild the CommServe and SRM Server - Non-Clustered Computers.
- From a clustered to another clustered computer. For step-by-step instruction, see Rebuild the CommServe and SRM Server - Clustered Computers.
- From a non-clustered to a clustered computer or vice-versa or Cross Instance Restore.

  In this case, you have to perform a Data Collection and re-run the reports as the existing report snap history will be lost.

  For step-by-step instruction, see Rebuild the CommServe and SRM Server - Non-Clustered to Clustered Computers or Vice-Versa or Cross Instance Restore.

SRM AGENTS RECOVERY

If SRM client computer is damaged or destroyed, rebuild the hardware as it existed before and re-install the appropriate SRM Agent software in the client computer. For more information on installing a SRM Agent, see Deployment.

SRM Disaster Recovery - How To

Topics | How To | Related Topics

Rebuild the CommServe and SRM Server - Non-Clustered Computers

Rebuild the CommServe and SRM Server - Clustered Computers

Rebuild the CommServe and SRM Server - Non-Clustered to Clustered Computers or Vice-Versa or Cross Instance Restore

Start/Stop Default Website

Add Login Information

Delete old Accounts

REBUILD THE COMMSERVE AND SRM SERVER - NON-CLUSTERED COMPUTERS

The following procedure describes the steps involved in rebuilding the CommServe along with SRM Server from a non-clustered computer to another non-clustered computer.

Before You Begin

Verify and ensure that you have the following before rebuilding the CommServe with SRM Server:

- Software Installation Discs and post-release Service Packs. You must apply the latest updates and service packs to the CommServe computer. For more information, see Automatic Updates.

- Latest version of the Disaster Recovery Backup files. For complete list, see Disaster Recovery Backup Files.
  - If you have the Disaster Recovery Backup files on a local disk, follow this procedure to restore the CommServe database engine.
  - If you have the Disaster Recovery Backup files on a network drive, copy the files to a local disk and then follow this procedure to restore the CommServe database engine.
  - If you have the Disaster Recovery Backup files on a media, use Media Explorer to retrieve the data from the media to the local disk and then follow this procedure to restore the CommServe database engine. (See Recover CommServe Disaster Recovery Data Using Media Explorer for step-by-step instructions.)
  - You can use the **DRListMedia** utility to pre-determine the media required for the restore operation. See Resource Pack for the usage of the utility and access information.

To Rebuild the CommServe and SRM Server on a non-clustered computer:

1. If the CommServe and SRM Server computer is still available, perform a Disaster Recovery Backup on the CommServe and make sure that the associated disaster recovery folder (SET_XXX folder) is saved and available in a safe location.

   For step-by-step instructions, see Start a Disaster Recovery Backup.

2. If you are restoring to another computer with same name as the original CommServe computer, disconnect the original CommServe computer from the network. Make sure that the network name is properly resolved for the new CommServe computer. This is done to avoid collision.

3. Install CommServe and SRM Server software.

   For step-by-step instructions, see the following:

   - Install the CommServe
     CommCell console will be automatically installed by default. Do not un-check this option during the CommServe installation.
   - Install the SRM Server

     Do not install any other components on the computer now, except the CommServe and SRM Server.

4. Stop the following:
   - Default Website. For step-by-step instructions, see Start/Stop Default Websites.

5. Start the CommServe Disaster Recovery Tool. For step-by-step instructions, see Start the CommServe Disaster Recovery Tool.

6. Restore all Calypso databases. For step-by-step instructions on restoring a CommServe and SRM Server Database, see Restore a Disaster Recovery Backup.

7. Start the following:
   - Default Website. For step-by-step instructions, see Start/Stop Default Websites.

8. Open the **Service Control Manager** on the CommServe computer and start the services. For step-by-step instructions, see Start Services on Windows.

9. If additional components were installed on the CommServe computer, re-install the components. For step-by-step instructions, see Deployment.

10. If the name of the rebuilt CommServe computer was changed, open **CommCell Console** and change the name of the CommServe Computer in the Client and MediaAgent computers. For step-by-step instructions, see Change the Name of the CommServe Computer.

REBUILD THE COMMSERVE AND SRM SERVER - CLUSTERED COMPUTERS

The following procedure describes the steps involved in rebuilding the CommServe along with SRM Server from a clustered computer to another clustered computer.

Before You Begin

Verify and ensure that you have the following before rebuilding the CommServe with SRM Server:

- Software Installation Discs and post-release Service Packs. You must apply the latest updates and service packs to the CommServe computer. For more information, see Automatic Updates.
- Latest version of the Disaster Recovery Backup files. For complete list, see Disaster Recovery Backup Files.
  - If you have the Disaster Recovery Backup files on a local disk, follow this procedure to restore the CommServe database engine.
  - If you have the Disaster Recovery Backup files on a network drive, copy the files to a local disk and then follow this procedure to restore the CommServe database engine.
  - If you have the Disaster Recovery Backup files on a media, use Media Explorer Media Explorer to retrieve the data from the media to the local disk and then follow this procedure to restore the CommServe database engine. (See Recover CommServe Disaster Recovery Data Using Media Explorer for step-by-step instructions.)
  - You can use the **DRListMedia** utility to pre-determine the media required for the restore operation. See Resource Pack for the usage of the utility and access information.

To Rebuild the CommServe and SRM Server on a clustered computer:

1. If the CommServe and SRM Server computer is still available, perform a Disaster Recovery Backup on the CommServe and make sure that the associated disaster recovery folder (SET_XXX folder) is saved and available in a safe location.

   For step-by-step instructions, see Start a Disaster Recovery Backup.

2. If you are restoring to another computer with same name as the original CommServe computer, disconnect the original CommServe computer from the network. Make sure that the network name is properly resolved for the new CommServe computer. This is done to avoid collision.

3. Install CommServe and SRM Server software.

For step-by-step instructions, see the following:

- ○ Install the CommServe
  CommCell console will be automatically installed by default. Do not un-check this option during the CommServe installation.
- ○ Install the SRM Server.

  Do not install any other components on the computer now, except the CommServe and SRM Server.

4. Stop the following:
   - ○ Default Website. For step-by-step instructions, see Start/Stop Default Websites.
5. Start the CommServe Disaster Recovery Tool. For step-by-step instructions, see Start the CommServe Disaster Recovery Tool.
6. Restore all Calypso databases. For step-by-step instructions on restoring a CommServe and SRM Server Database, see Restore a Disaster Recovery Backup.
7. Start the following:
   - ○ Default Website. For step-by-step instructions, see Start/Stop Default Websites.
8. Open the **CommServe Disaster Recovery Tool**. For step-by-step instructions, see Start the CommServe Disaster Recovery Tool.
9. Open the **Service Control Manager** on the CommServe computer and start the services. For step-by-step instructions, see Start Services on Windows.
10. If additional components were installed on the CommServe computer, re-install the components. For step-by-step instructions, see Deployment.
11. If the name of the rebuilt CommServe computer was changed, open **CommCell Console** and change the name of the CommServe Computer in the Client and MediaAgent computers. For step-by-step instructions, see Change the Name of the CommServe Computer.
12. If the name of the computer was changed, open Microsoft SQL Server Management Studio and perform the following:
    - ○ Add new login information. For step-by-step instructions, see Add Login Information.
    - ○ Delete the old accounts. For step-by-step instructions, see Delete old Accounts.

REBUILD THE COMMSERVE AND SRM SERVER - NON-CLUSTERED TO CLUSTERED COMPUTERS OR VICE-VERSA OR CROSS INSTANCE RESTORE

The following procedure describes the steps involved in rebuilding the CommServe along with SRM Server from a non-clustered computer to a clustered computer or vice-versa. You may also this procedure if restoring from one SQL Server Instance to another where the instances have different names.

Before You Begin

Verify and ensure that you have the following before rebuilding the CommServe with SRM Server:

- Software Installation Discs and post-release Service Packs. You must apply the latest updates and service packs to the CommServe computer. For more information, see Automatic Updates.
- Latest version of the Disaster Recovery Backup files. For complete list, see Disaster Recovery Backup Files.
  - ○ If you have the Disaster Recovery Backup files on a local disk, follow this procedure to restore the CommServe database engine.
  - ○ If you have the Disaster Recovery Backup files on a network drive, copy the files to a local disk and then follow this procedure to restore the CommServe database engine.
  - ○ If you have the Disaster Recovery Backup files on a media, use Media Explorer to retrieve the data from the media to the local disk and then follow this procedure to restore the CommServe database engine. (See Recover CommServe Disaster Recovery Data Using Media Explorer for step-by-step instructions.)
  - ○ You can use the **DRListMedia** utility to pre-determine the media required for the restore operation. See Resource Pack for the usage of the utility and access information.

▶ To Rebuild the CommServe and SRM Server on a non-clustered computer:

1. If the CommServe and SRM Server computer is still available, perform a Disaster Recovery Backup on the CommServe and make sure that the associated disaster recovery folder (SET_XXX folder) is saved and available in a safe location.

   For step-by-step instructions, see Start a Disaster Recovery Backup.

2. If you are restoring to another computer with same name as the original CommServe computer, disconnect the original CommServe computer from the network. Make sure that the network name is properly resolved for the new CommServe computer. This is done to avoid collision.

3. Install CommServe and SRM Server software.

   For step-by-step instructions, see the following:

   - ○ Install the CommServe
     CommCell console will be automatically installed by default. Do not un-check this option during the CommServe installation.
   - ○ Install the SRM Server.

     Do not install any other components on the computer now, except the CommServe and SRM Server.

4. Stop the following:
   - ○ Default Website. For step-by-step instructions, see Start/Stop Default Websites.

5. Open the **CommServe Disaster Recovery Tool**. For step-by-step instructions, see Start the CommServe Disaster Recovery Tool.

   Restore all Calypso databases. For step-by-step instructions on restoring a CommServe and SRM Server Database, see Restore a Disaster Recovery Backup.

   > Restore only the SRM Database files using the **SRM DB Restore File**, **SRM DB Restore Path** and **SQL Server Info** options during the restore.

6. Start the following:
   ○ Default Website. For step-by-step instructions, see Start/Stop Default Websites.

7. Open the **CommServe Disaster Recovery Tool**. For step-by-step instructions, see Start the CommServe Disaster Recovery Tool.

8. Open the **Service Control Manager** on the CommServe computer and start the services. For step-by-step instructions, see Start Services on Windows.

9. If additional components were installed on the CommServe computer, re-install the components. For step-by-step instructions, see Deployment.

10. If the name of the rebuilt CommServe computer was changed, open **CommCell Console** and change the name of the CommServe Computer in the Client and MediaAgent computers. For step-by-step instructions, see Change the Name of the CommServe Computer.

START/STOP DEFAULT WEBSITE

▶ To start or stop default website:

1. Click **Start** -> **Programs** -> **Administrative Tools** -> **Internet Information Services (IIS) Manager**.

2. In **Internet Information Services (IIS) Manager**, expand local computer, and select **Sites**.

3. Right-click **Default Website** and select **Start** or **Stop** as needed.

   > In clustered computers, you need to start/stop default website on active node and all physical nodes.

ADD LOGIN INFORMATION

▶ To add login information:

1. Open **Microsoft SQL Server Management Studio**.

2. Navigate to **SQL Instance ->Database ->CommServ->Security -> Users**.

3. Right-click **Users** and click **New User**.

4. Add new logins on all active nodes with the following rights:
   ○ db_owner
   ○ RsExecRole

5. Click **OK**.

DELETE OLD ACCOUNTS

▶ To delete old accounts:

1. Open **Microsoft SQL Server Management Studio**.

2. Navigate to **SQL Instance ->Database ->CommServ->Security -> Users**.

3. Right-click the existing user account that you wish to remove and click **Delete**.

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