

# A Utilities

## Configuring a Smart Array Controller

### Using the `saupdate` command

The `saupdate` command is used to query or change the mode of the Smart Array P410i and Smart Array P411 controllers to HBA or RAID. Querying or changing modes is not supported for other controllers.

The following are the newly added commands to `saupdate`:

- `get_mode`
- `set_mode`

#### `get_mode`

This command displays the current mode of the controllers.

#### Syntax

```
saupdate get_mode <controller>
```

<controller> can be any one of the strings listed in [Table 14](#).

**Table 14** <controller> strings

<controller>	Meaning
<seg:bus:dev:func>	A controller having the PCI segment id, bus id, device id and function id is addressed
all	Addresses all controllers in the system
<model>	Controllers of a particular type indicated by the <model> string are addressed

```
fs2:\> saupdate get_mode 0:2:0:0
The controller at 0:2:0:0 is in HBA mode

fs2:\> saupdate get_mode p410i
The controller at 0:2:0:0 is in HBA mode
The controller at 0:42:0:0 is in HBA mode
The controller at 0:82:0:0 is in HBA mode
The controller at 0:C2:0:0 is in HBA mode

fs2:\> saupdate get_mode all
The controller at 0:2:0:0 is in HBA mode
The controller at 0:42:0:0 is in HBA mode
The controller at 0:82:0:0 is in HBA mode
The controller at 0:C2:0:0 is in HBA mode

fs2:\> █
```

## set\_mode

- ❗ **IMPORTANT:** If you are using HBA mode, do not install any disk that has previously been a part of a RAID volume into the system.

Use `set_mode` to change the mode of the controller. If the controller is already in the required mode the following message appears:

The controller at `<seg:bus:dev:func>` is already in HBA|RAID mode

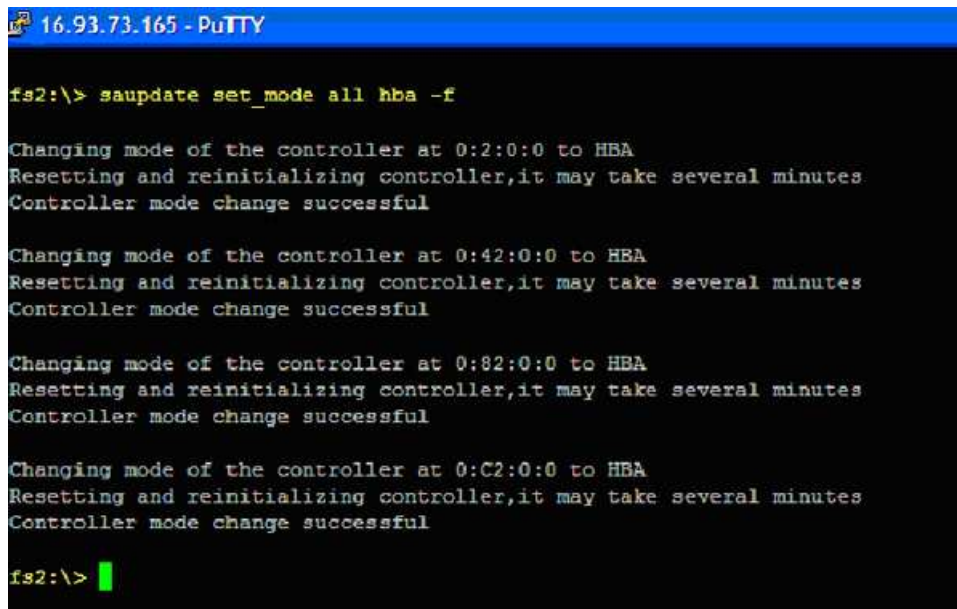
### Syntax

```
saupdate set_mode <controller> <hba|raid> [-f]
```

`<controller>` can be any one of the strings listed in [Table 14 \(page 128\)](#).

An alert message about the possible data loss is displayed when a mode change command is issued. A confirmation is required before the actual mode change is made. This ensures unintentional change of mode does not happen.

The `-f` option indicates the user is aware of the changes that are being made and there is not need of a warning message or a confirmation regarding the mode change.



```
16.93.73.165 - PuTTY
fs2:\> saupdate set_mode all hba -f

Changing mode of the controller at 0:2:0:0 to HBA
Resetting and reinitializing controller,it may take several minutes
Controller mode change successful

Changing mode of the controller at 0:42:0:0 to HBA
Resetting and reinitializing controller,it may take several minutes
Controller mode change successful

Changing mode of the controller at 0:82:0:0 to HBA
Resetting and reinitializing controller,it may take several minutes
Controller mode change successful

Changing mode of the controller at 0:C2:0:0 to HBA
Resetting and reinitializing controller,it may take several minutes
Controller mode change successful

fs2:\>
```

- ❗ **IMPORTANT:** After changing the mode, perform a `reconnect -r` command at UEFI.

**NOTE:** Commands are not case-sensitive

## Updating the firmware using saupdate

1. Download the firmware image file into the system's UEFI partition.
2. Boot the system to the UEFI Shell and change directories to the UEFI partition.
3. Use the `saupdate list` command to display all detected Smart Array controllers along with the active firmware versions, the identification information from this list is used to designate which controller is to be updated.
4. Use `saupdate update <seg:bus:dev:func:index> <firmware image>` to update the firmware.
5. Restart the system.

## Determining the Driver ID and CTRL ID

Use the `drvcfg` utility and UEFI shell commands to find the Driver ID corresponding Ctrl ID for the SAS Host Bus Adapter.

1. At the UEFI shell, use the `drivers` command.
2. Find the SAS Host Bus Adapter in the list of drivers, and make a note of the Driver ID from the left column.
3. Use the `drvcfg` command.
4. Find the SAS Host Bus Adapter's Driver ID in the list, and make a note of the corresponding Ctrl ID.

```
Shell> drivers
          T   D
D         Y C I
R         P F A
V VERSION E G G #D #C DRIVER NAME                               IMAGE NAME
=====
23 0000000A B - - 1 61 PCI Bus Driver                            PciBusDxe
92 00000010 D - - 1 - Usb Ehci Driver                            EhciDxe
94 0000000A D - - 4 - Simple Network Protocol Driver            SnpDxe
A4 00000312 B X X 1 2 Smart Array SAS Driver v3.12             MemoryMapped<0xB,0x
A7 00050023 B X X 1 1 Broadcom 10 Gigabit Ethernet Driver     MemoryMapped<0xB,0x
A9 00050023 B X X 1 1 Broadcom 10 Gigabit Ethernet Driver     MemoryMapped<0xB,0x
B2 00050023 B X X 1 1 Broadcom 10 Gigabit Ethernet Driver     MemoryMapped<0xB,0x
B4 00050023 B X X 1 1 Broadcom 10 Gigabit Ethernet Driver     MemoryMapped<0xB,0x

Shell> drvcfg
Configurable Components
Drv[A7] Ctrl[A6] Lang[en-US;eng]
Drv[A9] Ctrl[A8] Lang[en-US;eng]
Drv[B2] Ctrl[B1] Lang[en-US;eng]
Drv[B4] Ctrl[B3] Lang[en-US;eng]
Drv[A4] Ctrl[A3] Lang[eng]

Shell> drvcfg -s a4 a3
```

**NOTE:** If the drivers listing shows X under CFG and DIAG, the drive is in RAID mode and you can run `drvcfg` against it.

If the drivers listing shows - under CFG and DIAG, the drive is in HBA mode.

## Configuring RAID volumes using the ORCA menu-driven interface

**NOTE:** The function keys cannot be used in ORCA if you are using a serial console. Substitute **ESC** followed by the corresponding number key. For example, **F3** would be **Esc-3**

**NOTE:** ORCA will not launch if there is no hard disk drive in the server blade.

From the UEFI Shell, enter `drvcfg -s <Driver ID> <Ctrl ID>`. To locate this information, see "Determining the Driver ID and CTRL ID" (page 129).

```
Shell> drivers
          T   D
D         Y C I
R         P F A
V VERSION E G G #D #C DRIVER NAME                               IMAGE NAME
=====
23 0000000A B - - 1 61 PCI Bus Driver                            PciBusDxe
92 00000010 D - - 1 - Usb Ehci Driver                            EhciDxe
94 0000000A D - - 4 - Simple Network Protocol Driver            SnpDxe
A4 00000312 B X X 1 2 Smart Array SAS Driver v3.12             MemoryMapped<0xB,0x
A7 00050023 B X X 1 1 Broadcom 10 Gigabit Ethernet Driver     MemoryMapped<0xB,0x
A9 00050023 B X X 1 1 Broadcom 10 Gigabit Ethernet Driver     MemoryMapped<0xB,0x
B2 00050023 B X X 1 1 Broadcom 10 Gigabit Ethernet Driver     MemoryMapped<0xB,0x
B4 00050023 B X X 1 1 Broadcom 10 Gigabit Ethernet Driver     MemoryMapped<0xB,0x

Shell> drvcfg
Configurable Components
Drv[A7] Ctrl[A6] Lang[en-US;eng]
Drv[A9] Ctrl[A8] Lang[en-US;eng]
Drv[B2] Ctrl[B1] Lang[en-US;eng]
Drv[B4] Ctrl[B3] Lang[en-US;eng]
Drv[A4] Ctrl[A3] Lang[eng]

Shell> drvcfg -s a4 a3
```

The ORCA main menu will appear.

```
Option Rom Configuration for Arrays, version 3.12
Copyright 2009 Hewlett-Packard Development Company, L.P.
Controller: HP Smart Array P410i

+-----Main Menu-----+
| Create Logical Drive   |
| View Logical Drive    |
| Delete Logical Drive   |
+-----+

<Enter> to create a new logical drive
<UP/DOWN ARROW> to select main menu option; <ESC> to exit
```

The ORCA main menu contains the following options:

- Create Logical Drive
- View Logical Drive
- Delete Logical Drive

---

**NOTE:** If you are configuring the HP Smart Array P700m/512 Controller or the HP StorageWorks SB40c storage blade (P400 controller), then you can enter ORCA from POST by pressing the **F8** key when prompted.

---

## Creating a logical drive

1. At the ORCA main menu, select Create Logical Drive.

```
Option Rom Configuration for Arrays, version 3.12
Copyright 2009 Hewlett-Packard Development Company, L.P.
Controller: HP Smart Array P410i

+-----Available Physical Drives-----+ +---Raid Configurations---+
| [X] Port 1I, Box 1, Bay 1, 73.4 GB SAS | | [ ] RAID 1+0          |
| [X] Port 1I, Box 1, Bay 2, 73.4 GB SAS | | [X] RAID 0           |
+-----+ +-----+

+-----Spare-----+
| [ ] Use one drive as spare |
+-----+

<Enter> to create a logical drive; <Tab> to navigate
<UP/DOWN ARROW> to scroll; <ESC> to return
```

2. Select the physical disks to be included in the logical drive in the Available Physical Drives section.
3. To select the Raid Configurations section and select the RAID type for the logical drive, press **Tab**.
4. To select the Spare section and assign spare disks, as needed, press Tab.
5. To create the logical drive, press **Enter**. A summary of your choices appears.

```
Option Rom Configuration for Arrays, version 3.12
Copyright 2009 Hewlett-Packard Development Company, L.P.
Controller: HP Smart Array P410i

+-----+
| You have selected a logical drive with a total |
| data size of 136.7 GB and RAID 0 fault tolerance. |
| Press <F8> to save the configuration |
| Press <ESC> to cancel |
+-----+

<F8> to save the configuration
<ESC> to cancel
```

6. To save the configuration, press **F8**.
7. To acknowledge that the configuration was saved and return to the ORCA Main Menu, press **Enter**.

## Deleting a logical drive

**⚠ WARNING!** Back up all necessary data before deleting the logical drive. When you delete a logical drive, data on the drive is not preserved.

1. At the ORCA main menu, select Delete Logical Drive.

```
Option Rom Configuration for Arrays, version 3.12
Copyright 2009 Hewlett-Packard Development Company, L.P.
Controller: HP Smart Array P410i

+-----Main Menu-----+
| Create Logical Drive |
| View Logical Drive |
| Delete Logical Drive |
+-----+

<Enter> to delete an existing logical drive
<UP/DOWN ARROW> to select main menu option; <ESC> to exit
```

2. Select a logical drive to be deleted.

```

Option Rom Configuration for Arrays, version 3.12
Copyright 2009 Hewlett-Packard Development Company, L.P.
Controller: HP Smart Array P410i

-----Available Logical Drives-----
Logical Drive # 1, RAID 0, 136.7 GB, OK

<F8> to delete the logical drive
<UP/DOWN ARROW> to scroll; <ESC> to return

```

3. **F3** to delete the logical drive.

```

Option Rom Configuration for Arrays, version 3.12
Copyright 2009 Hewlett-Packard Development Company, L.P.
Controller: HP Smart Array P410i

Warning
This will result in complete data loss
for this logical drive.

You have selected to delete logical drive
# 1, RAID 0 , 136.7 GB with 2 physical drive(s)

Press <F3> to delete the logical drive
Press <ESC> to cancel

<F3> to delete the logical drive
<ESC> to cancel

```

4. To acknowledge that the configuration was saved and return to the ORCA Main Menu, press **Enter**.

## Useful UEFI command checks

`saupdate.efi list`

Use `saupdate.efi list` to list controller information such as the controller version.

Seg	Bus	Dev	Func	Description	Version	Build
0	2	0	0	HP Smart Array P410i	3.00	0

`drivers`

Use `drivers` to find the driver version and DRV #.

94	00000000	D	-	4	-	Simple Network Protocol Driver	SnpDxe	
A4	00000312	B	X	X	1	2	Smart Array SAS Driver v3.12	MemoryMapped(0xB,0x
02	00050023	B	X	X	1	1	Broadcom 10 Gigabit Ethernet Driver	MemoryMapped(0xB,0x