Compaq SANworks™

Release Notes

Data Replication Manager HSG80 Array Controller (ACS Version 8.5P) for Tru64 UNIX Versions 5.0a and 5.1

This document summarizes features and characteristics of Compaq SANworks Data Replication Manager that are supported in Version 8.5P of the HSG80 Solution Software for Tru64 UNIX Version 5.0a and Version 5.1 platform kit.

These Release Notes provide information for Data Replication Manager, operating with HSG80 Array Controller Software (ACS) Version 8.5P, not covered elsewhere in the documentation. Individuals responsible for configuring, installing, and using the Data Replication Manager solution should use this document.

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Data Replication Manager Release Notes for Tru64 UNIX Versions 5.0a and 5.1
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Read this entire document before installing or upgrading the software.

These release notes include the following sections:

- DRM Solution Kit
- Inaugural Patch Kit
- Host Bus Adapter Driver Version
- Avoiding Problem Situations
  - Cluster Member Unit Access Recognition
  - Preventing Possible Data Corruption
  - Persistent Reserve
  - SWCC
  - Full Copy Suspend
  - Invalid VTDPY Percentages
  - Performance Considerations During Full Copy Operation
  - Performance Considerations During Write History Log Merge
  - Association Sets
  - Switch Zoning
  - I/O Pause
  - Non-remote Copy Set LUNs
  - Target Drop
  - VTDPY Host Display
- Visit our Website for the Latest Information

DRM Solution Kit

The DRM Solution Kit includes firmware for the LP7000 (version 3.03a1) and LP8000 (version 3.03x2) Host Bus Adapters (HBAs). These are the versions that have been qualified for this release of DRM. To install these versions, follow the directions in the section "Avoiding Problem Situations" below.

Compaq StorageWorks Command console (SWCC) version 2.3 with SWCC Agent Build 77 are the SWCC versions qualified for Tru64 UNIX Version 5.0a.

> **NOTE:** At this time, SWCC is supported in Tru64 UNIX Version 5.0a, but not in Version 5.1.

Patch Kits

The Patch Kit for Tru64 UNIX Version 5.0a or Version 5.1 is required in the DRM environment. Obtain the appropriate patch kit from the following website:

http://ftp1.support.compaq.com/public/unix

The Version 5.0a patch kit name is: t64v50aas0002-20001004.tar

The Version 5.1 patch kit name is: t64v51as0002-20001204.tar

Host Bus Adapter Driver Version

The LP7000 and LP8000 HBA driver version qualified for this release of DRM is 1.22 for Tru64 UNIX Version 5.0a.

The LP7000 and LP8000 HBA driver version qualified for this release of DRM is 1.25a for Tru64 UNIX Version 5.1.

HBA Firmware Installation Instructions

Follow these steps to download and revise your firmware software.

1. Load this DRM Solution CD on a PC running Microsoft Windows NT, Windows 95, Windows 98, or Windows 2000. This CD contains the Alpha Firmware Loader and the KGPSA firmware update images.

2. Under the KGPSA directory, you will see two additional directories: Lp7000 and Lp8000. You must know which version of KGPSA you have to perform the upgrade.
3. If you are changing LP8000 to version 3.03x2, to into the LP8000 directory and copy the files `Alphdnld.exe` and `dd303x2.awc` from this DRM Solution CD to a diskette.

   If you are changing LP7000 to version 3.03a1, go into the LP7000 directory and copy the files `Alphdnld.exe` and `sf303a1.awc` to a diskette.
4. After you have copied the KGPSA firmware images to a diskette, remove the diskette from the Windows workstation and install it on the Alpha System.
5. Bring down the Tru64 UNIX operating system.
6. Run **arc** from the Alpha system console prompt.
7. At the AlphaBIOS screen, using the arrow keys, select Utilities and then select Run Maintenance Program.
8. ARC prompts you for the name of the program to be run. Enter `Alphdnld.exe` as the Alpha Loader Utility. The default location for the Alpha Loader is the A: drive. Because you copied the `Alphdnld.exe` file to the diskette, you will not have to change this. The system displays status information showing what is currently loaded. Follow any on-screen instructions.
9. After Alphdnld.exe loads, select option 5 (Maintenance) and then select option 1 (Update Firmware).
10. The ARC utility prompts you to select the adapter or range of adapters. Enter the adapter numbers as appropriate for your configuration.
11. Enter the path and name of the firmware image. The firmware image must be on a diskette.
    - For LP8000, enter `A: \dd303x2.awc`
    - For LP7000, enter `A: \sf303a1.awc`

      Follow any onscreen instructions.
12. Type `1` to begin the download process.
13. Type `1` when prompted to reboot each host adapter.
14. Type `0` until the Main Menu reappears.
15. Type `7` to Quit.

16. After the firmware update is completed, and you have returned to the AlphaBIOS Setup screen, you must power-cycle your CPU to return to the system console prompt.

Avoiding Problem Situations

Under certain conditions, you may experience unusual system behavior. This section presents information to help you avoid such situations and to recover from them if they occur.

Cluster Member Unit Access Recognition

After a cluster member's access to a unit is disabled, issue the following command to force the cluster member to recognize that it has lost access to the unit:

```
dd if=/dev/rdisk/dsk*c of=/dev/null
```

Failure to do this could lead to data corruption in the event of a cluster partition.

Prevent Possible Data Corruption

If during the failover procedure you are unable to stop all applications and dismount all units that are part of a remote copy set, you must reboot hosts prior to failback. This prevents possible data corruption caused by writing stale data to the units after failback.

NOTE: Extreme care must be used when creating and managing RCSs on an ATM link. If these links are overstressed (for example, an excessive number of remote copy sets created for a given environment), unexpected behavior may result, such as loss of remote copy sets and link failures.

Persistent Reserve

TruCluster enables Persistent Reserve on storage units as part of its locking mechanism. This reserve must be removed at the target and initiator sites at various points in the failover and failback procedure. You must have at least one standalone (nonclustered) Tru64 UNIX system on your storage fabric, either at the initiator or target site, to remove the reserve.

SWCC

SWCC can be used for initial storage configuration. It is not designed, however, to provide high-availability management capabilities. In the event of a controller failure or path failure, be prepared to revert to the manual CLI interface for storage management.

> **NOTE:** At this time, SWCC is supported in Tru64 UNIX Version 5.0a, but not in Version 5.1.

Full Copy Suspend

When adding targets to multiple Remote Copy Sets during the site failback process, the full copy operation may stall at 0% copied. To remedy this, remove the target and immediately re-add it. The full copy operation should then proceed.

Invalid VTDPY Percentages

During the transition time between site failover and site failback, the log, merge percentage, and copy percentage on the original initiator displayed by VTDPY are not valid. Disregard these percentages.

Performance Considerations During Full Copy Operation

During full copy operations, host I/O performance is slightly reduced and the length of the copy operation is increased.

Performance Considerations During Write History Log Merge

During Write History Log merge, host I/O performance is drastically reduced due to the high priority given to the merge operation. The length of time required for the merge operation is not affected by host I/O.

Association Sets

Association Sets can contain up to 12 Remote Copy Sets (RCSs). All RCSs within an Association Set are moved between controllers as a group. Therefore, all copy sets in an Association Set are always online to the same controller.

Switch Zoning

More than 64 connections on the fabric require Zoning to limit the number of connections visible to the controller. The controller may crash if the 64 connection number is exceeded. For more information about Switch Zoning, refer to the *Data Replication Manager HSG80 ACS Version 8.5P Operations Guide for Tru64 UNIX*.

I/O Pause

When servers log into or log off the fabric, there is a 1 to 3 second pause in I/O functions on all servers connected to the fabric. This brief cessation of read and write operations is normal.

Non-remote Copy Set LUNs

Up to 12 non-Remote Copy Set LUNS may be connected to each initiator and target controller pair. These LUNs should be low-usage drives.

High usage of these non-Remote Copy Set LUNs may have a serious effect on the performance of the Remote Copy Set LUNs, saturating the controller and possibly starving a full copy operation during failback.

When a saturated controller condition begins to occur (approximately at 25% idle time), you may see Aborted Command errors through the Command Line Interface (CLI).

To prevent controller saturation:

- Avoid placing heavy use loads on the non-Remote Copy Set LUNs.
- Use the VTDPY screen to monitor controller idle time percentage.
- Ensure an idle time of greater than 25%, which Compaq recommends.

Target Drop

RAID 5 Remote Copy Set targets may be dropped under the following combined conditions:

- No write history log disk is configured.
- Host I/O is accessing the initiator Remote Copy Set LUNs.
- When both target controllers are shut down, a full copy operation is triggered.
- When the target controllers are restarted, they begin a three-minute memory diagnostic.

While the memory diagnostic is running, the full copy I/O to RAID 5 target LUNs is stalled. After approximately two minutes, a time-out occurs and the target LUNs are dropped from the Remote Copy Set.

This problem occurs only on RAID 5 Remote Copy Set LUNs.

Remedies:

- Wait five minutes to allow the target controller memory diagnostic to complete, then add the targets back into the Remote Copy Sets. The full copy operation will begin.
- Before target controllers are booted or powered on, set *Port_2_Topology* to *offline* on both initiator controllers. Wait five minutes after target controllers are restarted to allow the memory diagnostic to complete before setting *Port_2_Topology* on the initiator controllers back to *fabric*. The following is a sample command:

```
set this_controller port_2_topology = offline
```

VTDPY Host Display

The HSG80 controller may crash when using the Display Host functionality in VTDPY. If more than 21 connections are displayed (the equivalent of one page), the controller will crash with a Last Failure Code of 01932588. Zoning can be used to limit the number of connections visible to the controller.

Visit our Website for the Latest Information

Check our website for the latest drivers, technical tips, and documentation for the Data Replication Manager solution. Visit the Compaq website at:

http://www.compaq.com/storage