



Sun StorEdge™ Resource Management Suite Version 6.0

Capacity Reporter
Configuration and Installation Guide

Version 6.0

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Preface

This guide has been developed as a reference tool for Capacity Reporter software users who will configure the Capacity Reporter environment and install the software. For information about using Capacity Reporter software, see the Capacity Reporter Help.

How This Guide is Organized

This guide is organized as follows:

Chapter 1 provides procedures to ensure that your environment is adequately prepared for Capacity Reporter installation.

Chapter 2 provides lists of necessary prerequisites for each Capacity Reporter component.

Chapter 3 provides installation procedures for each Capacity Reporter component.

Chapter 4 provides installation modification procedures.

Chapter 5 provides information about installing and registering plug-ins.

Appendix A provides information about the key concepts of Capacity Reporter.

Appendix B provides a detailed explanation of Capacity Reporter's security.

Appendix C provides information about the Capacity Reporter SQL Server database.

Appendix D provides post-installation reference information and procedures.

Appendix E provides information about installing, configuring, and using Remote Scanning for Capacity Reporter software.

Appendix F provides information on the Scriptable Alerts feature, including information on how to write alert scripts.

Related Documentation

| To learn about: | See: | Located here: |
|---|---|--------------------------|
| Late-breaking information on installation | <i>Sun StorEdge™ Capacity Reporter Release Notes</i> | Capacity Reporter CD-ROM |
| Information on configuring and installing File Reporter | <i>File Reporter Configuration and Installation Guide</i> | Printed document |

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Installation Preparation

This chapter includes procedures to make your installation of Capacity Reporter smooth and easy. These procedures enable you to check each computer to ensure that the necessary prerequisite software is installed, configure your SQL Server database, verify that your SQL Server installation is configured for Capacity Reporter, and create Windows NT/Windows 2000 accounts needed by Capacity Reporter.

All procedures in this chapter are optional; however, Sun strongly recommends that you perform at least the prerequisite check on each computer where you will install Capacity Reporter. It will save time during installation.

1.1 Verify Capacity Reporter Prerequisites

The most common installation problem is improperly or incompletely installed prerequisites. A good way to ensure that you are ready to install Capacity Reporter is to run the Prerequisite Check program from the Capacity Reporter Installation CD-ROM. Setup checks the local computer for the prerequisites needed for the components you specify. *This feature is available for the local computer only.* Capacity Reporter does not support prerequisite checking remotely. The prerequisites needed for each Capacity Reporter component are listed in Chapter 2.

Run the prerequisite check program

1. Insert the Capacity Reporter CD-ROM in the CD-ROM drive. If **Auto Start** is enabled, the Installation Menu launches automatically.

If **Auto Start** is not enabled, run **i386\autorun.exe** from the CD-ROM.

2. Click **Check Prerequisites** on the Installation Menu.

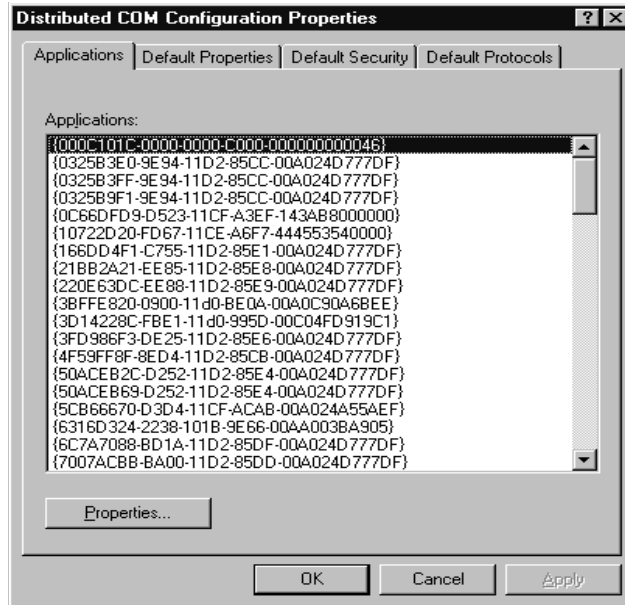
3. Click **Next** on the **Welcome to the Prerequisite Check Program** dialog box. You can also click **View Readme** on this dialog to review the Capacity Reporter release notes in the computer's default browser.
 4. Select the checkbox of the components you want checked on the **Select Components** dialog box. Clear the checkboxes of the components you do not need checked.
 5. Click **Next**.
- If the prerequisite check passes, the **Prerequisite Check OK** dialog box is displayed. If one or more prerequisites are missing or outdated, the **Installation Prerequisites Not Met** dialog box is displayed.
- Click **Details** to view a prerequisite check report, **Exit** to return to the installation menu, or **Cancel** to exit.
6. If any prerequisite check failed, resolve the discrepancies and rerun Setup.

1.2 Verify that DCOM is Enabled

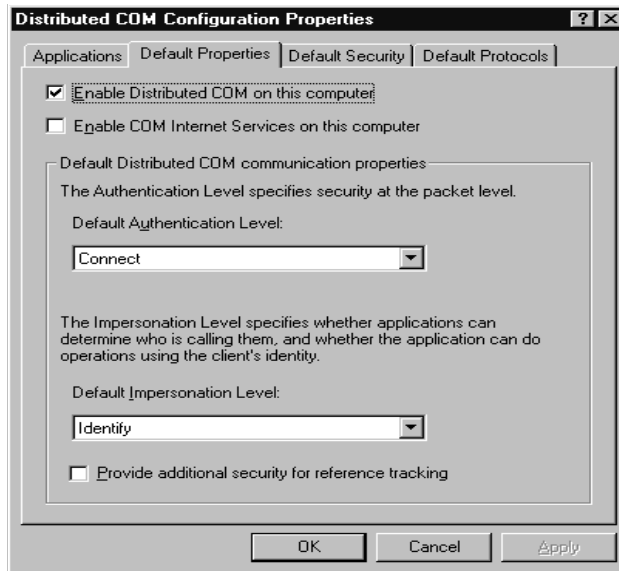
Capacity Reporter uses the Distributed Component Object Model (DCOM) to allow server and agent communication. Be sure that DCOM is enabled.

Verify that DCOM is enabled on the target Capacity Reporter Agent computer

1. Go to **Start → Run** and type **dcomcnfg** in the Open: field. Click **OK** to display the **Distributed COM Configuration Properties** dialog box:



2. Select the **Default Properties** tab to display the properties page:



3. Verify that the checkbox for **Enable Distributed COM on this computer** is selected. If it is unchecked, select it.
4. Click **OK**. The **Distributed COM Configuration Properties** dialog box is closed. Distributed COM is now enabled on this computer.

1.3 Prepare SQL Server for Capacity Reporter

This section contains two kinds of SQL Server information for Capacity Reporter:

- **Confirm Capacity Reporter SQL Server Settings.** This section explains how to prepare SQL Server for a Capacity Reporter installation. This information presumes that Capacity Reporter's installation program creates and configures the database.
- **Capacity Reporter SQL Server Database Configuration.** This section explains how to configure an SQL Server database manually for Capacity Reporter. This information presumes that you are creating and configuring the database manually prior to the Capacity Reporter installation. In this case, the Capacity Reporter installation program locates and uses this database.

This document does not explain how to create the Capacity Reporter database on an SQL Server. Creating an SQL Server database prior to Capacity Reporter installation is *optional*. You can modify the default database at any time after installation using the SQL Server Enterprise Manager.

If you are unfamiliar with configuring SQL Server databases, it is recommended that you consult your Microsoft SQL Server documentation or your database administrator before following these procedures.

1.3.1 Confirm SQL Server Settings for Capacity Reporter

To ensure that your SQL Server installation is configured to meet the needs of your Capacity Reporter database, confirm that the following parameters are set within the Microsoft SQL Server 7.0 or Microsoft SQL Server 2000:

- Install Microsoft SQL Server on the SQL Server computer.
 - Select these SQL Server configuration settings:
 - **Sort Order:** Any case-insensitive sort order (case-insensitive is required).
- User Connections:** Set the number of connections at least equal to the number of client access licenses (CALs) assigned to the Capacity Reporter installation.

Ensure that you have adequate CALs for Capacity Reporter database access, if you are using an SQL Server licensing model that requires CALs. Capacity Reporter requires a minimum of two CALs, one for the Capacity Reporter Server and one for access to the database via Capacity Reporter's web.

- **Net Libraries:** Must be set to **Named Pipes** or **Multi-protocol**.
- **Open Objects:** Set to 1,000 or greater.

1.3.2 Capacity Reporter SQL Server Database Configuration

This *optional* procedure contains Capacity Reporter SQL Server database configuration requirements and guidelines for SQL databases; it does not explain how to create the database. Read this section if you want to create a database in a location other than the default location.

This section uses standard SQL Server terminology. If you are unfamiliar with these terms or with creating and configuring SQL Server databases, it is recommended that you consult your Microsoft SQL Server documentation or your database administrator.

A Capacity Reporter SQL Server database is created in the same location as the master database. Capacity Reporter creates and schedules a maintenance task for the database, and configures database security. Both of these are described in Appendix C.

Configure a Capacity Reporter SQL Server database

1. Install SQL Server on the SQL Server computer.
2. Create the database for the Capacity Reporter database.

The new database must be empty. It cannot contain tables, procedures, indexes, or data.
3. Use the following guidelines to ensure adequate disk space for a typical Capacity Reporter installation:
 - 200 MB for Capacity Reporter's data device (5 MB minimum).
 - 20 MB for Capacity Reporter's database transaction log required on the master device's disk, if Capacity Reporter creates the database.
 - Set the SQL Server tempdb and its log to automatically expand as needed.
 - Enough space for online backups dependent on your backup strategy.
4. Go to the target Capacity Reporter Server computer and create a new System DSN for the SQL Server ODBC driver and name it **SRMDB**. Configure this new System DSN to point to the database you just created:
 - Let the SQL Server driver select the translation method for the character set translation option.
 - Make sure that **SRMDB** appears in the **Name** field of the first dialog box.
 - Verify that the SQL Server name in the **Server** field of the first dialog box is correct.
 - Make sure the **Change the default database to** field in the third dialog box points to the new database.
 - Setup configures all other SRMDB data source settings during installation.

Note – Modifying any data source settings after installation results in unpredictable behavior.

5. Optional configuration steps:
 - Define the database maintenance configuration.
 - Run the following maintenance tasks:

SRM Maint SRMDB_ <SRM Server computer name>, which runs, by default, at 1:15 A.M.

SRM MaintS SRMDB_ <SRM Server computer name>, which runs, by default, at 2:40 P.M.

Note – The SQL Server Agent must be running in order to execute the above maintenance tasks.

- See Appendix C for the default database maintenance configurations set during installation.
- Ensure adequate transaction log backup space.

Capacity Reporter provides no transaction log management. If you choose to save and back up transaction logs, you must ensure adequate space for Capacity Reporter to write its scan data to the database.

The frequency of your updates depends on your scan schedules. If you alter Capacity Reporter's default scan schedules, you may need to change your maintenance schedules. The volume of updated data depends on the size of your installation.

- Configure database security to meet your specific needs.

Capacity Reporter's only security requirement is database access granted to Capacity Reporter's Service Login account. Capacity Reporter's installation program grants this permission. Database security is detailed in Appendix C.

1.3.3 SQL 2000 Configuration Details

If you are using Microsoft SQL 2000:

- The server *must* be configured to use mixed mode authentication. Using only SQL Server authentication or only Windows authentication may cause unpredictable results.
- Do not install any other SQL Server versions on the machine with SQL 2000, and avoid multiple SQL 2000 instances. Multiple versions or instances can lead to unpredictable results.
- On the Instance Name panel of the Microsoft SQL 2000 install, the **Default** box *must* be checked; failing to install in Default mode results in failed Capacity Reporter installations.

1.4 Create Capacity Reporter's Service Login Account

Capacity Reporter Server runs as a Windows NT/Windows 2000 service, which needs an authorized account to run. By default, this account is **SRMSvcUser**. It is recommended that you use the default account; however, you are free to use any domain account specific to your environment.

Capacity Reporter's Service Login account is used by the Capacity Reporter Server to authenticate communication with Capacity Reporter Agents. The Service Login account is granted access to the Capacity Reporter SQL Server database. All database interaction is handled by this account.

This account is created for each machine on which Capacity Reporter Server is installed, whether in a domain or workgroup.

The installation program creates this account on the server automatically; creating this account before installation is *optional*. However, if you create this account for the Capacity Reporter Server before installation in a multidomain environment, you must create it in the Master domain, or in a domain that is trusted by all Capacity Reporter server and agent domains.

Note – Windows NT/Windows 2000 account creation and modification requires domain administrator privileges, which you must have for this procedure.

During account creation, you establish the password for Capacity Reporter's Service Login account. If you change this password later, you must also make this change in the Microsoft Transaction Server (MTS) and on each UNIX agent and Windows NT agent that uses the account whose password has changed. For more information or for assistance, contact Customer Support.

Note – Sun highly recommends that you do not change accounts or passwords.

Create Capacity Reporter's Service Login Account (Windows NT and Windows 2000)

1. Create the **SRMSvcUser** account.
2. Make this account a member of the following local groups for the Capacity Reporter Server computer:
 - Backup Operators
 - Administrators

Note – The account must be a local admin or backup operator on all agent systems.

3. Grant the **Logon as a Service** right to the **SRMSvcUser** account.

1.5 Create the SRMAdmin Group

Setup creates a local group called **SRMAdmin** on each computer where Capacity Reporter Server software is installed. This group is created but not populated; it is provided as a management convenience.

SRMAdmin group membership on the Capacity Reporter Server computer gives all the privileges needed to administer Capacity Reporter (change settings) through the Capacity Reporter Options pages. If you want a Capacity Reporter user or user group to have these access rights, add them to the **SRMAdmin** group.

Note – By default, local administrators have write access to Capacity Reporter Servers.

Manually creating this group before installation is *optional*; the installation program creates the group on each Capacity Reporter server automatically.

Note – Windows NT/Windows 2000 group creation requires administrator privileges on the computer. You must have these privileges to perform this procedure.

Create the SRMAdmin group (Windows NT)

1. On the computer where you will install the Capacity Reporter Server software, log in to an account with Administrator privileges.
2. Go to **Start → Programs → Administrative Tools → User Manager for Domains**.
3. If the computer is a domain controller, go to Step 4.
If the computer is in a domain, but is *not* a domain controller, go to **User → Select Domain** and enter the computer's name in the **Domain** field.
4. Go to **User → New Local Group** and create a new local group named **SRMAdmin**.
5. Assign group membership as desired.
6. Click **OK** to apply your configuration.

Create the SRMAdmin group (Windows 2000)

1. On the computer where you will install the Capacity Reporter Server software, log in to an account with Administrator privileges.

2. Go to **Start → Programs → Administrative Tools → Computer Management**.
3. In the console tree, expand **Local Users and Groups**.
4. Right-click the **Groups** folder, and then create a new group named **SRMAdmin**.
5. Assign group membership as desired.

For more information on creating Windows NT/Windows 2000 groups, see your Windows NT/Windows 2000 documentation.

1.6 Create the SRMUser Group

Setup creates a local group called **SRMUser** on each computer where Capacity Reporter Server software is installed. This group is created but not populated; it is provided as a management convenience.

Manually creating this group before installation is *optional*; the installation program creates the group on each computer automatically.

Note – Windows NT/Windows 2000 group creation requires local administrator privileges on the computer. You must have these privileges to perform this procedure.

By default, Everyone has read access to Capacity Reporter. Use the **SRMUser** group membership to restrict access as follows:

- Remove **Everyone** from the access control lists (ACLs) on the \InetPub\StorageResourceManager folder, and grant read access to the **SRMUser** group.
- Then add users to the **SRMUser** group to allow them read access.

Create the SRMUser group (Windows NT)

1. On the computer where you will install the Capacity Reporter Server software, log in to an account with Administrator privileges.
2. Go to **File → Start Programs → Administrative Tools → User Manager for Domains**.
3. If the computer is in a workgroup or is in a domain and is a domain controller, go to Step 4.

If the computer is in a domain, but is *not* a domain controller, go to **User → Select Domain** and enter the name of the computer in the **Domain** field.

4. Go to **New → Local Group** and create a new local group named **SRMUser**.
5. Assign group membership as desired.

Note – You can add **Everyone** to allow any user from other trusted domains access to Capacity Reporter information.

6. Click **OK** to apply your configuration.

Create the SRMUser group (Windows 2000)

1. On the computer where you will install the Capacity Reporter Server software, log in to an account with Administrator privileges.
2. Go to **Start → Programs → Administrative Tools → Computer Management**.
3. In the console tree, expand **Local Users and Groups**.
4. Right-click the **Groups** folder, and then create a new group named **SRMUser**.
5. Assign group membership as desired.

Note – You can add **Everyone** to allow any user from other trusted domains access to Capacity Reporter information.

For more information on creating Windows NT/Windows 2000 groups, see your Windows NT/Windows 2000 documentation.

Capacity Reporter Installation Prerequisites

Setup verifies all installation prerequisites and provides a report of any missing or outdated prerequisites. Although you can complete the installation program with missing or outdated prerequisites, Sun recommends a system restart after you rectify the prerequisite discrepancy to ensure that Capacity Reporter runs smoothly.

This chapter includes complete checklists of all prerequisite software needed for each Capacity Reporter component.

2.1 Capacity Reporter Server

This checklist includes all requirements for installing a Capacity Reporter Server on a single Intel-compatible computer.

2.1.1 Required Software

- Microsoft Windows NT Server 4.0 with SP6a with all patches
 - or –
 - Microsoft Windows 2000 Server SP2 with all patches, or Microsoft Windows 2000 Advanced Server SP2 with all patches
- Microsoft Internet Information Server (IIS) 4.0, (IIS 5.0 for Windows 2000)
 - IIS 4.0 is part of the Windows NT 4.0 Option Pack typical installation, which includes the specific components needed for Capacity Reporter
- Internet Explorer 5.5, SP2 with the latest patches
 - or –

Internet Explorer 6.0 with latest patches

- Microsoft SQL Server 2000

– or –

Microsoft SQL Server 7.0 SP2

Note – In order for Capacity Reporter maintenance tasks to run, the SQL Server Agent service must be running. You can start the SQL Server Agent service using either the Control Panel or the SQL Server Enterprise Manager.

2.1.2 Required Account Information

Setup prompts for certain information during installation. Gather the following information beforehand to save time:

- Obtain the login ID and password for the account to use for database creation or access. This is either the SQL **sa** account or a Windows NT/Windows 2000 account that has SQL **sa** account privileges.
- If installing from an account that is not a domain administrator account, obtain the login ID and password for one of the following:
 - An existing Service Login Account for the service(s) to run under. By default, **SRMSvcUser**.
 - or –
 - A Windows NT/Windows 2000 account with privileges to create a Service Login account for this Capacity Reporter Server to run under.

Note – If installing from a local (nondomain) account, you cannot specify a domain, other than Local, for Capacity Reporter's Service Account. It is recommended that you log in using a Domain User/Local Admin account.

2.1.3 Required Hardware

The minimum recommendation follows:

- A dedicated Intel-compatible Pentium Processor server
- 700 Mhz processor
- 512 MB memory
- 1 GB free disk space

Note – Increase your memory and disk space allotments if you are installing SQL Server and Capacity Reporter Server on the same computer.

2.2 Capacity Reporter for Windows NT/Windows 2000 Agents

This checklist includes all the requirements for installing a Capacity Reporter Agent on a single Intel-compatible computer.

Note – The prerequisites for a remote installation are the same as for a local installation. During remote installations, Setup performs the prerequisite check on the remote computer as if it were a local computer.

2.2.1 Required Software

- Microsoft Windows NT Server or Workstation 4.0 with SP5, or SP6a
 - or –
 - Microsoft Windows 2000 Professional or Server with SP0, SP1, or SP2, or Microsoft Windows 2000 Advanced Server SP0, SP1, or SP2
 - or –
 - Microsoft Cluster Server
- DCOM must be set to **enabled**
- Microsoft Internet Explorer 5.5, SP2 with patches, or Internet Explorer 6.0 (when performing a local installation to allow agents to register with the server).

2.2.2 Important Information

Setup prompts for certain information during installation. Gather the following information beforehand to save time:

Obtain the name and password of the Capacity Reporter Server Service Login account that you want this Agent to run under. Setup can create a Service Login account for this Agent, or you can use the default, the Windows NT/Windows 2000 System Account on the computer.

Sun recommends that you use the default account. However, the default account (the system account) cannot be used for clusters or for the NetApp proxy.

- Obtain the name of the Capacity Reporter Server that you want to register and monitor the Agent, if registering the Agent during installation. This is not needed if the Capacity Reporter Server registers the new Agent after installation.

2.2.3 Required Hardware

- Intel-compatible Pentium processor
- 64 MB memory
- 5 MB free disk space

2.3 Capacity Reporter for UNIX or Linux Agents

The following checklist includes all the requirements for installing Capacity Reporter for UNIX or Capacity Reporter for Linux Agent on a single UNIX or Linux system. There is no remote installation feature for Capacity Reporter for UNIX or Linux Agents; they must be installed locally.

2.3.1 Required Software

- One of the following versions of UNIX:
 - IBM AIX 4.3.3
 - Sun Solaris 2.6, 2.7, and 8 (SPARC only)
 - HP-UX 10.20 and 11.00
 - Compaq Tru64 4.0g, 5.0a, and 5.1a
 - or –
 - Red Hat Linux 6.1, 6.2, and 7.0 (Intel 32 only)
- Ksh, or Korn Shell (for Linux machines)

Note – Using any other Linux product or version may yield unpredictable results.

- Capacity Reporter Server Version 6.0 must be installed on the network and be able to manage this agent.

2.3.2 Important Information

Setup prompts for certain information during installation. Gather the following information beforehand to save time:

- Agent listening port number (defaults to 11225, 11226, or 11227, but can be any port number).
- Capacity Reporter Server name (or IP address) and web server port number (by default, 80).
- The name, password, and domain of the Service Login account for the Capacity Reporter Server that you want to monitor this Agent. This is the account under which the Capacity Reporter Server runs, and was established during the Capacity Reporter installation.

2.3.3 Required Hardware

- 128 MB memory
- 5 MB free disk space

2.4 Web Browser Shortcut

The Web Browser shortcut starts your default web browser and displays Capacity Reporter's web-based user interface. Use the browser to access the information stored in a Capacity Reporter database. Obtain the name of the target Capacity Reporter Server computer before you perform this installation; Setup prompts you for this during installation. The Web Browser shortcut can be installed on any Intel-compatible PC where you want quick access to your Capacity Reporter-relevant data.

The following are required for a Web Browser shortcut installation and on all browsers used to access Capacity Reporter:

- Microsoft Internet Explorer 5.5, SP2 with patches, or Internet Explorer 6.0
 - or –
 - Netscape Navigator 4.7
- Disable any *proxy server for local (intranet) servers* settings
- Enable Cookie acceptance

Installing Capacity Reporter

This chapter describes how to install the following Capacity Reporter components:

- Capacity Reporter Server
- Capacity Reporter for Windows NT/Windows 2000 Agent
- Web Browser Shortcut
- Capacity Reporter Agent for Solaris
- Capacity Reporter for UNIX or Linux Agents

These procedures presume that you have run the Capacity Reporter prerequisite check on the target computer, and have ensured that the computer meets the prerequisite requirements for the component being installed.

3.1 Installation Privileges

The only privilege required to install a Capacity Reporter for Windows NT/Windows 2000 component is local administrator privilege on the computer. Setup prompts you for additional privileged account information as needed. Each component's procedure lists the additional privileged account information Setup needs to install that component. Obtaining this information beforehand saves time during installation.

The only privilege needed to install a Capacity Reporter for UNIX or Linux Agent is superuser privilege.

All Capacity Reporter for Windows NT/Windows 2000 Setup dialog boxes have detailed help information; click **Help** on any dialog box for specific information.

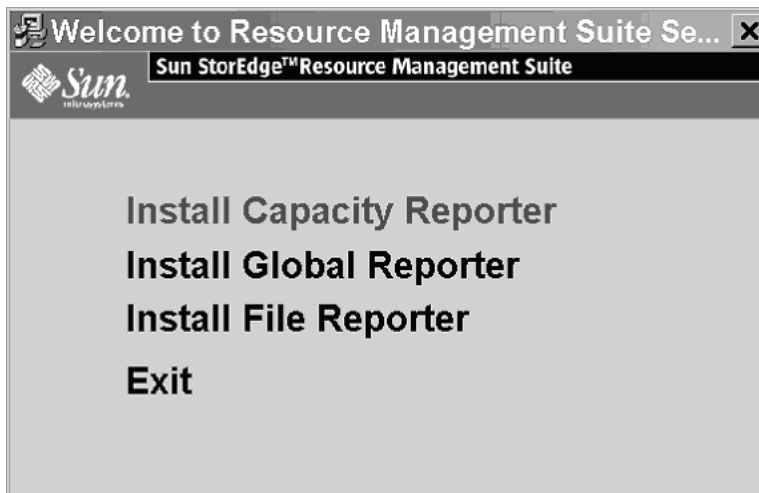
3.2 Capacity Reporter for Windows NT/Windows 2000 Components Common Installation Steps

Whether you install Capacity Reporter for Windows NT or Windows 2000 components you follow the same initial steps listed here. Specific component installation procedures begin with the next dialog box in the sequence.

Begin Capacity Reporter for Windows NT/Windows 2000 components installation

1. Exit all Windows programs and insert the product CD-ROM into the CD-ROM drive.

If **Auto Start** is enabled, the installation menu launches automatically:



Note – If **Auto Start** is not enabled, run **i386\setup.exe** from the Capacity Reporter CD-ROM. This menu does not appear; instead, you first see the **Welcome** dialog box. Click **Next**.

Sun recommends that you check prerequisites before you begin installation.

If Setup detects any prerequisites are still missing, the **Missing General Requirements** dialog box is displayed. Satisfy the prerequisite listed, and begin the installation again.

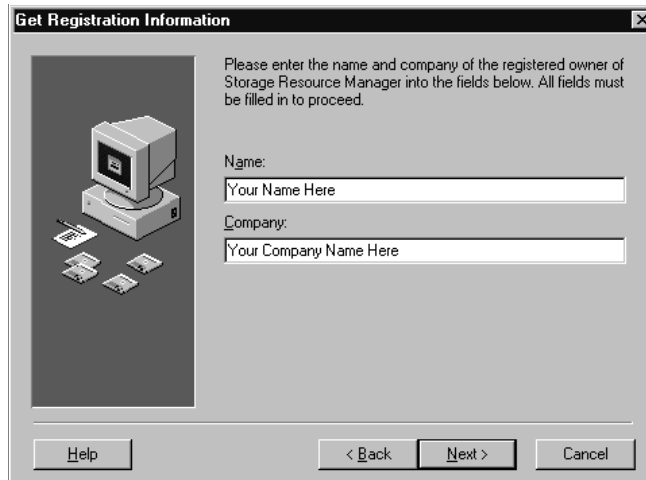
2. Click **Install Capacity Reporter**. The **Welcome** dialog box is displayed.



3. Review the information, then click **Next**. The **License Agreement** dialog is displayed:



4. Carefully review the license agreement, and click **Agree**. The **Get Registration Information** dialog box is displayed.

The image shows a Windows-style dialog box titled "Get Registration Information". On the left is a graphic of a computer monitor, keyboard, and mouse. On the right, there is instructional text: "Please enter the name and company of the registered owner of Storage Resource Manager into the fields below. All fields must be filled in to proceed." Below this text are two text input fields. The first is labeled "Name:" and contains the placeholder text "Your Name Here". The second is labeled "Company:" and contains the placeholder text "Your Company Name Here". At the bottom of the dialog box are three buttons: "Help", "< Back", and "Next >" (which is highlighted), and a "Cancel" button.

5. Enter your name and the name of your company in their respective fields and click **Next**. The **Select Components** dialog box is displayed.
6. Go to the specific installation procedure for the component you are installing.

3.3 Capacity Reporter Server

Beyond local administrator privilege on the computer, Setup prompts for database creation privileges on the target SQL Server computer. Without proper access, Setup cannot create or configure your database.

Note – If you choose to create a new Service Login Account for Capacity Reporter, but the account you are logged into is not a Domain Administrator, Setup prompts for an account with account creation (typically domain administrator) privilege for the new Service Login account's domain. (Windows NT/Windows 2000 requires this for account creation.)

Follow this procedure to install a Capacity Reporter Server on a local Intel-compatible computer. Capacity Reporter Server can be installed locally *only*; there is no remote installation capability for these components.

Install Capacity Reporter Server

1. Ensure that you are logged in to an account with local administrator privileges on the computer, and have any additional privileged account information you may need.
2. Insert the product CD-ROM into the CD-ROM drive. Advance through the dialogs to the **Select Components** dialog box:



Note – When you select SRM Server, SRM Web Shortcut is automatically selected. If you do not want to install the Web Shortcut, clear the check box.

3. Select **SRM Server**. Click **Next**. The **Enter License Key** dialog box is displayed:



Enter the license key for Capacity Reporter.

If you purchased a **full license**, a certificate containing the license key is included in the kit.

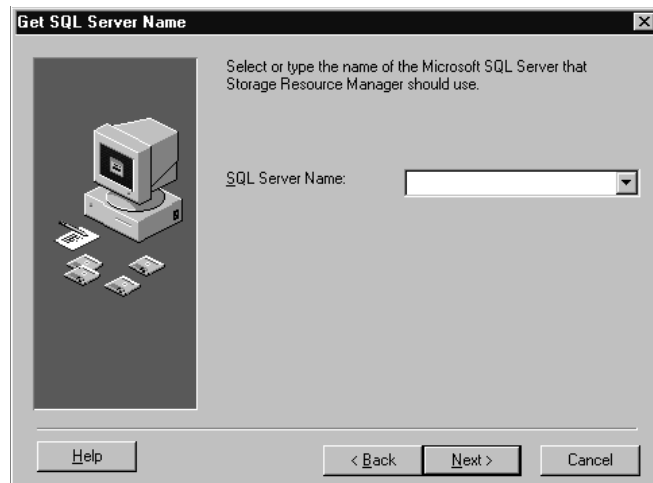
To obtain an **evaluation license** key:

- i. Call the Sun Support phone number listed on the Capacity Reporter CD-ROM jacket.
- ii. Supply the requested information about your company and the token number listed on the Capacity Reporter CD-ROM jacket.

You will be given a license key that enables Capacity Reporter to collect data for a limited amount of time from a limited number of servers. To extend the evaluation period or to increase the number of servers to be managed, contact your Sun account manager.

Note – If you do not enter a license key at this point, you can still modify your Capacity Reporter installation. However, the first time you launch the application, it warns you that no license key has been entered and gives you the opportunity to enter a license key immediately or to continue browsing without entering a license key. If you do not enter a license key at this point, any agent licenses from versions 5.0.1 or earlier are nullified, and complete agent registration and scanning is prohibited until you enter the license key. (Existing scan data is not lost.)

4. Click **Next**. The **Get SQL Server Name** dialog box is displayed:



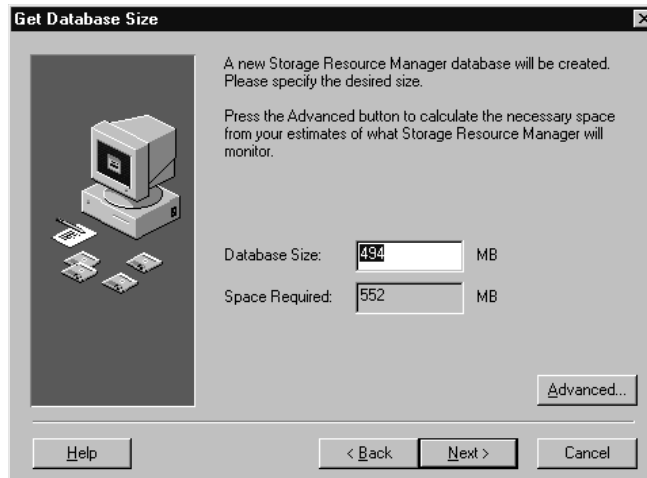
5. Enter the name of the computer where SQL is installed. For Microsoft SQL 2000 databases you must specify the server name and instance (servername\instance). For example: databaseserver\DB1.
6. Click **Next**.
7. If you are logged in to an account with administrator privileges on this SQL Server, the **Get Database Size** dialog box is displayed. Go to the next step and continue.

If Setup determines that the account you are logged in to does not have administrator privileges on this SQL Server, the **Privileged Account Required** dialog box is displayed:



- Specify an account type and fill in the appropriate information. Click **Next**. The **Get Database Size** dialog box is displayed.

SQL 7 allows for dynamic space allocation for the Capacity Reporter database. It is recommended that you set the initial database size to under 100 MB.

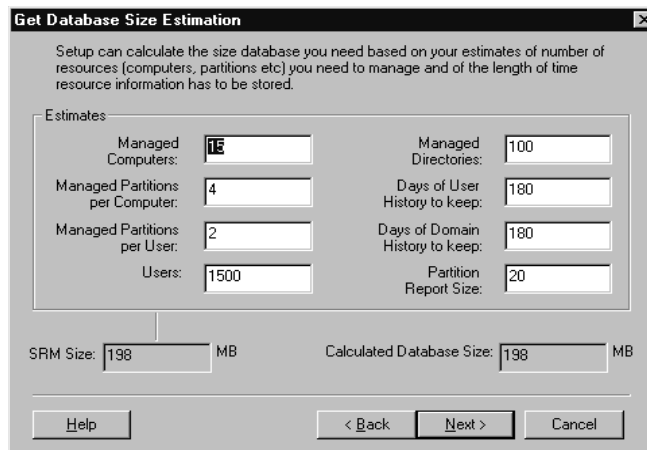


The **Get Database Size** dialog box is shown. It contains a graphic of a computer and floppy disks on the left. The text on the right says: "A new Storage Resource Manager database will be created. Please specify the desired size." and "Press the Advanced button to calculate the necessary space from your estimates of what Storage Resource Manager will monitor." Below this, there are two input fields: "Database Size:" with the value "484" and "Space Required:" with the value "552", both followed by "MB". An "Advanced..." button is located to the right of these fields. At the bottom, there are buttons for "Help", "< Back", "Next >", and "Cancel".

- Click **Next** to accept the initial default settings. The **Get Service Login Information** dialog box is displayed.

Note – SQL Server databases cannot be smaller than 30 MB.

Or, click **Advanced** to go to the **Get Database Size Estimation** dialog box and edit the default initial database size:



The **Get Database Size Estimation** dialog box is shown. It contains a text box at the top: "Setup can calculate the size database you need based on your estimates of number of resources (computers, partitions etc) you need to manage and of the length of time resource information has to be stored." Below this is a section titled "Estimates" containing two columns of input fields. The left column has: "Managed Computers:" (15), "Managed Partitions per Computer:" (4), "Managed Partitions per User:" (2), and "Users:" (1500). The right column has: "Managed Directories:" (100), "Days of User History to keep:" (180), "Days of Domain History to keep:" (180), and "Partition Report Size:" (20). Below these fields, there are two output fields: "SRM Size:" (198 MB) and "Calculated Database Size:" (198 MB). At the bottom, there are buttons for "Help", "< Back", "Next >", and "Cancel".

10. Review the settings. Make any desired changes and click **Next**.
11. The **Get Database Size** dialog box is redisplayed, and reflects the changes you made on the estimation dialog boxes.
12. Verify the values and click **Next**. The **Get Service Login Information** dialog box is displayed:



The dialog box is titled "Get Service Login Information". It contains a graphic of a computer monitor and keyboard on the left. The main text area says: "Please enter the account the Storage Resource Manager/Storage Resource Manager Exchange Edition SERVER and Storage Resource Manager Agent Service should log in with or run as." Below this text are four radio button options: "Retain Current Account", "Use System Account", "Use an Existing Account" (which is selected), and "Create a New Account". Below the radio buttons is a section titled "Account Information" containing four input fields: "Login ID:" (with the text "SRMSvcUser" entered), "Domain:" (a dropdown menu), "Password:", and "Confirm Password:". At the bottom of the dialog are three buttons: "Help", "< Back", and "Next >", and a "Cancel" button on the far right.

13. Select the option that best meets your needs and enter the required information.

Note – This is the Service Login account that you want this Capacity Reporter Server to use to run on this computer.

- If you created the service login account before running Setup, the dialog has the **Use an Existing Account** option selected with the account name that you created in the **LoginID** field. Enter the **Domain** and **Password** for this account, and click **Next**.
- If you choose to create a new account and Setup determines that you do not have account creation privileges, the **Privileged Account Required** dialog box is displayed.

Note – If installing from a local (nondomain) account, you cannot specify a domain, other than Local, for the SRM Service Account. Sun recommends that you log in using a Domain User/Local Admin account.



14. Provide information for an account that Setup can use to create the new Service Login account. Typically, this is an account with domain administrator privileges in the target domain.

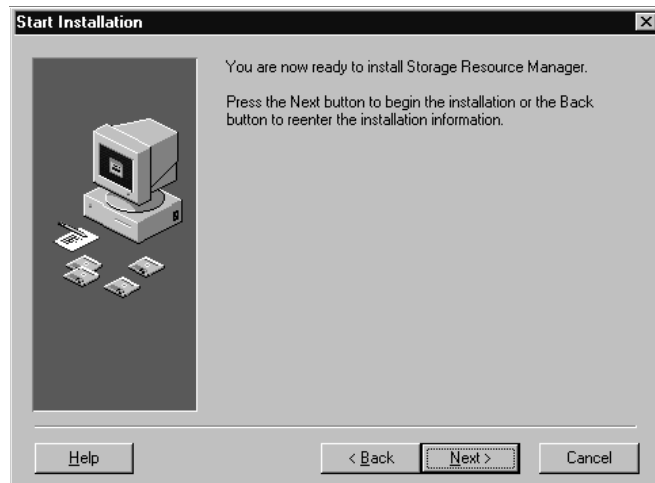
15. Click **Next**. The **Choose Destination Location** dialog box is displayed:



16. Specify the installation location for the Server software. It is recommended that you accept the default location. Click **Browse** to install the Capacity Reporter files in a different location. Click **Next**. The **Choose Web Destination Location** dialog box is displayed:



17. Specify the installation location for the Capacity Reporter web.
18. Click **Browse** to install the Capacity Reporter web in a different location. Click **Next**. The **Start Installation** dialog box is displayed:



19. Click **Next** to begin installing files on your computer.

The **Installing** dialog box displays the progress of the installation. For example:



After the software is installed, the **Installation Complete** dialog box is displayed:



20. Click **Finish** to allow Setup to complete the installation.

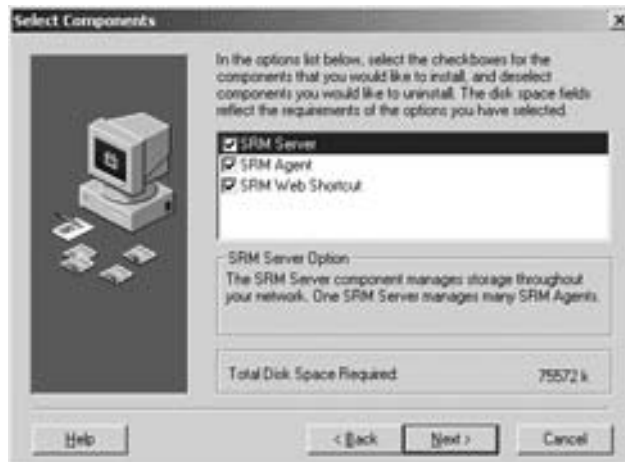
3.4 Capacity Reporter for Windows NT/Windows 2000 Agent (Local Installation)

Follow this procedure to locally install a Capacity Reporter for Windows NT/Windows 2000 Agent on an Intel-compatible computer. Remote installation of a Capacity Reporter for Windows NT/Windows 2000 Agent is performed from the Capacity Reporter user interface.

If you choose to create a new Service Login Account, Setup prompts for an account with account creation (typically domain administrator) privileges for the Agent's domain. (Windows NT/Windows 2000 requires domain administrator privileges for account creation.)

Install a Capacity Reporter for Windows NT/Windows 2000 Agent

1. Ensure that you are logged in to an account with the following privileges:
 - Local administrator privileges for the computer
2. Insert the product CD-ROM into the CD-ROM drive and advance through the dialog boxes to the **Select Components** dialog box:



3. Select the **SRM Agent**. Click **Next**. The **Get Service Login Information** dialog box is displayed:



The dialog box is titled "Get Service Login Information". It contains a graphic of a computer and storage devices on the left. The main text says: "Please enter the account the Storage Resource Manager Agent Service should log in with or run as." There are four radio buttons: "Retain Current Account", "Use System Account" (which is selected), "Use an Existing Account", and "Create a New Account". Below these is a section titled "Account Information" with fields for "Login ID:" (containing "SRMSvcUser"), "Domain:" (a dropdown menu showing "ENGINEERING"), "Password:", and "Confirm Password:". At the bottom are buttons for "Help", "< Back", "Next >", and "Cancel".

4. Select the option that best meets your needs.

Note – This is the service login account for this Capacity Reporter Agent to run as on this computer.

- The default selection is **Use System Account**, which requires no account information. Sun recommends using the default selection.
- If this agent is acting as a proxy server for a NetApp agent, or if the agent is installed on a Microsoft cluster, this agent must run as a user account. Sun recommends that you use the **SRM Server Service** account.

- If you choose to create a new account, and your login account does not have account creation privileges, the **Privileged Account Required** dialog box is displayed:



The dialog box is titled "Privileged Account Required". It features a graphic on the left showing a computer monitor, a tower unit, and several floppy disks. The text on the right states: "A privileged account is required to properly set up the CALIFORNIA\SRMSvcUser_Sam account for use with Storage Resource Manager. Please enter the login information for an account that can create or modify the CALIFORNIA\SRMSvcUser_Sam account." Below this text is a section labeled "Account Information" containing four input fields: "Login ID:", "Domain:" (with a dropdown arrow), "Password:", and "Confirm Password:". At the bottom of the dialog are three buttons: "Help", "< Back", and "Next >", and a "Cancel" button on the far right.

Provide information for an account Setup can use to create the new Service Login Account. Typically, this is an account with domain administrator privileges in the target domain.

5. Click **Next**. The **Get Server Registration Information** dialog box is displayed:



The dialog box is titled "Get Server Registration Information". It features the same graphic on the left as the previous dialog. The text on the right states: "You can register this system with the Storage Resource Manager Server that will monitor it. Filling in a server name will configure the specified server to begin monitoring this system. If you prefer, you can leave this field blank for now. If you do so, be sure to configure a Storage Resource Manager Server to monitor this agent later." Below this text is a single input field labeled "SRM Server Name:". At the bottom of the dialog are three buttons: "Help", "< Back", and "Next >", and a "Cancel" button on the far right.

6. Type the name of the Capacity Reporter Server that you want to monitor this Agent, and click **Next**.

Enter the name of a Capacity Reporter Server only if you want this Agent registered during installation. If you plan to manually register this Agent from a Server after installation, leave this dialog box blank and click **Next**. You proceed directly to the **Choose Destination Location** dialog box.

7. After you enter the Server name, click **Next**. The **Advanced Agent Security Setting** dialog box is displayed (because the server is on another computer).

Note – Be sure that the version of Microsoft Internet Explorer on the Agent machine matches the version listed in Chapter 2.



8. Enter the SRM Service account and domain.

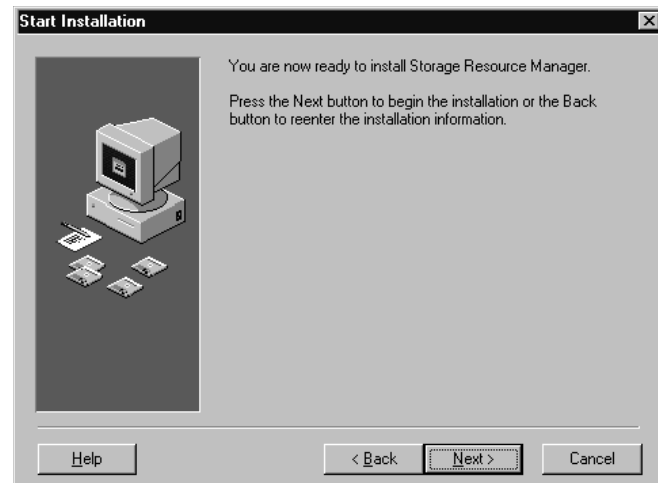
Click **Next**. The **Choose Destination Location** dialog box is displayed:



9. Specify the installation location for the Agent software.

Click **Browse** to install the Agent in a different location.

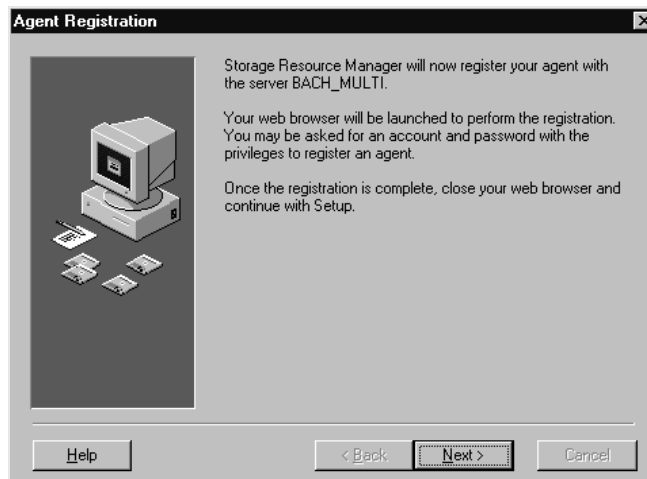
10. Click **Next**. The **Start Installation** dialog box is displayed:



11. Click **Next** to begin installing files on your computer. The **Installing** dialog box displays the progress of the installation:



If you are registering this Agent with a Capacity Reporter Server during installation, the **Agent Registration** dialog box is displayed:



12. Click **Next**. Setup launches the default browser on this computer and registers the Agent with the Capacity Reporter Server you specified. When the registration is finished, the browser is minimized and a Success message is displayed.

13. Close the browser window. The **Installation Complete** dialog box is displayed:



14. Click **Finish** to allow Setup to complete the installation.

3.5 Web Browser Shortcut

The Capacity Reporter Web Browser shortcut can be installed on any computer from which you want to view Capacity Reporter data. There is no additional privileged account information needed. Follow the steps below.

Install a Capacity Reporter Web Browser shortcut

1. Insert the product CD-ROM into the CD-ROM drive and advance through the dialogs to the **Select Components** dialog box.



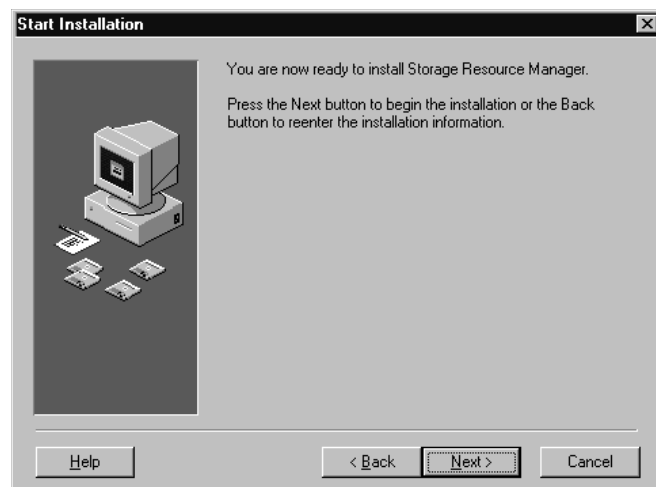
2. Select the **SRM Web Browser Shortcut** and click **Next**. The **Choose Destination Location** dialog box is displayed:



3. Specify the location for the Web Browser shortcut. Sun recommends that you accept the default location.

Click **Browse** to install the shortcut in a different location.

4. Click **Next**. The **Start Installation** dialog box is displayed:



5. Click **Next** to begin installing files on your computer.

The **Installing** dialog box displays the progress of the installation. For example:



After the software is installed, the **Installation Complete** dialog box is displayed:



6. Click **Finish** to allow Setup to complete the installation.

3.6 Capacity Reporter Agent for Solaris

Capacity Reporter Agent for Solaris supports the VERITAS Cluster Server (VCS) software environment, which lets the Agent scan and report on shared cluster resources without counting them multiple times in Capacity Reporter Server reports. You must follow configuration guidelines for the Agent to scan and report all shared cluster resources properly.

If you are not running Capacity Reporter in a VCS environment, go to “Install a Capacity Reporter Agent for Solaris”.

Before Installing a Capacity Reporter Agent for Solaris in the VERITAS Cluster Server Environment

Before you install Capacity Reporter Agent for Solaris in the VCS environment please note the following:

1. Install the Agent on *all* VCS cluster member nodes.
2. Configure all Agents in the cluster to use the same port number to communicate with the Capacity Reporter Server.
3. Register the cluster itself with the Capacity Reporter Server using a unique *cluster alias*, or name, to scan and report the shared cluster resources.

Also, you must determine the following:

1. A port number that is open on *all* member node systems that you can configure the Agent to use.
2. Which member node is assigned the lowest LLT number in the cluster. This is the system from which you must register the cluster with the Capacity Reporter Server before any shared resources can be properly reported.
3. A suitable cluster alias for the cluster, which you use to register the cluster with the Capacity Reporter Server. The installation procedure suggests a cluster alias. Make sure that the cluster alias is not the same as another managed computer or cluster alias on the Capacity Reporter Server. The cluster alias must be a properly formatted computer system name that is unique on your network, however it does not necessarily have to exist. The Capacity Reporter Server uses a proxy IP address from your cluster to contact the Agent(s) in the cluster to perform scans of shared resources.
4. Which IP address (that is associated with the cluster) the Capacity Reporter Server will use as the proxy for scans of the cluster shared resources. The installation procedure recommends the first service group IP address that it finds as the default value, however this may not be the optimal choice for the proxy.

There are many ways to configure VCS clusters and cluster services, so selecting the correct proxy is as much art as it is science. As a general guideline, select a service group IP address that is capable of running on as many nodes in the cluster as possible to allow the Capacity Reporter Server to take advantage of the redundancy in the cluster.

Install a Capacity Reporter Agent for Solaris

Capacity Reporter Agent for Solaris can be installed with superuser privileges; no additional privileged account information is required. Follow these steps to install Capacity Reporter Agent for Solaris:

1. The Capacity Reporter Installation CD includes the `unix_agents` directory, which contains the `solarisagent.tar.z` file of installation files for Solaris systems.
2. Copy or make accessible all the files from the proper directory on the Installation CD to each target system. You can do this with FTP or through an NFS mount.

Note – If you copy the files, you may delete them when Capacity Reporter is fully installed.

3. Use **chmod** to make the `installsrm` script executable.
4. Type `./installsrm` to unpack the installation files and start the `pkgadd` process.

Note – You may also extract the package from the Solaris tar file and run `pkgadd` manually.

5. If an earlier version of Capacity Reporter Agent exists, indicate whether you want the installation procedure to remove the older version now. You can remove the older installation at a later time by executing the command:

`/usr/srmagent/removesrm.`

6. The installation script proceeds with the following dialog. Accept the default values or respond to the messages appropriately.

Enter the directory where SUNWsrmag will be installed [/opt]:

The Capacity Reporter Agent will be installed to
/opt/SUNWsrmag/6.0.0...

Enter the service name for the Capacity Reporter Agent to use [an
available service name]:

The Capacity Reporter Agent will be installed as service "an available
service name"...

Enter the network port number for the Agent to use [an available port
number]:

Port number *an available port number* will be reserved for use by the Capacity Reporter Agent...

The installation procedure makes an entry in the `/etc/services` file and uses the service name and port number you specified to reserve the port for use by the Agent. You cannot specify a service name or port number that is already in use in the `/etc/services` file.

7. Next, the installation procedure prompts you for a run mode; respond appropriately. Note that `inetd` is the default run mode.

You must configure the Agent to start automatically in order for the Capacity Reporter Server to be able to contact it. This version of the Agent supports the following run modes:

```
inetd - AVAILABLE
xinetd - NOT DETECTED
daemon - AVAILABLE
```

Select an available run mode, (i)netd, (x)inetd or (d)aemon [i]:

8. You can now register the Agent with a Capacity Reporter Server or register it at a later time by executing the `registersrm` command. Note that if you take the installation path default, the command is `/opt/SUNWsrmsagent/6.0.0/install/registersrm`. If you choose to register the Agent now, respond to the following prompts appropriately.

Do you want to enter Server registration information now? [y,n,?,q] **y**

Enter the name or IP address of the Server with which to register:

Enter the HTTP port to connect to on server *server name* [80]:

Enter the Capacity Reporter Service Login Account on *server name* [SRMSvcUser]:

Enter the NT Domain for SRMSvcUser on *server name*:

Enter the password for account *domain name\service* on *server name*:

Re-enter the password for confirmation:

9. The installation procedure requires an IP address.

The Server requires an IP address for this system in order to contact the Agent for scans. The installer can register the correct IP address automatically in most cases, however if this system has multiple IP addresses you may need to enter the correct address manually.

Select (a)utomatic or (m)anual IP address selection [a]:

10. Enter **a** or **m**.

- If you enter **a**, the installation procedure selects an available IP address for registration.
- If you enter **m**, the installation procedure prompts for an IP address.

Please enter the IP address that you wish to register with [*IP address*]:

Note that if the system on which you install the Agent has multiple IP addresses (that is, multi-homed) you may need to specify the correct IP address for the Capacity Reporter Server to contact the Agent successfully.

11. The installation procedure redisplayes your responses and prompts you with the following:

Is this information correct? (y, n to re-enter, q to skip registration)?

12. Enter **y**, **n**, or **q**.

- If you enter **n**, the script loops back in the procedure to allow you to change your responses.
- If you enter **q**, you bypass the registration portion of the installation procedure.
- If you enter **y**, the installation procedure attempts the registration.

13. If the installation procedure detects VERITAS Cluster Server software on the system, it attempts to determine if the system is assigned the lowest LLT number. If your system is not the lowest-numbered LLT node, you need not supply additional configuration information. Go to Step 19.

If your system is the lowest-numbered LLT node, you must supply additional configuration information. The installation procedure prompts:

Do you want to enter cluster alias registration information now?
[y,n,?,q]

14. Enter **y**, **n**, or **?**.

- If you enter **n**, you can register the cluster alias manually at a later time by executing the `registerca` command. Note that if you take the installation path default, the command is `/opt/SUNWsrmdagent/6.0.0/install/registerca`. Note that if you choose to register the cluster alias after the agent installation, your system may be more prone to errors. Go to Step 19.
- If you enter **y**, the installation procedure prompts for a cluster alias:

You must specify the name by which the Server will call this cluster, also known as the cluster alias. The name must not match the name of any computer or cluster that is already managed by the Server with which you will be registering the cluster.

The installer suggests the following cluster alias based on your cluster configuration: *"suggested cluster alias"*

Enter a name to use as the cluster alias [*vcseagl*]:

15. Note that the installation procedure recommends a cluster alias name. Either accept the default cluster alias or enter a different cluster alias.

The installation procedure then prompts for an IP address for the cluster alias:

You must specify an IP address through which the SRM Server will scan the cluster "*cluster alias*" for shared resources. This IP address can be the address of a member node, or one of the IP addresses assigned to a service group in the cluster. You may enter the address manually, or elect to have the installer automatically choose one from the list of IP addresses assigned to service groups and/or member nodes in this cluster.

Would you like the installer to select an IP address (a)utomatically, or will you (m)anually enter one? [a,m,?]

16. Enter a or m.

- If you enter **a**, the installation procedure chooses an available IP address.
- If you enter **m**, the installation procedure displays a list of IP addresses from which you can choose (note that this is the default and the recommended choice). Enter an IP address at the dialog prompt.

17. The installation procedure redisplays your responses:

You have *automatically/manually* entered the following IP address to be used as the proxy address by the Server when scanning cluster "*cluster alias*":

IP address (computer name)

The cluster alias registration with Server "*IP address*" will be attempted using the following information:

Cluster alias(name) is "*cluster alias*".

Cluster scan proxy IP address is "*IP address*".

Is this information correct (y, n to re-enter, q to skip registration)? y

18. Enter y, n, or q.

- If you enter **n**, the script loops back to allow you to change your responses.
- If you enter **q**, the installation procedure does not register the cluster with a Capacity Reporter Server, and continues with routine package verification. Note that scans may not function properly until you complete this step.
- If you enter **y**, the installation procedure performs both the registration and routine package verification.

19. After routine package verification, the dialog prompts:

Do you want to continue with the installation of <SUNsrmag> [y,n,?]

20. Enter y or n.

- If you enter **n**, the installation procedure exits and does not complete the Capacity Reporter Agent for Solaris installation.
- If you enter **y**, the installation procedure executes preinstallation, installation, and postinstallation scripts, and installs the Agent files on the system

21. The installation procedure displays installation and registration progress and status messages:

```
Installation of <SUNWsrmag> was successful.
```

Note that if you receive a message that indicates the registration portion of the installation procedure has failed, the installation itself is successful.

22. The installation procedure then removes temporary installation files, indicates completion of the installation and returns you to the command line prompt.

```
Installation of <SUNWsrmag> was successful.
```

```
Removing temporary installation files
```

```
End of installsrn for Solaris
```

```
#
```

After Installing Capacity Reporter Agent for Solaris in a VCS Environment

The installation procedure is designed to configure the Agent correctly for execution in a VCS cluster environment. However, if you skip the cluster alias registration, or if errors occur during the registration of the cluster alias with the Capacity Reporter Server from the node with the lowest LLT number, you can complete or correct the configuration by running the following scripts:

- `<install path>/SUNWsrmag/6.0.0/install/registerca` on the node with the lowest LLT number, which lets you register a cluster alias with a Capacity Reporter Server.
- `<install path>/SUNWsrmag/6.0.0/install/updatecaproxy`, which lets you update the proxy IP address information with a registered cluster alias on a Capacity Reporter Server.

3.7 Capacity Reporter for UNIX or Linux Agents

Capacity Reporter for UNIX or Linux Agents can be installed with superuser privileges; no additional privileged account information is required. Follow these steps to install Capacity Reporter for UNIX Agents on a UNIX or Linux system.

Install a Capacity Reporter for UNIX or Linux Agent

1. The Capacity Reporter Installation CD contains directories containing installation files for UNIX and Linux.

UNIX agent files are in the `unix_agents` directory

Linux agent files are in the `linux_agents` directory

2. Copy or make accessible all the files from the proper directory on the Installation CD to each target system. This can be done using FTP or through an NFS mount.

Note – If you copy the files, you can delete them when Capacity Reporter is fully installed.

3. Use **chmod** to make the `installsrm` script executable.

4. Type `./installsrm` to start the installation.

This command decompresses and un-tars the product files into their target location, based on the platform and operating system version of the target system. The scripts are:

- `/usr/srmagent/srmagent.exe` Agent executable
- `/usr/srmagent/removesrm` Agent uninstall script
- `/usr/srmagent/revertsrm` Script to revert Agent to earlier version
- `/usr/srmagent/registersrm` Script to register/unregister Agent with Capacity Reporter Server, or change existing registration

5. Watch for the port confirmation request.

After **installsrm** puts the files in place, it invokes the **registersrm** script. If **registersrm** detects no previous Agent version, it enters into a dialog to determine what port the Agent will listen on. It tries these ports:

11125, 11126, 11127

If one of these ports is found, **registersrm** requests confirmation:

I am proposing to use port *port number* as the Agent listening address in INETD. Is this OK?

6. Enter **y** or **n**.

If you enter **n**, the following is displayed:

Please enter port to use:

7. Enter the port you want to use.

If the proposed port is not available, the following message is displayed:

Port *port number* is already in use. Please select another.

8. After the port is specified, the installation script proceeds with the following Agent registration dialog. Respond to each message appropriately.

Please enter the name (or IP address) of the SRM Server?
Please enter the port for the web server for *server name* (<enter>
defaults to port 80):
Please enter the SRM Service Login Account on *server name* (<enter>
defaults to 'SRMSvcUser')?
Please enter the NT Domain for *account* on *server name*? (<enter> uses
the default domain)
Enter the password for account *domain name/service login account name*
on *server name*?
Re-enter password:
Optionally specify the IP address of this Agent.
(default is to determine the IP address automatically):

9. When your responses are redisplayed you are prompted by the following:

Confirm: Registering with SRM Server:*server name*
on default port 80
with SRM Service Login Account *domain name/service login account name*
with supplied password
and letting the Agent determine its own IP address
Is this correct? (y or n)

10. Enter y or n.

- If you enter **n**, the script loops back to allow you to change your responses.
- If you enter **y**, a message is displayed to tell you whether or not registration was successful. Then this message is displayed:

Do you want to register with another SRM server (y/n)?

Enter y or n.

- If you enter **n**, the script exits.
- If you enter **y**, the Agent installation begins again, allowing you to register this Agent with another Capacity Reporter Server.

Modifying Your Capacity Reporter Installation

All modifications to Capacity Reporter installations are performed from the **Change Installation Settings** dialog box, which appears when you run Setup. All modifications to UNIX or Linux installations are performed from the command prompt.

4.1 Database Transaction Logs and Capacity Reporter Upgrading/Reinstalling

Each time you reinstall or upgrade a Capacity Reporter Server, the database is upgraded. During this upgrade, the database is temporarily stored in the SQL Server transaction log. You must ensure that the transaction log is configured to accommodate the database during the upgrade.

If the transaction log becomes full during a database upgrade, the installation program completes but the database is not completely upgraded. Make sure that you have adequate disk space to accommodate the larger log file.

Modify SQL Server transaction log settings

1. Back up your current Capacity Reporter database and store the backup in a secure location.
2. Go to **Start → Microsoft SQL Server → Enterprise Manager**.
3. Expand **SQL Server Group**.
4. Expand the appropriate computer name in the list.

5. Expand **Databases**.
 6. Highlight the appropriate database name in the list. By default, this is **srmdb_SRMServerName**. Right-click and select **Properties** from the context menu.
 7. Make sure that adequate disk space is available for the log file to grow. The log file might grow up to 70% of your database size.
 - a. Select the **General** tab and note the amount of space allocated for the database. Calculate 70% of this number; this is the amount of disk space you need to hold the log file.
 - b. Check to see that the disk where the SQL log file resides has that amount of free space to hold the log file.
 8. Select the **Transaction Log** tab and verify that the following settings are selected:
 - a. Automatically grow file
 - b. Unrestricted file size (this is under Maximum file size)
 9. Click **OK** to apply any changes and close the dialog box.
 10. You are ready to reinstall or upgrade your Capacity Reporter Server installation.
-

4.2 Modify a Capacity Reporter for Windows NT/Windows 2000 Installation

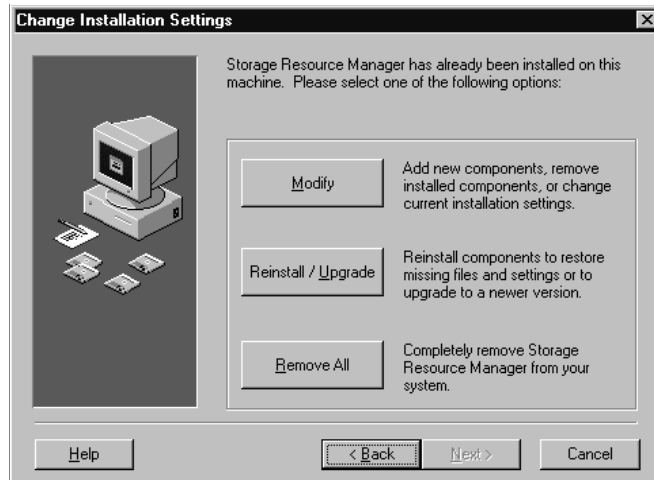
The first step in modifying your Capacity Reporter for Windows NT/Windows 2000 installation is to access the **Change Installation Settings** dialog box, which appears when you run Setup.

Access Capacity Reporter's Change Installation Settings dialog box

1. Insert the product CD-ROM in the CD-ROM drive. If Auto Start is enabled, the installation menu launches automatically.

If Auto Start is not enabled, run **i386\autorun.exe** from the CD-ROM.
2. Click **Install** on the Installation Menu.

3. Click **Next** on the **Display Registration Information** dialog box. The **Change Installation Settings** dialog box is displayed:



From this dialog box, you can modify your installation, reinstall or upgrade your software, or uninstall your Capacity Reporter software. See the procedures that follow for more information.

4.2.1 Modify Installed Components

Use the **Modify** option in the **Change Installation Settings** dialog box to add or remove selected Capacity Reporter components from the local computer. Only Windows agents can be modified remotely.

Note – If you are adding components to an existing installation, make sure that you select the check box of each component you want on the computer when Setup is finished. If you clear an installed component's check box, that component is uninstalled.

Modify your installation

1. Click **Modify** on the **Change Installation Settings** dialog box.
The **Select Components** dialog box is displayed. Components currently installed on the computer are selected; those not installed are not selected.
2. Select the check boxes of all components you want installed on this computer when Setup is finished. Clear the check boxes of all components you do not want on the computer. Click **Next**.

3. The **Enter License Key** dialog box is displayed. Enter the license key for Capacity Reporter.

Note – If you do not enter a license key at this point, you can still modify your Capacity Reporter installation. However, the first time you launch the application, it warns you that no license key has been entered and gives you the opportunity to enter a license key immediately or to continue browsing without entering a license key. If you do not enter a license key at this point, any agent licenses from versions 5.0.1 or earlier are nullified, and complete agent registration and scanning is prohibited until you enter the license key. (Existing scan data is not lost.)

To reset agent licenses, go to **Options** → **Licenses** → **Manage Licenses**, and select the **Using a License** checkbox for the appropriate agents.

4. The dialog boxes that are displayed now depend upon your selections. Click **Help** in any dialog box for details.
5. When Setup has all information needed to perform the add/remove, the **Start Installation** dialog box is displayed. Click **Next**.
Setup adds and/or removes the selected components.

4.2.2 Reinstall Components

On the **Change Installation Settings** dialog box, use the **Reinstall/Upgrade** option to install Capacity Reporter components over existing copies, or upgrade to a newer version of a Capacity Reporter installed component. You can reinstall Windows NT/Windows 2000 agents locally, or remotely using Capacity Reporter's Remote Installation feature.

Note – When you upgrade Capacity Reporter, it may take 15 minutes or longer for your database to upgrade. Please be patient during this part of the upgrade.

Reinstall Capacity Reporter components

1. Click **Reinstall/Upgrade** on the **Change Installation Settings** dialog box.
2. The **Enter License Key** dialog box is displayed. Enter the license key for Capacity Reporter.

Note – If you do not enter a license key at this point, you can still reinstall/upgrade your Capacity Reporter installation. However, the first time you launch the application, it warns you that no license key has been entered and gives you the opportunity to enter a license key immediately or to continue browsing without entering a license key. If you do not enter a license key at this point, any agent licenses from versions 5.0.1 or earlier are nullified, and complete agent registration and scanning is prohibited until you enter the license key. (Existing scan data is not lost.)

To reset agent licenses, go to **Options** → **Licenses** → **Manage Licenses**, and select the **Using a License** checkbox for the appropriate agents.

3. Click **Next** on the **Start Reinstall/Upgrade** dialog box.

Setup begins reinstalling or upgrading the Capacity Reporter components currently installed on the computer.

4. Click **Finish** on the **Installation Complete** dialog box.

4.2.3 Uninstall Components

Use the **Remove All** option on the **Change Installation Settings** dialog box to completely uninstall Capacity Reporter and from the local computer. Windows agents can be uninstalled locally, or remotely using Capacity Reporter's Remote Installation feature.

Uninstall Capacity Reporter

1. Click **Remove All** on the **Change Installation Settings** dialog box.
Select the appropriate radio button to keep or delete the database.
2. Click **Next** on the **Perform Uninstall?** dialog box.
Setup removes all Capacity Reporter software from the computer.
3. Click **Finish** on the **Uninstallation Complete** dialog box.

4.2.4 Upgrade or Reinstall a Capacity Reporter for UNIX or Linux Agent

As with any Capacity Reporter Agent, Capacity Reporter for UNIX Agents can be upgraded or reinstalled as needed.

Upgrade or Reinstall a Capacity Reporter for UNIX or Linux Agent

1. Mount the product CD-ROM in a system from which you can make the installation files available to all target systems.
2. Transfer the files to each target system, for instance using FTP or remotely mounting (using NFS) a directory containing the files.

UNIX agent files are in the **unix_agents** directory.

Linux agent files are in the **linux_agents** directory.

3. Type **./installsrnm** to start the installation program.

When **installsrnm** detects that file **/usr/srmagent/srmagent** already exists, it queries the agent to determine the version. The following dialog is displayed:

```
Version <ver> of the UNIX SRM Agent is currently installed. Do you
want to retain this version in a local compressed TAR file in case
you need to return to it (y/n)?
```

4. Enter **y** for yes. The following message is displayed:

```
Backup archive stored at /usr/srmagent/backup/srmverver.tar.Z
```

Setup copies the files for the version being installed and invokes the newly installed **registersrm** script.

When the **registersrm** script detects a previous installation, it uses the previous configuration information, attempting to repair any deficiencies in the set of configuration files **/etc/services**, **/etc/inetd.conf**, and **/etc/srmagent/agentconfig**.

The following messages are displayed for each installation step:

```
Existing SERVICES entry found for srmagent using port portnumber
```

```
Existing srmagent configuration file found
```

```
(/etc/srmagent/agentconfig) with the following SRM server(s)
configured:
```

list of SRM Servers

5. To change the configured srmagent listening port, you must uninstall and then reinstall the agent to change the listening port.
6. For each Capacity Reporter Server listed, respond using one of these codes:
 - **k** keep the Capacity Reporter Server configured as is
 - **r** re-register the Capacity Reporter Server
 - **d** delete the registration

7. Verify the new Agent installation and operation.

The new agent's computer name appears in the Managed Computers report after the initial computer scan is completed.

To display the Managed Computers report, click **Computers** from Capacity Reporter's Resources page or from a resource report's left-hand navigation frame.

4.2.5 Update Capacity Reporter for UNIX or Linux Agent Registration Information

Use the **registersrm** script to update Capacity Reporter for UNIX or Linux Agent registration information without installing the software.

Update Capacity Reporter for UNIX or Linux Agent registration information

1. Type the following at the command line on the UNIX or Linux system:

```
/usr/srmagent/registersrm
```

2. Follow any prompts as they are displayed.

4.2.6 Unregister a Capacity Reporter for UNIX or Linux Agent

Use the **registersrm** script to unregister a Capacity Reporter for UNIX or Linux Agent without uninstalling the software.

Unregister a Capacity Reporter for UNIX or Linux Agent

1. Type the following at the command line on the UNIX or Linux system:

```
/usr/srmagent/registersrm -r
```

2. Follow any prompts as they are displayed.

4.2.7 Revert to a Previous Version of Capacity Reporter for UNIX or Linux Agent Software

Use the **revertarm** script to revert to an earlier version of Capacity Reporter for UNIX or Linux.

1. Type the following at the command line from the **/usr/srmagent/backup** directory on the UNIX or Linux system:

```
/usr/srmagent/revertarm
```

If no **.tar.Z** files are in the directory, this message is displayed:

```
No backup version found
```

2. If there are no previous versions of the software to revert to, you must exit.

If there is one **.tar.Z** file in the directory, this message is displayed:

Do you want to revert to tar file srmverver.tar.Z (y/n)

3. Answer appropriately. Answering **y** overwrites the current software in the **/usr/srmagent** directory with the file specified.

If there are multiple **.tar** files in the directory, this message is displayed, listing as many files as were found:

List of SRM UNIX Agent versions available for reversion:

1. srmverver1.tar.A
2. srmverver2.tar.A

Please select code for a version to revert to, 0 for none:

4. Type the number of the version you want to overwrite the current software in the **/usr/srmagent** directory. If you do not want to proceed, type 0.

Installing and Registering Plug-Ins

This chapter describes installation and registration procedures for plug-ins provided with Capacity Reporter. For information about a particular plug-in, refer to the Readme file included in the same directory as the plug-in you want to install.

5.1 What are Plug-Ins?

A *plug-in* is software that allows Capacity Reporter to scan, collect, and report information from various types of objects, such as network-attached storage systems or SAN switches. By installing a plug-in onto a system where a Capacity Reporter Windows NT 4.0/Windows 2000 Agent is installed, you allow that Capacity Reporter Agent to become a proxy for the Capacity Reporter Server to use for communication with the object that the installed plug-in supports.

5.2 Plug-In Types

A different plug-in is defined for each type of object that Capacity Reporter supports. The following list describes the plug-in types:

- **Database** — Databases, which can be scanned through an appropriate plug-in and viewed by Capacity Reporter as a managed database.
- **NAS** — Network-attached storage systems, which can be scanned through an appropriate plug-in and viewed by Capacity Reporter as a managed computer.
- **NetWare** — Novell® NetWare® server systems, which can be scanned through an appropriate plug-in and viewed by Capacity Reporter as a managed computer.
- **RAID** — RAID subsystems (redundant array of independent disks). These plug-ins report on the enclosure, controller, and logical drive configuration of a RAID subsystem on your enterprise storage network.

- **SAN Switch** — A storage area network (SAN) object called a switch. These plug-ins report information about the configuration of a given SAN switch, including operating parameters and port information.
- **Device Data Files** — This plug-in imports data directly into the Capacity Reporter database from a data file. It does not gather data from the device, but it does allow you to import data gathered from RAID, NAS, or SAN devices.
- **RAID 6900/3900 Series** — This plug-in reports on the enclosure, controller, and logical drive configuration of a RAID 6900/3900 series subsystem on your enterprise storage network.

Reports available in the graphical user interface display the information reported by the plug-ins. NAS and NetWare systems are listed in the Managed Computers report. All other plug-in types have sections devoted to them.

5.3 Plug-In Kits Provided with Capacity Reporter

Plug-in kits are on your Capacity Reporter CD-ROM in a directory named **PlugIns**. This directory contains a subdirectory for each type of plug-in. Each subdirectory contains one or more executable files that install the selected plug-in on any computer.

The following plug-ins are provided with this release:

- **Databases**
 - **Database Scanning Plug-In(databasescannerplugin.exe)** — This plug-in allows a Capacity Reporter Agent to report information about managed databases including information about allocated size and log files.
- **NAS devices**
 - **Network Appliance Plug-In (NetAppPlugIn.exe)** — This plug-in allows you to integrate data about your Network Appliance Filer system into the Managed Computers report.
- **NetWare devices**
 - **NetWare Plug-In (NetWarePlugIn.exe)** — This plug-in allows you to integrate data about your Novell NetWare 4.2 and 5.1 server systems into the Managed Computers report.
- **RAID devices**
 - **Compaq SmartArray Plug-In (CompaqSmartArrayPlugIn.exe)** — This plug-in allows a Capacity Reporter Agent to report information about the Compaq SmartArray series of backplane RAID controllers.
- **SAN switch devices**

- **Brocade Plug-In (BrocadePlugIn.exe)** — This plug-in allows a Capacity Reporter Agent to report information about the Brocade family of Fibre Channel switches.

5.4 Plug-In Prerequisites

You must install a Capacity Reporter Windows NT/Windows 2000 Agent on a computer *before* you install a plug-in.

Each plug-in also has additional system requirements. For more information about requirements for a particular plug-in, refer to the Readme file provided with each plug-in.

5.5 Installing a Plug-In

After you have selected a Capacity Reporter Agent computer on which to install the plug-in, perform the following steps to install it.

Install the plug-in

1. Insert the product CD-ROM into your Capacity Reporter Agent computer and locate the appropriate plug-in installation kit in the **PlugIns** directory.
2. In Windows Explorer, click the executable file to start the installation process. The Installation Wizard is launched.

If prompted for a password, enter the password that is supplied with your Capacity Reporter CD-ROM. If you do not have a password, contact your sales or customer support representative to learn more about acquiring one.

3. Follow the Installation Wizard prompts. When the installation is done, the **Installation Complete** dialog box is displayed.
4. Do one of the following:
 - If you are prepared to register the object to be managed with the Capacity Reporter Server, select this check box.
See [Registering an Unmanaged Object](#) for information on how to use the Plug-In Registration Wizard to register unmanaged objects.
 - If you are not prepared to register an unmanaged object, clear the check box.

5. Click **Finish**. Your Capacity Reporter Agent computer is now capable of supporting the unmanaged objects that the plug-in you just installed is designed to support.

5.6 Uninstalling a Plug-In

If you want to remove a plug-in from a computer, use the **Add/Remove Programs** applet in Windows Control Panel to do so. You must do this on the computer where you installed the plug-in. For more information about removing a particular plug-in, refer to the Readme file provided with each plug-in.

Note – If you uninstall the Capacity Reporter Agent from a computer, all plug-ins installed on that computer are also removed.

5.7 Registering a Plug-In

Once you have installed a plug-in, you are ready to register it with the Capacity Reporter Server so that it can be scanned and reported on. Each plug-in provided with Capacity Reporter includes a registration utility called the Plug-In Registration Wizard. The wizard takes you through the steps required to register an unmanaged object with a Capacity Reporter Server.

For detailed registration information about a particular plug-in, refer to the Readme file included in the same directory (on the CD-ROM) as the plug-in installation executable file.

Understanding Capacity Reporter Software

Capacity Reporter software enables administrators of Windows NT/Windows 2000 domains and workgroups to manage distributed storage resources across the enterprise both effectively and efficiently. Capacity Reporter automatically creates configuration and usage reports organized by domain and workgroup, computer, disk, file system, group, and user.

A.1 Capacity Reporter Servers and Agents

A Capacity Reporter Server can manage several kinds of Agents: Windows NT/Windows 2000, UNIX, Linux, network-attached storage (NAS), and NetWare servers. All these Agents can be managed from a single Capacity Reporter Server, provided that the appropriate Agent software is installed on the computer you want to monitor.

Plug-ins are available to additionally manage SAN switches, and RAID Array controllers. A plug-in must be installed on a computer where a Capacity Reporter Windows NT/Windows 2000 Agent is installed. The Capacity Reporter Agent acts as a proxy for the Capacity Reporter Server to use for communication with the object that the installed plug-in supports.

A.2 Domain Planning

There are three concepts to remember for multiple domain planning:

- The relationship between the Capacity Reporter Server and Agents, for communication authentication.
- The relationship between the Capacity Reporter Server and the SQL Server, for database access.
- The location of the Capacity Reporter Server's Service Login account. The domain of each Capacity Reporter element must trust the domain of the Capacity Reporter Server's Service Login account.

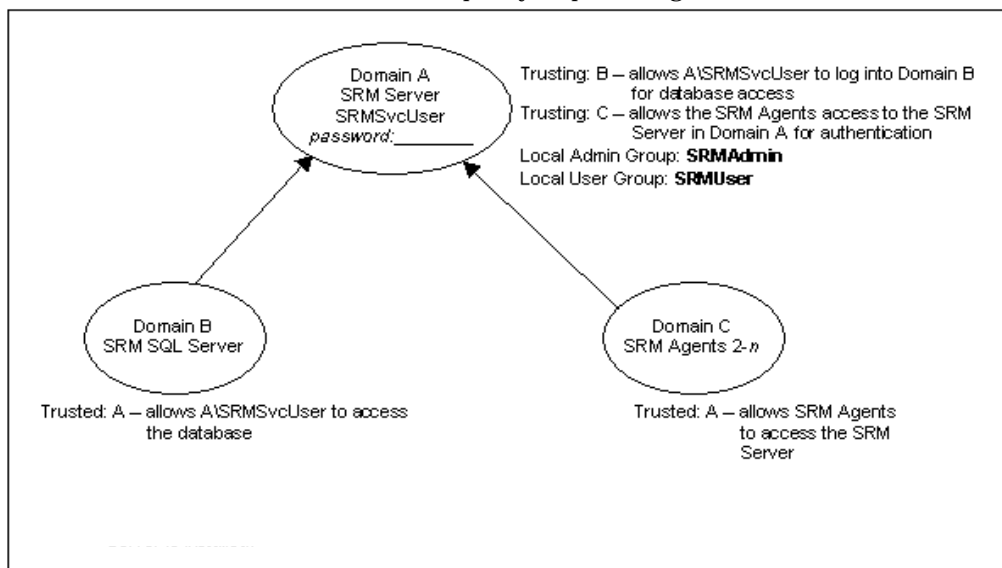
The sections that follow contain worksheets to help you plan your multiple domain trusts. The worksheets provide an explanation of the trusts needed in two possible multiple domain configurations: the SRM Service Login account and the Capacity Reporter Server in the same domain, and the SRM Service Login account and the Capacity Reporter Server in different domains. Both worksheets assume the default name of SRMSvcUser for the service login account, and that the Capacity Reporter Server installation includes a Capacity Reporter Agent.

If you use these worksheets to define your environment's configuration before installation, be sure to make a note of the Capacity Reporter Server's Service login account password; you will need it during your Capacity Reporter installations. Keep the password in a secure place.

Feel free to print the worksheet that best describes your environment and fill it in. Then see Section B.3, "Configuring One-Way Trust Relationships" on page B-70 for the trust configuration procedure.

A.2.1 Capacity Reporter Server and Service Login Account in the Same Domain

This worksheet shows how the trusts are configured when the Capacity Reporter Server's Service Login Account and the Capacity Reporter Server reside in the same domain, and the SQL Server and Capacity Reporter Agents reside in other domains.

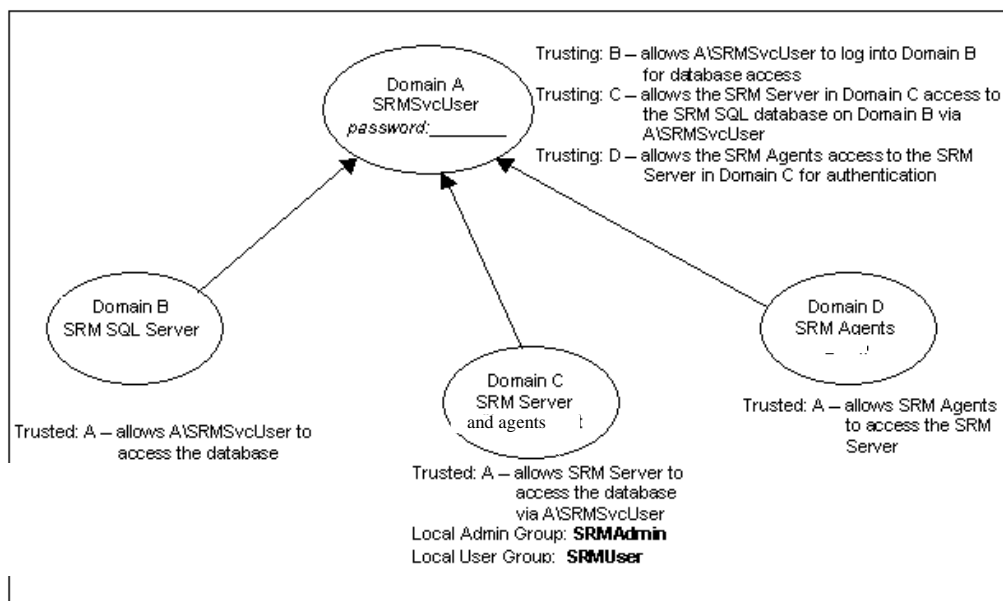


A.2.2 Capacity Reporter Server and Service Login Account in Different Domains

This worksheet shows how the trusts are configured when the Server's Service login account and its password are maintained in one domain, and the SQL Server, Capacity Reporter Server, and Capacity Reporter Agents are all installed in other domains.

If your Server's Service Login account uses a nondefault name, make a note of it here: _____.

Record the password for your Capacity Reporter Server's Service Login account here: _____.



A.3 Capacity Reporter and SQL Server

Capacity Reporter uses Microsoft SQL Server as its database engine. You must have Microsoft SQL Server installed and configured on your network prior to installing a Capacity Reporter Server. See Section 1.3.1, “Confirm SQL Server Settings for Capacity Reporter” on page 1-5 for the configuration settings needed for Capacity Reporter.

Because the Capacity Reporter Server is an SQL Server client, you can install the SQL Server Client Utilities on the Capacity Reporter Server computer if you want to configure the SQL client. **This is optional.** Capacity Reporter does not require that the client utilities be installed on the Capacity Reporter Server computer for installation or operation.

SRM SQL databases must reside on the SQL Server computer. Your SQL Server can reside on the same computer with your Capacity Reporter Server, or on another computer.

The Capacity Reporter installation creates and configures a default SQL Server database or allows you to use a database that you create and configure before Capacity Reporter installation. If you choose to install the default database configuration, you must follow the steps listed in Chapter 1 before installing Capacity Reporter. You can use the SQL Server administrative tools to modify the configuration at any time after installation.

When you install Capacity Reporter, you must have enough client access licenses (CALs), if you are using a SQL Server licensing model where they are required. Capacity Reporter requires a minimum of two CALs, one for the Capacity Reporter Server and one for access to the database via the Capacity Reporter's web interface.

The installation program helps you estimate the initial maximum database size for your environment. Supply values in the database sizing tool, and the estimated maximum initial database size is automatically calculated. See Section C.2, "Database Sizing" on page C-74, for more information.

A.4 Capacity Reporter in Windows NT/Windows 2000 Workgroups

When installed in a Windows NT/Windows 2000 Workgroup environment, Capacity Reporter Agent installation and operation is based on the peer-to-peer networking model. A Capacity Reporter Server installed on a computer in a workgroup can monitor Capacity Reporter Agent computers in the same or another workgroup. However, SQL Server must be on the same computer with the Capacity Reporter Server for the Capacity Reporter Server to monitor Capacity Reporter Agents in other workgroups.

If installing a Server or Agent in an untrusted domain or in a workgroup, be sure that the service account name and password on the Agent are the same as those on the Server.

As with all installations, remember to install the Capacity Reporter Server first. The service user account set up on the Capacity Reporter Server (by default SRMSvcUser) must be in place before you install any Capacity Reporter Agent s. You must provide the service user account's password during Agent installation.

Additionally, be sure that the login account you plan to use for installation is a member of the Local Administrator group on each computer in each workgroup.

Capacity Reporter's Web Security

Capacity Reporter security is designed to manage user access to Capacity Reporter. The default settings established during installation provide a basic configuration that you can modify to meet the specific needs of your environment.

Capacity Reporter supports Windows 2000 in NT domains only. Capacity Reporter currently does not support an Active Directory domain hierarchy. You cannot perform the security tasks described in this chapter on a Windows 2000 server machine.

B.1 How Capacity Reporter Determines User Access

There are two access levels to the User Interface:

| | |
|----------------------|--|
| Privileged access | <p>Provides the user with WRITE access to the Capacity Reporter database by granting them access to the Options tab in the Capacity Reporter User Interface.</p> <p>By default, Local Administrators have Write access to Capacity Reporter.</p> |
| Nonprivileged access | <p>Provides the user with READ-only access to the Capacity Reporter database. Users can view Capacity Reporter reports, but cannot make configuration changes to the Capacity Reporter database. The Options tab is not visible.</p> <p>By default, all authenticated users have READ access to the Capacity Reporter User Interface.</p> |

READ access to the Capacity Reporter User Interface is determined by the NTFS Security Permissions on the `\Inetpub\wwwroot\storageresourcemanager\` folder on the Capacity Reporter Server . (The `\Inetpub\` folder is the default folder created by the IIS installation.) By default, the Capacity Reporter directory inherits its permissions from the `\wwwroot\` folder, which (also by default) allows Everyone Full Access privileges.

To restrict READ access to Capacity Reporter, modify the permissions on the `\Inetpub\wwwroot\storageresourcemanager\` folder, and remove **Everyone** from the security list. Then add the users you want to have READ access. Finally, perform the following step(s):

- **On Windows NT:** Select **Replace permissions on existing subdirectories**
- **On Windows 2000:**
 - a. Select the newly added user name.
 - b. Click **Advanced**.
 - c. Select the **Reset permissions on all child objects and enable propagation of inheritable permissions** check box
 - d. Click **OK**.

To help facilitate the management of user access to the User Interface, the Capacity Reporter Server installation creates two local NT security groups on the Capacity Reporter Server: **SRMUser** and **SRMAdmin**. By default, no members are added to these groups.

To grant READ-only access, add users to the SRMUser group, and then grant the group Read permission on the **\Inetpub\wwwroot\storageresourcemanager** folder. Then you must remove the permission granting Everyone full control over the folder, which is the default condition. To grant or revoke READ-only access to the Capacity Reporter User Interface, modify the **SRMUser** NT security group by adding and/or removing users. You do not need to modify the NT permissions on the folder.

To determine if a user has WRITE access to the Capacity Reporter User Interface, Capacity Reporter checks to see if the interactive user has write access to the following registry key:

```
HKEY_LOCAL_MACHINE\SOFTWARE\HighGround\ SRManager\<SRM Version>\
Server\Options
```

By default, the Local Administrators and SRMAdmin NT groups are granted Full Control over this registry key, effectively granting **all** Local Administrators write access to the Capacity Reporter User Interface. By default, the SRMAdmin group is not populated.

Sun recommends that you use REGEDIT32 to modify the registry key to remove Local Administrators. Then you can grant WRITE access to Capacity Reporter by modifying the local NT group SRMAdmin and adding the appropriate users.

Editing the registry key to grant users Full Control allows them access to the Options tab, but it is easier to manage Capacity Reporter WRITE access by modifying the SRMAdmin group. Remember that you must also give the SRMAdmin group READ access to the **\Inetpub\wwwroot\storageresourcemanager** folder if Everyone has been removed from this folder.

Note – The SRM Server Service account (**SRMSvcUser** by default) must always have full access to this registry key.

B.2 Capacity Reporter Security in Multiple Domains

Capacity Reporter depends on standard Windows NT security mechanisms for its operation. The Capacity Reporter Server and Agent authenticate each other to prevent potentially sensitive information from being revealed to unauthorized programs.

Using the SRM Service Login account (**SRMSvcUser**, by default), the Capacity Reporter Server logs in and runs as a Windows NT Service and executes the processes **SRProcMgr.exe** and **SRMServer.exe**, while Capacity Reporter Agents log in and run as a Windows NT Service and execute the **SRMAgent.exe** process. All access to the Capacity Reporter SQL Server database from the Capacity Reporter Server is through this account; no other accounts need access to the database.

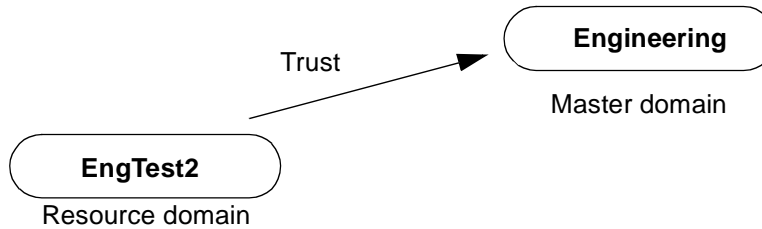
When all elements (Capacity Reporter SQL Server, Capacity Reporter Server, Capacity Reporter Agent, and SRM Service Login account) reside in the same domain, the authentication cycle and database access work based on implicit trusts. However, for the authentication cycle and database access to work properly in a multiple Windows NT security domain environment, trusts must be established among the various domains. The domains of the SRM SQL Server, Capacity Reporter Server, and Capacity Reporter Agent computers must trust the SRM Service Login account's domain.

Taking some time to ensure that your trust relationships are established prior to installing Capacity Reporter in your multiple domain environment can save a lot of time during installation. See Section A.2, "Domain Planning" on page A-62, for information and worksheets to help you configure your multiple domain trusts.

B.3 Configuring One-Way Trust Relationships

This section describes how to configure the trust relationships when the SRM Service Login account resides in a different domain from the SQL Server, Capacity Reporter Server, and/or Capacity Reporter Agents.

Note – In this example, the domain **Engineering** is where the SRM Service Login account resides, and **EngTest2** is the domain where you want the SQL Server, Capacity Reporter Server, and/or Agent to be installed.



Configure one-way trusts

1. **In the Engineering domain:** add the EngTest2 domain to the list of **Trusting Domains**.
2. **In the EngTest2 domain:** add the Engineering domain to the list of **Trusted Domains**.

For more information on trusts, see your Windows documentation.

Capacity Reporter Database Concepts

Capacity Reporter software create one database where all of your Capacity Reporter data is maintained. When you install one or both servers, you can specify the database space allocation for your Capacity Reporter data.

C.1 Capacity Reporter, SQL Server, and IIS

You can configure Capacity Reporter with SQL Server and IIS in one of the following ways:

Configuration 1

computer 1: SQL Server

computer 2: Capacity Reporter Server, IIS Server

computer *n*: Web browser

In this configuration, computers 1 and 2 can be in different domains. The SRM Service User Account (**SRMSvcUser** by default) must be defined in a domain with at least a one-way trust relationship with the domain(s) of computer 1 and computer 2. See Section A.2, “Domain Planning” on page A-62, for more information about setting up Capacity Reporter in multiple Windows NT/Windows 2000 security domains.

Configuration 2

computer 1: SQL Server, Capacity Reporter Server, IIS Server

computer *n*: Web browser

C.2 Database Sizing

When you install Capacity Reporter, you can use the installation program's database sizing tool to calculate the initial maximum size in MB of your Capacity Reporter SQL Server database. Modifying the default values for the listed settings dynamically changes the value in the Calculated Database Size field.

You can access the sizing tool before installing Capacity Reporter on any Windows NT 4.0/Windows 2000 computer that has no Capacity Reporter components installed. You can also use it during your Capacity Reporter installation if no Capacity Reporter Server is installed and the SRMDB data source does not point to a valid Capacity Reporter SQL Server database. Otherwise, the database dialog boxes are bypassed.

If you are using the sizing tool independently of a Capacity Reporter installation, make a note of the size you have calculated, and enter that value in the **Get Database Size** dialog box during installation.

If you are using this sizing tool during your Capacity Reporter installation, calculate your database to best meet your needs, and click **OK**. Your custom database size is entered in the **Get Database Size** dialog box. This is the size database that Setup creates during installation.

Access the Capacity Reporter database estimation calculator

1. Insert the product CD-ROM into the CD-ROM drive.
2. Click **Install** on the installation menu.
3. Forward through the dialog boxes until you get to the **Get Database Size** dialog box.
4. Click **Advanced**. The sizing tool is displayed. The next section contains an explanation of the fields in the dialog boxes.

C.2.1 Capacity Reporter's Database Size Estimation Fields

Managed Computers

All computers in the domain that have a Capacity Reporter Agent installed. The default is 15.

Managed File Systems per Computer

An average of the number of file systems on each managed computer.

Any file system on a managed computer is by default managed. The default is 4.

Managed File Systems per User

An average of the number of managed file systems where each user has space. The default is 2.

Users

The total number of users known to the Capacity Reporter Server. A user to Capacity Reporter is one who owns at least one file on a managed file system. The default is 1500.

Managed Directories

The number of directories that you designate as managed. The history kept for these directories is in addition to what is kept for the user and domain history settings. The default is 100.

Days of User History

The maximum number of daily records of user group history you want stored in the database. The default is 180.

This number correlates to the setting you can specify in the **User Level History Depth Setting** field of the History Depth Report Setting using Capacity Reporter's Reports Summary option. Setting this value in the database sizing tool does not set this value in the Reports Summary option. You must set the value there separately.

Days of Domain History

The maximum number of daily records of domain history you want stored in the database. The default is 180.

This number correlates to the setting you can specify in the **Domain Level History Depth Setting** field of the History Depth Report Setting using Capacity Reporter's Reports Summary option. Setting this value in the database sizing tool does not set this value in the Reports Summary option. You must set the value there separately.

File System Report Size

The maximum number of files you want to keep track of for the File System Report Size settings. The default is 20.

This number correlates to the three File System Level Settings you can specify in the **Report Size Report Setting** using Capacity Reporter's Reports Summary option. Setting this value in the database sizing tool does not set the values in the Reports Summary option. You must set the values there separately.

Capacity Reporter Size

The estimated maximum size, in MB, of your initial Capacity Reporter SQL database. This value represents only your Capacity Reporter data. The default is 198.

Calculated Database Size

The estimated maximum size, in MB, of your initial Capacity Reporter SQL database. This number is calculated on the values you entered in the fields above, and changes dynamically as you make changes in those fields. The default, calculated from the default values, is 198.

C.3 Database Maintenance

In order for Capacity Reporter maintenance tasks to run, the SQL Server Agent service must be running.

You can configure your SQL Server Capacity Reporter database before installing Capacity Reporter, or you can use the Capacity Reporter installation's default maintenance configuration. Whichever option you use, you can always reconfigure your Capacity Reporter database maintenance task any time after installation using the **SQL Server Database Maintenance Plan Wizard**.

Tip – Using the **SQL Server Database Maintenance Plan Wizard** creates two new maintenance tasks. You must first delete the existing Capacity Reporter maintenance tasks and then create the new ones. Although you can give your new maintenance tasks any name, if you do not name them **SRM Maint SRMDB_ SRM server computer name** and **SRM MaintS SRMDB_ SRM server computer name**, Capacity Reporter's Uninstall utility cannot locate them for deletion.

Setup configures the Capacity Reporter SQL Server database maintenance task as follows:

Backup

Daily full backup of the Capacity Reporter database to the default MSSQL backup directory (for example, MSSQL\BACKUP)

No transaction log backups

Truncate log on checkpoint option set

Backups are retained for one week

Statistics Update

Daily statistics update

Database Consistency Checking

Daily database consistency checking

Rebuilding Indexes

Daily rebuild of indexes using original FILLFACTOR specification

The maintenance task is named **SRM Maint SRMDB_ *SRM server computer name*** and by default runs daily at 1:15 A.M.

By default, Capacity Reporter runs detailed file scans at 2:00 A.M. Because it is difficult to predict how long a detailed file scan will take to complete, we recommend that you make sure to schedule the maintenance task to run before the detailed file scan if you alter the file scan or maintenance task run time. This ensures that the database backup does not interfere with the file scan.

A second task named **SRM MaintS SRMDB_ *SRM server computer name*** is created to refresh the optimizer statistics hourly at 20 minutes before the hour. Capacity Reporter's query optimizer determines the quickest way to run each query based on an estimated number of I/O calls.

C.4 Database Configuration

Read this information **only** if you must manually create a database for Capacity Reporter to use. Creating an SQL Server database prior to Capacity Reporter installation is optional. Capacity Reporter installation creates and configures a default database that you can later modify using the SQL Server Enterprise Manager.

If you are unfamiliar with creating and configuring SQL Server databases, we recommend that you consult your Microsoft SQL Server documentation or your database administrator. This topic contains Capacity Reporter SQL Server database configuration requirements and guidelines that are applicable to Microsoft SQL databases; it does not explain how to create the database.

If you want to let the installation program create and configure your Capacity Reporter SQL Server database, see Section 1.3.1, “Confirm SQL Server Settings for Capacity Reporter” on page 1-5, for the pre-installation requirements.

Whether you create a database or Setup creates the database, Capacity Reporter creates and schedules a maintenance task and configures security. Security is configured to allow the SRM Service Login Account access to the database.

When you create and configure an SQL Server database for Capacity Reporter to use, follow the requirements and guidelines in this checklist:

- Create the database.

The new database must be empty. It cannot contain tables, procedures, indexes, or data. Setup locates the SRMDB data source (instructions for creating this are below), discovers that it points to an empty database, and creates the necessary tables, indexes, and data. The databases must be of an adequate size to hold Capacity Reporter data. Guidelines for a typical Capacity Reporter installation include:

- 200 MB for the Capacity Reporter database (5 MB minimum database size)
- 20 MB for the Capacity Reporter database transaction log required on the master database's disk if Capacity Reporter creates the database.
- Set the SQL Server tempdb and its log to automatically expand as needed.
- Enough space for online backups dependent on your backup strategy.
- On the target Capacity Reporter Server computer, create a new System DSN for the SQL Server ODBC driver and name it SRMDB. Configure this new System DSN to point to the database you just created:
 - Make sure that **SRMDB** appears in the **Name** field of the first dialog.
 - Verify that the **SQL Server name** in the **Server** field of the first dialog is correct.
 - Make sure the **Change the default database to** field in the third dialog points to the new database.
 - Let the SQL Server driver choose the translation method for the character set translation option.
 - Setup configures all other SRMDB data source settings during installation. You **do not** have to configure them:
 - i. **windows NT authentication using the network login id** — selected
 - ii. **use ANSI quoted identifiers** — not selected
 - iii. **use ANSI nulls, padding, and warnings** — not selected

Modifying any data source settings after the Capacity Reporter installation completes may result in unpredictable behavior.

Additional optional configurations you might want to define include:

- Define the database maintenance configuration. Capacity Reporter's maintenance task is named **SRM Maint SRMDB_SRM server computer name** and by default runs daily at 1:15 A.M.

See Section C.3, "Database Maintenance" on page C-76, for the default configuration established by Setup.

- Capacity Reporter provides no transaction log management. If you choose to save and back up transaction logs, you must ensure that you have adequate transaction log space for Capacity Reporter to write its scan data to the database.

The frequency of your updates depends on your scan schedules. If you change Capacity Reporter's default scan schedules, you may need to change your maintenance schedules. The volume of updated data depends on the size of your installation.

Configure database security to meet your needs. Capacity Reporter's only security requirement is database access granted to the SRM Service Login account. Capacity Reporter's installation program grants this permission by default.

C.5 Database Security

This section is informational only; you do not need to perform any of these configurations. These actions are performed whether you install using the default database (allowing Setup to create and configure the database), or whether you create a database prior to installation.

Sun recommends that you do not alter this configuration; any changes could result in unpredictable behavior.

Remember that only one Capacity Reporter user is granted access to the Capacity Reporter SQL Server database: the Windows NT/Windows 2000 SRM Service User account; by default, this is **SRMSvcUser**.

Setup performs the following actions when configuring security on the Capacity Reporter SQL Server database:

- Grants SQL Server user-level access to the SRM Service user account, by default SRMSvcUser.

This is done using `sp_grantlogin` with SQL Server. When the access is granted, an SQL Server login is created for the SRM Service User Account. The name of this login depends on the SQL Server's default domain, and the domain of the Service User account. (Remember, you can install across domains, provided there is a one-way trust.)

If the Service User account's domain and the SQL Server's default domain are the same, the SQL Server login created is given the same name as the Windows NT/Windows 2000 account name (by default, SRMSvcUser).

If the Service User account's domain and the SQL Server's default domain are different, the SQL Server login created is given the name of the Service User account's domain. For instance, if the SQL Server default domain is ENGINEERING, and the Service User account's domain is Orion (Orion\SRMSvcUser), the SQL Server login is named Orion_SRMSvcUser, where the underscore is whatever character you have mapped to the \ domain separator.

In either case, the Windows NT/Windows 2000 Service User account is mapped to this login, providing the needed user-level access to the database.

- Creates a group (roles in Microsoft SQL) named SRMSvcGroup in the SQL Server database. Grants Select, Insert, Update, Delete, and DRI (declarative referential integrity) access to this group on each table in the Capacity Reporter SQL Server database.

Permits the SRM Service User (SRMSvcUser by default) SQL login access to the Capacity Reporter SQL Server database. This is done by creating an SQL Server user in the SQL Server database that corresponds to the SRM Service User SQL login. The user is made a member of the SRMSvcGroup, thus inheriting the group's privileges.

To support this security structure, Capacity Reporter requires the use of the Named Pipes or Multi-protocol Net-library for integrated security with Windows NT. This enables the mapping of the SRM Service User account to a login within SQL Server. When Capacity Reporter runs, all database access by the Capacity Reporter Server or Capacity Reporter web is done through the Service User account. This access does not require the clear-text specification of an SQL login password when Capacity Reporter connects to the database, which would be required if SQL Server Standard security were used.

Post-Installation Reference

D.1 Uninstall Capacity Reporter

To uninstall Capacity Reporter, run Setup from the CD-ROM and select **Remove All** from the **Change Install Settings** dialog box.

When you uninstall a Capacity Reporter Server, you are asked if you want to keep the database. Keeping the current database allows you to add the Capacity Reporter Server back onto the computer and use the data stored in this database.

Tip – Before uninstalling a Capacity Reporter Server, be sure to register any Agents it is monitoring with another Capacity Reporter Server to ensure continued data collection.

Uninstall Capacity Reporter

1. Insert the product CD-ROM in the CD-ROM drive. If Auto Start is enabled, **setup.exe** launches automatically.
If Auto Start is not enabled, run **i386\autorun.exe** from the CD-ROM.
2. Click **Install** on the Installation Menu.
3. Click **Next** on the **Display Registration Information** dialog box.
4. Click **Remove All** on the **Change Installation Settings** dialog box.

5. If you are uninstalling a server, select the database option that best matches your needs on the **Perform Uninstall?** dialog box.
6. Click **Next**.
Setup uninstalls all Capacity Reporter components currently installed on the computer.

Remotely Uninstall a Capacity Reporter Agent

1. From any Options page, click **Remote Install** in the navigation pane. The **Summary of All Jobs** page is displayed.
2. Click **install agent**. The **Select Agent Installation Script** page is displayed.
3. From the drop-down list, select **SRM Agent Default Uninstall Configuration**.
4. Follow the on-screen instructions.

Click **HELP** at the bottom of any remote installation page for more information.

D.2 Start Capacity Reporter

Use one of these methods to start Capacity Reporter:

- If you have installed the Web Browser shortcut, go to **Start → Programs → Storage Resource Manager**.
- If you have not installed the Web Browser shortcut, or if you want to view Capacity Reporter in a web browser other than your default web browser, open the web browser and enter this URL:

`http://<Storage Resource Manager Server Name>/StorageResourceManager`

where *Storage Resource Manager Server Name* is the name of the computer on which you installed the Capacity Reporter Server.

Note – If you have trouble accessing Capacity Reporter by typing this URL, check with your system administrator for the port number. If you need to type the address with a port number, add a colon and the port number after the Capacity Reporter Server name. For example, `http://ktw:80/StorageResourceManager`.

D.3 Start the WWW Service

You might need to reset the **IIS Service**, which includes the **WWW Service**, at some time. Follow this procedure.

Start the WWW Service

1. For **Windows NT**, go to **Start → Settings → Control Panel**, and select **Services**.
For **Windows 2000**, go to **Start → Settings → Control Panel → Administrative Tools**.
2. Select the **World Wide Web Publishing Service**.
3. If the service has no status or the status is **Stopped**, click **Start**.
4. To ensure that the **WWW Service** always starts up at system restart, click **Startup**. The **Service** dialog box is displayed. Under **Startup Type**, select the check box for **Automatic**, and click **OK**.

D.4 Start the SRM Process Manager Service

If an invalid password was entered or if there was an incomplete domain synchronization, you might have to start the **Process Manager** manually.

Start the SRM Process Manager service

1. For **Windows NT**, go to **Start → Settings → Control Panel**, and select **Services**.
For **Windows 2000**, go to **Start → Settings → Control Panel → Administrative Tools**.
2. Search for **Storage Resource Manager Service**.
3. Double-click **Storage Resource Manager Service** or click **Startup**. The **Service** dialog box is displayed.
4. Re-enter the user account and valid password in the **This Account** field, and click **OK**.
5. Ensure that **Storage Resource Manager Service** is still highlighted, and click **Start**.

D.5 Monitor the SRM Process Manager Service

If you are unsure whether the SRM Process Manager Service is running, look in the **Services** panel of the Windows NT/Windows 2000 Control Panel.

Monitor the SRM Process Manager service

1. **For Windows NT**, go to **Start → Settings → Control Panel**, and select **Services**.
For Windows 2000, go to **Start → Settings → Control Panel → Administrative Tools**.
2. Search for **Storage Resource Manager Service** and ensure that the Status is marked **Started**.

D.6 Stop the SRM Process Manager Service

Follow these steps to manually stop the SRM Process Manager (**SrProcMgr**) on a Capacity Reporter Server computer.

Stop the SRM Process Manager service

1. **For Windows NT**, go to **Start → Settings → Control Panel**, and select **Services**.
For Windows 2000, go to **Start → Settings → Control Panel → Administrative Tools**.
2. Search for **Storage Resource Manager Service**, and click **Stop**.

D.7 Verify Capacity Reporter's Application Configuration Settings

When Capacity Reporter is installed, the application configuration settings are inherited from the default web site configuration. It is a good idea to verify that these are properly set for Capacity Reporter, by ensuring that:

- Server-side script debugging is not enabled.

- The default ASP script language is VBScript.

You can perform this procedure on any computer on your network that has access to the Capacity Reporter Server computer. You must perform this procedure from an account with Administrator privileges on the Capacity Reporter Server computer.

Follow these steps to verify the application configuration settings.

Verify application configuration settings

1. Log in to an account that has Administrator privileges on the Capacity Reporter Server computer.
2. For Windows NT, go to **Programs → Windows NT 4.0 Option Pack → Microsoft Internet Information Server → Internet Service Manager**.
For Windows 2000, go to **Programs → Settings → Control Panel → Administrative Tools → Internet Services Manager**.
The Microsoft Management Console is displayed.
3. For Windows NT, expand **Console Root → Internet Information Server → SRM Server computer → Default Web Site**.
For Windows 2000, expand **Internet Information Services → SRM Server computer → Default Web Site**.

Note – If you are performing this procedure on a computer other than the Capacity Reporter Server computer, select **Internet Information Server**. Go to **Action → Connect** and create a connection to the Capacity Reporter Server computer.

4. Select **StorageResourceManager**, and right-click. Select **Properties** from the shortcut menu. The **StorageResourceManager Properties** page is displayed.
5. Click the **Virtual Directory** tab.
6. In the **Application Settings** area, select **Configuration**. The **Application Configuration** dialog box is displayed. Click the **App Debugging** tab.

Note – If you see a **Create** button, replace it with the **Configuration** button by clicking it.

7. In the **Debugging Flags** area, ensure that both **Enable ASP server-side script debugging** and **Enable ASP client-side script debugging** are *not* selected. If they are selected, clear their check boxes.
8. Select the **App Options** tab. Ensure that VBScript is entered in the **Default ASP language** field. If not, enter it.

9. Click **OK** in the **Application Configuration** dialog box and on the **StorageResourceManager Properties** page.

Remote Scanning Software

This appendix describes the Remote Scanning software option available with Capacity Reporter. It lists the supported platforms, prerequisites for installation, and installation procedures. It also describes post-installation tasks such as uninstalling and reinstalling Remote Scanning software, computer configurations, and Remote Scanning helper utilities.

E.1 Overview

A Capacity Reporter Agent, with the Remote Scanning agent component installed, acts as a *proxy agent* that scans a managed, or *remote computer*.

The proxy agent then returns the information to a Capacity Reporter Server, which populates the Capacity Reporter database. The information is the same as that gathered from a Capacity Reporter Computer Group scan (Computer, File System, Disk, and Share information), though there are limitations as described in “Remote Scanning Software Limitations” on page 96. You can view the information in the Capacity Reporter database using the standard Capacity Reporter web-based user interface.

Note – For the proxy agent to gain access to a remote computer, you must provide login and privileged account information, including the corresponding passwords. The Capacity Reporter Server places the account information in the Capacity Reporter database in an encrypted format. Additionally, Remote Scanning software provides the means to encrypt passwords further and to delete passwords from the Capacity Reporter database, which “Registering Remote Computers” on page 92 describes.

You can remotely scan any computer upon which a Capacity Reporter Agent can be installed. See Chapter 2 for agent prerequisites.

Remote Scanning features include:

- A web-based user interface that allows you to:
 - Register single remote computers that you want to scan to include them in the standard Capacity Reporter Managed Computers Report
 - Modify the registration settings of remote computers
 - View which remote computers are registered in the Capacity Reporter database
- A bulk registration method that uses Comma Separated Values (CSV) files to register multiple remote computers
- Helper utilities to:
 - Create encrypted passwords so that you do not have to include clear-text passwords in CSV files
 - Remove sensitive account information from the Capacity Reporter database after you perform remote scans
 - Configure Network Appliance Filer remote shell access

See “Setup for Remote Scanning Software” on page 89 for more information about Remote Scanning helper utilities.

E.1.1 Remote Scanning Configuration Considerations

Note the following information about your Remote Scanning installation:

- To scan remote computers running UNIX, use a proxy agent running either Windows NT 4.0 or Windows 2000; to scan remote computers running Windows NT/2000, use a proxy agent running Windows 2000. Refer to Table E-1 for a quick reference to acceptable combinations.
- Agent (as proxy) on Windows NT 4.0 can scan UNIX.
- Agent (as proxy) on Windows 2000 can scan UNIX, Windows NT, and Windows 2000.
- Capacity Reporter Servers require Windows Scripting Host Version 5.5, if you are running a version of Internet Explorer less than 5.5. You can download Windows Scripting Host Version 5.5 from:

<http://www.microsoft.com/msdownload/vbscript/scripting.asp>

- Follow the directions in Section E.2.1.4, “Configuring Windows NT/2000 Computers” on page E-91 to set the credentials for the Capacity Reporter Agent service.

E.1.2 Remote Computer Prerequisites

Table E-1 lists the prerequisites for remote computers.

TABLE E-1 Remote Computer Prerequisites

| Computer Type | Requirement |
|---------------|--|
| UNIX | Telnet for remote access |
| Windows 2000 | <ul style="list-style-type: none">• WMI (Windows Management Instrumentation) must be running• Remote Registry Administration services must be running |

Note – Ensure that Windows scripting is installed and running on your host.

E.2 Setup for Remote Scanning Software

To successfully use the Remote Scanning software, you:

- May need to configure the proxy agent and remote computers
- Must register the remote computers you want to scan in the Capacity Reporter database
- Can use Remote Scanning helper utilities to remove sensitive account and password information provided by your customer from the Capacity Reporter database

E.2.1 Configuring Your Computers

Before you can use Remote Scanning software, you might need to configure the proxy agent computer, the remote computer, or both.

E.2.1.1 Configuring Network Appliance Filers

Before you can scan remote Network Appliance Filer computers successfully, you must configure the proxy agent and the remote computers for remote shell access. If you do not configure your computers for remote shell access ahead of time, the Remote Registration user interface page provides optional fields for this information.

To configure your computers for remote shell access:

1. Make sure the proxy agent service is running as a user account that has remote shell access to the remote Network Appliance Filer you want to scan.
2. Use a privileged account with administrative privileges to grant remote shell access to the proxy agent service account. You can grant remote shell access, using either the Network Appliance Filer's user interface or a Remote Scanning helper utility.
3. To use the helper utility, access:

Program Files\StorageResourceManager\remote_setnasrsh.exe

The helper utility lets you configure remote shell access permissions on remote Network Appliance Filers without having to connect to each one. You can also use the helper utility to remove permissions. The helper utility CLI provides more information about the switches you use to configure remote shell access.

Note that you must include a space between the switches. For example:

```
Remote_setnasrash /nas cucumber /apw password /host cuke /han tester  
/confirm /Add
```

E.2.1.2 Configuring Novell NetWare Servers

Because NetWare offers an open API, there are no security or account considerations for scanning Novell Netware servers remotely.

E.2.1.3 Configuring UNIX Computers

To scan remote UNIX computers, you may have to provide two account names and passwords. When you register the remote UNIX computer:

1. You must include a login account name and corresponding password. The login account information allows you to use Telnet to log in to the remote UNIX computer. If the login account has root-like privileges, you can scan the remote UNIX computer successfully.
2. You might need to enter a privileged account name and corresponding password. If the login account does not have the necessary root-like privileges, you must provide a privileged account name that does have the appropriate privileges.

E.2.1.4 Configuring Windows NT/2000 Computers

It is recommended that the proxy agent computer run the Capacity Reporter software either as a domain account with local administrator privileges on the remote machines or by impersonating a user with a privileged account. Either option allows the proxy agent computer to access the remote computer to collect data for the Capacity Reporter database.

For the proxy agent computer to scan the remote computer using the credentials of the identity under which it is currently running:

- The proxy agent service cannot be running as the local system account.
- The account under which the proxy agent service is running must have local administrative rights on the remote computer.
- The domain in which the remote computer resides must trust the domain under which the proxy agent computer is running.

For the proxy agent computer to scan the remote computer by impersonating a user, that is, using a provided privileged account:

- The account under which the proxy agent service is currently running must have the “Act as part of the operating system” privilege on the computer hosting the proxy agent. If the proxy agent service runs as the local system account when using a privileged account, it has sufficient rights. Note that the provided privileged account being impersonated does not require this privilege.
- The provided privileged account must be a domain account and must have local administrative rights on the remote computer.
- Both the proxy agent computer and remote computer must be able to access the provided privileged account credentials. If the provided privileged account credentials, proxy agent computer, or the remote computer reside in different domains, the provided privileged account credentials must be in a domain that is trusted by the domains in which both the proxy agent computer and the target computer reside.

E.2.2 Registering Remote Computers

Before you can gather information from remote computers, you must register them in the Capacity Reporter database.

E.2.2.1 Accessing the Remote Registration User Interface

To access the Remote Registration user interface page:

1. Click the **Options** tab in the Capacity Reporter banner frame to display the **Options** main page.
2. Click the **Remote Install** icon to display the Summary of All Jobs page.
3. From the left-hand navigation frame, click **register computer** to display the Register Computers page.
4. Click the **Remote Scanning** option in the Select Agent Type menu and click **Next** to display the **Remote Registration** page.
5. Refer to the Remote Scanning software’s online help for information about how to register single or multiple remote computers, and modify registration settings from the Remote Registration page. See the following section for information about how to use a Comma Separated Values (CSV) file to register multiple remote computers.

E.2.2.2 Using CSV Files to Register Multiple Computers

To register more than one remote computer at a time, create a Comma Separated Values (CSV) file in which to place required registration settings. Remote Scanning software imports the CSV file and registers the listed remote computers in the Capacity Reporter database.

The Remote Scanning installation includes a CSV template with predefined column headings, under which you can enter registration settings in the correct format. Enter the appropriate registration information in the CSV template, which you access on your Capacity Reporter Server computer from:

Program Files\StorageResourceManager\RemoteScan\ImportTemplate.csv

You can also access a sample CSV file from:

Program Files\StorageResourceManager\RemoteScan\ImportExample.csv

If you create a CSV file using software other than a spreadsheet, the correct format to provide the registration settings is:

type,computer,domain,proxy,login account,login password,password encrypted,privileged account,privileged password,password encrypted

(The Remote Scanning installation also provides a helper utility for encrypting your customers' account passwords, which is described at the end of this section.)

Note that Remote Scanning software must find all 10 fields to be able to register the remote computers in the Capacity Reporter database successfully. You must indicate any optional, empty fields by delimiting commas, for example:

type,computer,domain,proxy,login account,login password,,,,,

Table E-2 describes the registration setting fields of a Remote Scanning CSV file.

TABLE E-2 Registration Setting Fields

| Field | Meaning |
|--------------------|---|
| Type | <ul style="list-style-type: none"> • Enter the operating system type. Use either <i>NetApp</i>, <i>NetWare</i>, <i>UNIX</i>, or <i>Windows</i>. • This is a required field. |
| Computer | <ul style="list-style-type: none"> • Enter the name of the remote computer to be scanned. • This is a required field. |
| Domain | <ul style="list-style-type: none"> • Enter the remote computer's domain. For UNIX computers, use <i>UNIX</i>. For Novell NetWare servers, use <i>NETWARE</i>. • This is a required field. |
| Proxy | <ul style="list-style-type: none"> • Enter the name of the Windows NT/2000 Agent computer (registered with the Capacity Reporter Server) that scans the remote computer. • This is a required field. |
| Login account | <ul style="list-style-type: none"> • Enter a login account for remote UNIX computers, which lets you access the remote computer using Telnet. This is a required field to access remote UNIX computers. • Enter the Capacity Reporter Agent Service account name if you need to configure remote shell access on Network Appliance Filers. This is an optional field to access Network Appliance Filers. • Leave this field blank for NetWare and Windows NT/2000 computers. |
| Login password | <ul style="list-style-type: none"> • This is a required field to access remote UNIX computers. Enter the password that corresponds to the login account. • If you enter a Capacity Reporter Agent Service account name to configure remote shell access on a Network Appliance Filer, you do not need to enter a login password. |
| Password encrypted | <ul style="list-style-type: none"> • Use <i>TRUE</i>, if you enter the login password in an encrypted format. This is a required field, if you use password encryption. • Use <i>FALSE</i>, if the login password you enter is in clear text format. |

| Field | Meaning |
|---------------------|---|
| Privileged account | <ul style="list-style-type: none"> • If the login account does not include the necessary privileges to remotely scan UNIX computers, enter a privileged account name. This is an optional field. • If the proxy agent service is not already running as a domain account with local administrator rights on the remote computer, enter a privileged account name for access to remote Windows NT/2000 computers. This is an optional field. • This field is required, if you are configuring remote shell (rsh) access to Network Appliance Filers in order to configure the login account. • Leave this field blank for NetWare computers. |
| Privileged password | <ul style="list-style-type: none"> • Enter the password that corresponds to the privileged account. • This is a required field, if you enter privileged account information for Network Appliance Filers, UNIX, or Windows NT/2000 computers. |
| Password encrypted | <ul style="list-style-type: none"> • Use <i>TRUE</i>, if you enter the privileged password in an encrypted format. This is a required field, if you use password encryption. • Use <i>FALSE</i>, if the privileged password you enter is in clear text format. |

See the Remote Scanning online help for more information about the registration setting fields.

Because your customer must supply you with login and privileged account information, including passwords, the Remote Scanning installation provides a password encryption helper utility. The password encryption helper utility lets you avoid entering clear text passwords in the CSV file. (Note that when you register a remote computer, whether individually through the Remote Registration user interface or by importing a CSV file, the Capacity Reporter Server encrypts all passwords before it inserts them in the Capacity Reporter database.)

Access the password encryption utility on your Capacity Reporter Server computer from:

Program Files\StorageResourceManager\PasswordEncryptor.exe

To use the password encryption utility:

1. Enter the password you want the utility to encrypt. The tool returns the password as an encrypted text string.
2. Cut the encrypted password from the command-line interface and paste it into a CSV file. Make sure that you select the entire string, which might wrap to more than one line. Do not include any line breaks in the string.
3. Enter TRUE in the password-encrypted field of the CSV file.

See the Remote Scanning for Capacity Reporter online help for information about registering multiple computers using CSV files.

E.2.2.3 After Remote Registration

After you have registered the remote computers in the Capacity Reporter database, you can collect data and create reports using Capacity Reporter. See the Capacity Reporter online help for information about using Capacity Reporter.

E.2.3 Deleting Account Information from the Capacity Reporter Database

When you register a remote computer, the Capacity Reporter database includes login account, privileged account, and encrypted password information. The Remote Scanning installation includes a command-line helper utility to delete account information and passwords from the Capacity Reporter database. To use the helper utility:

1. Access the helper utility on your Capacity Reporter Server computer from:
Program Files\StorageResourceManager\De_Sensitize.exe
2. Enter **/q** to display help about the helper utility or **/y** to remove all the user names and passwords for remote registered computers.

Note that you can no longer scan the remote computers. You must reregister the remote computers, if you want to perform future scans.

E.3 Remote Scanning Software Limitations

Remote Scanning software does not offer a complete solution to manage remote computers fully without installing the Capacity Reporter Agent software. Therefore, there are limitations relevant to Windows NT/2000 and UNIX platforms of which you need to be aware:

- Table E-3 lists Windows NT limitations.
- Table E-4 lists Windows 2000 limitations.
- Table E-5 lists UNIX limitations.
- Table E-6 lists Network Appliance Filer and NetWare Server limitations.

Table E-3 lists limitations that pertain to both standalone Windows NT systems and Windows clusters.

TABLE E-3 Windows NT Limitations

| Component | Remote Scanning Software... |
|--------------------------|--|
| Detail file system scans | Does not support <i>detail file system scanning</i> . Therefore, the Capacity Reporter software cannot determine detail file heuristics for users and directories without installing the Capacity Reporter Agent on the remote computers. |
| Computer Report | Does not obtain <i>Address Space</i> . |
| Disk Report | Does not: <ul style="list-style-type: none"> • Accurately report <i>Make</i>, <i>Model</i>, and <i>Revision Number</i> values. • Provide the true <i>Capacity</i> of the drives. Disk capacity is reported as a calculation of volume information and is always equal to or less than the true capacity. Note that any unallocated space is not reported. • Return the following values for IDE or SCSI drives: <ol style="list-style-type: none"> 1. Factory Defects 2. Grown Defects 3. Rotational Speed 4. Total Spares 5. AWRE Flag 6. Status (always assumed to be online) 7. Identifier (and type) 8. Bus, Target, and LUN • Might not report disk capacity, if disk administrator has not run. |
| Volumes Report | Might not report volume mapping, if disk administrator has not run. |

Table E-4 lists limitations that pertain to both standalone Windows 2000 systems and Windows 2000 clusters.

TABLE E-4 Windows 2000 Limitations

| Component | Remote Scanning Software... |
|--------------------------|--|
| Detail file system scans | Does not support detail file system scanning for Windows 2000 computers. Therefore, the Capacity Reporter software cannot determine detail file heuristics for users and directories without installing the Capacity Reporter Agent on the remote computers. |
| Computer Report | Does not obtain the <i>Address Space</i> value. |
| Disk Report | Does not: <ul style="list-style-type: none"> • Accurately report <i>Make</i>, <i>Model</i>, and <i>Revision Number</i> values. • Return the following values for IDE or SCSI drives: <ol style="list-style-type: none"> 1. Factory Defects 2. Grown Defects 3. Rotational Speed 4. Total Spares 5. AWRE Flag 6. Status (always assumed to be online) 7. Unique identifier (and type) |
| Volumes Report | Cannot: <ul style="list-style-type: none"> • Report the <i>Capacity on Raw Volumes</i>, even if they have been assigned a drive letter as a mount point. • Identify the <i>Volume Type/Description</i> (such as Simple, Spanning, Striping, Mirroring, and the like). You can infer spanning from other acquired data; otherwise, the volumes are reported as Simple. • Report on volumes mounted at the directory level (for example, D:\Support\Data); volumes are always reported as a single mount point. • Determine the <i>Hierarchy Type</i> associated with volumes (such as single mount point, multiple mount points and the like) because of the limitations in the preceding bullet. |
| Volume Map Report | Cannot get percentages of volume on multiple drives. For example, if a volume is spanning Capacity Reporter software cannot, determine that “x” MB on Physical Drive 0, “y” MB on Physical Drive 1, and so on). |

TABLE E-5 UNIX Limitations

| Component | Platform | Remote Scanning Software... |
|--------------------------|----------------------------|--|
| Detail file system scans | All | Does not support <i>detail file system scanning</i> for UNIX computers. Therefore, the Capacity Reporter software cannot determine detail file heuristics for users and directories without installing the Capacity Reporter Agent on the remote computers. |
| General | AIX | Might not report CPU speed or number of processors (if more than one exists) correctly. |
| | Linux | Might not report the number of processors correctly. |
| File Systems/Volumes | All | Reports volume type associated with file systems as <i>Unknown</i> . |
| Disks | All | Does not report AWRE setting and total spare blocks. |
| | AIX, HP/UX, Linux | Does not report primary and grown defects for SCSI drives. |
| | AIX, HP/UX, Linux, Solaris | Does not report disk speed. |
| | Tru64 | Does not report the processor type, only the architecture type. |

TABLE E-6 Network Appliance Filer and NetWare Server Limitations

| Type | Remote Scanning Software... |
|--------------------------|--|
| Network Appliance Filers | Does not support <i>detail file system scanning</i> . |
| Novell NetWare Servers | Does not support <i>detail file system scanning</i> . |

Scriptable Alerts

This appendix describes the Scriptable Alerts feature available with Capacity Reporter. It gives an overview of the Scriptable Alerts feature, lists its requirements, describes how it works, describes how to write a script, and provides a sample script for reference purposes.

F.1 Overview

Capacity Reporter software currently monitors network resources, and lets network administrators define conditions that generate alerts. For example, a network administrator can define an alert that is generated when a directory's quota is exceeded. With the Scriptable Alerts feature, once an alert is generated, a user-created script can be executed by Capacity Reporter that automatically corrects the condition. For example, a Capacity Reporter alert may be generated because the TEMP directory on a computer is over-quota. Using the Scriptable Alerts feature, the network administrator can create a script that, when the over-quota alert is generated, automatically deletes files in the TEMP directory.

The network administrator must create the script, and ensure that the script works properly upon execution. Sun Microsystems does not support issues related to customer-created script code. The network administrator must also configure Capacity Reporter so that Capacity Reporter executes the appropriate script when the appropriate alert is generated. This appendix describes how to write a script. The online Help describes how to configure, or enable, scriptable alerts.

F.2 Requirements

Software:

- Capacity Reporter software, Version 6.0

Security:

- The SRM Service Account must have **Read** and **Execute** permissions on the **Program Files\Storage Resource Manager\Scripts** directory.
- The network administrator's account must have **Write** permissions on the **Program Files\Storage Resource Manager\Scripts** directory.

F.3 Understanding Script Execution

In Capacity Reporter, each resource group has a set of alerts associated with it. When any member of a group satisfies an alert condition that is defined for the group, the appropriate alert is generated. The resource groups and their associated alerts are listed later in this appendix.

With the Scriptable Alerts feature, you can associate a single script with each resource group along with the set of alerts. This means that if any of the group's associated alerts are generated, this script is executed.

For example, the **Domain Unreachable** and the **Agent was Disabled: Insufficient Licenses** alerts are two Domain Group alerts. A network administrator may write a script, **test.exe**, and configure Capacity Reporter to execute **test.exe** when Domain Group alerts are generated. If two domains then become unreachable and each generates a Domain Unreachable alert, the **test.exe** script is executed twice. If an agent is disabled and generates an Agent was Disabled alert at the same time as the two Domain Unreachable alerts, the **test.exe** script is executed three times.

F.4 Resource Group Alerts

The following table lists the associated alerts for each resource group.

TABLE F-1 Resource Group Alerts

| Resource Group | Associated Alerts |
|----------------|---|
| Domain | Agent was Disabled: Insufficient Licenses Domain Unreachable Import Scan Failed New Computer Detected Test |
| Computer | Amount of RAM Changed Computer is Missing Disk Health Setting Changed Disk is Missing File System is Missing New Disk Defect Detected New Disk Detected New File System Detected Test |
| File System | File System Could not be Scanned Free Space Fallen Below Threshold Predicted Free Space May Fall Below Threshold Test |
| Directory | Directory Quota Exceeded Managed Directory is Missing New Managed Directory Detected |

TABLE F-1 Resource Group Alerts

| Resource Group | Associated Alerts |
|----------------|---|
| Database | Test |
| | Free Data Space Below Threshold (Data Free Space Less Than) |
| | Resource is Missing (Managed Database Missing) |
| | Database Scan Failed (Managed Database Scan Failed) |
| | Free Log/Rollback Space Below Threshold (Transaction Log/Rollback Free Space Less Than) |
| User | Test |
| | User Quota Exceeded |

F.5 Understanding Scanning and Alerts

Alerts are generated after a resource is scanned and its alert condition is detected. While alerts are associated with specific resource groups, they are not necessarily generated by that resource group's scan. The following table lists the alerts that are generated by different resource group scans.

TABLE F-2 Group Scans that Generate Different Group Alerts

| Resource Group Scan | Generated Alerts |
|---------------------|---|
| Computer | Free Space Fallen Below Threshold |
| | Predicted Free Space May Fall Below Threshold |
| File System | User Quota Exceeded |

F.6 How to Write Alert Scripts

This section describes the steps involved in writing alert scripts, and follows with more detailed information.

The following are the general steps involved in writing an alert script:

1. Write and compile a script.
2. Ensure that the SRM Service Account and the network administrator's account have the appropriate privileges on the **Program Files\Storage Resource Manager\Scripts** directory. The SRM Service Account is the account for the Capacity Reporter Server that executes the script.
3. Save the compiled script to the **Scripts** directory.
4. Enable scriptable alerts through the user interface. See the online Help for more information on enabling scriptable alerts.

F.6.1 Writing a Script

When an alert is generated by Capacity Reporter, the alert engine within Capacity Reporter passes a stream of information about the given alert to its associated script. The following alert parameter names and their values are passed to the script:

- Alert
- AlertID
- AlertTypeID
- ResourceTypeNames
- AlertedResourceName
- AlertTypeName
- OldValue
- ThresholdValue
- NewValue
- AlertGroupName
- AlertTime
- DomainName
- ComputerName

Different alerts may be generated at the same time, and every alert has the same parameter names. If these alerts are associated with one script, all the alerts' parameter names and values are passed to the same script.

After passing this information to the script, the alert engine waits for the script to finish or time out. It then waits for the script to pass back anything that needs to be recorded in the Capacity Reporter database.

Note: It is the network administrator's responsibility to document any exit code that may be generated by the script, such as error codes.

For the script to perform the appropriate action after receiving the input, it reads the input from the input stream. In particular, it reads the **Alert** parameter to detect which alert has been generated. The following parameters are useful when the script performs an action based on the **Alert** parameter:

- AlertTypeName (the type of alert is being generated)
- AlertedResourceName (the name of the resource that set off the alert)
- DomainName (the domain in which the resource resides)

Depending on the action being performed, the script may need to pass back to the alert engine anything that should be recorded in the Capacity Reporter database. This output can be viewed from the Current Alerts page in the user interface.

F.6.2 Alert Parameter Values

The following tables provide the **Alert** parameter values for each alert that is associated with a resource group.

Note – An underscore preceding an Alert parameter's value indicates a space.

F.6.2.1 Domain Group Associated Alerts

TABLE F-3 Domain Group Alerts

| Alert Parameter Value | Description |
|--|--|
| _Agent was Disabled: Insufficient Licenses | The number of available agent licenses exceeded the number of registered agents for this server. |
| _Domain Unreachable | A known domain from a previous scan could not be reached. The primary domain controller could be off the network. |
| _Import Scan Failed | The import scan that synchronizes Capacity Reporter user/directory groups with WINNT security groups could not be completed. |
| _New Computer Detected | A new unmanaged computer was discovered on the network from a previous scan. |
| _Test | The user from the Alerts Setting page has triggered a test alert. |

F.6.2.2 Computer Group Associated Alerts

TABLE F-4 Computer Group Alerts

| Alert Parameter Value | Description |
|------------------------------|---|
| _Amount of RAM Changed | RAM on a given machine increased/decreased since the last scan. |
| _Computer is Missing | The registered agent cannot be reached. It was possibly taken off the network or it was turned off. |
| _Disk Health Setting Changed | The SCSI disk's AWRE bit setting has been changed. AWRE stands for automatic write reallocation on error. When AWRE is turned on, it allows data in corrupt sectors to be moved to a new place and to be marked as bad. |
| _Disk is Missing | The specified disk doesn't exist. It was removed from the computer since the last scan. |
| _File System is Missing | The specified file system doesn't exist. The partition changed since the last scan. |
| _New Disk Defect Detected | A new defect has been found on a disk since the last scan. |
| _New Disk Detected | New disk has been found. It has been added to the computer since the last scan. |
| _New File System Detected | New file system/partition since last scan. |

TABLE F-4 Computer Group Alerts

| Alert Parameter Value | Description |
|--|--|
| _Test | The user from the Alerts Setting page has triggered a test alert. |
| _Free Space Fallen Below Threshold | The free space threshold set from the alert page has been reached, whether by percentage or megabyte. |
| _Predicted Free Space May Fall Below Threshold | The predictive trending feature of Capacity Reporter has forecast that the free space may fall below the specified threshold (megabyte or percentage) in a certain number of days. |

F.6.2.3 File System Group Associated Alerts

TABLE F-5 File System Group Alerts

| Alert Parameter Value | Description |
|--|--|
| _File System Could not be Scanned | A file system could not be reached for scanning, possibly due to the computer being down. |
| _Free Space Fallen Below Threshold | The free space threshold set on the alert page has been reached, whether by percentage or megabyte. |
| _Predicted Free Space May Fall Below Threshold | The predictive trending feature of Capacity Reporter has forecast that the free space may fall below the specified threshold (megabyte or percentage) in certain number of days. |
| _User Quota Exceeded | All the space assigned to a user exceeded his quota in megabyte value. |
| _Test | The user from the Alerts Setting page has triggered a test alert. |

F.6.2.4 Directory Group Associated Alerts

TABLE F-6 Directory Group Alerts

| Alert Parameter Value | Description |
|---------------------------------|--|
| _Directory Quota Exceeded | Quota set on the given directory has reached the megabyte threshold. |
| _Managed Directory is Missing | The specified managed directory doesn't exist. It was deleted or moved, or the computer is down. |
| _New Managed Directory Detected | A new managed directory has been discovered since the last scan. |
| _Test | The user from the alerts setting page has triggered a test alert. |

F.6.2.5 Database Group Associated Alerts

TABLE F-7 Database Group Alerts

| Alert Parameter Value | Description |
|--|---|
| _Free Data Space Below Threshold (Data Free Space Less Than) | Free space on the database fell below the specified megabyte/percentage threshold. |
| _Resource is Missing (Managed Database Missing) | The specified database cannot be found on its server. This usually means that it has been deleted, not that the server itself is down. |
| _Database Scan Failed (Managed Database Scan Failed) | A scan of the database could not complete due to the database server not running, or due to the computer on which the server resides going down/ Either that, or there are security problems relating to connecting to the database for scanning. |
| _Free Log/Rollback Space Below Threshold (Transaction Log/Rollback Free Space Less Than) | The transaction log free space for the specified database has reached its specified threshold in megabyte/percentage. There are 3 levels: Informational/Warning/Critical |
| _Test | The user from the alerts settings page has triggered a test alert. |

F.6.2.6 User Group Associated Alert

TABLE F-8 User Group Alerts

| Alert Parameter Value | Description |
|-----------------------|--|
| _User Quota Exceeded | All the space assigned to a user exceeded his quota in megabyte value. |

F.6.3 Sample Script

The following is sample script code:

```
// AVSATest.cpp : Defines the entry point for the console application.
//

#include "stdafx.h"

#include <string>
#include <map>
#include <iostream.h>

#include <windows.h>

int main(int argc, char* argv[])
{
    int nDelaySeconds = 0;

    // We accept an optional command line parameter, which is the number
    // of seconds to delay before exiting.
    if (argc == 2)
    {
        nDelaySeconds = atoi(argv[1]);
    }

    std::map<std::string, std::string>
mapInputParameters;

    while (!cin.eof())
    {
        const int nBufferSize = 1024;
        char buffer[nBufferSize];
        buffer[0] = '\0';
        cin.getline(buffer, nBufferSize);
        if (*buffer)
        {
```

```

char *p = strtok(buffer, ":");

// Get the name

if (p && *p)
{
    std::string strName = p;
    p = strtok(NULL, "\\0");

// Get the rest of the line

if (p && *p)
{
    std::string strValue = p;
    mapInputParameters[strName] = strValue;

// Save the data

}
}
}

// The input stream has been closed, now process the data.

if (nDelaySeconds)
{
    printf("Time Delay: %d\\n", nDelaySeconds);
}

// Print all the output for the sample.
// However, the data could be processed here and other scripts
// could be executed based on the information in mapInputParameters.

// You can retrieve individual values from mapInputParameters as
// follows:
// std::string strValue = mapInputParameters["Alert ID"];

std::map<std::string, std::string>::iterator
mapIterator = mapInputParameters.begin();
while (mapIterator != mapInputParameters.end())
{

```

```

        std::map<std::string,
std::string>::value_type pairValue = *mapIterator;
        printf("Name: %s = Value: %s\n",
pairValue.first.c_str(), pairValue.second.c_str());
        mapIterator++;
    }

    for (int i=0; i<nDelaySeconds; i++)
    {
        printf("%d\n", i);
        Sleep(1000);
    }

    return 0;
}

```

