AVAYA

HP ProLiant DL360 G9 RAID configuration

Use the following procedures to configure the Avaya HP DL360G9 Raid Controller (P440AR) for Avaya RAID Array configurations.
A monitor and USB keyboard and mouse are required to configure the Raid Controller.

1. Connect a monitor, USB keyboard, and mouse to HP ProLiant DL360 G9 Server.
2. Power up the server.
    The system displays the HP DL360G9 hardware boot screen.

```
ProLiant System BIOS P89 v1.21 (11/03/2014)
(C) Copyright 1982 - 2014 Hewlett-Packard Development Company, L.P.
Early system initialization, please wait...
Progress: 84%                          iLO 4 IPv4: 135.9.223.224
                                       iLO 4 IPv6: FE80::C634:6BFF:FEC6:BDBA
System Chipset Initialization
QPI Link Initialization - Start
QPI Link Initialization - Complete
Early Processor Initialization
Memory Initialization - Start
Memory Initialization - Complete
System Security Initialization
HP Smart Memory Initialization
Loading System Firmware Modules - Start
Loading System Firmware Modules - Complete
USB Controller Initialization
Chipset Root Ports Initialization
Processor Root Ports Initialization
ACPI Table Initialization
SMBIOS Table Initialization
iLO Embedded Health Initialization
BIOS Configuration Initialization
Early PCI Initialization - Start
```
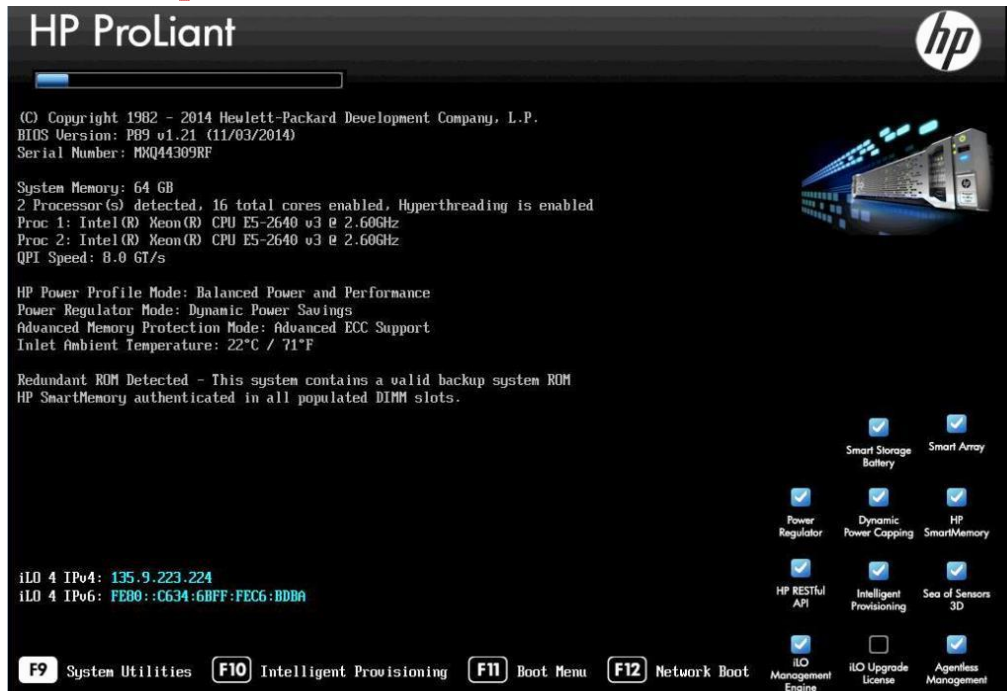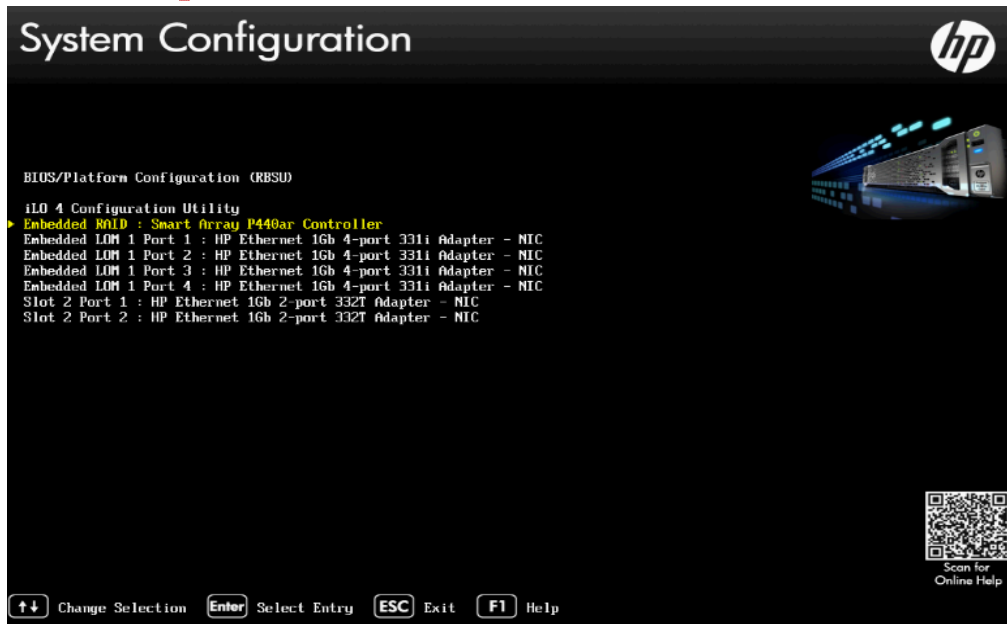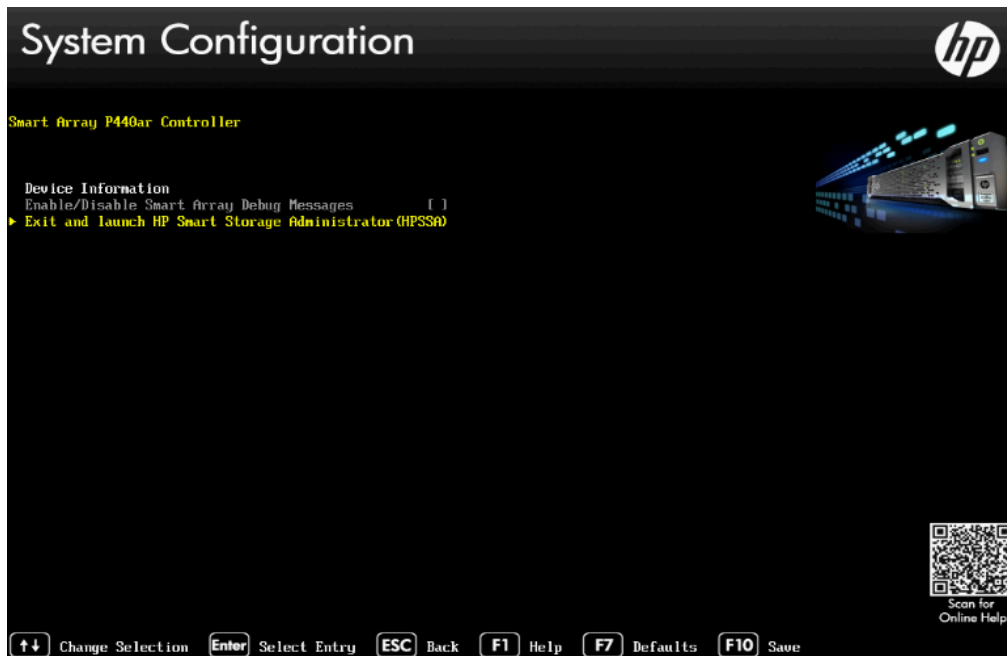
3. When the system displays the HP Splash screen, press *F9* to go to **System Utilities**.

4. Highlight **System Configuration** and press **Enter** to select.

5. Move cursor to highlight **Embedded RAID : Smart Array P440ar Controller** and press **Enter**.
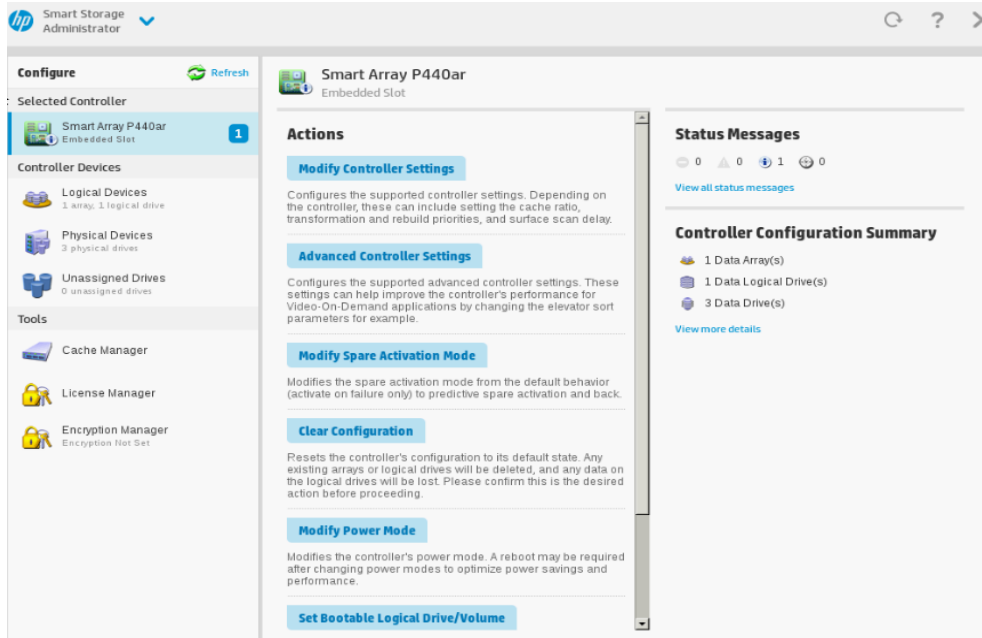

6. Move cursor to highlight **Exit and launch HP Smart Storage Administrator (HPSSA)** and press **Enter** to select.

The system loads the HP Smart Storage Tool and displays the HP Smart Storage Administrator screen.
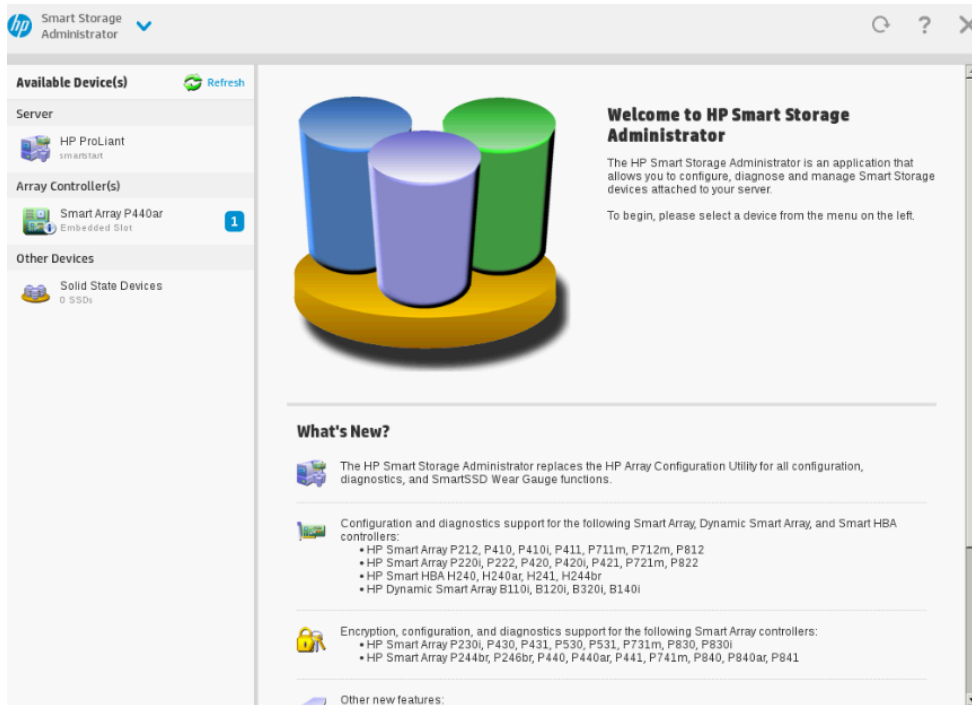
7. In left column, select **Smart Array P440ar**.
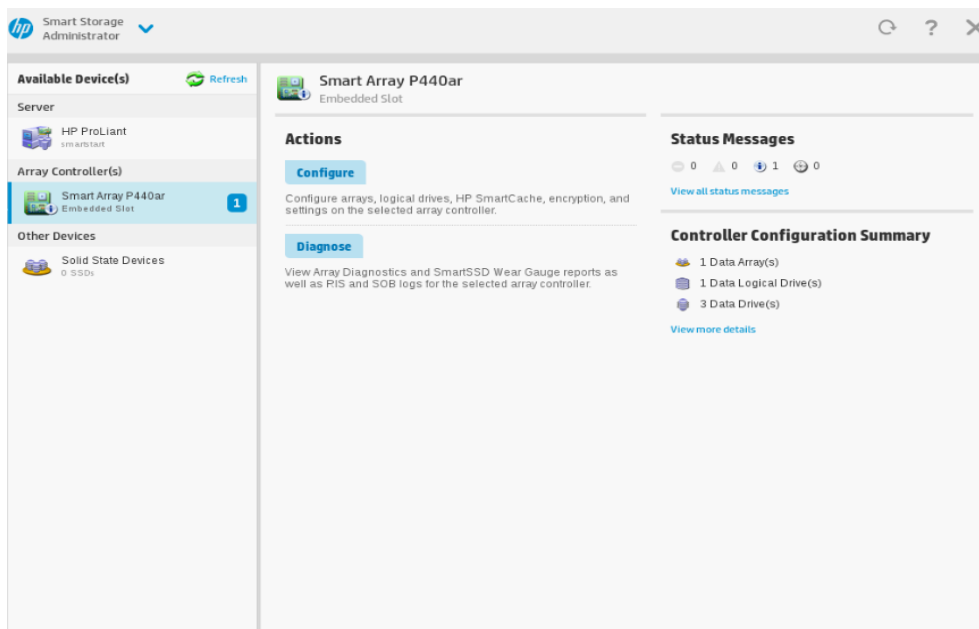
8. Select the **Configure** button under **Actions**.

9. Select the **Clear Configuration** button to remove any data or current array configurations. Select **Clear/Confirm** and **Finish** buttons to finalize Clear Configuration job. If the **Clear Configuration** button is not available move to next step.
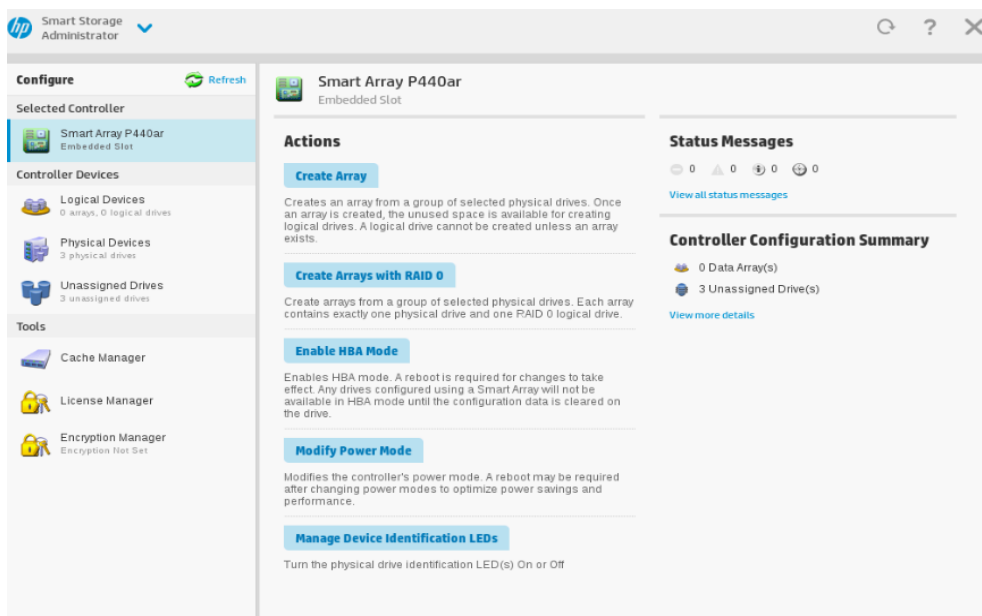
10. Select the **Create Array** button under **Actions** to initiate Array creation.

11. Select all drives to be included (as indicated by check mark) in Array and click the **Create Array** button**.**

12. Select RAID settings according to Avaya application. Generally, settings on this page should be left at default values unless otherwise specified by Avaya application documentation. If the HP default setting does not align with Avaya specified configuration, the **RAID Level** needs to be changed. Select the **Create Logical Drive** button to create the Logical (Virtual) Drive.
Avaya RAID configuration matrix:

# of HDDs installed	RAID option	Approx. Logical (Virtual) Drive Size based on 300GB HDDs	Notes
1	N/A	N/A	Must have at least 2 HDDs Installed
2	1	279.4 GB	Set for RAID 1
3	5	558.7 GB	Set for RAID 5
4	5 or 10	838.1 GB or 558.7 GB	User should set for RAID 5 or 1+0 depending on Avaya Application.
5	5	1.09TB	User should set for RAID 5
6	5, 10 or 50	1.4 TB, 838.1 GB or 1.09TB	User should set for RAID 5, 1+0 or 50 depending on Avaya Application.

Smart Array P440ar
Embedded Slot   Create Logical Drive

■ Logical Drive was successfully created. Please choose one of the actions below.

Array Details

Status	OK
Used Space	838.0 GiB (100.0%)
Total Usable Space	838.0 GiB
Acceleration Mode	Independent: Caching can be enabled or disabled for each individual logical drive

Logical Drives

Logical Drive 1   558.73 GiB (599.93 GB)

Physical Drives

300 GB SAS HDD at Port 1I : Box 1 : Bay 1
300 GB SAS HDD at Port 1I : Box 1 : Bay 2
300 GB SAS HDD at Port 1I : Box 1 : Bay 3

Device Path

Smart Array P440ar in Embedded Slot

Finish

The system displays following message: Logical (Virtual) Drive was successfully created.

13. Click **Finish** to exit application or to delete current array and start new Array creation process.
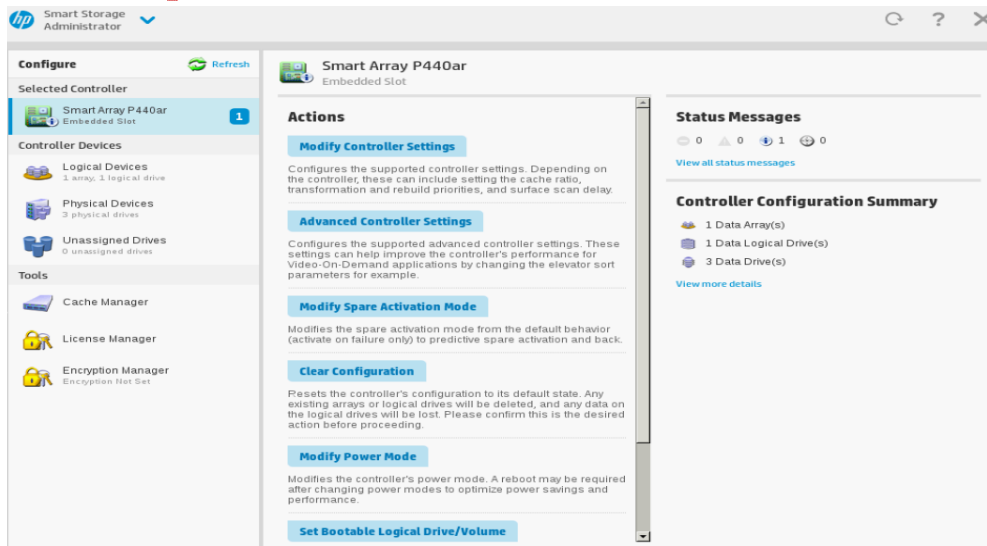
14. Select "X" in upper right corner of screen to Exit Array tool or click the **Clear Configuration** button to start new array creation process. Once exited from this tool software installation can commence.

Supplementary RAID Array configuration size example screens:

1. Example 2x300GB RAID 1.

Smart Array P440ar — Embedded Slot > **Create Array**

- In a dual domain configuration, mixing single and dual ported SAS drives can lead to a loss of redundancy. Hide
- To avoid wasting drive capacity, select physical drives that are the same size for the new array.

Select Physical Drives for the New Array (What's this...?)

Sort By Size ▼

All Items

☑ Select All (4)

| 300 GB | 300 GB | 300 GB | 300 GB |
| SAS HDD Port 1I : Box 1 : Bay 4 | SAS HDD Port 1I : Box 1 : Bay 3 | SAS HDD Port 1I : Box 1 : Bay 2 | SAS HDD Port 1I : Box 1 : Bay 1 |

Selected: 4
Size: 1.09 TiB (1.20 TB)

Create Array   Cancel

Smart Array P440ar — Embedded Slot > **Create Logical Drive**

- The size may be automatically adjusted slightly to optimize performance. Hide
- Certain operating systems do not support logical drives greater than 502 GiB or boot volumes greater than 2 TiB. Check operating system documentation for details.

RAID Level (What's this...?)

○ RAID 0
○ RAID 1+0
◉ RAID 5
○ RAID 6 (ADG)

Strip Size / Full Stripe Size (What's this...?)

○ 8 KiB / 24 KiB
○ 16 KiB / 48 KiB
○ 32 KiB / 96 KiB
○ 64 KiB / 192 KiB
○ 128 KiB / 384 KiB
◉ 256 KiB / 768 KiB
○ 512 KiB / 1.5 MiB
○ 1024 KiB / 3 MiB

Sectors/Track (What's this...?)

○ 63
◉ 32

Size (What's this...?)

◉ Maximum Size: 858210 MiB (838 GiB)
○ Custom Size

Parity Initialization Method (What's this...?)

Create Logical Drive   Cancel

Smart Array P440ar — Embedded Slot > **Create Logical Drive**

- Logical Drive was successfully created. Please choose one of the actions below.

Array Details

Status	OK
Used Space	1117.4 GiB (100.0%)
Total Usable Space	1.0 TiB
Acceleration Mode	Independent: Caching can be enabled or disabled for each individual logical drive

Logical Drives

| Logical Drive 1 | 838.10 GiB (899.90 GB) |

Physical Drives

300 GB SAS HDD at Port 1I : Box 1 : Bay 1
300 GB SAS HDD at Port 1I : Box 1 : Bay 2
300 GB SAS HDD at Port 1I : Box 1 : Bay 3
300 GB SAS HDD at Port 1I : Box 1 : Bay 4

Device Path

Smart Array P440ar in Embedded Slot

Finish

2. Example 4x300GB RAID 5.

Smart Array P440ar
Embedded Slot > Create Array

In a dual domain configuration, mixing single and dual ported SAS drives can lead to a loss of redundancy.
To avoid wasting drive capacity, select physical drives that are the same size for the new array.   Hide

Select Physical Drives for the New Array (What's this...?)

Sort By Size ▼

All Items

☑ Select All (4)

| 300 GB | 300 GB | 300 GB | 300 GB |
| SAS HDD Port 1I : Box 1 : Bay 4 | SAS HDD Port 1I : Box 1 : Bay 3 | SAS HDD Port 1I : Box 1 : Bay 2 | SAS HDD Port 1I : Box 1 : Bay 1 |

Selected: 4
Size: 1.09 TiB (1.20 TB)   Create Array   Cancel

Smart Array P440ar
Embedded Slot > Create Logical Drive

The size may be automatically adjusted slightly to optimize performance.
Certain operating systems do not support logical drives greater than 502 GiB or boot volumes greater than 2 TiB. Check operating system documentation for details.   Hide

RAID Level (What's this...?)

○ RAID 0
◉ RAID 1+0
○ RAID 5
○ RAID 6 (ADG)

Strip Size / Full Stripe Size (What's this...?)

○ 8 KiB / 16 KiB
○ 16 KiB / 32 KiB
○ 32 KiB / 64 KiB
○ 64 KiB / 128 KiB
○ 128 KiB / 256 KiB
◉ 256 KiB / 512 KiB
○ 512 KiB / 1024 KiB
○ 1024 KiB / 2 MiB

Sectors/Track (What's this...?)

○ 63
◉ 32

Size (What's this...?)

◉ Maximum Size: 572140 MiB (558.7 GiB)
○ Custom Size

Caching (What's this...?)

                                      Create Logical Drive   Cancel

Smart Array P440ar
Embedded Slot > Create Logical Drive

Logical Drive was successfully created. Please choose one of the actions below.

Array Details

Status	OK
Used Space	1117.4 GiB (100.0%)
Total Usable Space	1.0 TiB
Acceleration Mode	Independent: Caching can be enabled or disabled for each individual logical drive

Logical Drives

| Logical Drive 1 | 558.73 GiB (599.93 GB) |

Physical Drives

300 GB SAS HDD at Port 1I : Box 1 : Bay 1
300 GB SAS HDD at Port 1I : Box 1 : Bay 2
300 GB SAS HDD at Port 1I : Box 1 : Bay 3
300 GB SAS HDD at Port 1I : Box 1 : Bay 4

Device Path

Smart Array P440ar in Embedded Slot

                                                              Finish

3.   Example 4x300GB RAID 1 + 0.