



RAID 410 V2.5 Read Me First

The information contained in this READ ME FIRST document is applicable to users of the RAID Array 410 using firmware version V2.5 (V25Z). It is information that has been developed subsequent to the publication of the Release Notes that are also included in this package.

This document contains the following:

- Information For All RAID 410 Users
 - Installing Dual-redundant Controllers
- Information for Solaris Users
 - Updated Mandatory Patch Procedure
 - Using the serial port of a Sparc system to apply the patch
 - Using the serial port of a PC to apply the patch
 - Using the CLI with MIRRORsets
 - Documentation Errata

It is important that you become familiar with the contents of this document as well as with the *Release Notes* and *Getting Started* manual for your system.

Information For All RAID 410 Users

The minimum revision of the applicable documents must be:

Getting Started – RAID Array 410 for HP-UX	EK-SMRA3-IG. C01
Getting Started – RAID Array 410 for IBM AIX 3.2.5	EK-SMRA4-IG. B01
Getting Started – RAID Array 410 for Solaris 2.x	EK-SMRA1-IG. B01
SWXRC-04 RAID Array Controller User's Guide	EK-SMCS1-UG. B01
SWXSC-AA Office Expansion RAID Enclosure User's Guide	EK-SMCPD-UG. A01
RAID Array Controller (SWXRC-04) Program Card	EK-SMCS1-PN. A01
Release Notes - RAID Array 410 for HP-UX	AA-QK6NB-TE
Release Notes - RAID Array 410 for AIX	AA-QH3KC-TE
Release Notes - RAID Array 410 for Manager V2.0 for Sun	AV-QEPPB-TE

Installing Dual-redundant Controllers

NOTE

The procedure to install dual-redundant controllers is applicable to all RAID Array 410 platforms. Use these instructions in place of the procedures contained in your *Getting Started* manual (IBM & HP - Section 2.4, Solaris - Section 2.3).

Use the following information to install an additional controller to an existing single controller subsystem. Installing an additional controller to an existing single controller subsystem necessitates shutting down the host system and the RAID Array 410 to allow for changes in the attached SCSI cables. It is not necessary to shutdown the host or RAID Array 410 when replacing an existing dual controller subsystem.

The second controller in a dual redundant controller subsystem must be identical to the existing controller. This means that both controllers must use the same version of firmware. Use the following procedure to determine the firmware version of your RAID controllers.

NOTES

When handling the PCMCIA cards, follow the procedures documented in the *RAID Controller Program Card Product Note* (EK-SMCS1-PN).

The following procedure assumes that you are familiar with communicating with the SWXRC-04 RAID Controller via the maintenance port. Please see your *Getting Started* manual for detailed information about connecting a terminal or other serial line to the SWXRC-04 RAID controller.

1. Connect the RAID Array 410 subsystem to the serial port on either a terminal or a PC using the supplied cables and connectors.
2. Shutdown the host system using your standard procedure, then shutdown the RAID Array 410 subsystem with the Command Line Interpreter (CLI) “SHUTDOWN THIS” command. After the shutdown sequence is complete (the green LED on the controller will be a steady green – NOT blinking), turn off power to the RAID Array 410.
3. Remove the PCMCIA card from the existing controller. The label of the PCMCIA card should indicate that it contains V2.5 firmware. If not, contact your salesperson for a firmware update card, part number BG-QHD30-1A. Reinstall the PCMCIA card after verifying the revision number.
4. Remove the PCMCIA card from the second controller and verify that it also contains V2.5 firmware. **DO NOT REINSTALL THE PCMCIA CARD AT THIS TIME.**
5. Remove the terminator from the tralink connector on the original controller and set it aside. **DO NOT REMOVE** the tralink connector from the original controller. **REMOVE** the tralink connector from the new controller, if installed. Connect one end of the short SCSI cable (part number BN21L-0B) supplied with the SWXRC-04 controller to the original controller’s tralink connector and the other end of the cable to the tralink connector supplied with the new controller. Insert the terminator removed above into the remaining connector on the new tralink connector (see Figure 3-4 in the *SWXRC-04 RAID Controller User’s Guide*).
6. Power up the RAID Array 410 and wait for the prompt to appear on your terminal.

NOTE

If you wish to change or add to the SCSI target IDs or the Preferred target IDs of the subsystem use the appropriate CLI commands to make the desired changes. (See “SET THIS_CONTROLLER in the *SWXRC-04 RAID Controller User’s Guide, Appendix B*)

7. Remove the blank bezel above the existing controller to expose the mounting slots for the new cache module and controller. The cache module uses the lower set of mounting rails – the controller uses the higher rails (do not install the modules at this time).
8. Use the controller's C_SWAP utility to guide you through the process of inserting the new cache module and controller. An example script using the C_SWAP utility is included below. Follow the C_SWAP instructions carefully. User input is shown in **bold-type**.

Example:

```
swxrc> run c_swap

Controller Warm Swap - version V25Z

*** Sequence to INSERT other SWXRC-04 has begun. ***

Do you wish to INSERT the other SWXRC-04 [N] ?y
Attempting to quiesce all ports.
    Port 1 quiesced.
    Port 2 quiesced.
    Port 3 quiesced.
    Port 4 quiesced.
    Port 5 quiesced.
    Port 6 quiesced.
All ports quiesced.
Insert the cache module, then insert the other SWXRC-04, WITHOUT its
program card, and press Return ?
.
.
.
[Note: The program waits here until you have finished installing the cache module and controller in the appropriate slots and press RETURN]
.
.
.
Restarting ALL ports.
    Port 1 restarted.
    Port 2 restarted.
    Port 3 restarted.
    Port 4 restarted.
    Port 5 restarted.
    Port 6 restarted.
Controller Warm Swap program terminated.

The configuration has two controllers.
To restart the other SWXRC-04:

    1) Enter the command RESTART OTHER.
    2) Press and hold in the Reset (//) button while inserting the program card.
    3) Release Reset (//); the controller will initialize.
    4) Configure new controller by referring to the controller's user guide

swxrc> restart other

[Note: After typing the "restart other" command, perform steps 2 and 3 above.]
%CER -- 13-JAN-1946 04:36:25 (time not set) -- Controllers misconfigured. Type:
SHOW THIS_CONTROLLER
swxrc>

%CER -- 13-JAN-1946 04:36:26 (time not set) -- Controllers misconfigured. Type:
SHOW THIS_CONTROLLER

[Note: The above warning messages are informational only and should be ignored.]
```

```

swxrc> show this_controller
Controller:
  SWXRC-04 ZG44200182 Firmware V25Z-0, Hardware A02
  Not configured for dual-redundancy
  Controller misconfigured -- other controller present
  SCSI address 7
  Time: NOT SET
Host port:
  SCSI target(s) (0), Preferred target(s) (0)
Cache:
  32 megabyte write cache, version 2
  Cache is GOOD
  Battery is GOOD
  No unflushed data in cache
  CACHE_FLUSH_TIMER = 40 (seconds)
  CACHE_POLICY = A
Controllers misconfigured. Type SHOW THIS_CONTROLLER
swxrc> clear cli
.
.
.
[Note: At this point you should wait about 60 seconds to allow the new controller to completely initialize]
.
.
.
swxrc> set failover copy=this
[Note: Ignore any warning messages that appear at this point - wait approximately 15 seconds before issuing the
next command.]
swxrc> show this_controller
Controller:
  SWXRC-04 ZG44200182 Firmware V25Z-0, Hardware A02
  Configured for dual-redundancy with ZG44700423
  In dual-redundant configuration
  SCSI address 7
  Time: NOT SET
Host port:
  SCSI target(s) (0), Preferred target(s) (0)
Cache:
  32 megabyte write cache, version 2
  Cache is GOOD
  Battery is GOOD
  No unflushed data in cache
  CACHE_FLUSH_TIMER = 40 (seconds)
  CACHE_POLICY = A
swxrc> show other_controller
Controller:
  SWXRC-04 ZG44700423 Firmware V25Z-0, Hardware A02
  Configured for dual-redundancy with ZG44200182
  In dual-redundant configuration
  SCSI address 6
  Time: NOT SET
Host port:
  SCSI target(s) (0), No preferred targets
Cache:
  32 megabyte write cache, version 2
  Cache is GOOD
  Battery is GOOD
  No unflushed data in cache
  CACHE_FLUSH_TIMER = 65535 (seconds)
  CACHE_POLICY = A

```

9. Tighten the four screws on the front bezel of the controller. Connect the trilink connector to the new controller and tighten the screws.
10. The last command in the example, “SHOW THIS_CONTROLLER” is used to verify that the two controllers are now operating in a dual-redundant configuration.

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11. Perform a “SHOW OTHER_CONTROLLER” command and examine the state of the new controller. If the new controller indicates that its battery is in a LOW state and using CACHE_POLICY=A, then no RAIDsets or MIRRORsets can be used on that controller until the batteries charge to the GOOD state. This could take up to six hours. (See “SET THIS_CONTROLLER in the *SWXRC-04 RAID Controller User’s Guide, Appendix B*, for more information about CACHE_POLICY)
 12. If you added or modified the SCSI target IDs you may have to perform a reconfiguration operation with your operating system to recognize the new SCSI target Ids. Refer to your operating system documentation for details.
 13. Reboot the host and resume normal operations.
 14. Solaris users must install the mandatory patch described in the next section.

Information for Solaris Users

This platform kit updates the RAID Array 410 to firmware version V2.5 and is supported by Solaris versions 2.3 and 2.4. Previous versions of the firmware are not supported on Solaris 2.4. If Solaris 2.4 is the intended operating environment then the RAID Array 410 must be upgraded to firmware V2.5 and any previous installations of the DECptisp and DECswm410 software packages must be replaced with the versions supplied in this kit. Check for previous versions of these software packages with the command,

```
#pkginfo | grep DEC
```

If earlier versions of the packages exist on your system, use the following commands to delete the old versions,

```
#pkgrm DECswm410
#pkgrm DECptisp
```

Updated Mandatory Patch Procedure

Please note the following modifications to the mandatory patch procedure published in the *Getting Started: Raid Array 410 for Solaris 2.x* manual. This procedure is performed after the installation of the DECptisp and DECswm410 software packages but before using the RAID Array 410.

Procedures for using either the serial port of a Sparc system or the serial port on a PC are given below.

Using the serial port of a Sparc system to apply the patch

1. While not necessary, this procedure will be easier to perform if done from the OpenWindows environment with multiple command windows.
2. In your PATH environment variable, ascertain that */usr/sbin* and */usr/bin* come before */usr/ucb* if */usr/ucb* is included in the PATH.
3. First, establish a *tip* connection to the RAID Array 410 from */dev/term/a* or */dev/term/b* of the Sparc system. Before starting *tip*, examine the file */etc/remote*. There should be an entry of the form,

```
hardwire:\
    /dev/term/b:br#9600:el=^C^S^Q^U^D:ie=%$:oe=^D:
```

If necessary, edit the file to select */dev/term/a* or */dev/term/b* as appropriate, and ensure that the 'br' parameter (baud rate) is set to 9600.

Once the */etc/remote* file has been modified the *tip* session is started by typing,

```
#tip hardwire
```

Press RETURN a few times to display the controller CLI prompt, "swxrc >". If the prompt is displayed, the *tip* session has been successfully started. If no prompt is seen, the serial port may be misconfigured or used by another application. See *Peripherals Administration* in the *Solaris System Administrators Answerbook* for more details about configuring serial ports.

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- Next, determine if any other patches are already installed on the controller by issuing the command “SHOW THIS_CONTROLLER”.

If the firmware revision displayed is V25Z-0 then no patches are installed on the controller. Go to step 6 to continue the patch procedure.

If the firmware version displayed is V25Z-1 this indicates that one patch has already been applied to the controller, continue the procedure at step 5.

- Using another command window, cd to the directory \$RAIDHOME410/patch. Make a copy of the file *patch.sh*,

```
#cp patch.sh patch.sh.save
```

Then, edit the file *patch.sh* and make the following changes,

Change line 16 from,

```
echo 1 "\012 \015" > $1 to:
```

```
echo 2 "\012 \015" > $1
```

and line 184 (near the bottom of the file) from,

```
echo B1ADF27A "\012 \015" > $1 to:
```

```
echo B1A1F27A "\012 \015" > $1
```

Now save the file and continue with step 6.

- Now, issue the command,

```
#sh patch.sh <serial port name>
```

Where <serial port name> selects the desired port, probably /dev/term/a or /dev/term/b. The following output will result:

```
#sh patch.sh /dev/term/a
```

```
Working...
```

```
.
```

```
.
```

```
.
```

```
done
```

If you leave the *tip* window open while running this script, you will see the commands processed by the CLCP utility program.

- Before the patch takes effect the controller must be restarted, so switch back to the window where *tip* is running and issue the CLI command,

```
#RESTART THIS_CONTROLLER
```

and wait for the CLI prompt to reappear

-
- Next, verify that the patch has been correctly installed. Issue the command,

```
#SHOW THIS_CONTROLLER
```

and observe the firmware version number. If you started at revision V25Z-0, the controller should now be at revision V25Z-1. If you started at V25Z-1 the controller should now report V25Z-2.

- If this is a dual-redundant controller configuration, both controllers must be patched. Switch the cable to the other controller and repeat these steps as necessary.

Using the serial port of a PC to apply the patch

- First, establish communications between the RAID Array 410 and the PC as described in the *Getting Started* manual, section 3.1.4 part 2.
- Next, determine if any other patches are already installed on the controller. To do this issue the command “SHOW THIS_CONTROLLER”. If the firmware revision displayed is V25Z-0 then no patches are installed on the controller. Go to step 4 to continue the patch procedure. If the firmware version displayed is V25Z-1 this indicates that one patch has already been applied to the controller, continue the procedure at step 3.
- Make a copy of the file *patch.txt*,

```
C> copy patch.txt patch.sav
```

Then, edit the file *patch.txt* and make the following changes,

```
Change Line 8 from:
```

```
1 to: 2
```

and line 87 (near the bottom of the file) from,

```
B1ADF27A to: B1A1F27A
```

Now save the file and continue with step 5.

- Now, “send” the file *patch.txt* to the controller using the method described in the *Getting Started* manual.
- Before the patch takes effect the controller must be restarted, so issue the CLI command,

```
#RESTART THIS_CONTROLLER
```

and wait for the CLI prompt to reappear

- Next, verify that the patch has been correctly installed. Issue the command,

```
#SHOW THIS_CONTROLLER
```

and observe the firmware version number. If you started at revision V25Z-0, the controller should now be at revision V25Z-1. If you started at V25Z-1 the controller should now report V25Z-2.

- If this is a dual-redundant controller configuration, both controllers must be patched. Switch the cable to the other controller and repeat these steps as necessary.

Using the CLI with Mirrorsets

Storagesets can be created and deleted with the CLI or the graphical utility, *raidcf410*. Inter-mixing the two methods is not recommended by Digital

NOTE

If a MIRRORset is created with the CLI, the naming convention used must adhere to the following in order for the *raidcf410* utility to manage it properly.

- When creating a RAID 1 LUN (MIRRORset):

The MIRRORset must be named MIRTlA, where:

t = SWXRC-04 target ID

l = logical unit number of the storageset

If the target ID is 0 and the LULN is 0, the name is MIRA

- When creating a RAID 0+1 LUN (Striped MIRRORset):

The MIRRORset must be named MIRTl[A...Z], where:

t = SWXRC-04 target ID

l = logical unit number of the storageset

A...Z = used to differentiate the MIRRORsets that comprise the LUN

Examples of valid names:

LUN Number	LUN Type	MIRRORset Names
D0	RAID 1	MIRA
D100	RAID 1	MIR10A
D203	RAID 1	MIR23A
D0	RAID 0+1	MIRA, MIRB, MIRC, ...
D100	RAID 0+1	MIR10A, MIR10B, MIR20C, ...
D203	RAID 0+1	MIR23A, MIR23B, MIR23C, ...

Documentation Errata

In *Getting Started - RAID Array 410 for Solaris 2.x*, make the following changes:

Paragraph 3.1.3.1, step 2.c (two places) change `solaris_2` to `Solaris_2` (the capital S is important).