

Compaq SANworks™

Release Notes

Data Replication Manager HSG80 ACS Version 8.5P for Windows 2000 (Windows 2000 Server, Advanced Server, Datacenter Server)

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 Windows 2000.

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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Printed in the U.S.A.

Data Replication Manager Release Notes for Windows 2000
Second Edition (April 2001)
Part Number: AA-RNV7B-TE

Please read this entire document before modifying your system.

These release notes include the following sections:

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Software Version Information

- Operating Systems—The Windows 2000 operating system versions qualified for this release of DRM are:
 - Windows 2000 Server with Service Pack 1
 - Windows 2000 Advanced Server with Service Pack 1
 - Windows 2000 Datacenter Server
- Host Bus Adapter Driver: The LP7000 and LP8000 HBA driver version qualified for this release of DRM is 4.52a8. This is available on the web at:
<http://www.compaq.com/storage>
Download the emulex A8 zipped file, unzip the file, then run Setup.
- Host Bus Adapter Firmware: The HBA firmware version qualified for this release of DRM is 3.81a1 for the LP8000 KGPSA-CB 64-Bit/33-MHz PCI-to-Fibre Channel Host Bus Adapter, and 2.20x2 for the LP7000 KGPSA-BC. This is available on the web at:
<http://www.compaq.com/storage>
- Fibre Channel Software: The Fibre Channel software version qualified for this release of DRM is 4.01SW, which is included on the Secure Path software package. For Windows 2000 Datacenter only, use the Fibre Channel software included with your Datacenter Platform Kit.
- HS Service: The HS_Service.exe and hszservicecontrol.dll version qualified for this release of DRM is 3.1.0.1. This update is available on the web at:
<http://www.compaq.com/storage>
- Secure Path: The Secure Path version qualified for this release of DRM is 3.1a. Use Secure Path Software Update 3.1a, available on the web, to upgrade from version 3.0 to 3.1, and for 3.1 patches.
<http://www.compaq.com/storage>
Download the self-extracting .exe file and follow the installation instructions.

- StorageWorks Command Console (SWCC): The SWCC versions qualified for this release of DRM are:
 - ❑ SWCC Command Console Version 2.2.0.213
 - ❑ SWCC Agent Version 2.3 Build 77
 - ❑ CLI Window Version 2.0.0.33
 - ❑ HSG80 ACS 8.5 Storage Window Version 2.3.0.13 (Client)
 - ❑ Fibre Channel Switch Firmware: The Fibre Channel switch firmware version qualified for this release of DRM are v2.1.9g.
 - ❑ ATM Gateway Firmware: The ATM gateway firmware version qualified for this release of DRM is vOSG 2.2.5.

Cascaded Switches

Cascaded switches are supported for all of the Windows 2000 servers. However, configurations are limited to one hop between a server and the storage it is using. A hop is defined as a connection between two switches. This means that servers and storage must be connected to “adjacent” switches in the fabric.

Auto Failback

The Secure Path *Auto Failback* feature currently is not supported in a Data Replication Manager configuration. Please disable this feature.

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.

Booting Windows 2000 Servers Over the Fabric

Any of the Windows servers can be booted from a LUN on an HSG80 controller, including a LUN that is part of a remote copy set. Instructions for configuring servers and installing Windows 2000 are available on the web at:

[http://www.compaq.com/support/storage/open_vendor/support/RAIDarray/
boot_support_external_web.html](http://www.compaq.com/support/storage/open_vendor/support/RAIDarray/boot_support_external_web.html)

Two problem situations could arise when booting over the fabric.

- If the boot LUN is online to a controller that the server cannot access, the server will be unable to boot. This condition could occur if the link between the server and the fabric is broken. At this stage of booting, the server cannot move the LUN between controllers. The LUN must be manually moved to the other controller by issuing a `RESTART THIS_CONTROLLER` CLI command.
- When an intersite link with high latency (such as ATM) is used, the server may take a long time to boot, and may be slow to respond during normal operation. This is normal behavior for the server. It is caused by the time required to replicate the boot disk across a very long distance.

SWCC

SWCC can be used for initial storage configuration. However, it is not designed 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.

Check Status

If a target controller or switch becomes inoperative and the Windows 2000 host is rebooted, Secure Path Manager will not provide a report informing you that you have lost multipath capability.

If you attempt to move a LUN to the inoperative path, a warning message appears, indicating that you should check the Application Event Log for details. This may be an indication that you have lost multipath capability.

Check the status of links, target switches, and target controllers.

HSG80 Controller Soft Shutdown/Restart

When the SHUTDOWN THIS or SHUTDOWN OTHER command is executed from the CLI, the controller will shut down, forcing the LUNs to change paths. Secure Path will immediately fail the LUNs over to the remaining path, but the original path may not be marked as failed for several minutes.

Similarly, when the RESTART THIS or RESTART OTHER command is executed from the CLI, the controller will restart, forcing the LUNs to change paths. Secure Path will immediately fail the LUNs over to the remaining path, but the original path will never be marked as failed. The icon for the failed LUN will be marked with a yellow triangle with an exclamation point inside. The controller will finish restarting and return to normal operation without notification.

The following procedure can be used to check if a system is in this state:

1. Select one of the units in Secure Path Manager.
2. In the right-hand pane, click the path marked *Available*, and then right-click it to bring up the menu.
3. Select *Verify Path* from the menu that appears.

If the verify fails, the path is not available. The path will become available again after the controller is booted.

Component failures and other real failure scenarios will cause paths in Secure Path to be correctly marked as failed.

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 situation remove the target and immediately re-add it. The full copy operation should then proceed.

LUNs Numbered Incorrectly

When LUNs are moved between hosts (such as during a site failover or a site failback), it is possible that the LUNs may become “out of letter order.”

To prevent the “out of letter order” status, before booting the Windows 2000 host, follow step 1 or 2 below:

1. Make sure all LUNs are failed over to one HSG80 path. From the HSG80 CLI prompt, issue the following command:
Restart Other_Controller
2. Use Disk Manager to assign the correct drive letter so that the disks will now match the units on the controller.
3. Once Windows 2000 sees the disks ordered properly, use Secure Path Manager to move the units to the correct path.

Changing Host Connection Unit Offsets

If the UNIT_OFFSET of a connection is changed, the host must be rebooted to recognize the change. The host will continue to operate using the offset that was previously in effect until it is rebooted. For example, if a host connection has a unit offset of zero, it will only be able to access units D0 through D7. If the offset is changed to 8, the host will still be able to access units D0 through D7 until it is rebooted. After reboot, it will only be able to access units D8 through D15.

CCL Device

When the HSG80 controllers are in SCSI-3 mode, Windows 2000 Plug and Play will detect the CCL as a device and prompt for a driver. Follow this procedure to disable this function:

1. When the *Found New Hardware* wizard appears, click Next. The *Install Hardware Device Drivers* window will appear.
2. Select Search for a suitable driver for my device (recommended) and click Next.
3. On the *Locate Driver Files* window, clear all of the check boxes and click Next. The *Driver Files Search Results* window will appear.
4. Select Disable and click Finish to close the wizard.

This process must be repeated for each command console LUN (CCL). If the CCLs are not disabled, the *Found New Hardware* wizard will appear every time the server is booted.

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 fail code of 01932588. Zoning can be used to limit the number of connections visible to the controller.

Invalid VTDPY Percentages

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

Performance Considerations—Full Copy Operation

During full copy operations, host I/O performance will be moderately reduced and the length of the copy operation will increase.

Performance Considerations—Write History Log Merge

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

Association Sets

Association sets can contain up to 12 remote copy sets. However, because all copy sets within an association set are moved between controllers as a group, all remote copy sets within an association set must be accessed by the same server.

For instance, 6 remote copy sets (one association set) could be accessed by one server and 6 remote copy sets (another association set) by the other.

In a Windows 2000 cluster configuration, all remote copy sets within an association set must be placed in one cluster resource group.

Switch Zoning

When more than 64 connections exist on the fabric, zoning is required to limit the number of connections visible to the controller. The controller may crash if the 64-connection limit is exceeded. For more information about switch zoning, refer to the *Compaq Data Replication Manager HSG80 ACS Version 8.5P Operations Guide for Windows 2000*.

I/O Pause

During a fabric reconfiguration, you will notice a 1- to 3-second pause in I/O functions on all servers connected to the fabric. This brief cessation of read/write operations is normal. Fabric reconfiguration can be caused by servers starting up or shutting down, and by the physical plugging or unplugging fiber cables.

ATM Connectivity

If a Fibre Channel switch is rebooted while the ATM link is down, the normal E_Port may transition to a G_port, preventing connectivity. To resolve this issue, reboot the switch after the ATM link is restored.

Non-Remote Copy Set LUNs

Up to 12 non-remote copy set LUNs may be connected to each initiator and target controller pair. However, these LUNs should be low usage drives. High usage of these non-remote copy set LUNs will have a serious impact 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:

1. Avoid placing heavy use loads on the non-remote copy set LUNs.
2. Use the VTDPY screen to monitor controller idle time percentage.
3. Compaq recommends an idle time greater than 25 percent.

Target Drop

RAID 5 remote copy set targets may be dropped under the following combined conditions:

- No write history log disk configured.
- Host I/O is accessing the initiator remote copy set LUNs.
- When both target controllers are shut down, a full copy operation will be triggered.
- When the target controllers are restarted, they will begin a 3-minute memory diagnostic.

While the memory diagnostics are running, the full copy I/O to RAID 5 target LUNs will be stalled. Therefore, after approximately 2 minutes a timeout will occur and the target LUNs will be dropped from the remote copy set.

This target drop problem occurs only on RAID 5 remote copy set LUNs.

Remedies:

- Wait five minutes to allow for the target controller memory diagnostics 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 on both initiator controllers to *offline*. Wait 5 minutes after target controllers are restarted to allow for memory diagnostics to complete before setting port_2_topology on the initiator controllers back to *fabric*.

Compaq Website

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

<http://www.compaq.com>

<http://www.compaq.com/storage>

<http://www.compaq.com/products/SANworks>

<http://www.compaq.com/support>

Use the following keywords to search for the required information:

- Secure Path
- DRM
- SANworks
- SWCC
- Drivers
- Support