

HP Serviceguard Storage Management Suite Version A.02.00 for HP-UX 11i v2 Release Notes



i n v e n t

Manufacturing Part Number : T2771-90036

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Printing History

The last printing date and part number indicate the current edition.

Table 1

Printing History

Printing Date	Part Number	Edition	Changes
June 2007	T2271-90036	First Edition	Original release to support Serviceguard A.11.18 release.
July 2007	T2271-90036	Reprint First Edition	Replace Patch PHKL_35305 with PHKL_36672 Remove Patch PHSS_35311 Change to Table 1-1: Veritas Database Flashsnap is supported with <i>both</i> SGeRAC with Oracle RAC <i>and</i> single instance Oracle for T2776CA and T2777CA
September 2007	T2271-90036	Reprint First Edition	Add JAGag45544 to “Known Problems and Workarounds”
April 2008	T2771-90036	Reprint First Edition	See <i>Changes incorporated in April 2008</i> following this table

Changes incorporated in April 2008 include:

- Revision of supported HP Serviceguard Storage Management Suite bundle upgrade path information in the *Compatibility Information and Installation Requirements* section, including references to two related online support matrixes

- A note about disabling `AUTOSTART_CMCLD` during HP Serviceguard Storage Management Suite bundle installations or upgrades was added to the *Compatibility Information and Installation Requirements* section
- An important statement about two Serviceguard limitations with CFS was added to the *Product Issues and Limitations* section
- An important statement about use of the `mknode` command with CFS was added to the *Product Issues and Limitations* section
- An important statement about supplemental software requirements for HP Serviceguard Storage Management Suite Version A.02.00 CFS for Oracle bundles was added to the *Product Issues and Limitations* section
- An important statement about HP-UX operating environment upgrade limitations was added to the *Product Issues and Limitations* section

1 **HP Serviceguard Storage Management Suite Version A.02.00 Release Notes**

Announcements

The HP Serviceguard Storage Management Suite bundles integrate HP Serviceguard with Symantec's Veritas Storage Foundation. This combination provides powerful database and storage management capabilities while maintaining the mission-critical reliability HP Serviceguard customers have come to expect.

Veritas Storage Foundation combines the industry-leading Veritas Volume Manager™ (VxVM) and Veritas File System™ (VxFS) to provide a complete tool for online storage management. With Veritas Storage Foundation, physical disks can be grouped into logical volumes to improve disk utilization and eliminate storage-related downtime. In addition, Veritas Storage Foundation can distribute I/O loads across multiple paths to improve performance and move unimportant or out-of-date files to inexpensive storage media. Customers running an Oracle Real Application Clusters (RAC) environment benefit from enhanced database performance and file system management when utilizing Oracle Disk Manager and Veritas Cluster File System (CFS) technologies.

As integrated solutions, the HP Serviceguard Storage Management Suite bundles have product options to be supported directly by HP providing a single point of contact for all contents of the bundle.

HP Serviceguard version A.11.18, with Storage Management Suite bundles version A.02.00 is:

- Integrated with Veritas version 5.0 product.
- Available on the HP-UX 11i v2 operating system. Requires a minimum HP-UX version no older than September 2006.
- Runs on HP 9000 and HP Integrity Servers.

HP Serviceguard version A.11.18, with Storage Management Suite bundles version A.02.00 is available through the following product numbers:

- T2771CA HP Serviceguard Storage Management Suite bundle
 - Version A.02.00 — software and license
 - Installation and support services available through product options

- T2772CA HP Serviceguard Storage Management Suite Premium bundle
 - Version A.02.00 — software and license
 - Installation and support services available through product options
- T2773CA HP Serviceguard Storage Management Suite for Oracle bundle
 - Version A.02.00 — software and license
 - Installation and support services available through product options
- T2774CA or T2794CA HP Serviceguard Storage Management Suite for Oracle Premium bundle
 - Version A.02.00 — software and license
 - Installation and support services available through product options
 - T2794CA includes all of the above plus the Mission Critical Operating Environment (MCOE)
- T2775CA or T2795CA HP Serviceguard Cluster File System bundle
 - Version A.02.00 — software and license
 - Installation and support services available through product options
 - T2795CA includes all of the above plus the Mission Critical Operating Environment (MCOE)
- T2776CA or T2796CA HP Serviceguard Cluster File System for Oracle bundle
 - Version A.02.00 — software and license
 - Installation and support services available through product options
 - T2796CA includes all of the above plus the Mission Critical Operating Environment (MCOE)
- T2777CA or T2797CA HP Serviceguard Cluster File System for RAC bundle
 - Version A.02.00 — software and license
 - Installation and support services available through product options

Compatibility Information and Installation Requirements

- T2797CA includes all of the above plus the Mission Critical Operating Environment (MCOE)

These products are shipped on independent media that is available in June 2007 with HP-UX release, though they are not included on the Application Software Media.

Due to the complexity of configuring clusters, you may wish to use Hewlett-Packard's high availability consulting services to ensure a smooth installation and rollout. Please contact your HP representative to inquire about high availability consulting. In addition, you should work with your HP representative to ensure that you have the correct firmware revisions for disk drives, disk controllers, LAN controllers, and other hardware.

What's New and Changed in Storage Management Suite 2.0

Storage Management Suite version 2.0 has added support for the following HP Serviceguard A.11.18 features:

- Serviceguard Extension for Faster Failover (SGeFF)
- High Availability — Network File System (HA-NFS) with Cluster File System (CFS)

Storage Management Suite version 2.0 includes the following Veritas Storage Foundation 5.0 features:

- Faster device discovery
- Tunable DMP with multi-threaded error handling
- Cluster File System (CFS) and Cluster Volume Manager (CVM) performance and scaling enhancements
 - Multiple Cluster File System transaction servers
 - Multiple joiners improve cluster startup and reformation time
 - Faster and more reliable failover
- File change log
 - Applications can check what changed
 - Enhances backup, auditing and compliance, Open View, etc.
- Intelligent storage provisioning management enhancements
- More policies for tiered storage support

What's in this Version

HP Serviceguard Storage Management Suite Version A.02.00 is being released on HP-UX 11i v2. The HP Serviceguard Storage Management Suite bundles deliver core HP Serviceguard products and Veritas Volume Manager (VxVM) and File System (VxFS, also known as JFS) in all bundles. Support for Veritas Cluster File system (CFS) is available in certain bundles. A summary of all products delivered in each bundle is listed in Table 1-1, "Products and Associated Bundles."

Storage Management Suite bundles version A.02.00 include Veritas version 5.0 products. If you are using Veritas version 4.1 products, refer to the Storage Management Suite bundles version A.01.01.

The following Veritas Storage Foundation features are common across all the HP Serviceguard Storage Management Suite bundles:

- 40TB with Extra Big File System
Extra Big File System Support—The maximum file system size for the HP Serviceguard Storage Management Suite is 40TB provided the Disk Layout is version 6 or greater.
- Online Administration
- Dynamic Multi-pathing (DMP)
- Intelligent Storage Provisioning
- Configuration Backup
- Storage Expert
- History logsystem access from multiple servers.
- Online Intent Log Resize
- Named Data Streams
- Online LUN Resize
- Portable Data Containers (PDC)
- Multi-Volume File System
- Support for Serviceguard clusters up to 8 nodes for CFS and CVM environments and up to 16 nodes for non-CFS environments using HP 9000 or HP Integrity Servers or a combination of both.

Table 1-1 Products and Associated Bundles

Product	T 2 7 7 1 C A	T 2 7 7 2 C A	T 2 7 3 C A	T 2 7 4 C A	T 2 7 5 C A	T 2 7 6 C A	T 2 7 7 C A
Disk Group Split and Join (FlashSnap)		✓		✓	✓	✓	✓
Dynamic Storage Tiering (DST)		✓		✓	✓	✓	✓
FastResync (formerly Fast Mirror Resync)		✓		✓	✓	✓	✓
HP Cluster Object Manager (COM) version B.05.00.00	✓	✓	✓	✓	✓	✓	✓
HP Enterprise Cluster Master Toolkit version B.04.01	✓	✓	✓	✓	✓	✓	✓
HP Serviceguard Extension for RAC version A.11.18							✓
HP Serviceguard Manager version B.01.01	✓	✓	✓	✓	✓	✓	✓
HP Serviceguard version A.11.18	✓	✓	✓	✓	✓	✓	✓
Instant Volume Snapshots		✓		✓	✓	✓	✓
Oracle Disk Manager for Oracle 9i and 10g			✓	✓		✓	✓
Storage Checkpoints		✓		✓	✓	✓	✓
Storage Mapping to a LUN Level				✓		✓ a	✓ a
Storage Rollback				✓		✓	✓
Veritas Cluster File System 5.0					✓	✓	✓
Veritas Cluster Volume Manager 5.0					✓	✓	✓
Veritas Database FlashSnap				✓		✓	✓
Veritas File System 5.0	✓	✓	✓	✓	✓	✓	✓

Table 1-1 Products and Associated Bundles (Continued) (Continued)

Product	T	T	T	T	T	T	T
	2	2	2	2	2	2	2
	7	7	7	7	7	7	7
	7	7	7	7	7	7	7
	1	2	3	4	5	6	7
	C	C	C	C	C	C	C
	A	A	A	A	A	A	A
Veritas Enterprise Administrator (VEA) GUI for HP-UX	✓	✓	✓	✓	✓	✓	✓
Veritas Volume Manager 5.0	✓	✓	✓	✓	✓	✓	✓

a. Only supported for SGeRAC with Oracle RAC, not single instance Oracle.

T2771CA HP Serviceguard Storage Management Suite Bundle

The HP Serviceguard Storage Management Suite bundle is an integrated product solution that includes Serviceguard high availability clustering with Symantec’s Veritas Volume Manager (VxVM) and File System (VxFS, also known as JFS). The individual components of this bundle include:

- HP Serviceguard version A.11.18
- HP Serviceguard Manager version B.01.01
- HP Cluster Object Manager (COM) version B.05.00.00
- HP Enterprise Cluster Master Toolkit version B.04.01
- Veritas File System version 5.0 (also known as OnlineJFS)
- Veritas Volume Manager version 5.0
- Veritas Enterprise Administrator (VEA) GUI for HP-UX

T2772CA HP Serviceguard Storage Management Suite Premium Bundle

The HP Serviceguard Storage Management Suite Premium bundle is an integrated product solution that includes Serviceguard high availability clustering with Symantec's Veritas Volume Manager (VxVM) and File System (VxFS, also known as JFS). This premium bundle also includes Dynamic Storage Tiering and FlashSnap technologies. The individual components of this bundle include:

- HP Serviceguard version A.11.18
- HP Serviceguard Manager version B.01.01
- HP Cluster Object Manager (COM) version B.05.00.00
- HP Enterprise Cluster Master Toolkit version B.04.01
- Veritas File System version 5.0 (also known as OnlineJFS)
- Veritas Volume Manager version 5.0
- Veritas Enterprise Administrator (VEA) GUI for HP-UX
- Dynamic Storage Tiering
- Instant Volume snapshots
- Storage CheckPoints
- Disk Group Split and Join (FlashSnap)
- FastResync (formerly Fast Mirror Resync)

T2773CA HP Serviceguard Storage Management Suite for Oracle Bundle

The HP Serviceguard Storage Management Suite for Oracle bundle is an integrated product solution that includes Serviceguard high availability clustering with Symantec's Veritas Volume Manager (VxVM) and File System (VxFS, also known as JFS) plus special database accelerators for Oracle that provide the performance of raw mode with the manageability of a file system. The individual components of this bundle include:

- HP Serviceguard version A.11.18
- HP Serviceguard Manager version B.01.01
- HP Cluster Object Manager (COM) version B.05.00.00

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- HP Enterprise Cluster Master Toolkit version B.04.01
- Veritas File System version 5.0 (also known as OnlineJFS)
- Veritas Volume Manager version 5.0
- Veritas Enterprise Administrator (VEA) GUI for HP-UX
- Oracle Disk Manager for Oracle 9i and 10g

T2774CA HP Serviceguard Storage Management Suite for Oracle Premium Bundle

The HP Serviceguard Storage Management Suite for Oracle Premium bundle is an integrated product solution that includes Serviceguard high availability clustering with Symantec's Veritas Volume Manager (VxVM) and File System (VxFS, also known as JFS) plus special database accelerators for Oracle that provide the performance of raw mode with the manageability of a file system. This premium bundle also includes Dynamic Storage Tiering and FlashSnap technologies. This bundle can also be ordered in combination with the MCOE as T2794CA. The individual components of this bundle include:

- HP Serviceguard version A.11.18
- HP Serviceguard Manager version B.01.01
- HP Cluster Object Manager (COM) version B.05.00.00
- HP Enterprise Cluster Master Toolkit version B.04.01
- Veritas File System version 5.0 (also known as OnlineJFS)
- Veritas Volume Manager version 5.0
- Veritas Enterprise Administrator (VEA) GUI for HP-UX
- Oracle Disk Manager for Oracle 9i and 10g
- Storage Rollback
- Storage Mapping to a LUN Level
- Database FlashSnap
- Dynamic Storage Tiering
- Instant Volume snapshots
- Storage CheckPoints

- Disk Group Split and Join (FlashSnap)
- FastResync (formerly Fast Mirror Resync)

T2775CA HP Serviceguard Cluster File System Bundle

The HP Serviceguard Cluster File System is an integrated product solution that includes Serviceguard high availability clustering with Symantec's Veritas Volume Manager (VxVM) and File System (VxFS, also known as JFS) plus the Veritas Cluster File System and Veritas Cluster Volume Manager for concurrent data access from multiple servers. HP Serviceguard Extension for RAC A.11.18 cannot be added to this bundle. This bundle can also be ordered in combination with the MCOE as T2795CA. The individual components of this bundle include:

- HP Serviceguard version A.11.18
- HP Serviceguard Manager version B.01.01
- HP Cluster Object Manager (COM) version B.05.00.00
- HP Enterprise Cluster Master Toolkit version B.04.01
- Veritas File System version 5.0 (also known as OnlineJFS)
- Veritas Volume Manager version 5.0
- Veritas Enterprise Administrator (VEA) GUI for HP-UX
- Veritas Cluster File System
- Veritas Cluster Volume Manager
- Dynamic Storage Tiering
- Instant Volume snapshots
- Storage CheckPoints
- Disk Group Split and Join (FlashSnap)
- FastResync (formerly Fast Mirror Resync)

T2776CA HP Serviceguard Cluster File System for Oracle Bundle

The HP Serviceguard Cluster File System for Oracle is an integrated product solution that includes Serviceguard high availability clustering with Symantec's Veritas Volume Manager (VxVM) and File System

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(VxFS, also known as JFS) plus the Veritas Cluster File System and Veritas Cluster Volume Manager for concurrent data access from multiple servers for Oracle single instance environments. This bundle also includes special database accelerators for Oracle that provide the performance of raw mode with the manageability of a file system. HP Serviceguard Extension for RAC A.11.18 can be added to this bundle. This bundle can also be ordered in combination with the MCOE as T2796CA. The individual components of this bundle include:

- HP Serviceguard version A.11.18
- HP Serviceguard Manager version B.01.01
- HP Cluster Object Manager (COM) version B.05.00.00
- HP Enterprise Cluster Master Toolkit version B.04.01
- Veritas File System version 5.0 (also known as OnlineJFS)
- Veritas Volume Manager version 5.0
- Veritas Enterprise Administrator (VEA) GUI for HP-UX
- Veritas Cluster File System
- Veritas Cluster Volume Manager
- Dynamic Storage Tiering
- Instant Volume snapshots
- Oracle Disk Manager for Oracle 9i and 10g
- Storage Rollback
- Storage CheckPoints
- Disk Group Split and Join (FlashSnap)
- FastResync (formerly Fast Mirror Resync)
- Storage Mapping to a LUN Level (only supported for SGeRAC with Oracle RAC, not single instance Oracle)
- Database FlashSnap

T2777CA HP Serviceguard Cluster File System for RAC Bundle

The HP Serviceguard Cluster File System for RAC is an integrated product solution that includes Serviceguard high availability clustering and Serviceguard Extension for RAC with Symantec's Veritas Volume Manager (VxVM) and File System (VxFS, also known as JFS) plus the Veritas Cluster File System and Veritas Cluster Volume Manager for concurrent data access from multiple servers for Oracle RAC environments. This bundle also includes special database accelerators for Oracle that provide the performance of raw mode with the manageability of a file system. This bundle can also be ordered in combination with the MCOE as T2797CA. The individual components of this bundle include:

- HP Serviceguard version A.11.18
- HP Serviceguard Extension for RAC A.11.18
- HP Serviceguard Manager version B.01.01
- HP Cluster Object Manager (COM) version B.05.00.00
- HP Enterprise Cluster Master Toolkit version B.04.01
- Veritas File System version 5.0 (also known as OnlineJFS)
- Veritas Volume Manager version 5.0
- Veritas Enterprise Administrator (VEA) GUI for HP-UX
- Veritas Cluster File System
- Veritas Cluster Volume Manager
- Dynamic Storage Tiering
- Instant Volume snapshots
- Oracle Disk Manager for Oracle 9i and 10g
- Storage Rollback
- Storage CheckPoints
- Disk Group Split and Join (FlashSnap)
- FastResync (formerly Fast Mirror Resync)
- Storage Mapping to a LUN Level (only supported for SGeRAC with Oracle RAC, not single instance Oracle)

- Database FlashSnap

Documentation for this Version

Table 1-2, “Product Documents and Associated Bundles,” lists the documents that are shipped with HP Serviceguard Storage Management Suite Version A.02.00 and their associated bundles. These documents are published in online versions on the DVD. Updated versions may be available on <http://docs.hp.com/>. Then select High Availability.

- T2771CA HP Serviceguard Storage Management Suite bundle.
- T2772CA HP Serviceguard Storage Management Suite Premium bundle.
- T2773CA HP Serviceguard Storage Management Suite for Oracle bundle.
- T2774CA HP Serviceguard Storage Management Suite for Oracle Premium bundle also available in combination with the MCOE as T2794CA bundle.
- T2775CA HP Serviceguard Cluster File System bundle also available in combination with the MCOE as T2795CA bundle.
- T2776CA HP Serviceguard Cluster File System for Oracle bundle also available in combination with the MCOE as T2796CA bundle.
- T2777CA HP Serviceguard Cluster File System for RAC bundle also available in combination with the MCOE as T2797CA bundle.

Table 1-2 Product Documents and Associated Bundles

Description	T	T	T	T	T	T	T
	2	2	2	2	2	2	2
	7	7	7	7	7	7	7
	7	7	7	7	7	7	7
	1	2	3	4	5	6	7
	C	C	C	C	C	C	C
	A	A	A	A	A	A	A
<i>HP Serviceguard Storage Management Suite Release Notes (this document, p/n T2771-90036)</i>	✓	✓	✓	✓	✓	✓	✓

Table 1-2 Product Documents and Associated Bundles (Continued)

Description	T 2 7 7 1 C A	T 2 7 7 2 C A	T 2 7 7 3 C A	T 2 7 7 4 C A	T 2 7 7 5 C A	T 2 7 7 6 C A	T 2 7 7 7 C A
<i>Enterprise Cluster Master Toolkit B.04.01 Release Notes</i> (p/n T1909-90049)	✓	✓	✓	✓	✓	✓	✓
<i>Using the Event Monitoring Service</i> (p/n B7609-90022)	✓	✓	✓	✓	✓	✓	✓
<i>Event Monitoring Service Framework Version A.05.01 Release Notes</i> (p/n B7609-90047)	✓	✓	✓	✓	✓	✓	✓
<i>OpenSSL A.00.09.07e 012/013 Release Notes</i> (p/n 5991-1159)	✓	✓	✓	✓	✓	✓	✓
<i>HP Quorum Server Version A.02.00 Release Notes Second Edition</i> (p/n B8467-90036)	✓	✓	✓	✓	✓	✓	✓
<i>Managing Serviceguard</i> (p/n B3936-90100)	✓	✓	✓	✓	✓	✓	✓
<i>Serviceguard A.11.18 Release Notes</i> (p/n B3935-90108)	✓	✓	✓	✓	✓	✓	✓
<i>Using Serviceguard Extension for RAC</i> (p/n T1859-90038)							✓
<i>Serviceguard Extension for RAC A.11.18 Release Notes</i> (p/n T1907-90031)							✓
<i>Serviceguard Manager B.01.01 Release Notes</i> (p/n B8325-90056)	✓	✓	✓	✓	✓	✓	✓
<i>Veritas 5.0 Installation Guide</i> (p/n 5991-8041)	✓	✓	✓	✓	✓	✓	✓
<i>Veritas Enterprise Administrator (VEA 500 Series) Getting Started Guide</i> (p/n 5991-1844)	✓	✓	✓	✓	✓	✓	✓
<i>Veritas File System 5.0 (HP OnlineJFS/JFS) Administrator's Guide</i> (p/n 5991-1833)	✓	✓	✓	✓	✓	✓	✓
<i>Veritas File System 5.0 (HP OnlineJFS/JFS) Release Notes</i> (p/n 5991-8039)	✓	✓	✓	✓	✓	✓	✓

Table 1-2 Product Documents and Associated Bundles (Continued)

Description	T 2 7 7 1 C A	T 2 7 7 2 C A	T 2 7 7 3 C A	T 2 7 7 4 C A	T 2 7 7 5 C A	T 2 7 7 6 C A	T 2 7 7 7 C A
<i>Veritas FlashSnap Point-In-Time Copy Solutions Administrator's Guide 5.0 (p/n 5991-1215)</i>		✓		✓	✓	✓	✓
<i>Veritas Storage Foundation Cluster File System 5.0 Installation and Administration Guide HP Serviceguard Storage Management Suite Extracts (p/n T2771-90034)</i>					✓	✓	✓
<i>Veritas Storage Foundation 5.0 Cross-Platform Data Sharing For Volume Manager Administrator's Guide (p/n 5991-1214)</i>	✓	✓	✓	✓	✓	✓	✓
<i>Veritas Storage Foundation for Oracle RAC Administrator's Guide HP Serviceguard Storage Management Suite Extracts (p/n T2771-90035)</i>							✓
<i>Veritas Storage Foundation 5.0 for Oracle Administrator's Guide (p/n 5991-1292)</i>			✓	✓		✓	✓
<i>Veritas Storage Foundation 5.0 Intelligent Storage Provisioning Administrator's Guide (p/n 5991-1216)</i>	✓	✓	✓	✓	✓	✓	✓
<i>Veritas Storage Foundation 5.0 Release Notes (p/n 5991-8083)</i>	✓	✓	✓	✓	✓	✓	✓
<i>Veritas Volume Manager 5.0 Administrator's Guide (p/n 5991-1838)</i>	✓	✓	✓	✓	✓	✓	✓
<i>Veritas Volume Manager 5.0 Hardware Notes (p/n 5991-1839)</i>	✓	✓	✓	✓	✓	✓	✓
<i>Veritas Volume Manager 5.0 Migration Guide (p/n 5991-1841)</i>	✓	✓	✓	✓	✓	✓	✓
<i>Veritas Volume Manager 5.0 Release Notes (p/n 5991-8040)</i>	✓	✓	✓	✓	✓	✓	✓

Table 1-2 Product Documents and Associated Bundles (Continued)

Description	T	T	T	T	T	T	T
	2	2	2	2	2	2	2
	7	7	7	7	7	7	7
	7	7	7	7	7	7	7
	1	2	3	4	5	6	7
	C	C	C	C	C	C	C
	A	A	A	A	A	A	A
<i>Veritas Volume Manager 5.0 Troubleshooting Guide (p/n 5991-1840)</i>	✓	✓	✓	✓	✓	✓	✓

Further Information

- The most recent versions of user’s guides (including any updates to this document) and white papers are available on Hewlett-Packard’s high availability documentation web page:

<http://docs.hp.com/>, then select High Availability

- Support information, including current information on patches and known problems, is available from the Hewlett-Packard IT Resource Center web page:

<http://itrc.hp.com> (Americas and Asia Pacific)

<http://europe.itrc.hp.com> (Europe)

Click on “Search Technical Knowledge Base.” Although anyone can access the site, customers with valid support contracts can log in and search for detailed technical information.

To receive the latest news on recommended patches, product support matrices, and recently supported hardware, subscribe to the “High Availability Program Tips and Issues Digest” on the ITRC.

Compatibility Information and Installation Requirements

HP recommends that you read these *HP Serviceguard Storage Management Suite Release Notes* and any other related Installation Guides, Release Notes, Read Before Installing Guides, or READMEs before beginning an installation. Requirements and known issues for individual products included in the HP Serviceguard Storage Management Suite (SG SMS) bundles are documented in their respective Release Notes. See Table 1-2, “Product Documents and Associated Bundles,” on page 18 for information on SG SMS related documentation.

Upgrading to a Different SG SMS Bundle

Upgrades to HP Serviceguard Storage Management Suite (SG SMS) bundles can fall into any one of three categories:

- Rolling Upgrade - The upgrade is done online
- Offline Upgrade - The cluster nodes must be taken offline and all nodes must be upgraded with the same SG SMS bundle - for an alternative offline upgrade procedure that minimizes downtime, see “Cluster Offline Upgrade Option” on page 25.
- Uninstall - The SG SMS bundle must be uninstalled before the upgraded SG SMS bundle can be installed, then the software must be reconfigured (the cluster must also be reconfigured, if a CFS/CVM bundle is installed).

NOTE

Note: If there is a cluster configured on a node, the `swremove` command will not let you remove SG SMS from that node. You must remove the node from the cluster, then use `swremove` to remove SG SMS.

NOTE

Before attempting a SG SMS bundle installation or upgrade, you must disable `AUTOSTART_CMCLD` on all Serviceguard cluster nodes.

To disable `AUTOSTART_CMCLD` on all Serviceguard cluster nodes, access the `/etc/rc.config.d/cmcluster` file and set `AUTOSTART_CMCLD` to 0, (`AUTO_START_CMCLD=0`).

To re-enable Automatic startup (`AUTOSTART_CMCLD`) after completing your SG SMS bundle installation or upgrade, set the flag `AUTOSTART_CMCLD` to 1 in the `/etc/rc.config.d/cmcluster` file (`AUTO_START_CMCLD=1`).

For more information on `AUTOSTART_CMCLD`, see the *Setting up Autostart Features* and *Performing a Rolling Upgrade* sections in *Managing Serviceguard, 15th Edition*, available at <http://docs.hp.com> > High Availability > Serviceguard.

The arrows (→) in the rows in Table 1-3 show the supported upgrade paths for various SG SMS bundles:

- The SG SMS version identifier, and dependencies (HP-UX version, Serviceguard version, Veritas™ Storage Foundation version), are listed at the top of the column for each SG SMS version - followed by the bundles (alpha-numeric identifier) that are available within that SG SMS version.
- The different SG SMS bundle “families” are listed in horizontal rows, where the numerical portion of the bundle identifier remains constant across SG SMS bundle versions.
- You can do rolling upgrades of most SG SMS bundles within the same bundle family (indicated by the letter “R”) for bundles that do not include Veritas™ CVM.
- Upgrade paths that require an Offline Upgrade, are indicated by the letter “O”.
- “Skipping ahead” within the same bundle family, for example upgrading from a SG SMS version A.01.00 T2771BA bundle to a SG SMS version A.02.00 T2771CA bundle, is supported. Performing a *rolling upgrade* to skip ahead is supported only if all of the upgrade paths between the two bundles also support rolling upgrades.

Compatibility Information and Installation Requirements

- Upgrade paths that are not listed in Table 1-3 will require an uninstall of the SG SMS bundle, before a different SG SMS bundle can be installed and configured.

NOTE

Table 1-3 is current as of the publication date of these Release Notes. If there is more recent information on supported bundle upgrade paths, it will be in the *HP Serviceguard Storage Management Suite Bundles - Supported Upgrade Paths Matrix* available in the *Support Matrixes* section at:

<http://docs.hp.com/en/ha.html#HP%20Serviceguard%20Storage%20Management%20Suite>

Table 1-3 Supported SG SMS Bundle Upgrade Paths

SG SMS Version	A.01.00		A.01.01		A.02.00
HP-UX Version	11i v2		11i v2		11i v2
Serviceguard Version	A.11.17		A.11.18		A.11.18
Veritas SF Version	4.1		4.1		5.0
SG Storage Mgmt	T2771BA	R →	T2771BA	R →	T2771CA
SG Storage Mgmt Premium	T2772BA	R →	T2772BA	R →	T2772CA
SG Storage Mgmt for Oracle	T2773BA	R →	T2773BA	R →	T2773CA
SG Storage Mgmt Oracle Prem	T2774BA	R →	T2774BA	R →	T2774CA
SG Cluster File System	T2775BA	O →	T2775BA	O →	T2775CA

Table 1-3 Supported SG SMS Bundle Upgrade Paths (Continued)

SG SMS Version	A.01.00		A.01.01		A.02.00
HP-UX Version	11i v2		11i v2		11i v2
Serviceguard Version	A.11.17		A.11.18		A.11.18
Veritas SF Version	4.1		4.1		5.0
SG Cluster File System Oracle	T2776BA	O →	T2776BA	O →	T2776CA
SG Cluster File System RAC	T2777BA	O →	T2777BA	O →	T2777CA
MCOE w/ SG SMS Oracle Prem	T2794BA	O →	T2794BA	R →	T2794CA
MCOE w/ SG SMS CFS	T2795BA	O →	T2795BA	O →	T2795CA
MCOE w/ SG SMS CFS Oracle	T2796BA	O →	T2796BA	O →	T2796CA
MCOE w/ SG SMS CFS RAC	T2797BA	O →	T2797BA	O →	T2797CA

NOTE

If a newly installed bundle includes the same version of a product that was previously installed and patched, the patches may need to be installed again.

Cluster Offline Upgrade Option

To upgrade a SG SMS CFS/CVM bundle (T2774xx, T2775xx, T2776xx, or T2777xx) there is a procedure that may work with your configuration to minimize the time that the entire cluster is offline. This is accomplished

by performing an *offline* upgrade on half of the cluster nodes while the the remaining nodes are *online*. Contact HP to determine if this procedure will work for a SG SMS upgrade you are planning.

Other Supported Bundle Change and Installation Scenarios

- Installing HP Serviceguard Extension for RAC on top of Storage Management Suite bundle T2776BA is supported.
- Upgrading the previous version of Serviceguard Storage Management Suite bundle T2776BA plus Serviceguard Extension for RAC A.11.17 to Storage Management Suite bundle T2776CA plus Serviceguard Extension for RAC A.11.18 is supported. Both the Storage Management Suite bundle and Serviceguard Extension for RAC must be upgraded at the same time.

Unsupported Bundle Change and Installation Scenarios

- Installing Storage Management Suite on top of HP Serviceguard Extension for RAC is not supported.

If you have the two as separate products, install the Storage Management Suite bundle T2776CA first, then install HP Serviceguard Extension for RAC.
- Rolling upgrades of Storage Management Suite bundles, that include Veritas Cluster File System (CFS) or Veritas Cluster Volume Manager (CVM), are not supported. You must halt all cluster nodes when upgrading to a new SG SMS CFS version.
- If a SG SMS bundle is installed on your system and you attempt to install or upgrade to an OE version that includes Serviceguard and Veritas Storage Foundation versions that are not supported with the SG SMS bundle, the installation will complete, but the Serviceguard cluster will not start, or you will not be able to access the Veritas volumes. See “HP-UX Operating Environment Upgrade Limitations” on page 39 for more information.

NOTE

For current information on Serviceguard and HP-UX versions that are supported with various SG SMS versions, see the

HP Serviceguard / SGeRAC / Storage Management Suite / Serviceguard Manager Plug-in Compatibility and Feature Matrix at:

<http://docs.hp.com/en/5971/SG-SGeRAC-SMS-EMS%20Support.pdf>

HP Serviceguard Storage Management Suite Compatibility with HP-UX Releases

HP Serviceguard Storage Management Suite Version A.02.00 is compatible with HP-UX 11i v2.

System Requirements

HP Serviceguard Storage Management Suite bundles run on HP 9000 or HP Integrity Servers. Using both types of servers in the same cluster is supported.

Disk Requirements

Installation of any HP Serviceguard Storage Management Suite bundle requires 550 MB of disk space in the root file system.

Before Installing HP Serviceguard Storage Management Suite Version A.02.00

Before installing an HP Serviceguard Storage Management Suite bundle, consult with your HP representative to make sure that the cluster has the correct hardware upgrades and supported firmware revisions. Also check for any updated patch requirements for the software products being installed.

Patches for HP products and Veritas products included in the HP Serviceguard Storage Management Suite bundles can be found on <http://itrc.hp.com>.

NOTE

Before attempting a SG SMS bundle installation or upgrade, you must disable `AUTOSTART_CMCLD`.

To disable `AUTOSTART_CMCLD` on all cluster nodes, access the `/etc/rc.config.d/cmcluster` file and set `AUTOSTART_CMCLD` to 0, (`AUTO_START_CMCLD=0`).

To re-enable Automatic startup (`AUTOSTART_CMCLD`) after completing your SG SMS bundle installation or upgrade, set the flag `AUTOSTART_CMCLD` to 1 in the `/etc/rc.config.d/cmcluster` file (`AUTO_START_CMCLD=1`).

For more information on `AUTOSTART_CMCLD`, see the *Setting up Autostart Features* and *Performing a Rolling Upgrade* sections in *Managing Serviceguard, 15th Edition*, available at <http://docs.hp.com> > High Availability > Serviceguard.

Installing HP Serviceguard Storage Management Suite

To install software, run the SD-UX `swinstall` command. It will invoke a user interface that will lead you through the installation. For additional details and tips on installing HP-UX and HP applications refer to *HP-UX 11i Version 2 Installation and Update Guide* available from <http://docs.hp.com>, then select High Availability. For details on installing Veritas products including VxVM or VxFS, refer to the *Veritas 5.0 Installation Guide* included on the HP Serviceguard Storage Management Suite media.

Installation of an HP Serviceguard Storage Management Suite bundle automatically handles dependencies on base VxFS and VxVM as well as between products in the bundles.

Installation steps should be performed in the following order:

1. Shutdown the cluster if you are using either Cluster Volume Manager (CVM) or Cluster File System (CFS).
2. HP-UX 11i v2 (with all required patches) is required for loading an HP Serviceguard Storage Management Suite bundle.

- If the system has a pre-5.0 version of Veritas Volume Manager already installed, the installation process overwrites that version of the product.
 - If any version of Veritas Cluster Volume Manager (CVM) is installed, it must be removed before an HP Serviceguard Storage Management Suite bundle can be installed.
3. Install the HP Serviceguard Storage Management Suite bundle.
- For bundles T2771CA, T2772CA, T2773CA, or T2774CA use the June 2007 HP-UX, (release 11i v2), Application Software media.
 - For bundles T2775CA, T2776CA, or T2777CA use the HP Serviceguard and Storage Management Products media.

Use the appropriate bundle product number in place of T27xxCA. This installation will reboot the system once:

```
swinstall -x autoreboot=true -s <depot> T27xxCA
```

The default setting for installation of the bundle is “reinstall=false” which preserves any existing installation of the same version of a product.

4. After installation of software and one reboot is completed apply any required product patches.
- During this initial reboot and until all required patches are applied, various startup errors may be reported.
- a. Go to <http://www.hp.com/go/sgsms/patches>, for patches required for use of the Serviceguard Storage Management Suite.
 - b. Follow any special instructions included with the patches.
 - c. Download the patches into a single file, extract the contents, and create a single depot using instructions included with the download.
 - d. Install the patches using the option “patch_match_target=true”.

This ensures that only the patches from the depot that match the installed bundle are installed.
5. After installation of any required product patches is completed run `vxinstall`.

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If `vxinstall` has already been run on these systems, this step may be skipped.

This procedure completes initialization steps for the Veritas software prompting for Veritas licenses (use default response - no), specification of default disk group, and the use enclosure-based naming. For details on `vxinstall`, refer to *Veritas 5.0 Installation Guide*.

6. Verify a successful installation. Use the appropriate bundle product number in place of T27xxCA: `swverify T27xxCA`
7. List components installed with: `swlist`
8. Repeat all steps for each node in the cluster.
9. Refer to *Managing Serviceguard* for details on configuring the cluster. A high-level summary of the steps involved in using the Cluster File System includes:
 - a. Create and start a Serviceguard cluster without a package using Serviceguard Manager or CFS commands (`cmquerycl`, `cmcheckconf`, `cmapplyconf`, `cmruncl`).
 - b. Configure and start the CVM/CFS system multi-node package `SG-CFS-pkg` using the `cfscluster` command.
 - c. Create the disk groups and volumes on the CVM master node with Veritas Enterprise Administrator (VEA) or CFS commands (`vxdg`, `vxassist`, `newfs`).
 - d. Add the CFS disk groups and file systems to the Serviceguard cluster.
 - Use the `cfsdgadm` command to create the disk group multi-node package (for example, `SG-CFS-DG-1`) with a same node dependency on `SG-CFS-pkg`.
 - Then use the `cfsmntadm` command to create the mount point multi-node package, (for example, `SG-CFS-MP-1`) with a same-node dependency on the disk group multi-node package (`SG-CFS-DG-1`).
 - Once a CFS disk group or mount point is configured under a package, it is important to use CFS commands so that the CFS packages monitor the disk group and mount points.

For example, use the `cfsmount` command to mount these filesystems, not the `mount HP-UX` command.

- e. Complete configuration.
 - Create the application package configuration file and control script.
 - Specify a same-node dependency on the mount point multi-node package (`SG-CFS-MP-1`) in the package ASCII configuration file using CFS commands (`cmmakepkg`, `edit files`).
 - Verify, distribute, and apply the configuration using CFS commands (`cmcheckconf`, `distribute files`, `cmapplyconf`).
- f. Activate the multi-node packages and run the application packages using CFS commands (`cfsdgadm`, `cfsmntadm`, `cmrunpkg`).

Removing HP Serviceguard Storage Management Suite

To uninstall your software, run the SD-UX `swremove` command. Before removing software, note the following:

1. Serviceguard must be halted (not running) and the node must be removed from the cluster configuration before the `swremove` command is issued on that node.

Use Serviceguard Manager or Serviceguard commands to halt the cluster and modify the configuration.

Also modify the CVM/CFS storage and related package configuration as needed to fully remove the node from the cluster configuration.

2. Follow any guidelines for software removal of the individual products included in the HP Serviceguard Storage Management Suite bundle. In general, products should be halted and unconfigured before removal.

If the bundle includes ODM, unmount the `/dev/odm` device before removing the bundle.

If any independently installed products have installation dependencies on a product in the installed bundle, these products must be removed before the bundle can be removed. For example, if

Compatibility Information and Installation Requirements

SGeRAC was independently installed on a system with Bundle T2776CA, SGeRAC must be removed before T2776CA can be removed since SGeRAC has dependencies on Serviceguard and removing T2776CA will remove Serviceguard but not SGeRAC.

- The `swremove` command should be issued from one system at a time.

Removing a HP Serviceguard Storage Management Suite bundle removes the individual bundle tags associated with that bundle (refer to Table 1-4, “Products and Associated Bundle,”) except for Base-VXFS and Base-VXVM. These products must be individually specified for removal. For example, to remove the contents of T2771CA including Base-VXFS and Base-VXVM enter:

```
swremove -x autoreboot=true Base-VXFS Base-VXVM T2771CA
```

- Verify all components have been removed. Use the `swlist` command on one system at a time.

If the system is left with a zero-length binary configuration file (`/etc/cmcluster/cmclconfig`), remove it.

Products Installed with HP Serviceguard Storage Management Suite

Product components installed with HP Serviceguard Storage Management Suite bundles are listed in Table 1-4, “Products and Associated Bundle.”

Table 1-4 Products and Associated Bundle

swlist Bundle Tag	Description	T	T	T	T	T	T	T
		2	2	2	2	2	2	2
		7	7	7	7	7	7	7
		7	7	7	7	7	7	7
		1	2	3	4	5	6	7
		C	C	C	C	C	C	C
		A	A	A	A	A	A	A
T1905CA	HP Serviceguard	✓	✓	✓	✓	✓	✓	✓
B7609CA	HP Event Monitoring Service (EMS)	✓	✓	✓	✓	✓	✓	✓
T1907CA	SGeRAC							✓
T1909CA	ECMT	✓	✓	✓	✓	✓	✓	✓

Table 1-4 Products and Associated Bundle (Continued)

swlist Bundle Tag	Description	T 2 7 7 1 C A	T 2 7 7 2 C A	T 2 7 7 3 C A	T 2 7 7 4 C A	T 2 7 7 5 C A	T 2 7 7 6 C A	T 2 7 7 7 C A
Base-VxFS	Base Veritas File System 5.0 for HP-UX (also known as JFS)	✓	✓	✓	✓	✓	✓	✓
Base-VxVM	Base Veritas Volume Manager Bundle 5.0 for HP-UX	✓	✓	✓	✓	✓	✓	✓
EnableVxFS	File-System library, commands enhancements for VxFS5.0	✓	✓	✓	✓	✓	✓	✓
VRTSdbdoc	Veritas Database Edition Documentation			✓	✓			
VRTSdbed	Veritas Database Utilities for Oracle			✓	✓			
VRTSfsdoc	Veritas File System Documentation	✓	✓	✓	✓	✓	✓	✓
VRTSgab	Veritas Group Membership and Atomic Broadcast					✓	✓	✓
VRTSglm	Veritas Group Lock Manager					✓	✓	✓
VRTSgms	Veritas Group Messaging Service						✓	✓
VRTSllt	Veritas Low Latency Transport					✓	✓	✓
VRTSodm	Veritas Oracle Disk Manager			✓	✓		✓	✓
VRTSorgui	Veritas Database Edition GUI			✓	✓			
VRTSvxfen	Veritas Fencing					✓	✓	✓

Patches and Fixes in this Version

This section describes patches that are required and defects that have been fixed in HP Serviceguard Storage Management Suite Version A.02.00.

Fixes

This is a release of the HP Serviceguard Storage Management Suite bundles. Individual products may have fixes from their previous versions. Consult the individual product Release Notes for details.

Required and Recommended Patches

Table 1-5, “Required Patches and Associated Bundles,” lists the patches required or recommended for HP Serviceguard Storage Management Suite Version A.02.00 on HP-UX 11i v2.

Individual products included in HP Serviceguard Storage Management Suite bundle or other products installed on your system may require additional patches. This list is subject to change without notice. Contact your HP support representative for up-to-the-moment information.

Patches can be superseded or withdrawn at any time, so always be sure to check the status of any patch before downloading it at the Hewlett-Packard IT Resource Center (ITRC) web site:

<http://itrc.hp.com> (Americas and Asia Pacific)
<http://europe.itrc.hp.com> (Europe)

The patches in Table 1-5 and additional patches required for Serviceguard are available from <http://www.hp.com/go/sgsms/patches> or by searching for individual patches on the ITRC. Download the patches into a single depot and install using the option “`patch_match_target=true`”. This will install only the patches from the depot that match the installed bundle. Follow any special instructions included with the patches. Access to these patches requires a valid support contract and login to the ITRC. These patches are also available from your HP support representative.

Table 1-5 Required Patches and Associated Bundles

Patch Number	Description	T	T	T	T	T	T	T
		2	2	2	2	2	2	2
		7	7	7	7	7	7	7
		7	7	7	7	7	7	7
		1	2	3	4	5	6	7
		C	C	C	C	C	C	C
		A	A	A	A	A	A	A
PHCO_35124	VRTS 5.0 MP1 VRTSvmprom Cmd Patch	✓	✓	✓	✓	✓	✓	✓
PHCO_35125	VRTS 5.0 MP1 VRTSddlpr Cmd Patch	✓	✓	✓	✓	✓	✓	✓
PHCO_35126	VRTS 5.0 MP1 VRTSalloc Cmd Patch	✓	✓	✓	✓	✓	✓	✓
PHCO_35127	VRTS 5.0 MP1 VRTSdcli Cmd Patch	✓	✓	✓	✓	✓	✓	✓
PHCO_35179	VRTS 5.0 MP1 VRTSvxvm Cmd Patch	✓	✓	✓	✓	✓	✓	✓
PHCO_35213	VRTS 5.0 MP1 VRTSobc33 Cmd Patch	✓	✓	✓	✓	✓	✓	✓
PHCO_35214	VRTS 5.0 MP1 VRTSobjui Cmd Patch	✓	✓	✓	✓	✓	✓	✓
PHCO_35217	VRTS 5.0 MP1 VRTSmh Cmd Patch	✓	✓	✓	✓	✓	✓	✓
PHCO_35301	VRTS 5.0 MP1 VRTSat Cmd Patch	✓	✓	✓	✓	✓	✓	✓
PHCO_35332	VRTS 5.0 MP1 VRTSvxfs Cmd Patch	✓	✓	✓	✓	✓	✓	✓
PHCO_35354	VRTS 5.0 MP1 VRTSdbed Cmd Patch, Veritas Database Utilities for Oracle			✓	✓			
PHCO_35357	VRTS 5.0 MP1 VRTSmapro Cmd Patch	✓	✓	✓	✓	✓	✓	✓
PHCO_35375	VRTS 5.0 MP1 VRTSfsman Cmd Patch	✓	✓	✓	✓	✓	✓	✓
PHCO_35425	VRTS 5.0 MP1 VRTSvxfen Cmd Patch					✓	✓	✓
PHCO_36226	VRTS 5.0 MP1 VRTSdbcom Cmd Patch			✓	✓			
PHCO_36230	VRTS 5.0 MP1 VRTSorgui Cmd Patch			✓	✓			
PHCO_36590	VRTS 5.0 MP1 VRTSob Cmd Patch	✓	✓	✓	✓	✓	✓	✓
PHCO_36591	VRTS 5.0 MP1 VRTSaa Cmd Patch	✓	✓	✓	✓	✓	✓	✓
PHCO_36592	VRTS 5.0 MP1 VRTSccg Cmd Patch	✓	✓	✓	✓	✓	✓	✓

Table 1-5 Required Patches and Associated Bundles (Continued)

Patch Number	Description	T	T	T	T	T	T	T
		2	2	2	2	2	2	2
		7	7	7	7	7	7	7
		7	7	7	7	7	7	7
		1	2	3	4	5	6	7
		C	C	C	C	C	C	C
		A	A	A	A	A	A	A
PHCO_36593	VRTS 5.0 MP1 VRTSfspro Cmd Patch	✓	✓	✓	✓	✓	✓	✓
PHKL_35284	VRTS 5.0 MP1 VRTSodm Cmd Patch			✓	✓		✓	✓
PHKL_35312	VRTS 5.0 MP1 VRTSglm Cmd Patch					✓	✓	✓
PHKL_35424	VRTS 5.0 MP1 VRTSvxfen Cmd Patch					✓	✓	✓
PHKL_36594	VRTS 5.0 MP1 VRTSvxvm Cmd Patch	✓	✓	✓	✓	✓	✓	✓
PHKL_36672	VRTS 5.0 MP1 VRTSvxfs Kernel Patch	✓	✓	✓	✓	✓	✓	✓
PHNE_35783	VRTS 5.0 MP1 VRTSgab Cmd Patch					✓	✓	✓
PHNE_36509	VRTS 5.0 MP1 VRTSllt Cmd Patch					✓	✓	✓

Known Problems and Workarounds

The following describes known problems with HP Serviceguard Storage Management Suite Version A.02.00 and workarounds for them. However, this is subject to change without notice. For the most current information contact your HP support representative or the Hewlett-Packard IT Resource Center for the latest information.

Product Issues and Limitations

The following describes known problems with products included with HP Serviceguard Storage Management Suite Version A.02.00 and workarounds for them. This is subject to change without notice.

Serviceguard Limitations with CFS

The following limitations apply to the HP Serviceguard Product when it is used with Veritas™ CFS.

- Serviceguard supports a maximum of eight nodes for CFS
- Serviceguard does not support CFS nested mounts

The `mknod` Command Is Not Supported with CFS

You cannot use the `mknod` command to create devices on a cluster mounted file system - attempts to use the `mknod` command will return Invalid argument.

CFS for Oracle Bundles Require Supplemental Software

A Supplemental Media for Serviceguard Storage Management Suite Version A.02.00 delivers software you need to properly install the following HP Serviceguard Storage Management Suite bundles:

- T2776CA: HP Serviceguard Cluster File System for Oracle
- T2777CA: HP Serviceguard Cluster File System for Oracle RAC
- T2796CA: HP Serviceguard Cluster File System for Oracle with Mission Critical Operating Environment (MCOE)
- T2797CA: HP Serviceguard Cluster File System for Oracle RAC with Mission Critical Operating Environment (MCOE)

Compatibility Information and Installation Requirements

If one of the impacted HP Serviceguard Storage Management Suite bundles is installed without this supplemental software, the following bundle components will fail to install:

- VRTSdbed - special commands available in the /opt/VRTSdbed/bin directory that are provided to assist with converting an existing database to use Quick I/O.
- ASGV - contains bundle specific control scripts that control installation behavior and update configuration files delivered by the Serviceguard Storage Management Suite bundle.

Without the VRTSdbed and ASGV components, the Cluster Volume Manager (CVM) stack cannot be started and an attempt to start the Cluster File System (CFS) package on all nodes will cause a panic.

The Supplement Media for the Serviceguard Storage Management Suite Version A.02.00 includes:

- SGSMSupp - this is a "dummy bundle" tag, it does not get installed
- VRTSdbcom,r=5.0.00.01-GA,a=HP-UX_B.11.23_IA/PA,v=HP - Veritas Storage Foundation for DB Common Utilities
- VRTSdbms3,r=3.0.130.0,a=HP-UX_B.11.23_IA/PA,v=HP - Veritas Storage Foundation for Oracle DBMS3

NOTE: This software can also be downloaded from the HP Software Depot at: www.hp.com/software/SGSMS

SCSI-3 Persistent Reservation Support

Veritas Cluster Server (VCS) relies on SCSI-3 Persistent Reservation being supported on the storage. This is part of the Veritas split brain prevention. HP Serviceguard uses a different and more robust method to prevent split brain, there is no need for SCSI-3 Persistent Reservation on the storage.

Use of HP-UX mount Commands for CFS Environments

Once the disk group and mount point multi-node packages are created in Serviceguard, it is critical to use the CFS commands, including `cfsgadm`, `cfsmntadm`, `cfsmount`, and `cfsumount`. If the HP-UX commands such as `mount` and `umount` are used, it could cause serious problems such as writing to the local file system instead of the cluster file system.

Any form of the HP-UX `mount` command (for example, `mount -o cluster, dbed_chkptmount`, or `sfrac_chkptmount`) in a HP Serviceguard Storage Management Suite bundle environment with CFS should be done with caution. These non-CFS commands could cause conflicts with subsequent CFS command operations on the file system or Serviceguard packages. Use of these forms of `mount` will not create an appropriate multi-node package which means that the cluster packages are not aware of the file system changes. Instead, use the CFS commands `cfsmount` or `cfsumount`.

HP-UX Operating Environment Upgrade Limitations

When you purchase an HP Serviceguard Storage Management Suite (SG SMS) Operating Environment (OE) bundle, the SG SMS software is provided on one DVD and the HP-UX OE (Mission Critical - MCOE, Data Center - DCOE, or High Availability - HAOE) is provided on a separate DVD.

The software provided on the SG SMS DVD relies on products and filesets that are provided on the OE DVD, including HP Serviceguard and the Veritas Storage Foundation products. Each SG SMS version relies on specific versions of HP Serviceguard and the Veritas Storage Foundation products that can change with new OE releases.

The software on the SG SMS DVD is installed using `swinstall`. If an HP-UX OE is installed on your system and you attempt to install a SG SMS version that is not supported with the versions of Serviceguard and Veritas Storage Foundation included with the OE, `swinstall` will detect the incompatible software and the installation will fail.

The software on the OE DVD is installed using `update-ux`. If a SG SMS bundle is installed on your system and you attempt to install or upgrade to an OE version that includes Serviceguard and Veritas Storage Foundation versions that are not supported with the SG SMS bundle, `update-ux` will not detect the incompatible software. The installation will complete, but the Serviceguard cluster will not start, or you will not be able to access the Veritas volumes. `update-ux` does not check for software dependencies.

See “Compatibility Information and Installation Requirements” on page 22 for more information on bundle upgrades.

Oracle Data Manager (ODM) with VxFS and LVM

- *What is the limitation?* ODM for VxFS file systems on LVM volumes is not supported.
- *What is the workaround?* Oracle Files that need ODM capability should reside on a VxFS file system created on a VxVM/CVM volume.

Oracle Data Manager Limitation for Bundles T2776CA, T2796CA, T2777CA, and T2797CA

- *What is the limitation?* Single instance Oracle databases are not permitted outside of Serviceguard packages in environments using T2776CA, T2796CA, T2777CA, and T2797CA. If there are any Oracle instances not controlled by Serviceguard packages, a halt of the system multi-node package SG-CFS-pkg could bring down the node or cluster.
- *What is the workaround?* Place all Oracle single instances in Serviceguard packages when deploying these bundles. In addition, single instance Oracle packages using VxFS and VxVM must have a direct dependency on the system multi-node package SG-CFS-pkg.

JAGaf82190 (SR8606422366) odm_gms_api_start_msgs fails during system startup

- *What is the problem?* Errors returned during system startup:

```
GAB WARNING V-15-1-20115 Port d registration failed, GAB not configured vxgms: GAB_API_REGISTER error=261  
ODM WARNING V-41-6-5 odm_gms_api_start_msgs fails
```
- *What is the workaround?* Ignore the messages.

HP Serviceguard Cluster File System for RAC T2777CA VxFEN JAGaf97359

- *What is the limitation?* Error when starting Serviceguard packages. This problem occurs when LANG is set to a non-English locale, for example, ja_JP.SJIS. Failure causes SG-CFS-pkg to fail to start up and causes a TOC of the box with the following messages in syslog.

```
VXFEND: open(): Unable to open I18N message catalog  
/opt/VRTSvcs/vxfen/ (error code: 9)
```


- *What is the workaround?* Set the export `VCSI18N_LANG=en` or `LANG=C`.

JAGag06843: vxumount returns device busy on master node

- *What is the problem?* In some stress situations, `vxumount` of a VxFS filesystem might return `EBUSY` if there are I/Os in progress on other nodes within the cluster. Sometimes the `vxumount` can take long time because of a possible issue in the VFS layer. This is a transient problem.
- *What is the workaround?* This is a transient problem and retry of the `vxumount` operation should succeed.

JAGag09085: VxVM 5.0 requires more space on / directory for /etc/vx/cbr backup

- *What is the problem?* With VxVM 5.0, more disk space is needed in the `/etc/vx/cbr` directory because of the increased metadata size. The space usage under this `/etc/vx/cbr` directory can take up to 64 MB per `diskgroup` configured on the system.
- *Workaround?* This problem can be worked around by keeping enough available space in the filesystem that has this directory (usually `/`). Alternatively it is possible to make this path a symbolic link to some other directory on other filesystem.

JAGag17495: fsclustadm cfsdeinit device busy, package halt timeout

- *What is the problem?* In some stress situations, during `cmhaltctl`, the package `halt` reaches time out. This causes the node to perform a transfer of control (TOC). This problem is caused by an error in the CFS shutdown process.
- *Workaround?* There is no workaround. The failing node should recover after the TOC.

JAGag20605: cvm join problem

- *What is the problem?* In some stress situations, when a node starts up, the Serviceguard System Multi-node package fails to start due to a CVM join failure. This causes the joining node to perform a TOC.

Compatibility Information and Installation Requirements

- *What is the workaround?* There is no workaround. When the node recovers from the TOC, run the `cmrunnode CFS` command. It should complete successfully.

JAGag22707: Lot's of vx* directories left over in /tmp

- *What is the problem?* Some empty directories can be seen in `/tmp/vx*` after a reboot.
- *What is the workaround?* These directories can be ignored.

JAGag35297: cfsmount failed since the package was already started by cmcld

- *What is the problem?* This affects the CFS mount point package. If the package is already down on all nodes when you run the `cfsmount` command, `cfsmount` could fail, complaining that the package has already been started.
- *What is the workaround?* The workaround is to issue `cfsmntadm display <mount_point>` to verify if the mount point was mounted successfully and re-issue `cfsmount` command if retry is needed.
 1. After running `cfsmount`, use `cfsadmin` to verify that the mount succeeded:

```
cfsmntadm display <mount_point>
```
 2. If the mount failed, re-run `cfsmount`.

JAGag37114: Diskgroup resync taking too long

- *What is the problem?* With multiple disk groups in the cluster, it is possible that mirrored volumes in more than 1 diskgroup require syncing. When the cluster comes up, CVM initiates the `vxrecover` on the master node. However when the node is joining the cluster, ServiceGuard script also checks the kernel state of the volumes in the shared disk groups. If the kernel state of any volume in the shared diskgroup is `DISABLED`, then Serviceguard calls a `vxvol start` on the master node. This can happen if `vxrecover` still has not started the recovery of that diskgroup. The `vxvol start` command does the syncing of volumes one at a time and in the foreground. If many volumes need syncing and if the system is heavily loaded, then this syncing can take a long time.
- *What is the workaround?* There is no workaround.

JAGag40401: cannot sleep during interrupt

- *What is the problem?* In some stress situation where the system is under heavy IO load, if some nodes fail (TOCs), CVM resyncs the mirrored shared volumes for the surviving nodes. While CVM is resync'ing the volumes, it might invoke sleep(). If this sleep() is invoked during an interrupt context, the system performs a TOC.
- *What is the workaround?* There is no workaround.

JAGag45544: Open fails for the device /dev/vxfen, after removing and reinstalling a Serviceguard Cluster File System (SG CFS) bundle.

- *What is the problem?* After removing a SG CFS bundle and later re-installing the same SG CFS bundle on the same system, the `cfsccluster config` command fails to join the cluster and causes the node to TOC. The following error is reported in the SG CFS `pkg.log` file:

```
/sbin/vxfen-startup (exit=1) VXFEN vxfenconfig ERROR  
V-11-2-1002 Open failed for device: /dev/vxfen with error 2
```

This is because the `/dev/vxfen` and `/dev/vxfend` devices are not created after the bundle is re-installed, causing the SG-CFS-pkg to fail. After the node is rebooted, `/dev/vxfen` and `/dev/vxfend` are created as part of the reboot process.

This problem impacts the following SG CFS bundles: T2775xx, T2776xx, T2777xx, T2795xx, T2796xx, and T2797xx.

- *What is the workaround?* After removing and re-installing the SG CFS bundle, reboot the system manually.

Documentation Errata

The following describes known problems with documentation included with HP Serviceguard Storage Management Suite Version A.02.00 and workarounds for them. This is subject to change without notice.

Veritas man page Errata

Due to the unique integration of HP Serviceguard Storage Management Suite bundles, errata for Veritas man pages includes:

- man page: `l1ttab`

Compatibility Information and Installation Requirements

- *What is the problem?* Man page states the “llttab file must be managed by the System Administrator”. In HP Serviceguard Storage Management Suite environments Serviceguard creates, distributes, and manages this file.
- *What is the workaround?* Ignore man page.
- man page: llthosts
 - *What is the problem?* Man Page states the “llthosts file must be managed by the System Administrator”. In HP Serviceguard Storage Management Suite environments Serviceguard creates, distributes, and manages this file.
 - *What is the workaround?* Ignore man page.
- man page: gabconfig
 - *What is the problem?* In HP Serviceguard Storage Management Suite environments Serviceguard creates, distributes, and manages gab configuration. Most options for this command are not needed.
 - *What is the workaround?* Ignore man page.
- man page: gabdiskhb
 - *What is the problem?* In HP Serviceguard Storage Management Suite environments gab heartbeat disks are not applicable.
 - *What is the workaround?* Ignore man page.
- man page: dbed_vmsnap
 - *What is the problem?* man page says to “Freeze/Unfreeze” the resource group.
 - *What is the workaround?* For HP Serviceguard Storage Management Suite bundles, use equivalent Serviceguard functionality to start/stop the appropriate package.

Known Problems with Veritas File System 5.0 Administrator’s Guide

Known problems include:

- *What is the problem?* Page 33 “File system clustering requires other Veritas products”.

What is the workaround? HP Serviceguard Storage Management Suite environments requires HP Serviceguard for file system clustering.

- *What is the problem?* Page 194 “Cluster file systems depend on several other Veritas products that must be correctly configured before a complete clustering environment is enabled.”

What is the workaround? HP Serviceguard Storage Management Suite environments require HP Serviceguard be correctly configured before a complete clustering environment is enabled.

Known Problems with Veritas FlashSnap Point-in-Time Copy Solutions Administrator’s Guide 5.0

Known problems include:

- *What is the problem?* Page 2 Note has product names that are not correct for the HP Serviceguard Storage Management Suite bundles.

What is the workaround? Point-in-time copy solutions can be used with HP Serviceguard Storage Management Suite bundles.

- *What is the problem?* Page 4 has product names that are not correct for the HP Serviceguard Storage Management Suite bundles.

What is the workaround? Veritas Storage Foundation for DB2 or Sybase HA are not available with HP Serviceguard Storage Management Suite bundles. “Cluster File System HA” is replaced by Serviceguard in these environments.

- *What is the problem?* Page 8 describes the FlashSnap agent for Symmetrics.

What is the workaround? This is not valid in the HP Serviceguard Storage Management Suite bundles.

- *What is the problem?* Appendix A has DB2 and Sybase examples.

What is the workaround? These do not apply in HP Serviceguard Storage Management Suite bundles.

Known Problems with Veritas Storage Foundation 5.0 Intelligent Storage Provisioning Administrator’s Guide

Known problems include:

- *What is the problem?* Throughout manual there are references to VVR.

What is the workaround? VVR is not available in HP Serviceguard Storage Management Suite Version A.02.00.

Known Problems with Veritas Storage Foundation 5.0 for Oracle Administrator's Guide

Known problems include:

- *What is the problem?* ODM content may be incorrect.

What is the workaround? If Oracle RAC is configured to use CFS to store datafiles, ODM must be configured.

- *What is the problem?* Page 28 describes the Veritas Storage Foundation/High Availability for Oracle capabilities.

What is the workaround? High availability solutions for Oracle databases can also be achieved with various HP Serviceguard Storage Management Suite bundles.

- *What is the problem?* Pages 6, 15, 553 references “VVR”.

What is the workaround? VVR is not available in HP Serviceguard Storage Management Suite Version A.02.00.

- *What is the problem?* Page 130 under heading “Oracle 10g” contains incorrect file name.

What is the workaround? Command line: “rm `${ORACLE_HOME}/lib/libodm9.sl`” should be “rm `${ORACLE_HOME}/lib/libodm10.sl`”

- *What is the problem?* Pages 130, 134, and 136 do not include correct file names for the Oracle Disk Manager library files on HP Integrity systems. The file names with “.so” extensions are correct for HP 9000 (PA-RISC based) systems.

What is the workaround? For HP Integrity systems, use:

- “libodm9.so” instead of “libodm9.sl”
- “libodmd9.so” instead of “libodmd9.sl”
- “libodm10.so” instead of “libodm10.sl”

- *What is the problem?* Pages 246 and 250 list “hagrp freeze/unfreeze” commands.

What is the workaround? For HP Serviceguard Storage Management Suite bundles, use equivalent Serviceguard functionality to start/stop the appropriate package.

Known Problems with Veritas Volume Manager 5.0 Administrator's Guide

Known problems include:

- *What is the problem?* Page 537 lists “hagrp freeze/unfreeze” commands.

What is the workaround? For HP Serviceguard Storage Management Suite bundles, use equivalent Serviceguard functionality to start/stop the appropriate package.

- *What is the problem?* Pages 514, 515, 516, 524, 525, 527, 530, 531, 536, 546 references using “VCS” for HA needs.

What is the workaround? HP Serviceguard can handle these same needs.

Known Problems with Veritas Volume Manager 5.0 Release Notes

Known problems include:

- *What is the problem?* Page 9 lists FlashSnap, Veritas Cluster File System, and Veritas Cluster Volume Manager as unsupported.

What is the workaround? These features are all supported in the HP Serviceguard Storage Management Suite bundles.

- *What is the problem?* Page 14 contains “VCS” references.

What is the workaround? For HP Serviceguard Storage Management Suite bundles equivalent functionality is provided by Serviceguard.

Software Availability in Native Languages

The HP Serviceguard Storage Management Suite Version A.02.00 does *not* provide Native Language Support. The documentation media provides a complete set of documentation in English. Individual products included in the HP Serviceguard Storage Management Suite bundles may provide Native Language Support. Refer to the individual product release notes for availability.

A localized version of this document, the release notes, is available with the following product options:

- option ACA for English provides part number T2771-90036
- option ABJ for Japanese provides part number T2771-90037

