Veritas CommandCentral™ Enterprise Reporter Release Notes

for Microsoft Windows and Solaris

5.2

Symantec™

CommandCentral Enterprise Reporter Release Notes

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Documentation version 5.2.1

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- Hardware information

- Available memory, disk space, and NIC information

- Operating system

- Version and patch level

- Network topology

- Router, gateway, and IP address information

- Problem description:

  - Error messages and log files

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- Product registration updates, such as address or name changes

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- Latest information about product updates and upgrades

- Information about upgrade assurance and support contracts

- Information about the Symantec Buying Programs

- Advice about Symantec's technical support options

- Nontechnical presales questions

- Issues that are related to CD-ROMs or manuals

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Asia-Pacific and Japan	customercare_apac@symantec.com
Europe, Middle-East, and Africa	semea@symantec.com
North America and Latin America	supportsolutions@symantec.com

About Symantec Connect

Symantec Connect is the peer-to-peer technical community site for Symantec's enterprise customers. Participants can connect and share information with other product users, including creating forum posts, articles, videos, downloads, blogs and suggesting ideas, as well as interact with Symantec product teams and Technical Support. Content is rated by the community, and members receive reward points for their contributions.

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Contents

Overview of this release

This chapter includes the following topics:

- About Veritas CommandCentral Enterprise Reporter

- What's new in CommandCentral Enterprise Reporter 5.2

- About Symantec Operations Readiness Tools

About Veritas CommandCentral Enterprise Reporter

Veritas CommandCentral Enterprise Reporter by Symantec (Enterprise Reporter) improves storage service management by aligning IT to business objectives. Enterprise Reporter offers business information executives and storage administrators the following:

- Global views of storage assets mapped to your organization

- Business insights into inventory utilization

- On-demand customized reporting

- Personalized dashboards for multiple users

Enterprise Reporter includes a central reporting interface for your storage infrastructure that unifies information from multiple data centers and organizes it along the lines of your business. If you are a business information executive, you can use Enterprise Reporter to view your storage environment at the enterprise level. You can then drill down into your organization's hierarchy, which could be organized by location, departments, or any other logical business unit. This summarized information enables you to assess trends in your storage environment, which you can then analyze to assign responsibility.

If you are a storage administrator, you can use Enterprise Reporter to identify capacity trends, review storage inventory, and determine your storage costs per

business unit. With this information, you can promote storage accountability and decrease costs.

Figure 1-1   Report types and scopes

Use Enterprise Reporter to answer questions like the following:

■ Which applications are growing out of control?

■ What will my tier 1 storage growth look like next year?

■ How is capacity trending in North America versus Europe?

■ How is storage allocated in the finance department?

■ Which department uses the highest percentage of tier 1 storage in the Toronto data center?

Storage administrators and business users operate Enterprise Reporter with CommandCentral Storage. While CommandCentral Storage provides storage reporting for a single data center and is used at an operational level, Enterprise Reporter lets you aggregate storage information from multiple data centers and view storage assets by a variety of business dimensions. For example, if you are a business information executive, you could use Enterprise Reporter to identify the trend of unclaimed tier 1 storage in your New York and Zurich data centers. You could then ask the storage administrators at each site to use CommandCentral Storage to drill down to the details of which arrays or LUNs are unclaimed.

What's new in CommandCentral Enterprise Reporter 5.2

CommandCentral Enterprise Reporter 5.2 includes the following new features and enhancements:

Thin provisioning

Enterprise Reporter now provides visibility into thin provisioning.

Thin provisioning is a virtualization technology that allows physical storage capacity to be allocated only when needed from a pool of free storage. Thin provisioning extracts the full value of thin provisioned arrays. Thin storage environments allocate physical storage upon writes in a fixed size.

Enterprise Reporter supports the following thin provisioning storage systems:

- Hitachi Universal Storage Platform V
- EMC Symmetrix DMX-3 and DMX-4
- EMC Symmetrix V-MAX IBM XIV

In Query Studio, the Host Storage Allocation reports provide the following thin provisioning metrics:

- Consumed Physical Capacity
- Consumed Capacity Total Cost
- Consumed Capacity Allocated to Host Directly
- Consumed Adjusted Allocated Capacity

The Host Storage Allocation, Tiered Storage Analysis, and Chargeback Analysis packages provide a Thin Status attribute. Enterprise Reporter also provides the following thin provisioning LUN attribute filters:

- Only Thin Pool Source LUNs
- Only Thin LUNs

For more information on thin provisioning, see *CommandCentral Enterprise Reporter User's Guide*.

Server virtualization support	Enterprise Reporter supports server virtualization reporting for VMware hosts and Solaris zones. In Query Studio, the Host Consumption reports provide the following virtualization server metrics:

- Virtual Pool Allocated Capacity
- Storage (LUN) Capacity Directly Allocated to Virtual Machines

The Host Consumption reports also provide the following filters:

- Only VMware Hosts
- Only Solaris Hosts

For more information on server virtualization reporting, see *CommandCentral Enterprise Reporter User's Guide*.

Storage categorization reporting	Enterprise Reporter now provides ad hoc storage categorization reports for tracking different types of storage. In Query Studio, the Host Consumption reports provide the following storage categorization metrics:

- Allocated SAN
- Allocated DAS
- Allocated IDE
- Allocated Loop
- Allocated ISCSI
- Allocated File Storage
- Claimed SAN
- Claimed Loop
- Claimed ISCSI
- Claimed File Storage
- Virtual Pool Allocated Capacity
- Storage Capacity Directly Allocated to Virtual Machine

For more information on storage categorization reporting, see *CommandCentral Enterprise Reporter User's Guide*.

ZFS	Enterprise Reporter provides limited support for Solaris ZFS file systems. Enterprise Reporter discovers ZFS file systems, but it does not discover child file systems to avoid the double counting of ZFS capacities.

Business view managment	The Enterprise Reporter Console has a new **Business Views** tab. On the **Business Views** tab, you can:

- Add and remove business views
- Edit a business view's structure
- Add and remove business view instances
- Assign and unassign storage objects

For more information on business views, see *CommandCentral Enterprise Reporter Administrator's Guide*.

New rollup support for arrays	Enterprise Reporter now provides support for rolling up the following:

- IBM XIV arrays
- FalconStor arrays

Metamodel changes

Enterprise Reporter now provides RAC-aware attributes for database objects (so that Enterprise Reporter does not double count database capacities at the enterprise level). The Database Analysis package now includes the following new attributes for database objects:

■ **Is Clustered** flag. This flag is set to *True* only if an Oracle database is part of RAC.

■ **Is RAC Aware** flag. This flag is set to *True* for a single database that is part of a RAC configuration. This flag is set to *False* for all other databases that are part of the same RAC configuration.

The Database Analysis package now includes the following new database attribute filters for database objects:

■ **Only Clustered Databases**. This filter excludes all of the databases that are not part of a clustered environment.

■ **Exclude Clustered Databases**. This filter excludes all of the databases that are part of a clustered environment.

■ **Exclude Duplicate Clustered Databases**. This filter excludes duplicate clustered databases. Apply this filter to include only one database from a RAC setup.

Enterprise Reporter now provides CSF-aware attributes for file system objects (so that Enterprise Reporter does not double count file system capacities at the enterprise level). The File System Analysis package and the Chargeback Analysis package now include the following new attributes for file system objects:

■ **Is CFS Aware** flag. In CFS scenarios, this flag is set to *True* for a single file system within a CFS configuration. This flag is set to *False* for all other file systems that are part of the same CFS configuration.

The File System Analysis package and the Chargeback Analysis package now include the following new filter file system objects (under **File System Attribute Filters**):

■ **Exclude Duplicate Clustered Filesystems**. This filter excludes duplicate file systems from a CFS configuration. Apply this filter to include only one file system in a CFS configuration.

Changes to sample reports Improvements were made to these sample reports:

- The Inventory Summary Report (Sample Reports > Inventory > Inventory Summary) now shows the database count based on the number of unique database instances.
- The Database Utilization Summary Report (Sample Reports > Utilization > Host > Database utilization Summary) now only shows the capacities for clustered database instances once.
- The Databases with Least Available Storage Report (Sample Reports > Operational > Databases with Least Available Storage) has a new Is Database Clustered column.
- The File System Utilization Summary Report (Sample Reports > Utilization > Host > File System Utilization Summary) now only shows the capacities for clustered file systems once.
- The File System/Volume Consumption Report (Sample Reports > Utilization > Host > File System/Volume Consumption Report) now only shows clustered filesystems once.

About Symantec Operations Readiness Tools

Symantec™ Operations Readiness Tools (SORT) is a set of Web-based tools and services that lets you proactively manage your Symantec enterprise products. SORT automates and simplifies administration tasks, so you can manage your data center operations more efficiency and get the most of out of your Symantec products.

SORT lets you do the following:

- Collect, analyze, and report on server configurations across UNIX or Windows environments. You can use this data to do the following:

  - Assess whether your systems are ready to install or upgrade Symantec enterprise products

  - Tune environmental parameters so you can increase performance, availability, and use

  - Analyze your current deployment and identify the Symantec products and licenses you are using

- Upload configuration data to the SORT Web site, so you can share information with coworkers, managers, and Symantec Technical Support

- Compare your configurations to one other or to a standard build, so you can determine if a configuration has "drifted"

- Search for and download the latest product patches

- Get notifications about the latest updates for:

  - Patches

  - Hardware Compatibility Lists (HCLs)

  - Array Support Libraries (ASLs)

  - Array Policy Modules (APMs)

  - VCS agents

- Determine whether your Symantec enterprise product configurations conform to best practices

- Search and browse the latest product documentation

- Look up error code descriptions and solutions

To access SORT, go to:

http://sort.symantec.com

System requirements

This chapter includes the following topics:

- Operating system requirements

- Disk space requirements to install Enterprise Reporter

- System resources recommended for different network sizes

- Web browser requirements

- Co-existence of Enterprise Reporter with other Symantec products

Operating system requirements

Table 2-1 provides operating system requirements for Enterprise Reporter.

Table 2-1   Enterprise Reporter operating system requirements

Operating systems supported	Required patches and components
Windows Server 2003 SP2 (32-bit and 64-bit) and Windows Server 2008 SP1 (32-bit) for the following editions: ■ Standard ■ Datacenter ■ Enterprise ■ Web You can install Enterprise Reporter on virtual machines that run supported versions of the Windows Server operating system.	■ Windows Installer version 1.1 or higher ■ Windows Management Instrumentation

Table 2-1   Enterprise Reporter operating system requirements *(continued)*

Operating systems supported	Required patches and components

Solaris 9 and 10 (SPARC only) with End User as the minimum requirement for the software group	■ Sun Enterprise Authentication Mechanism (SEAM)
	■ Required patches for Solaris 9:
	  ■ 111711-14
	  ■ 111712-14
	  ■ 111722-04
	  ■ 112233-12
	  ■ 112874-37
	  ■ 112963-23
	  ■ 113225-07
	  ■ 117560-03
	■ Required patches for Solaris 10:
	  ■ 117461-06
	  ■ 118833-36
	  ■ 119254-34
	  ■ 122032-03
	  ■ 125418-01

We do not support installation of Enterprise Reporter on non-English operating systems.

Disk space requirements to install Enterprise Reporter

This section provides disk space and temp space requirements to install Enterprise Reporter.

Review system resource requirements for information about processor, memory, and database disk space.

See "System resources recommended for different network sizes" on page 22.

Table 2-2 lists space requirements to install or upgrade Enterprise Reporter 5.2 on Solaris.

Table 2-2   Enterprise Reporter 5.2 disk and temp space requirements on Solaris

	(a)	(b)	(c)	(d)	(e)
Type of install	Total disk space required	Total non-relocatable disk space required in `/opt`	Total relocatable disk space required in `/opt/VRTSccer`	Temp space in `/var/tmp`	Temp space in `/opt/VRTSccer`
Fresh install	2913 MB	366 MB	2487 MB	220 MB	432 MB
Upgrade from 5.0 MP1	423 MB	45 MB	389 MB	220 MB	765 MB

Consider the following information:

■ Column (a) is the total disk space required on all file systems including `/`, `/opt`, `/usr`, and `/etc`.

■ Column (c) is the disk space required on the file system where packages are relocated.

■ Columns (d) and (e) are the total temporary disk space required at the time of the install. This space is released at the end of the install.

■ Upgrade values are additional disk space required for the upgrade.

■ The numbers given are +10% of the actual observed disk space consumed, and not the exact values. This allows for the way that Solaris allocates disk space to files.

Table 2-3 lists space requirements to install Enterprise Reporter on Windows.

Table 2-3   Enterprise Reporter 5.2 disk and temp space requirements on Windows

Disk space required	Temp space required
System drive: 157 MB	500 MB
Install drive: 2260 MB or 2.2 GB	

Consider the following information:

■ The install drive is the drive on which you choose to install Enterprise Reporter. This install location (along with the drive) is user selectable, meaning it is relocatable for the Windows operating system.

- The system drive is the drive on which the operating system is installed. Some shared components, such as VRTSjre, and the install logs reside on this drive.

- The total disk space consumed is the sum of that required for the system drive and install drive. This means that if you choose to install Enterprise Reporter in the default install directory, the space required would be 2417 MB.

- The numbers given are +10% of the actual observed disk space consumed, and not the exact values. This allows for the way that Windows allocates disk space to files.

System resources recommended for different network sizes

As the size of your storage network increases, greater system resources are required to accommodate the larger database of objects. The following tables provide recommended CPU, memory, and disk space resources for running Enterprise Reporter on small, medium, and large storage networks.

Note the following:

- The number of hosts refers to the amount of hosts for which Enterprise Reporter rolls up data.

- The disk space for the Enterprise Reporter host is for the installation directory and configuration directory.

- The recommendations apply to Solaris and Windows.

Table 2-4 lists the recommendations for disk space and temp space based on network size.

Table 2-4   Disk space and temp space recommended for Enterprise Reporter with small, medium, and large networks

Network size	Enterprise Reporter host	Oracle database
Small (500 hosts)	Disk space: 10 GB	■ Disk space: 10 GB ■ Temp space: 1 GB
Medium (1000 hosts)	Disk space: 10 GB	■ Disk space: 20 GB ■ Temp space: 2 GB
Large (2000 hosts)	Disk space: 10 GB	■ Disk space: 40 GB ■ Temp space: 2 GB

Table 2-5 lists the recommendations for system CPU and memory based on network size.

Table 2-5   System CPU and memory recommended for Enterprise Reporter with small, medium, and large networks

Network size	Enterprise Reporter host with local Oracle database	Enterprise Reporter host with remote Oracle database
Small (500 hosts)	■ CPU: Quad processor ■ Memory: 8 GB	■ CPU: Dual processor ■ Memory: 4 GB
Medium (1000 hosts)	■ CPU: Quad processor ■ Memory: 12 GB	■ CPU: Dual processor ■ Memory: 8 GB
Large (2000 hosts)	■ CPU: Quad processor ■ Memory: 12 GB	■ CPU: Dual processor ■ Memory: 8 GB

Web browser requirements

One of the following web browsers is required to run the Console:

■ Microsoft Internet Explorer 6.x or 7.x (Windows only)

   ■ Secure Sockets Layer (SSL) 3.0 ActiveX scripting must be enabled

   ■ For Internet Explorer 6.0 on Windows 2000 (Server, Advanced Server, or Datacenter Server) and Windows 2003 Server (Standard Edition, Datacenter Edition, Enterprise Edition, or Web Edition), set the default Intranet zone security level to MEDIUM or lower.

   ■ Using Microsoft Internet Explorer 7.x on Windows Server 2008 and Windows Vista is not supported.

■ Mozilla Firefox 2.x and 3.x (Windows only)

Note: Support for Firefox is limited in Cognos. You will not be able to create or edit advanced reports if you use Firefox.

Your browser must support either JScript 5.5 (provided with Microsoft Internet Explorer 6 or later) or JavaScript 1.2.

If you are using pop-up blockers (including Yahoo Toolbar or Google Toolbar), either disable them or configure them to accept pop-ups from the Enterprise Reporter Management Server to which you will connect.

Co-existence of Enterprise Reporter with other Symantec products

Several Symantec products may be installed on the same host in a typical data storage management environment.

Table 2-6 lists the products (or product components) that can co-exist on a host with Enterprise Reporter 5.2.

Table 2-6   Enterprise Reporter co-existence with other Symantec products

Symantec product component	Co-install possible?
Cluster Server Management Console 5.5	Yes
CommandCentral 5.1 Management Server	Yes On Windows hosts, if you want to install the CommandCentral 5.1 Management Server on a host where Enterprise Reporter 5.2 is already installed, you need to obtain a hotfix.
CommandCentral 5.1 managed host	Yes On Windows hosts, if you want to install the CommandCentral 5.1 managed host on a host where Enterprise Reporter 5.2 is already installed, you need to obtain a hotfix.
NetBackup 6.5.4 Client	Yes
Storage Foundation 5.0 MP3	Yes
Storage Foundation 5.1 for Windows	Yes
Storage Foundation Manager 2.0 Management Server	Yes on Solaris No on Windows
Storage Foundation Manager 2.0 managed host	Yes

Fixed issues

This chapter includes the following topics:

■ Issues fixed in CommandCentral Enterprise Reporter 5.2

Issues fixed in CommandCentral Enterprise Reporter 5.2

Table 3-1 lists the known issues fixed in this release of Enterprise Reporter.

Table 3-1   Issues fixed in Enterprise Reporter 5.2

Incident	Description
1110343	When two or more Oracle RAC instances use the same database, Enterprise Reporter no longer counts capacity values more than once. The default reports related to databases are fixed. For user-generated reports, apply the **Exclude Duplicate Clustered Database** filter to avoid counting database capacities more than once.
1522801	In the previous version of Enterprise Reporter, selecting a report from the View Reports List pane caused Enterprise Reporter to prompt you for a user name and password but the credentials were not accepted. This issue is fixed.
1712857	In the previous version of Enterprise Reporter, when a host consumed storage from aggregate LUNs and RAID-5 LUNs that belong to an EMC Symmetrix storage array, incorrect capacities appeared in the **SAN Chargeback** reports. This issue affected the total physical capacity in the **SAN Chargeback Summary** report, and the physical capacity in the **SAN Chargeback Detail** report. These capacities now calculate correctly.

Table 3-1   Issues fixed in Enterprise Reporter 5.2 *(continued)*

Incident	Description
1712911	Previously, when a host belonged to a cluster and had exclusive storage, incorrect capacities appeared in the **SAN Chargeback** reports. Also, when a host consumed storage from a 3PAR array, incorrect capacities appeared in the **SAN Chargeback Detail** reports. These capacities now calculate correctly.
1719078	The cron job that initiates data rollup no longer remains after you uninstall Enterprise Reporter from a Solaris host.
1933840	In the previous version of Enterprise Reporter, installing the Management Server on a Windows host that includes Storage Foundation 5.1 SP1 resulted in the Enterprise Reporter product installer closing at the start of the installation.
1946096	The Windows version of Enterprise Reporter now supports usernames that contain the following special characters: . ? > } { | ! # $ % ^ & * ( ) - _ + = ~
2059207	Prior to Enterprise Reporter 5.1 Hot Fix 2, Enterprise Reporter did not roll up RAC-aware attributes on database objects. Because of the way RAC configurations are set up, Enterprise Reporter counted the same capacity two or more times at the enterprise level. To resolve the double-counting and multiple-counting issues, Enterprise Reporter now provides RAC-aware attributes in the form of flags or filters at the metamodel level. Enterprise Reporter now rolls up RAC attributes as database dimensions.
2065096	Prior to Enterprise Reporter 5.1 Hot Fix 2, Enterprise Reporter did not roll up CFS-aware attributes on file system objects. Because of the way CFS configurations are set up, Enterprise Reporter counted the same capacities two or more times at the enterprise level. To resolve the double-counting and multiple-counting issues, Enterprise Reporter now provides CFS-aware attributes in the form of flags or filters at the metamodel level. Enterprise Reporter now rolls up CFS attributes as file system dimensions.
2071498	Enterprise Reporter no longer fails on Windows if the 8dot3 flag is disabled ('ntfsDisable8dot3NameCreation = 1').

Software limitations

This chapter includes the following topics:

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Cannot log in to the Console using Internet Explorer when the host name includes an underscore (1447601)

If the Management Server's host name includes an underscore, you cannot log in to the Console using Internet Explorer. This occurs because of a limitation in Internet Explorer.

Workaround

Do one of the following:

- If you use Internet Explorer, connect to the Console using the Management Server's IP address. For example, type `https://ipaddress:8443` in the browser's address field.

- Use Firefox to connect to the Console.

Invalid certificate error appears in Firefox (1708229)

If you access the Enterprise Reporter Console and then access a different Enterprise Reporter Console from the same browser window session, you may receive an

invalid certificate error message. The error message appears when the Console tries to load Cognos—for example, in the Enterprise Reporter dashboard.

Workaround

Remove the previous certificate from Firefox.

To remove the previous certificate from Firefox

1   In Firefox, click **Tools > Options > Advanced > Encryption > View Certificates**.

2   Select the Cognos certificate.

3   Click **Delete**.

4   Restart Firefox

Cannot view reports in Excel format when you use Internet Explorer 7.x (1726839)

When you try to view a report in Excel format using Internet Explorer 7.x, a new window appears and then immediately disappears. The window disappears due to browser settings.

Workaround

Enable automatic prompting for file downloads.

To enable automatic prompting for file downloads

1   In Internet Explorer, click **Tools > Internet Options > Security**.

2   Click **Local intranet**.

3   Click **Custom Level...**

4   Under **Downloads > Automatic prompting for file downloads**, click **Enable**. Then, click **OK**.

5   Click **Internet**.

6   Repeat steps 3 and 4.

7   Click **Trusted sites**.

8   Repeat steps 3 and 4.

9   Click **OK**.

Known issues

This chapter includes the following topics:

- Install, uninstall, and upgrade issues
- Console and report issues
- User management issues
- Data rollup issues
- Business view issues
- Documentation issues

Install, uninstall, and upgrade issues

The following notes pertain to known issues that you might encounter when you install, uninstall, or upgrade Enterprise Reporter 5.2.

Special characters cause configuration failure (1651763)

Configuration of Enterprise Reporter fails when the installation directory path contains any of the following special characters: `~!@$^*-_+=|{}[]';.,

The Enterprise Reporter installer does not allow these characters in the installation path. This issue occurs on the Windows platform.

Workaround

Do not use the special characters in the installation directory name.

Upgrading Enterprise Reporter fails in co-existence setup (1671955)

A co-existence setup means a setup where CommandCentral Storage, CommandCentral Storage Change Manager, and CommandCentral Enterprise Reporter are all installed on the same host. In a case where you upgrade Enterprise Reporter 5.0 MP1-RP1 or 5.1 to Enterprise Reporter 5.2 , the installation can fail to start the `ccerweb` and `sm` processes. The issue occurs because the maximum Java memory (roughly 2GB) can sometimes be consumed in a co-existence setup. The Cognos logs may show that a "PermGen space" error occurred while stopping the web server.

Workaround

Restart the web server.

To restart the web server

1   Go to `/opt/VRTSweb/bin`

2   Execute the following command:

   `./webgui restart`

3   Start the web applications as follows:

   ■ Go to `/opt/VRTSsmweb/webgui` and execute the following command:
      `smw start`

   ■ Go to `/opt/VRTSccer/bin` and execute the following command:
      `ccerweb start`

   ■ Go to `/opt/VRTSccs/VRTSccsts/bin` and execute the following command:
      `vxccs start gui`

   ■ Go to `/opt/VRTSccs/VRTSccsts/bin` and execute the following command:
      `vxccs start scmui`

Oracle tablespace creation fails on Windows when the directory name includes spaces (1720060)

When you install Enterprise Reporter on Windows, the **Oracle database server Tablespace directory** field defines the directory in which the installer creates the required tablespaces and schema for your Oracle database. If you enter a directory name that includes spaces, the following error message appears when the installer tries to create the tablespaces:

```
Oracle Tablespace creation failed because oracle could not create
table space files in host_name. Please ensure the Tablespace Directory
exists and has write permission for oracle user on host_name.
```

Workaround

Specify a directory that does not include spaces in its name.

The Enterprise Reporter Console is unusable if you install Enterprise Reporter 5.2 over Storage Foundation 5.1 or 5.1 SP1 on Solaris (2085125)

If you install Enterprise Reporter 5.2 over Storage Foundation 5.1 or 5.1 SP1 on Solaris, you may be unable to use Enterprise Reporter. You may see the following error when you log in:

```
[ServletException in:/layouts/RightPane.jsp] null'
java.lang.NullPointerException
```

Workaround

Obtain the `vrtswebenv.sh` file from Symantec Technical Support. Copy the `vrtswebenv.sh` file into the following directory: `/opt/VRTSweb/bin`. Then restart the Enterprise Reporter Console. Enter the following: `/opt/VRTSweb/bin/webgui restart`.

The Enterprise Reporter Console is unusable if you install or upgrade Enterprise Reporter 5.2 over CommandCentral Storage 5.2 on Windows or Solaris (2088647)

If you install Enterprise Reporter 5.2 over CommandCentral Storage 5.2 on Windows or Solaris, you may get a servlet exception error and be unable to use Enterprise Reporter. This is also an issue if you install CommandCentral Storage 5.2 over Enterprise Reporter 5.2.

Workaround

■ On Solaris, run this command:

```
/opt/VRTSsmweb/webgui/smw restart
```

■ On Windows, restart the Veritas Storage Management Web Console service from the **Services** panel in Windows.

Cognos configuration error message when upgrading to Enterprise Reporter 5.2 (2135798)

When you upgrade from Enterprise Reporter 5.1 to 5.2, you may get the following erroneous error message stating that there is a Cognos configuration failure:

```
Action: EvaluateObject

BMT-MD-0003 UDA-SQL-0107 A general exception has occurred during the
operation

"prepare". ORA-00942: table or view does not exist

RQP-DEF-0177 An error occurred while performing operation

'sqlPrepareWithOptions'

status='-9'.

UDA-SQL-0107 A general exception has occurred during the operation
"prepare".

ORA-00942: table or view does not exist
```

This error message does not impact the product functionality and requires no action on your part. The error message appears in the installation log file Cognos_Config.log on both Windows and Solaris installations.

Workaround

Although the error message directs you to reconfigure the product, there is no need to do so. You can ignore the error message.

If you upgrade to SFW 5.1SP1, you may get errors in Enterprise Reporter 5.2 (2136413)

If you install SFW 5.1SP1 after you install Enterprise Reporter 5.2, you may get errors in Enterprise Reporter because of a cipher-related issue with JRE 1.6.

Workaround

Apply the JRE 1.6 patch.

To apply the JRE 1.6 patch

1   Go to the Java SE Downloads web site.

2   Click **Download** next to the following item: **Java Cryptography Extension (JCE) Unlimited Strength Jurisdiction Policy Files 6**.

    The `jce_policy-6.zip` file downloads.

3   Uncompress and extract the downloaded file.

4   Copy the `local_policy.jar` and `US_export_policy.jar` files to the `<java-home>\lib\security` directory on your local drive.

5   Copy the `ca.cer` file from `<cognos-home>/bin` to `<java-home>/bin`. The `<cognos-home>` directory is in one of the following locations:

- If you installed Cognos in the default location, it is located here:
  `C:\Program Files\VERITAS\VRTSccer\Cognos`

- If you did not install Cognos in the default location, it is located here: *Your installation path*`\Cognos`

The `<java-home>/bin` file is located here: `C:\Program Files \Common Files\Veritas Shared\VRTSjre\jre1.6\bin`).

6 From `<java-home>\bin`, enter the following command:

```
keytool -import -noprompt -alias ERCogKey -file "C:\Program Files

\Common Files\Veritas Shared\VRTSjre\jre1.6\bin\ca.cer"

-keystore "C:\Program Files\Common Files\Veritas

Shared\VRTSjre\jre1.6\lib\security\cacerts" -storepass changeit
```

7 Restart the Symantec Web Server, the Veritas Enterprise Reporter Web Console and Cognos8 from the **Services** panel in Windows.

When you upgrade from Enterprise Reporter 5.1 to 5.2, the NO ACCESS role is not an available User Management option (2138339)

The NO ACCESS user management role is a new feature in Enterprise Reporter 5.2 that allows you to create users that have no privileges to use the product. Assigning this role blocks a user account or user group from accessing Enterprise Reporter.

When you upgrade from Enterprise Reporter 5.1 to 5.2, you may not see the NO ACCESS role on the **User Management** tab. The role may also be missing when you add a user or group.

Workaround

Update the userManagement.xml file.

To update the userManagement.xml file

1 Open the userManagement.xml file. Go to one of the following locations:

- **On Solaris:** `/opt/VRTSsmweb/webgui/sm/config/userManagement.xml`

- On Windows: *Enterprise Reporter install directory*\VRTSsmweb\webgui\sm\config\userManagement.xml

2 Edit the userManagement.xml file. In the userManagement.xml file, go to the Roles section and add the following line:

```
<Rolename="No Access" description="Has no access to any reports
or data." />
```

3 Save and close the userManagement.xml file.

4 Restart the Storage Management Web Console. Do one of the following:

- On Solaris, enter the following command: /opt/VRTSsmweb/webgui/smw restart

- On Windows, restart the Veritas Storage Management Web Console service from the **Services** panel in Windows.

Console and report issues

The following notes pertain to known issues that you might encounter when you use the Enterprise Reporter Console and reports.

Tree view in Enterprise Reporter Console not fully Section 508 compliant (1099869)

The tree control that is used in the Enterprise Reporter Console to display business view hierarchies is not fully Section 508 compliant. Limitations in the tree do not permit screen reader applications such as JAWS to read the object names in the tree. There is no workaround for this issue at this time.

Percentage columns averaged in ad hoc report summary lines (1101752)

If you use Query Studio to create an ad hoc report and you add a summary line to the report, values within the percentage columns will be averaged. This is a Cognos limitation.

Workaround

To ensure that your data is correct, determine a formula to access the correct values from your report. Add a new column to your report that includes this calculated value.

Tables show rounded capacity values while charts do not (1108854)

Enterprise Reporter rounds capacity values shown in report tables, but does not round the values in charts. For example, if a capacity is 0.24, the table displays "0" while the chart displays "0.24." Because of this, the sum of individual capacities does not match the value that appears in the Total.

Workaround

To view the nonrounded capacity values on charts, display the capacity's ToolTip.

Incorrect used capacity reported for MS-SQL database (1110702)

When you view a report about MS-SQL databases, incorrect used capacity values may display. This occurs because of a problem in CommandCentral Storage.

Workaround

If you are running CommandCentral Storage on a UNIX host, there is no available workaround.

If you are running CommandCentral Storage on a Windows host, refer to the following TechNote:

http://support.veritas.com/docs/287016

Incorrect capacity reported for an application group (1111101)

When you view a report about an application group's capacity, the capacity values may be more than what is reported in CommandCentral Storage.

This occurs because of double counted capacity values. If a group contains an application and the file system that the application uses, the capacity for that application will be counted twice.

Workaround

When you create a group in CommandCentral Storage, add the application to the group, but do not include the file system that the application uses.

Security alerts display in Firefox 2.x and 3.x when using Enterprise Reporter Console (1204355)

When you use Firefox 2.x or 3.x to view the Enterprise Reporter Console, security alerts similar to the following repeatedly display:

In Firefox 2.x: `Firefox can't connect securely to ... because the site uses a security protocol which isn't enabled.`

In Firefox 3.x: `Secure connection failed` and the error code `ssl_error_no_cypher_overlap`.

Workaround

You can change the default value of an SSL preference in Firefox to avoid these messages.

To change the default SSL security setting in Firefox

1   In the address bar in Firefox, type

    about:config

2   In the Filter field in the page that displays, type

    ssl3.rsa_rc4_40_md5

    The page refreshes to display the ssl3.rsa_rc4_40_md5 browser preference.

3   Double-click the ss13.rsa_rc4_40_md5 preference so that its status, type, and value are set as follows:

    user set, boolean, true

4   Restart Firefox and reconnect to the Console.

HTTP status exception displays when logging in to the Console (1476311)

After you install CommandCentral 5.1 or 5.2 on a host that includes Enterprise Reporter 5.0 MP1, 5.1, or 5.2, when you try to log in to the Enterprise Reporter or CommandCentral Storage Change Manager Consoles, the following error message appears:

`HTTP status Exception: Unable to compile class for JSP`

This issue occurs because the Symantec Web Server is not compatible with Java 1.5.

Workaround

Replace the Symantec Web Server's JDT compiler with two new files (`ant.jar` and `ant-launcher.jar`). Contact Symantec Technical Support to obtain these files. After you obtain the files, perform the following procedure.

To replace the Symantec Web Server's JDT compiler with two new files

1 On the Management Server, open the following directory:

`/opt/VRTSweb/catalina/common/lib`

2 In the directory, rename the file `jasper-compiler-jdt.jar` to `jasper-compiler-jdt.jar.donotuse`

3 Copy and paste `ant.jar` and `ant-launcher.jar` into the following directory:

`/opt/VRTSweb/catalina/common/lib`

4 Type the following command to restart the Symantec Web Server:

`/opt/VRTSweb/bin/webgui restart`

The Web Server restarts. You can now log in to the Enterprise Reporter and CommandCentral Storage Change Manager Consoles.

Cognos schedule set to incorrect time zone (1484864)

When you schedule a report to run automatically through Cognos Connection, by default, the time zone is set to `(GMT -05:00) America, Indianapolis`.

Workaround

Configure the time zone.

To configure the time zone (Solaris)

1 On the Management Server, open an operating system console and log in as root.

2 Change to the following directory:

`/opt/VRTSccer/bin`

3 Set the environment as:

`. setenv.sh`

4 To load Cognos Configuration, type the following command:

`/opt/VRTSccer/cognos/c8/bin/cogconfig.sh`

5 Click **Action > Edit Global Configuration**.

6 Click **General**.

7 Click the value for **Select time zone**.

8 From the Server time zone drop-down list, select a time zone.

9 Click **OK**.

10   Click **File > Save**.

11   Click **File > Exit**.

12   When prompted, restart the Cognos server.

To configure the time zone (Windows)

1   Click **Start > Programs > IBM Cognos 8 > IBM Cognos Configuration**.

2   Click **Action > Edit Global Configuration**.

3   Click **General**.

4   Click the value for **Select time zone**.

5   From the Server time zone drop-down list, select a time zone.

6   Click **OK**.

7   Click **File > Save**.

8   Click **File > Exit**.

9   When prompted, restart the Cognos server.

Cognos log on screen appears when you view reports in the Home pane (1631512)

The Cognos log on screen may appear in the Enterprise Reporter Console when you try to view reports in the Home pane. This issue occurs if you access the Console from the Management Server and enter "localhost" in the URL (for example, https://localhost:8443).

Workaround

When you access the Enterprise Reporter Console from the Management Server, enter the fully-qualified host name of the Management Server in the URL:

https://hostname:8443/

The page cannot be displayed message appears in the Console on Windows hosts (1665114)

The message `The page cannot be displayed` may appear in the Enterprise Reporter Console. When this occurs, it means you may have connected to the Enterprise Reporter host using the short name, or Partially-Qualified Domain Name (PQDN), for your machine.

Workaround

Use the Fully Qualified Domain Name (FQDN) to connect.

To use the fully qualified domain name

1   In Windows, click **Control Panel > Network Connections**.

2   Open your network connection.

3   Double-click the Internet Protocol (TCP/IP).

4   Click **Advanced**.

5   Click the **DNS** tab.

6   Select **Append these suffixes**.

7   Click **Add** and then type in the DNS suffix.

Sample reports not visible to users with read-only permissions (1671894)

An error message may appear when a user with read-only permission tries to view certain sample reports. The reports do not load in the Console. This issue occurs with reports that contain an 'HTMLItem' layout element and can be seen on both Solaris and Windows platforms.

Workaround

Change the permission for the read-only user.

To change the permission for the read-only user

1   Log in to the Enterprise Reporter Console with admin user rights.

2   Click the **Manage reports** icon.

    The **Cognos connection** screen appears in a new window.

3   On the **Cognos connection** screen, do the following:

    ■   Click the **Launch** link located at top right-side of the screen.

    ■   From the Launch drop-down list, select **IBM Cognos Administration**.

4   In the **IBM Cognos Administration** window, click the **Security** tab, and then click **Capabilities** at the left-side of the screen.

5   In the **Capability** pane, click **Report Studio** in the list of available **Capabilities**--you may need to click the change page button to find it in the list.

6   In the **Report Studio** pane, beside **HTML Items in Report**, click the **Actions** button, and then click **Set properties**.

7   In the **Set properties-HTML Items in Report** pane, do the following:

    ■   Click the **Permissions** tab.

■ Below the **Name** and **Permissions** box, click **Add**.

8   In the **Select entries (Navigate)-HTML Items in Report** pane, do the following:

■ In the **Available entries Directory** box, select the **Enterprise Reporter** checkbox.

■ Click the arrow button to move the Enterprise Reporter namespace to the **Selected entries** box.

■ Click **OK**.

9   In the **Permissions** tab, do the following:

■ In the **Name** and **Permissions** box, select the **Enterprise Reporter** checkbox.

■ In the **Grant** and **Deny** box, select the **Traverse** and **Execute** checkboxes under the **Grant** column.

■ Click **OK**.

10   In the **Capability** pane, click **Report Studio**.

11   In the **Report Studio** screen, do the following:

■ Click the **Actions** button.

■ Click **Set properties**.

12   In the **Set properties – Report Studio** pane, do the following:

■ Select the **Permissions** tab.

■ Below the **Name** and **Permissions** box, click the **Add** link.

13   In the **Select entries (Navigate)-Report Studio** pane, do the following:

■ In the **Available entries Directory**, select the **Enterprise Reporter** checkbox.

■ Click the arrow button to move the Enterprise Reporter namespace to the **Selected entries** box.

■ Click **OK**.

14   In the **Permissions** tab, do the following:

■ In the **Name** and **Permissions** box, select the **Enterprise Reporter** checkbox.

■ In the **Grant** and **Deny** box, select the **Traverse** checkbox under the **Grant** column.

■ Click **OK**.

15 Log out of the Enterprise Reporter Console, and then log in as a read-only user to verify the reports can be viewed.

Console session logs out after logging into multiple product consoles (1676349)

If you log in to the Enterprise Reporter Console and then, on another tab in the same browser instance, log in to either CommandCentral Storage Change Manager or Storage Foundation Manager, your session in the Enterprise Reporter Console logs out. The initial connection terminates regardless of which product you logged into first. This issue occurs with both Firefox and Internet Explorer.

Workaround

Do not use multiple browser tabs in a single browser instance for logging in to multiple products. Use a separate browser instance to connect to each product.

RSV-SRV-0030 error appears in Report Studio (1705573)

When you use Report Studio to create reports, you can use the Express mode or the Professional mode. Typically, the Professional mode is the default mode. If you use the Express mode, you may receive the following error message when you load a report in Report Studio:

```
The report could not run because the feature is not supported or a
server error occurred RSV-SRV-0030 The user does not have the assigned
capability to use HTMLItem.
```

Workaround

Modify the user interface profile for the Express mode.

To modify the user interface profile for the Express mode

1 Log in to the Enterprise Reporter Console with the admin user account.

2 In the **Home** pane, click **Manage Reports**.

3 In the **Launch** drop-down list, select **IBM Cognos Administration**.

4 Click **Security**.

5 In the **Security** pane, click **User Interface Profiles**.

6 In the **User Interface Profiles** table, click the **Actions** icon that appears next to the word Express.

7 In the **Permissions - Express** panel, click **Add...**

8   In the **Select entries (Navigate) - Express** panel, do the following:

■ In Available Entries Directory, select **Enterprise Reporter**.

■ Click the arrow to move the Enterprise Reporter namespace to the selected entries box.

■ Click **OK**.

9   In the **Permissions - Express** panel, do the following:

■ Check the checkbox for **Enterprise Reporter**.

■ In the **Grant** column, check the checkboxes for **Traverse** and **Execute**.

■ Click **OK**.

10 Log out of Enterprise Reporter and close all Web browser windows.

You can now log in to Enterprise Reporter and access Report Studio in the Express mode.

Incorrect capacities sometimes appear in the SAN Chargeback reports for EMC CLARiiON arrays (1710248)

Incorrect capacities appear in the **SAN Chargeback** reports in the following scenario.

When a host consumes storage from an aggregate LUN that belongs to an EMC CLARiiON storage array:

■ An incorrect total physical capacity appears in the **SAN Chargeback Summary** report.

■ Physical capacity displays as zero in the **SAN Chargeback Detail** report.

NAS chargeback report can show inaccurate capacities (1714485)

In the NAS Chargeback report, a calculation inaccuracy can occur in the Quota Limit, Quota Used, Quota Limit Physical, and Quota Used Physical capacities. An inaccuracy can also occur in any user-created reports that have Quota Limit and/or Quota Used capacities added. This issue occurs when there are multiple User and/or Group Quotas defined on a Qtree. In such a case, the NAS chargeback might display lesser capacities for all the quota capacities.

There is no workaround.

User management issues

The following notes pertain to known issues that you might encounter when you manage user accounts.

LDAP users cannot access the Enterprise Reporter Console after upgrading to 5.2 (1192299)

LDAP users who were able to access the Enterprise Reporter 5.0, 5.0MP1, or 5.1 Console cannot log in after upgrading to 5.2.

Workaround

On the LDAP host, edit the Symantec Product Authentication Service configuration file named `/var/VRTSat/.VRTSat/profile/VRTSatlocal.conf`. Add the following lines after the `[Security\Authentication\Authentication Broker\AtPlugins\ldap\AuthMechanisms\Simple]` section.

`"AdminUser"=""`

`"AdminUserPassword"=""`

`"AuthType"="FLAT"`

`"SearchScope"="SUB"`

Restart the Authentication Service.

`/etc/rc2.d/K99vxatd stop`

`/etc/rc2.d/S70vxatd start`

The LDAP users can now log into the Enterprise Reporter 5.2 Console.

No support for Windows Active Directory Server running on Windows 2000 (1949619)

Enterprise Reporter does not support Windows Active Directory Server running on Windows 2000.

When you upgrade from Enterprise Reporter 5.1 to 5.2, the NO ACCESS role is not an available User Management option (2138339)

The NO ACCESS user management role is a new feature in Enterprise Reporter 5.2 that allows you to create users that have no privileges to use the product. Assigning this role blocks a user account or user group from accessing Enterprise Reporter.

When you upgrade from Enterprise Reporter 5.1 to 5.2, you may not see the NO ACCESS role on the **User Management** tab. The role may also be missing when you add a user or group.

Workaround

Update the userManagement.xml file.

To update the userManagement.xml file

1   Open the userManagement.xml file. Go to one of the following locations:

   ■ On Solaris: `/opt/VRTSsmweb/webgui/sm/config/userManagement.xml`

   ■ On Windows: `Enterprise Reporter install directory`\VRTSsmweb\webgui\sm\config\userManagement.xml

2   Edit the userManagement.xml file. In the userManagement.xml file, go to the Roles section and add the following line:

   `<Rolename="No Access" description="Has no access to any reports or data." />`

3   Save and close the userManagement.xml file.

4   Restart the Storage Management Web Console. Do one of the following:

   ■ On Solaris, enter the following command: `/opt/VRTSsmweb/webgui/smw restart`

   ■ On Windows, restart the Veritas Storage Management Web Console service from the **Services** panel in Windows.

Data rollup issues

The following notes pertain to known issues that you might encounter when you run data rollup.

Duplicate data source additions (1105915)

When you add a data source to Enterprise Reporter, you can enter any of the following in the **Database server host** field:

■ Host name (for example, *yourhostname*)

■ Fully Qualified Domain Name (FQDN) (for example, *yourhostname.domain.topleveldomain.com*)

■ IP address

You can add the same data source twice if you use different names. No issue occurs with a duplicate entry of the FQDN and IP address because they point to the same host. However, if the duplication is with the host name and its FQDN, an issue occurs because the host sees the data source as two separate data sources.

Workaround

Avoid adding data sources more than once. As a standard practice, add data sources in the same manner consistently.

NetApp volumes may not roll up from CommandCentral Storage 5.0 RP1 Management Servers (1181735)

If you perform data rollup from a CommandCentral Storage 5.0 RP1 Management Server, NetApp volumes may not roll up to Enterprise Reporter. This occurs because of a problem in CommandCentral Storage.

Workaround

For Solaris hosts that run the CommandCentral Storage 5.0 RP1 Management Server or the managed host with array management, install the latest NetApp Explorer hotfix. Contact Symantec Technical Support for instructions on how to acquire the hotfix.

For Windows, AIX, Linux, and HP-UX hosts, there is no workaround. To ensure that NetApp volumes roll up to Enterprise Reporter, upgrade to CommandCentral Storage 5.0 MP1.

After upgrading CommandCentral Storage to 5.0 MP1, data rollup fails (1322617)

If you added a CommandCentral Storage 5.0 Management Server as a data source and then you upgrade that Management Server to 5.0 MP1, when Enterprise Reporter attempts to rollup data from that Management Server, data rollup fails.

Workaround

Resave the data source in the Enterprise Reporter Console.

To resave the data source in the Enterprise Reporter Console

1   In the Enterprise Reporter Console, click **Data Management > Data Rollup Configuration > Data Sources**.

2   Select the data source for which data rollup failed.

3   In the Data Sources dialog box, click **Save Changes**.

4   Restart the data rollup process for the data source.

Data rollup does not start after a failed data rollup on Windows (1670600)

If data rollup fails on a Windows host, subsequent data rollups may not start.

Workaround

Reschedule the data rollup task.

To reschedule the data rollup task

1 Log in to the Management Server as a user with administrator-level privileges.

2 In a command prompt, change to the following directory:

    install_location\VRTSccer\bin

Where *install_location* is the directory in which you installed Enterprise Reporter. The default install directory for Windows is `C:\Program Files\VERITAS`

3 To remove the scheduled task that initiates data rollup, type the following command:

    etl_scheduler --uninstall

4 To add the scheduled task that initiates data rollup, type the following command:

    etl_scheduler --setup

The wrong version shows when you configure CommandCentral Storage 5.2 data sources in Enterprise Reporter 5.2 (2146075)

When you configure the CommandCentral Storage 5.2 data source on the Enterprise Reporter 5.2 Data Management tab, the data source erroneously displays as CommandCentral Storage 5.1 instead of CommandCentral Storage 5.2. This occurs even though the data source is actually CommandCentral Storage5.2. This happens on both Windows and Solaris, and has no impact on product functionality.

Business view issues

You might encounter the following known issues when you work with business views.

Business view import fails if IP address entries are longer than 256 characters (1630281)

When you import business views into Enterprise Reporter, the following error message may appear:

```
Error: Failed executing SQL*Loader: sqlldr parfile=<filename>
control=<filename> log=<filename> > NUL:
```

The import fails because an IP address entry in the object assignment CSV file is longer than 256 characters.

Workaround

Open the object assignment CSV file and delete the IP address column entries. Then, import the business view.

Documentation issues

This section provides information about last-minute changes to the documentation and online help.

Configuring the Authentication Service instructions are incorrect in the Enterprise Reporter 5.2 online help

The instructions for configuring the Authentication Service for LDAP are incorrect in the Enterprise Reporter 5.2 online help. The correct instructions appear in the *CommandCentral Administrator's Guide*.

Getting help

This appendix includes the following topics:

■ About CommandCentral Enterprise Reporter documentation

■ Contacting Symantec

About CommandCentral Enterprise Reporter documentation

You can access Enterprise Reporter documentation at the Symantec Technical Support web site:

www.symantec.com/enterprise/support/documentation.jsp?pid=54971

Table A-1 describes the Enterprise Reporter documentation.

Table A-1   Enterprise Reporter documentation

Guide	Description
CommandCentral Enterprise Reporter Release Notes	Provides information about supported operating systems, host resource requirements, software limitations, and known issues.
CommandCentral Getting Started Guide	Provides a high level overview of how you can use Enterprise Reporter.
CommandCentral Enterprise Reporter Installation Guide	Instructs you how to install Enterprise Reporter.
CommandCentral Enterprise Reporter User's Guide	Describes how you can use Enterprise Reporter to create and manage reports.

| Table A-1 | Enterprise Reporter documentation *(continued)* |

Guide	Description
CommandCentral Enterprise Reporter Administrator's Guide	Provides information about managing your data, including rolling up data from CommandCentral Storage and managing storage tiers, business views, and custom attributes. The guide also includes information about managing licenses and user accounts.
CommandCentral Enterprise Reporter Third-Party License Agreements	Provides information about third-party software that is used in Enterprise Reporter.

Commenting on product documentation

Submit comments about the product documentation to the following email address:

storage_management_docs@symantec.com

Please include the following information with your documentation comments:

■ The title and product version of the guide you are commenting on

■ The topic (if relevant) you are commenting on

■ Your comment

■ Your name

Contacting Symantec

You can contact Symantec on the Web, by email, or by telephone.

Using the support web site

For technical assistance with any Symantec product, visit the Symantec Support Web site:

http://www.symantec.com/enterprise/support/assistance_care.jsp

From there you can:

■ Contact the Symantec Support staff and post questions to them

■ Get the latest software patches, upgrades, and utilities

■ View updated hardware and software compatibility lists

■ View Frequently Asked Questions (FAQ) pages for the products you are using

- Search the knowledge base for answers to technical support questions

- Receive automatic notice of product updates

- Find out about training in the Storage Foundation products

- Read current white papers related to the Storage Foundation products

Subscribing to email notification service

Subscribe to the Symantec Email notification service to be informed of software alerts, newly published documentation, Beta programs, and other services.

Go to the following Web site:

http://www.symantec.com/enterprise/support/assistance_care.jsp

Select a product and click E-mail Support at the bottom of the page. Your customer profile ensures that you receive the latest Symantec technical information pertaining to your specific interests.

Accessing telephone support

Telephone support is available with a valid support contract. To contact Symantec for technical support, dial the appropriate phone number listed on the Support Guide included in the product box and have your product license information ready for quick navigation to the proper support group.

Obtaining support by email

Licensed customers can use the following email address to obtain help with technical questions:

support@veritas.com

To obtain software updates by email, send your requests to the following email address:

swupdate@veritas.com

Obtaining license information

To obtain license information, contact Symantec in one of the following ways:

- U.S. and Canada telephone: 1-800-634-4747 option 3

- Worldwide fax: +1-650-527-0952

- Email:
  amercustomercare@veritas.com

Purchasing products

For help with purchasing Symantec products, visit the Symantec Web site:

http://www.symantec.com

where you can chat with product experts or link to information about the products.

You can also contact a Symantec product representative by email at the following address:

sales.mail@veritas.com

To speak with a Symantec product representative by telephone, customers in the U.S. and Canada can call 1-800-327-2232.