

Compaq SANworks™

Release Notes

Data Replication Manager HSG80 ACS Version 8.5P for Novell NetWare Version 5.1

This document summarizes features and characteristics of Compaq SANworks Data Replication Manager that are supported in Version 8.5P of the HSG80 Array Controller Software for Novell NetWare Version 5.1.

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.

Data Replication Manager Release Notes for Novell NetWare Version 5.1

© 2001 Compaq Computer Corporation.

Compaq, the Compaq logo, and StorageWorks Registered in U. S. Patent and Trademark Office.

SANworks is a trademark of Compaq Information Technologies Group, L.P. in the United States and other countries.

Windows is a trademark of Microsoft Corporation in the United States and other countries.

Intel and Pentium are trademarks of Intel Corporation in the United States and other countries.

NetWare is a trademark of Novell Corporation in the United States and other countries.

All other product names mentioned herein may be trademarks of their respective companies.

Confidential computer software. Valid license from Compaq required for possession, use or copying. Consistent with FAR 12.211 and 12.212, Commercial Computer Software, Computer Software Documentation, and Technical Data for Commercial Items are licensed to the U.S. Government under vendor's standard commercial license.

Compaq shall not be liable for technical or editorial errors or omissions contained herein. The information in this document is provided "as is" without warranty of any kind and is subject to change without notice. The warranties for Compaq products are set forth in the express limited warranty statements accompanying such products. Nothing herein should be construed as constituting an additional warranty.

Compaq service tool software, including associated documentation, is the property of and contains confidential technology of Compaq Computer Corporation. Service customer is hereby licensed to use the software only for activities directly relating to the delivery of, and only during the term of, the applicable services delivered by Compaq or its authorized service provider. Customer may not modify or reverse engineer, remove, or transfer the software or make the software or any resultant diagnosis or system management data available to other parties without Compaq's or its authorized service provider's consent. Upon termination of the services, customer will, at Compaq's or its service provider's option, destroy or return the software and associated documentation in its possession.

Printed in the U.S.A.

Data Replication Manager Release Notes for Novell NetWare Version 5.1
First Edition (April 2001)
Part Number: EK-DRMNN-RA. A01

Please read this entire document before upgrading your system.

These release notes include the following sections:

- Software Version Information
- NetWare Cluster Services (NWCS)
- Additional Instructions for Failover/Failback
- Cascaded Switches
- Auto Failback
- Avoiding Problem Situations
 - CPU Hog Abends
 - Auto Failback
 - SWCC
 - Full Copy Suspend
 - VTDPY Host Display
 - Invalid VTDPY Percentages
 - Performance Considerations—Full Copy Operation
 - Performance Considerations—Write History Log Merge
 - Association Sets
 - Switch Zoning
 - I/O Pause
 - Non-Remote Copy Set LUNs
 - Target Drop
- Compaq Website

Software Version Information

- Operating System: The NetWare operating system version qualified for this release of DRM is NetWare v5.1, with a minimum of Support Pack 2.0a (Support Pack 2.0b if you are running an Intel Pentium III processor).
- Host bus adapter (HBA) Driver: The HBA multipath driver version qualified for this release of DRM is CPQFC.HAM v2.5.
- Secure Path: The Secure Path version qualified for this release of DRM is 3.0.
- SWCC: The SWCC versions qualified for this release of DRM are:
 - ❑ SWCC Command Console Version 2.2.0.213
 - ❑ CLI Window Version 2.0.0.33
 - ❑ HSG80 ACS85 StorageWindow Version 2.3.0.13 (Client)
 - ❑ STEAM.NLM v3.0
 - ❑ RAIDCDM v1.0
- Fibre Channel Switch Firmware: The Fibre Channel switch firmware version qualified for this release of DRM is v2.1.9g.
- ATM Gateway Firmware: The ATM gateway firmware version qualified for this release of DRM is vOSG 2.2.5.

NetWare Cluster Services (NWCS)

With this first release of DRM for NetWare, NWCS v1.01 is supported at the initiator site with non-remote copy set LUNs only. Stretch Clusters are not supported at this time.

A Stretch Cluster is defined as having a NetWare Cluster using NWCS with cluster members located at both the DRM initiator and target sites.

Additional Instructions for Failover/Failback

A DRM configuration presents a problem after a site failover because the replicated NetWare volumes are tied to a file server name, unlike a clustered volume which has a generic, non-file server-specific name.

When NetWare volumes are created at the initiator site, they are inserted into the Novell Directory Services (NDS) tree as servername_volumename (for example, SERVER1_VOL1). After a site failover, the volumes are still available and can be mounted by a NetWare server at the target site, but the volumes will now take on the new server name, e.g., SERVER2_VOL1. In addition, they will not be automatically inserted into NDS, nor will they maintain the file system permissions established at the initiator site. You **MUST** perform the following steps the first time failed-over volumes are mounted at the target site:

1. After failing over to the target site and mounting the NetWare volumes, type NWCONFIG from the file server console.
2. Select Directory Options.
3. Select Upgrade Mounted Volumes into the Directory, and supply an administrator-equivalent user ID and password.
4. From a Windows workstation, use the NWAdmin utility to establish the desired file system permissions for the newly inserted volumes.

Once the above procedure has been accomplished, it will not have to be performed again, as long as the volumes are always mounted on the same target file server after a failover.

Upon failback to the initiator site, any new files/directories created at the target site will need to have permissions reestablished using the NWAdmin utility. When performing subsequent failovers, it is not necessary to insert the volumes into the NDS tree—they will already be there. Simply make sure that the permissions are granted using NWAdmin if any new files/directories have been created at the initiator site.

NOTE: A Read-Write Replica containing the volumes will need to be placed on all target site NetWare servers that will be mounting volumes in a failover scenario.

Cascaded Switches

Cascaded switches are supported for Novell NetWare 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

Auto Failback is supported with this release of DRM using Secure Path for NetWare. However, if you experience instances where Auto Failback does not work, refer to the “Auto Failback” topic under “Avoiding Problem Situations” in this Release Note for additional help.

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.

CPU Hog Abends

If you experience CPU Hog Server Abends, you may have to adjust the *CPU Hog Timeout Amount* (using *MONITOR.NLM* under the menu parameter *Server Parameters, Miscellaneous*) to a lower amount or 0 seconds (disabled).

Auto Failback

Failures involving the target site (extended intersite link failures, target switch failures, target controller failures) will cause Secure Path to fail LUNs to their alternate paths. However, Auto Failback to the preferred path after the link is restored may not occur. In these situations, use the Secure Path Manager (GUI) to manually move LUNs back to their preferred paths. Refer to the *Compaq SANWorks Secure Path Version 3.0 for Novell Netware Installation and Reference Guide* document for additional details on performing this operation.

SWCC

SWCC can be used for initial storage configuration. However, it is not designed to provide high availability management capabilities. In the event of controller or path failure, be prepared to revert to the manual Command Line Interface (CLI) for storage management.

Full Copy Suspend

When rapidly adding targets to re-establish remote copy sets during the site failback process, the full copy operation may stall at 0% copied for one or more remote copy sets.

To remedy this situation, remove the target of the stalled remote copy set and immediately re-add it. The full copy operation should then proceed for that remote copy set.

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 (cache data allocation parity error).

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 operations will increase. A full copy operation is defined as the process of moving data from the initiator to the target of a remote copy set.

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.

Switch Zoning

When there are more than 64 connections 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 *Data Replication Manager HSG80 ACS Version 8.5P Operations Guide for Novell NetWare Version 5.1*.

I/O Pause

When servers log into (boot) or log off (shut down) the fabric, 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.

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 (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.
- Compaq recommends an idle time greater than 25%.

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 problem occurs only on RAID 5 remote copy set LUNs.

Remedies:

- Wait 5 minutes to allow 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 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 the Compaq website 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