

Compaq StorageWorks

Release Notes - Array Controller Software (ACS) Version 8.6-1

Part Number: AV-RR46A-TE

First Edition (October 2001)

Product Version: V8.6-1

This document provides documentation updates and summarizes the additional hardware and software support for the HSG60/80 ACS V8.6-1.

For the latest version of these Release Notes and other Array Controller Software documentation, visit the Compaq storage website at:

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

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Intended Audience

This document is intended for customers who purchased the *Compaq StorageWorks* Enterprise/Modular Storage RAID Array products that include Compaq StorageWorks HSG60/80 RAID Array Controller(s). This document also serves as a reference for Compaq Customer Services personnel responsible for installing and maintaining systems that include the Compaq StorageWorks HSG80 RAID Array Controller.

Other ACS Documentation

ACS documentation ships as part of the ACS Solution Kits. The Solution kits are Operating System specific and support ACS V8.6-1. Use of the ACS Solution kits V8.6x in conjunction with ACS V8.6-1 is mandatory. Additional documentation, including white papers and best practices documents, are available via the Compaq website at:

<http://www.compaq.com>

Operating System Support

Background

The initially published HSG60/80 ACS V8.6-1 hardware and software support statements have now been modified. These modifications supersede and replace previous statements in the User Documentation and Software Product Descriptions for all ACS V8.6-1 (L, G, F, S, P).

Description

The initial support statement concerning collateral SAN support has been expanded. The following is now supported with Version 8.6-1 of HSG60/80 Software:

Table 1: Operating System Support

Platform	Current Solution Kit Version	Operating System Versions	FC-AL	Switch
Windows 2000 Windows NT ProLiant & X86	V8.6	SP 1 V4.0 SP 6a	Yes	Yes
Compaq Tru64 UNIX	V8.6A	V4.0f/g, 5.1, & 5.1a	Yes	Yes
Novell NetWare	V8.6	V4.2 & V5.1	Yes	Yes (Note #1)
Compaq OpenVMS	V8.6	V7.2-1 (Note #2), V7.2-1H1 & 7.3, V7.2-2 (Note #5)	No	Yes
Sun Solaris	V8.6	V2.6 (32 bit), V7 & V8 (32/64 bit)	Yes	Yes
HP-UX	V8.6	10.20 & 11.0	Yes	Yes (Note #3)
SGI IRIX	V8.6	V6.5.10 & V6.5.11	Yes	Yes
IBM AIX	V8.6	V4.3.2 & V4.3.3	Yes	No
Linux ProLiant & X86 Linux Alpha	V8.6	Red Hat Linux 6.2 or 7.0, SuSE Linux 6.3 or 7.0	Yes	Yes (Note #4)

Note #1: Switch Support not available on Novell NetWare V4.x

Note #2: OpenVMS V7.2-1 with the following patches applied:

- a. DEC-AXPVMS-VMS721_PCSI-V0100--4.PCSI
- b. DEC-AXPVMS-VMS721_UPDATE-V0300--4.PCSI
- c. DEC-AXPVMS-VMS721_SYS-V1000-4

Note #3: HP-UX Support of Switched environments via Quickloop

Note #4: Qlogic 2200 HBA required for switch support

Note #5: DRM (V8.6P-2) support for Compaq OpenVMS includes V7.2-2

FC Switch Firmware Support

- Original DSGGA 16 Port and 8 Port SAN Switch: Firmware must be at V1.6d
- Version 2.1.9m of Compaq Switch Firmware for Compaq SAN Switches (Part Number: 176219-B21, 158222-B21, 212776-B21 or 158223-B21). V2.1.9m is required for V8.6P configurations, and recommended for all other configurations.

This firmware can be found at the following location:

<http://www.compaq.com/products/storageworks/hubs-and-bridges/firmwareupdate.html>

Save Configuration Option in ACS

The Configuration_Save option is only supported in Single Controller configurations. The ACS V8.6 documentation erroneously states support for this function on dual controller pairs.

Upgrading ACS

Rolling upgrades are supported when upgrading subsystems from V8.5-x to V8.6-1. A shutdown upgrade is required when going from an older revision ACS to V8.6-1.

Best Practices for Upgrading

Before initiating the ACS upgrade on the Array Controllers, Services should verify/obtain a hardcopy of the total storage unit configuration for each subsystem. This should be done prior to the upgrade and after the upgrade. It makes a good addition to your site documentation.

You can obtain this information by executing the following CLI commands:

```
HSG_CLI> SHOW THIS FULL
```

```
HSG_CLI> SHOW OTHER FULL
```

NOTE: The SHOW OTHER FULL command is for dual controller configurations only.

```
HSG_CLI> SHOW UNITS FULL
```

```
HSG_CLI> SHOW STORAGE FULL
```

```
HSG_CLI> SHOW DEVICE FULL
```

Dual Redundant Controller Shutdown Upgrade

This section describes the supported upgrade methods and procedures required to successfully upgrade an HSG60/HSG80 array controller ACS from ACS Version 8.3 or Version 8.4 to Version 8.6-1. ACS Version 8.6-1 supports both dual-redundant controller rolling upgrade and dual-redundant controller shutdown upgrade methods. The shutdown upgrade method takes the storage devices offline for a period of time while the software is upgraded simultaneously on both controllers.



CAUTION: The following procedures **MUST** be followed to upgrade from ACS Version 8.3 or 8.4 to ACS Version 8.6-1. Significant down-time and data loss may result if these procedures are not followed. Completely read and understand all of the required steps prior to beginning an upgrade procedure.

Specific controllers are referred to as Controller A or Controller B during the procedure. For clarity, the CLI prompts illustrated in this procedure use *HSGA*> and *HSGB*> to indicate which controller (A or B) is used.

NOTE: This procedure is written for dual-redundant controller configurations. If upgrading a single-controller configuration, disregard references to multiple controllers and Controller B. The procedure will take approximately 5 minutes.

1. From a host console, stop all host activity to the controllers and dismount the logical units in the subsystem.
2. If the controller is running in SCSI-2 mode and the Command Console LUN (CCL) is enabled, you must disable the CCL prior to upgrading.
 - a. Determine if the controller is in SCSI-2 mode and the CCL is enabled using the following command:

```
HSGA> SHOW THIS_CONTROLLER
```

The following test is only a portion of the resulting display - arrows point to the pertinent status indication.

Controller:

```

HSG80/HSG60          (C) DEC ZG80200258 Software V85P-0, Hardware E01
NODE_ID              = 5000-1FE1-0007-B780
ALLOCATION_CLASS      = 1
→ SCSI_VERSION       = SCSI-2
Configured for MULTIBUS_FAILOVER with ZG92810098
    In dual-redundant configuration
Device Port SCSI address 7
Time: 14-MAR-2001   15:44:25
→ Command Console LUN is lun 0 (IDENTIFIER = 0)

```

- b. If the controller is in SCSI-2 mode and the CCL is enabled, record the status for restoration in step.
 - c. Disable the CCL using the following command:
- ```
HSGA> SET THIS_CONTROLLER NOCOMMAND_CONSOLE_LUN
```
3. Connect a PC or terminal to the maintenance port of Controller A.
  4. Identify and record the current CACHE\_FLUSH\_TIMER value using the following command:

```
HSGA> SHOW THIS_CONTROLLER
```

The following text is only a portion of the resulting display—an arrow points to the pertinent status indication:

Cache:

256 megabyte write cache, version 0022

Cache is GOOD

No unflushed data in cache

→ CACHE\_FLUSH\_TIMER=DEFAULT (10 seconds)

**NOTE:** The CACHE\_FLUSH\_TIMER value is displayed in the caching parameters section. This parameter is modified during the procedure and must be restored in step 9.

5. Set the CACHE\_FLUSH\_TIMER to 1 second using the following commands:

```
HSGA> SET THIS_CONTROLLER CACHE_FLUSH_TIMER=1
```

```
HSGA> SET OTHER_CONTROLLER CACHE_FLUSH_TIMER=1
```

6. Determine if all data has been flushed from the cache module, using the following command:

```
HSGA> SHOW THIS_CONTROLLER
```

The following text is only a portion of the resulting display—an arrow points to the pertinent status indication:

Cache:

256 megabyte write cache, version 0022

Cache is GOOD

→ No unflushed data in cache

CACHE\_FLUSH\_TIMER=1 SECOND

**IMPORTANT:** Repeat step 6 on both controllers (THIS\_CONTROLLER and OTHER\_CONTROLLER) until no unwritten data remains in either cache module memory.

7. Shut down both controllers using the following commands:

```
HSGA> SHUTDOWN OTHER_CONTROLLER
```

```
HSGA> SHUTDOWN THIS_CONTROLLER
```

**NOTE:** After the controllers shut down, the reset buttons and the first three LEDs turn ON. Proceed only after the reset buttons stop FLASHING and remain ON.

8. Upgrade the software on both controllers:

- a. Remove the program card ESD cover from Controller A.
- b. Press and hold the reset button while ejecting the old program card.
- c. After the program card is ejected, release the reset button.

- d. Repeat step a through step c for Controller B.

**IMPORTANT:** In step e and step f, the simultaneous release of the reset buttons is critical to make sure that both controllers are restarted and upgraded simultaneously.

- e. Simultaneously press and hold the reset button on both controllers, and insert a new program card into each controller.

- f. Simultaneously release the reset buttons. Both controllers restart.

**NOTE:** A controller restart can take as long as 60 seconds, indicated by the temporary cycling of the port LEDs and a FLASHING reset button.

- g. Install a program card ESD cover on each controller.

9. After the controllers restart, restore the `CACHE_FLUSH_TIMER` to the value recorded in step 4 using the following commands:

```
HSGB> SET THIS_CONTROLLER CACHE_FLUSH_TIMER=n
HSGB> SET OTHER_CONTROLLER CACHE_FLUSH_TIMER=n
```

10. If the CCL was disabled in step 2, enable it using the following command:

```
HSGA> SET THIS_CONTROLLER COMMAND_CONSOLE_LUN
```

11. Mount the logical units on the host.

12. Disconnect the PC or terminal from the maintenance port of Controller A.

## New HSG60/80 FRUTIL Instructions for Controller Replacement

These procedures replace those found in the *HSG60 Array Controller ACS Version 8.6 Maintenance and Service Guide*, the *HSG80 Array Controller ACS Version 8.6 Maintenance and Service Guide*, and the *Replacing an HSG60 or HSx80 Array Controller card*.

To prevent the replacement controller from stopping the running controller, the replacement procedures have been modified. When replacing a HSG80 or HSG60 controller module using FRUTIL, the following procedure must be used:

When the FRUTIL Program (with the æReplace other controllerÆ option is selected) displays the following:

Insert the controller module, WITH its program card, in slot x within 2 minutes.

Disregard the FRUTIL output and perform the following steps:

1. Insert the controller module, WITHOUT its program card.
2. Press and hold the RESET button, insert the program card, continue to hold the RESET button.
3. Press and hold in button 5, release the RESET button, continue to hold button 5 in for 20 seconds.
4. The replacement controller will upgrade its non-volatile memory and will halt with a LED code of 38.
5. Press and release the RESET button on the replacement controller. The controller will reboot normally.
6. Follow the existing procedure to restore the controller configuration.

Storage engineering will be changing the instructional text of FRUTIL in the next general release version of ACS software.

**NOTE:** In order to utilize a “pre-V8.6-1” release of ACS software in a controller that last had V8.6-1 installed, it is necessary to boot the controller with a V8.6-1 (or later) version of software, and execute the “dwngrd” utility that is available on the V8.6-1 (or later) software card.

## UPDATED Disk Device Support List

Table 2: Updated Disk Device Support List

| Part Number | Device/Model | Capacity in Gigabytes | Spindle Speed (RPM) | Minimum Microcode Version | Minimum Hardware Version |
|-------------|--------------|-----------------------|---------------------|---------------------------|--------------------------|
|             | DS-RZ1CB-VW  | 4.3                   | 7,200               |                           | A01                      |
|             | DS-RZ1CD-VW  | 4.3                   | 10,000              |                           | A01                      |
|             | DS-RZ1DB-VW  | 9.1                   | 7,200               |                           | A01                      |
|             | DS-RZ1EF-VW  | 18.2                  | 7,200               |                           | C01                      |
|             | DS-RZ1DF-VW  | 9.1                   | 7,200               |                           | C02                      |
|             | DS-RZ1CF-VW  | 4.3                   | 7,200               |                           | C02                      |
|             | DS-RZ1DD-VW  | 9.1                   | 10,000              |                           | A01                      |
|             | DS-RZ1ED-VW  | 18.2                  | 10,000              |                           | A01                      |
| 380589-B21  | DS-RZ1ED-VW  | 18.2                  |                     | 0306                      | A01                      |
| 380694-B21  | DS-RZ1EF-VW  | 18.2                  |                     | N1H1/0372                 | A01                      |
| 380691-B21  | DS-RZ1CF-VW  | 4.3                   |                     | N1H1/1614                 | A01                      |
| 380588-B21  | DS-RZ1DD-VW  | 9.1                   |                     | 0306/1614                 | A01                      |
| 380595-B21  | DS-RZ1DF-VW  | 9.1                   |                     | N1H1/0372/1614            | A01                      |
|             | DS-RZ1CB-VW  | 4.3                   |                     | LYJ0 or 0656              | A01                      |
|             | DS-RZ1CD-VW  | 4.3                   | 10,000              | 0306                      | A01                      |
| 380691-B21  | DS-RZ1CF-VW  | 4.3                   | 7,200               | N1H1 or 1614              | A01                      |
|             | DS-RZ1DB-VW  | 9.1                   | 7,200               | LYJ0 or 0307              | A01                      |
| 380595-B21  | DS-RZ1DF-VW  | 9.1                   | 7,200               | N1H1, 0372, or 1614       | A01                      |
| 380588-B21  | DS-RZ1DD-VW  | 9.1                   | 10,000              | 0306                      | A01                      |
| 380694-B21  | DS-RZ1EF-VW  | 18.2                  | 7,200               | N1H1 or 0372              | A01                      |
| 380589-B21  | DS-RZ1ED-VW  | 18                    | 10,000              | 0306                      | A01                      |
| 147597-001  | DS-RZ1DA-VW  | 9                     | 7,200               | 3B05                      | A01                      |
| 147598-001  | DS-RZ1EA-VW  | 18                    | 7,200               | 3B05                      | A01                      |
| 147599-001  | DS-RZ1FB-VW  | 36                    | 7,200               | 3B06                      | A01                      |
| 176494-B21  | BC072638A2   | 72.8                  | 10,000              | BDC7                      | A01                      |

**Table 2: Updated Disk Device Support List (Continued)**

| <b>Part Number</b> | <b>Device/Model</b>                    | <b>Capacity in Gigabytes</b> | <b>Spindle Speed (RPM)</b> | <b>Minimum Microcode Version</b> | <b>Minimum Hardware Version</b> |
|--------------------|----------------------------------------|------------------------------|----------------------------|----------------------------------|---------------------------------|
| 176496-B22         | BD03663622<br>BD0366349C<br>BD036635C5 | 36.4                         | 10,000                     | BDC4<br>3B02<br>B017             | A01<br>A01<br>A05               |
| 180726-006         | BD036735C8                             | 36.4                         | 10,000                     | B017                             | A01                             |
| 127968-001         | DS-RZ1FC-VW                            | 36.4                         | 10,000                     | 3B02/3B07/B017<br>/BDC4          | A01                             |
| 147599-001         | DS-RZ1FB-VW                            | 36.4                         | 7,200                      | N1H1/0372/1614<br>/3B06          | A01                             |
| 188122-B22         | BF01863644                             | 18.2                         | 15,000                     | 3B01                             | A01                             |
| 188120-B22         | BF00963643                             | 18.2                         | 15,000                     | 3B01                             | A01                             |
| 180726-002         | BD018635C4                             | 18.2                         | 10,000                     | B017                             | A01                             |
| 180726-005         | BD018735C7                             | 18.2                         | 10,000                     | B017                             | A01                             |
| 380589-B21         | DS-RZ1ED-VW<br>RZ2ED-LS                | 18.2                         | 10,000                     | 0305/1614/3B07/<br>B020/BDC4     | A01                             |
| 128418-B22         | BD018122C9                             | 18.2                         | 10,000                     | B016                             | A01                             |
| 127890-001         | BB0091230                              | 9.1                          | 7,200                      | B016                             | A01                             |
| 175552-002         | BB0181346                              | 18.2                         | 7,200                      | 3B05                             | A01                             |
| 127965-001         | BD0181220C0                            | 18.2                         | 10,000                     | 3B07                             | A01                             |
| 176493-002         | BD0186349B                             | 18.2                         | 10,000                     | 3B07                             | A01                             |