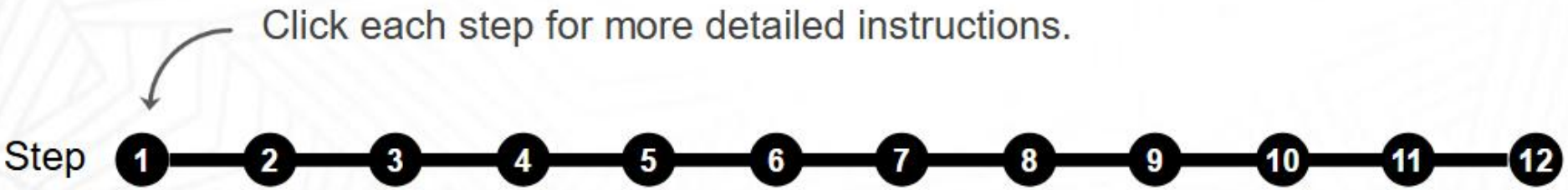
RAID setup in different tools

LXCC, LXPM, and HII

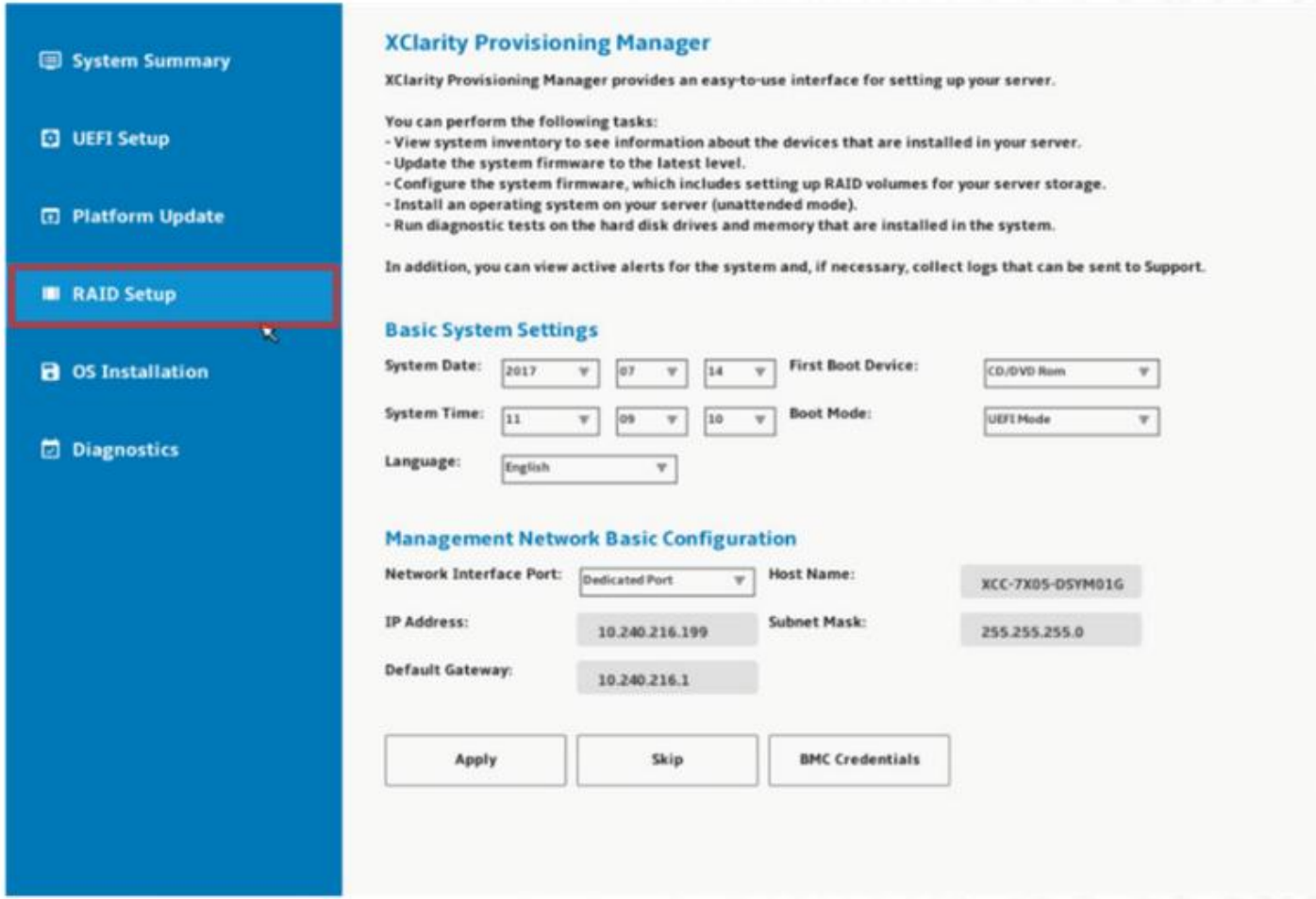
RAID Setup wizard in LXPM

Follow these instructions to setup RAID using LXPM.



RAID Setup wizard in LXPM

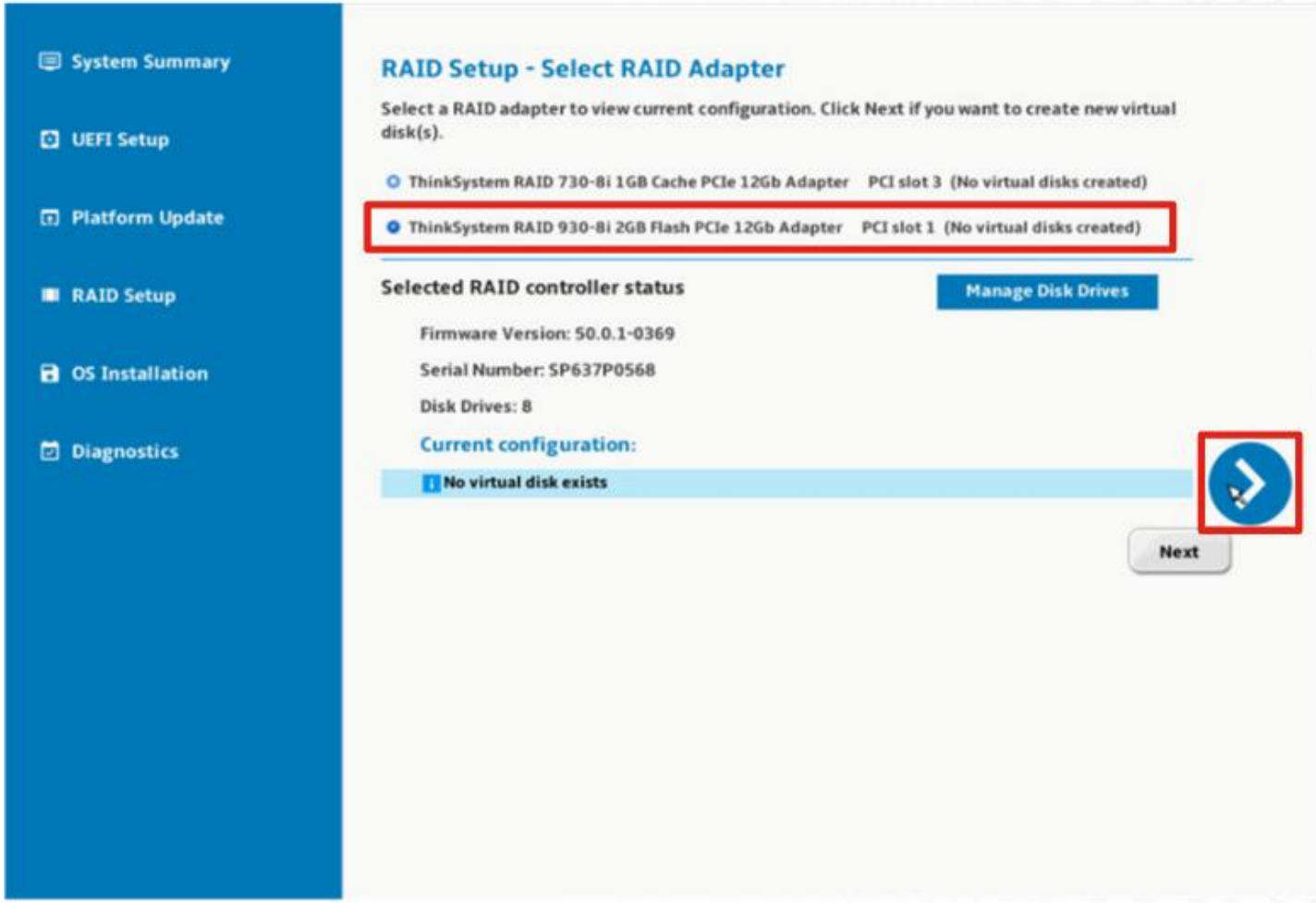
In LXPM, select **RAID Setup**.



Step 1 2 3 4 5 6 7 8 9 10 11 12

RAID Setup wizard in LXPM

The supported RAID controllers appear in the list for configuration. In this example, RAID 930-8i is selected. Click **Next** to go to the next page.

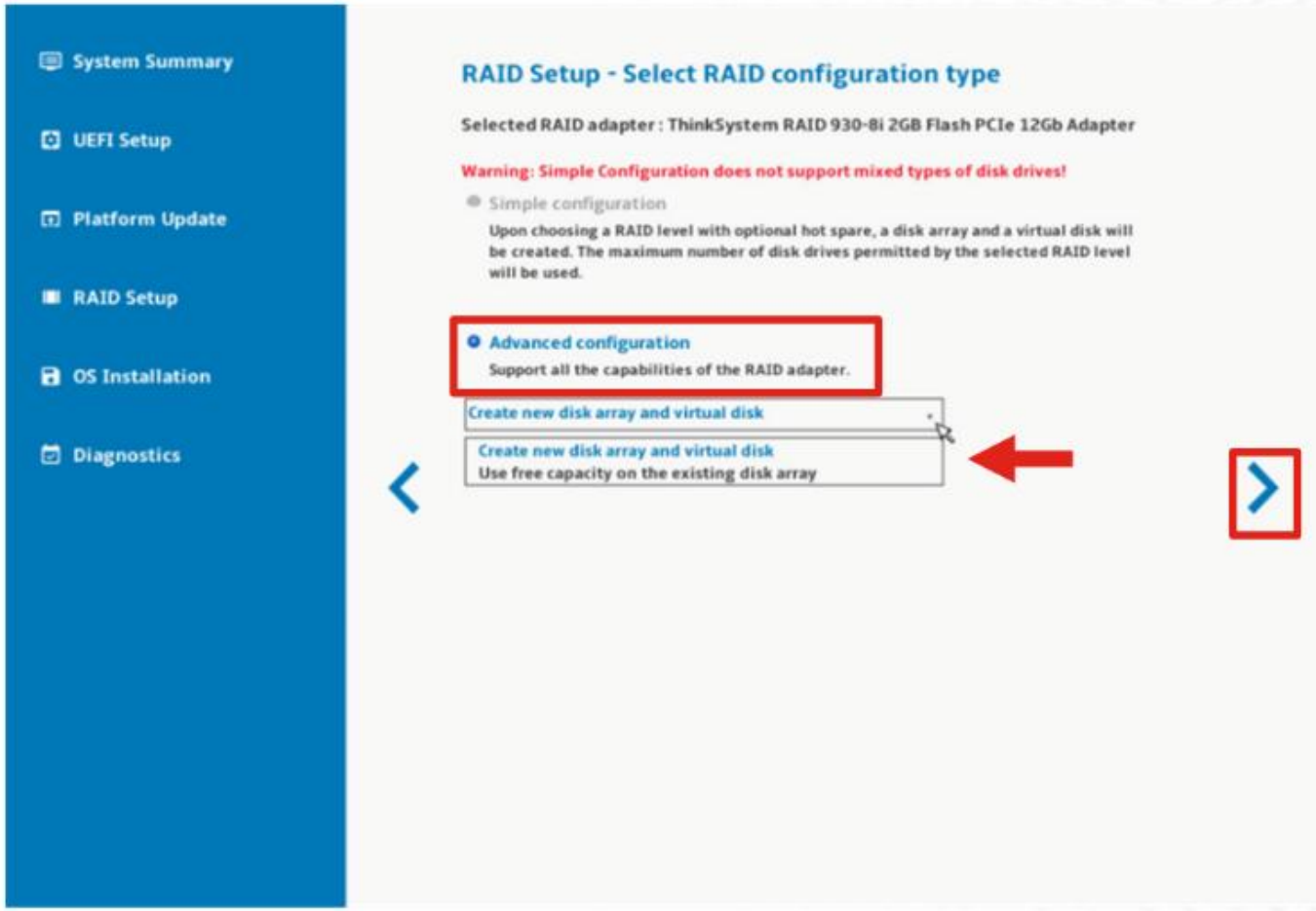


Step 1 2 3 4 5 6 7 8 9 10 11 12

RAID Setup wizard in LXPM

There are two items that can be selected. **Simple configuration** is disabled when there are mixed types of disk drives attached to the controller.

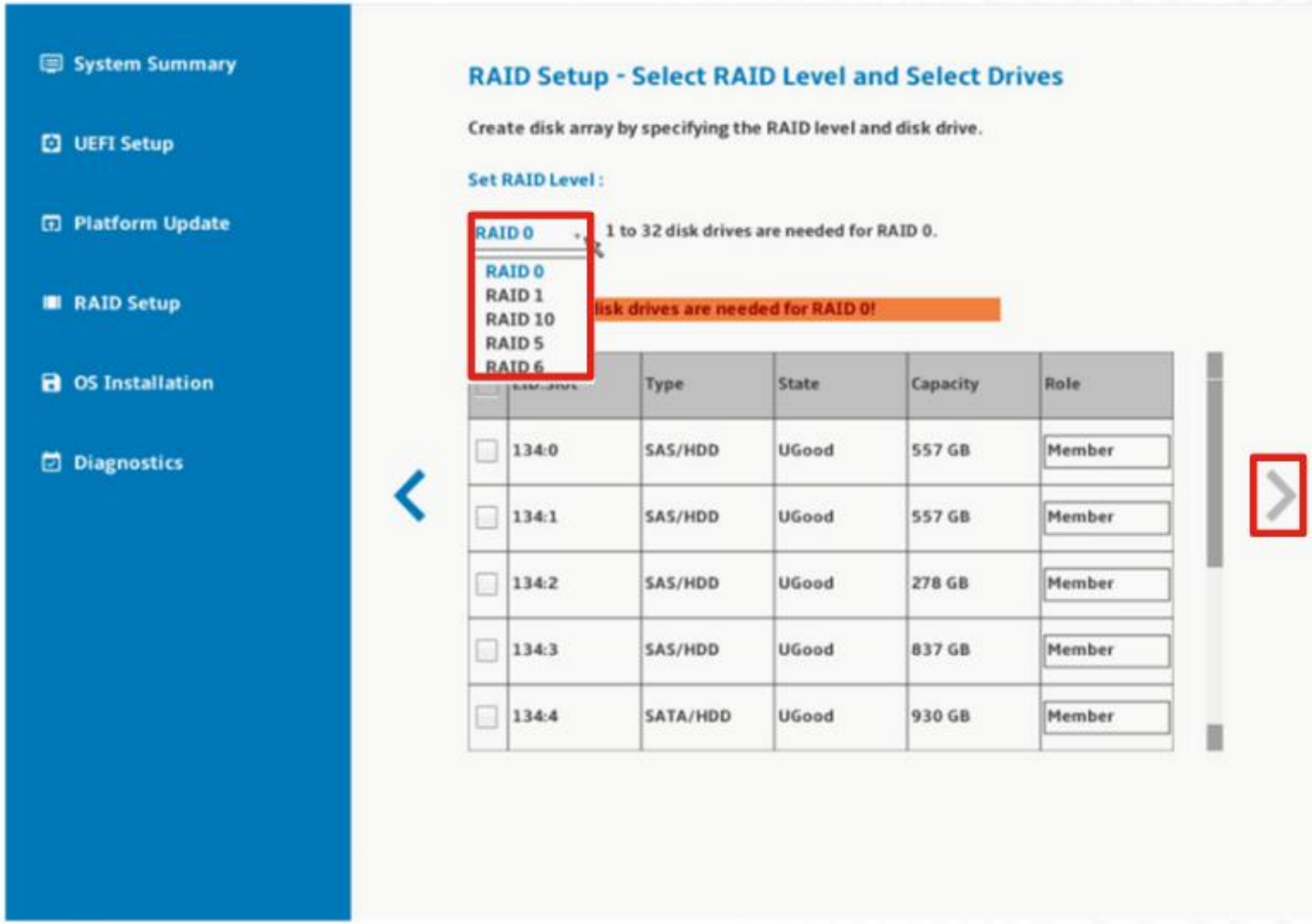
Select **Advanced configuration** in this example and then select **Create new disk array and virtual disk**. Select **Next** to go to the next page.



Step 1 2 3 4 5 6 7 8 9 10 11 12

RAID Setup wizard in LXPM

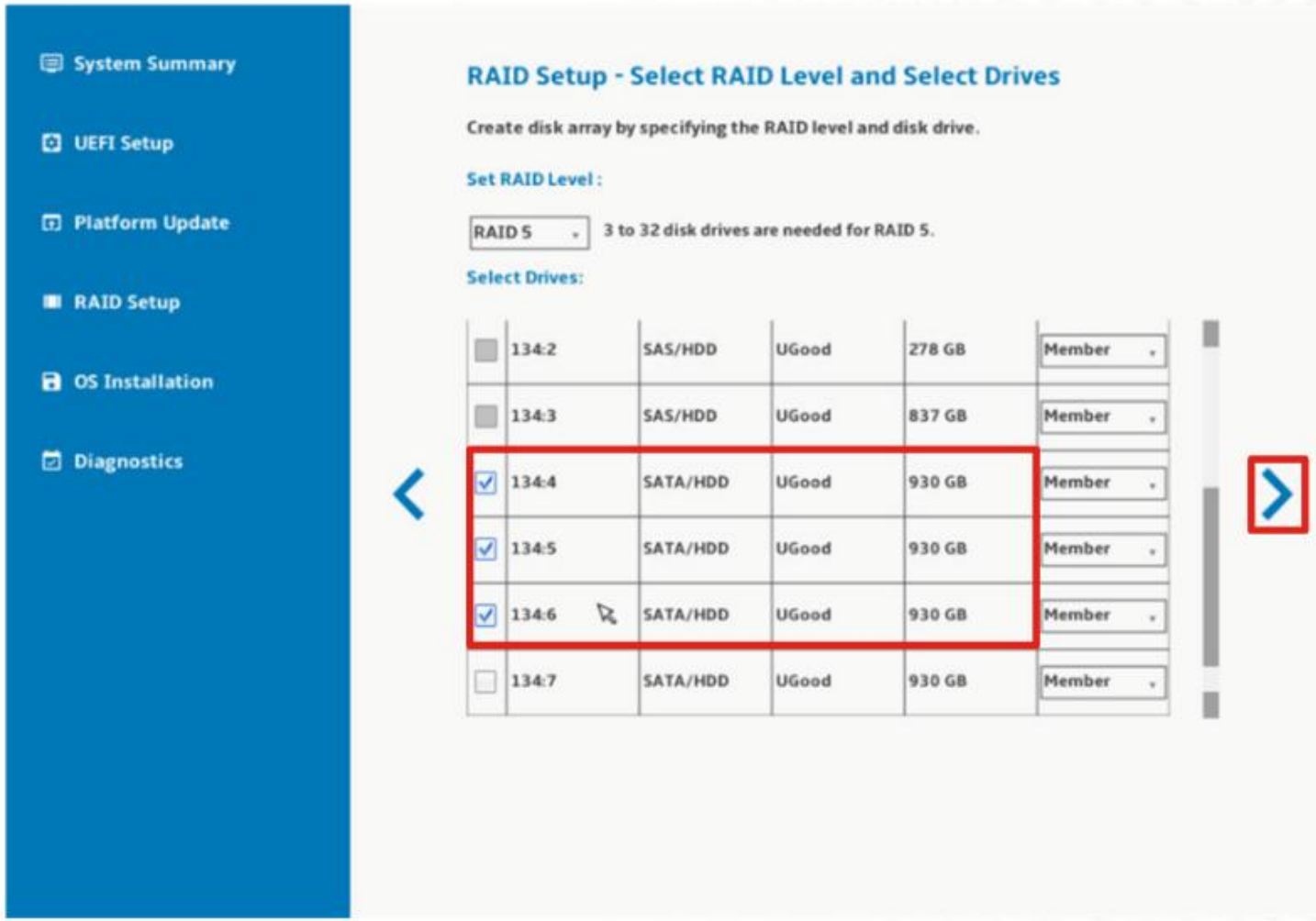
Select **Set RAID level**. Assume that RAID 5 is selected. Select **Next** to go to the next page.



Step 1 2 3 4 5 6 7 8 9 10 11 12

RAID Setup wizard in LXPM

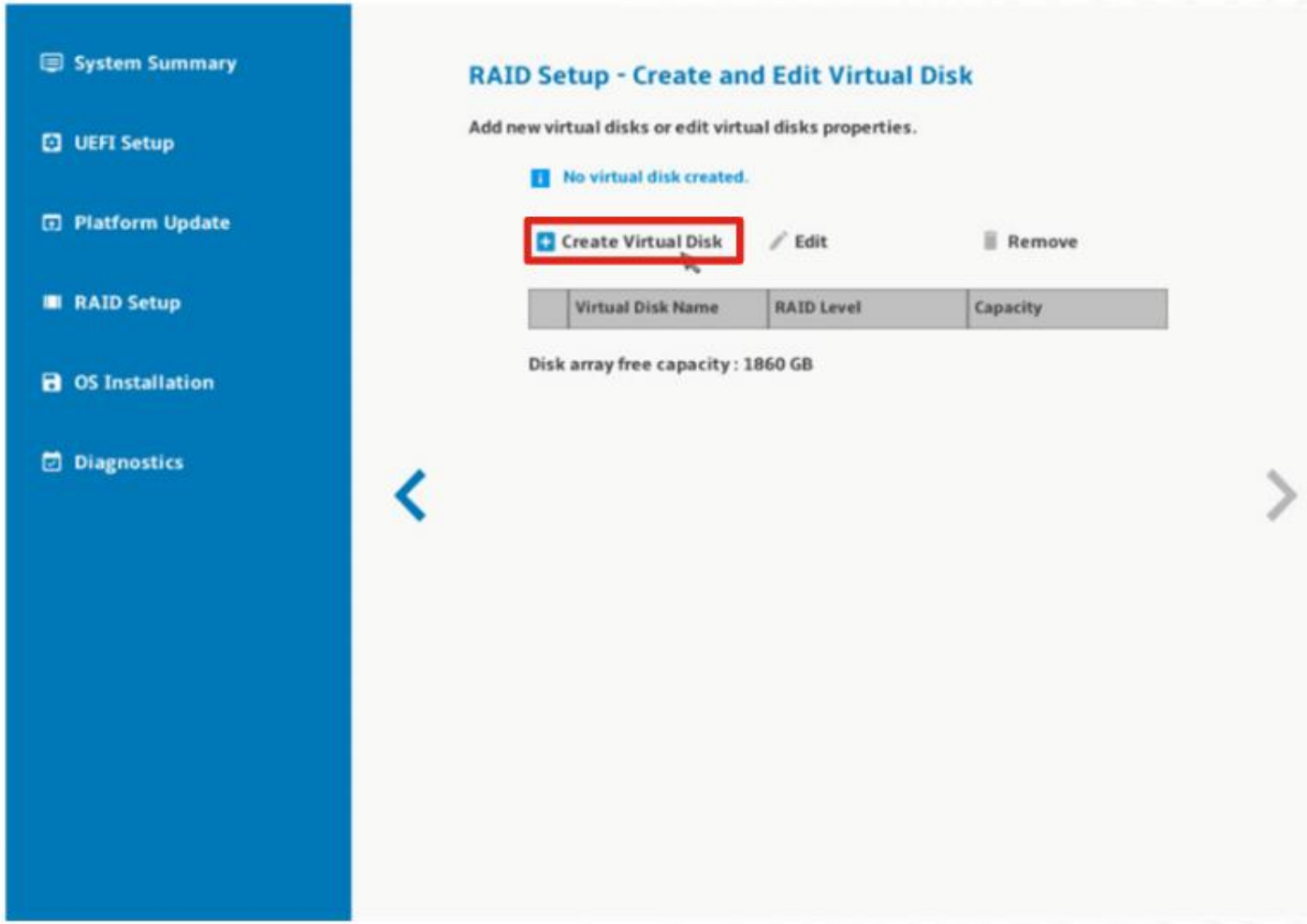
To create RAID 5, select the appropriate number of hard drives (at least three are needed). Select **Next** to go to the next page.



Step 1 2 3 4 5 6 7 8 9 10 11 12

RAID Setup wizard in LXPM

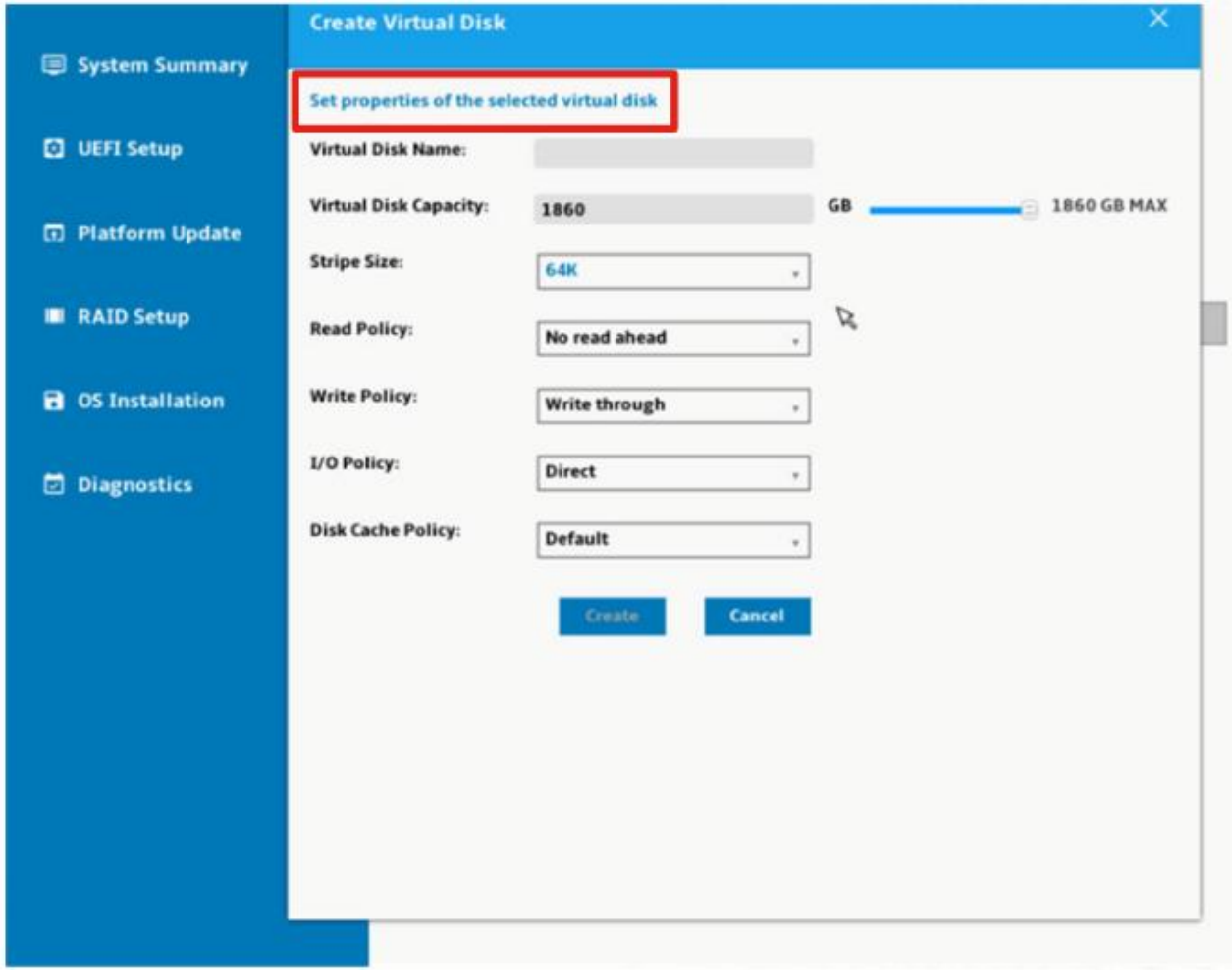
Select **Create Virtual Disk**.



Step 1 2 3 4 5 6 7 8 9 10 11 12

RAID Setup wizard in LXPM

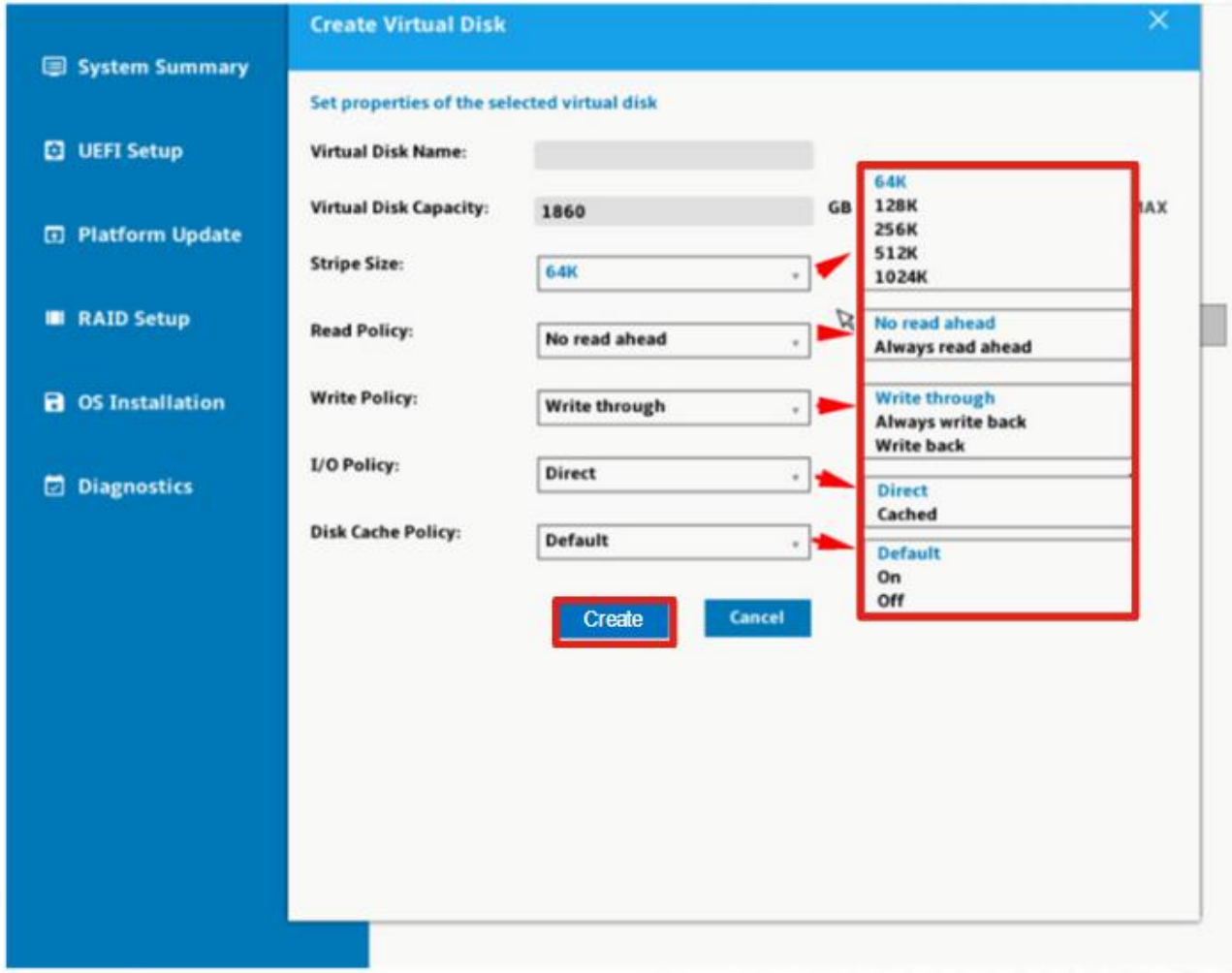
A **Set properties of the virtual disk** message displays (only available in **Advanced configuration** mode).



Step 1 2 3 4 5 6 7 8 9 10 11 12

RAID Setup wizard in LXPM

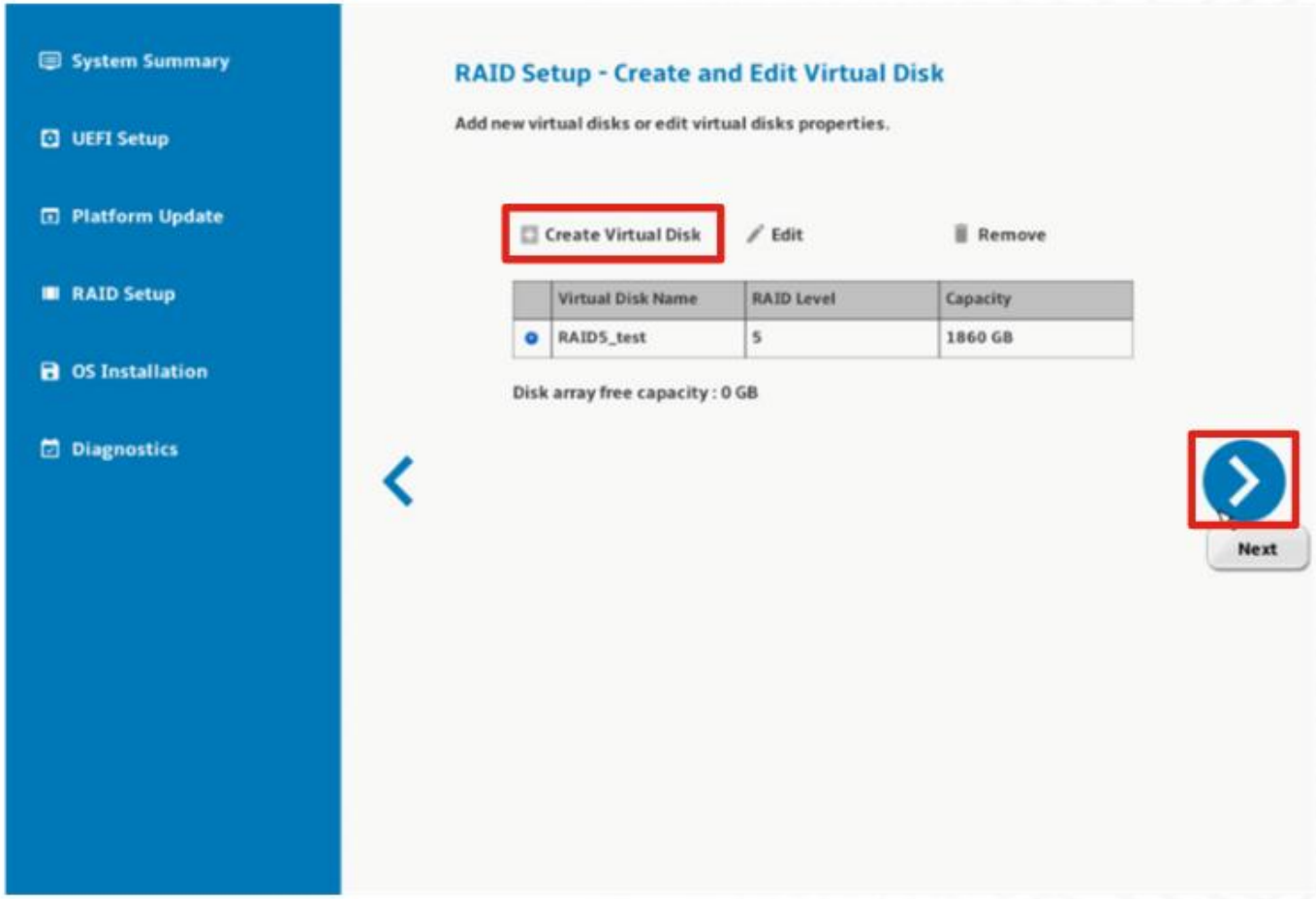
Set the appropriate virtual disk properties, and then select **Create**.



Step 1 2 3 4 5 6 7 8 9 10 11 12

RAID Setup wizard in LXPM

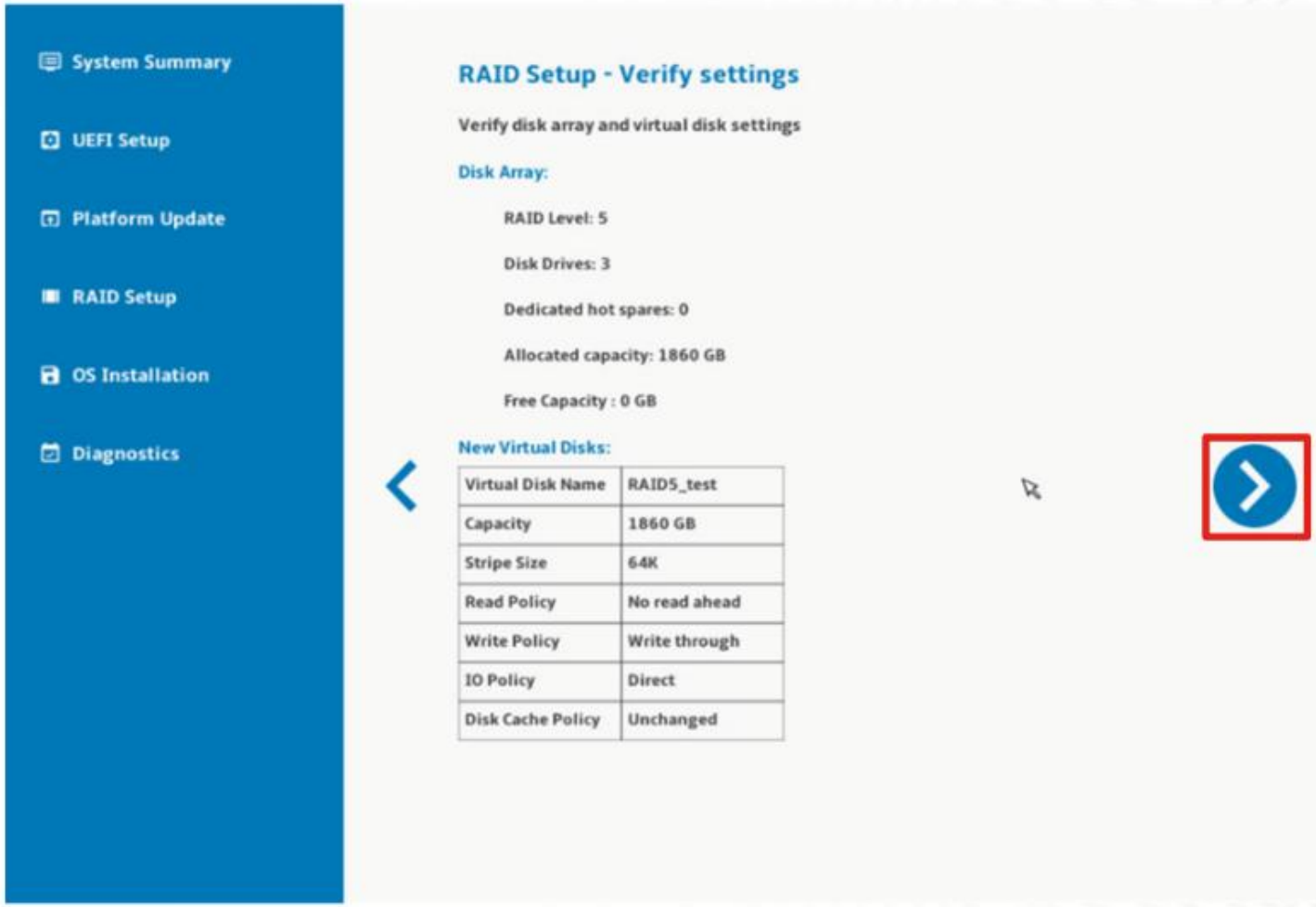
The RAID5_test virtual disk has been created. Select **Create Virtual Disk** to create multiple virtual disks, or select **Next** to go to the next page.



Step 1 2 3 4 5 6 7 8 9 10 11 12

RAID Setup wizard in LXPM

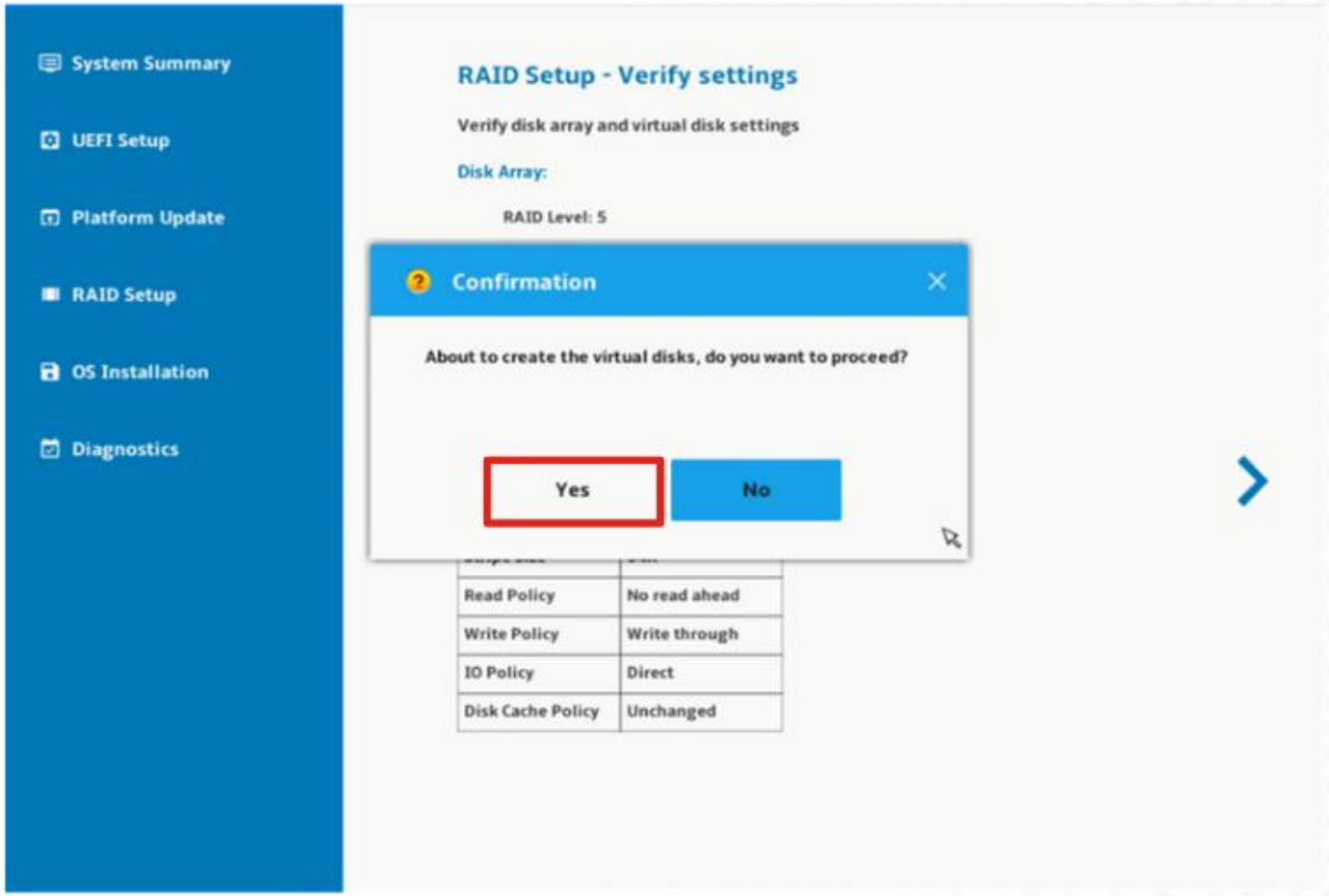
Verify RAID settings. Select **Next** if the RAID setting is correct.



Step 1 2 3 4 5 6 7 8 9 10 11 12

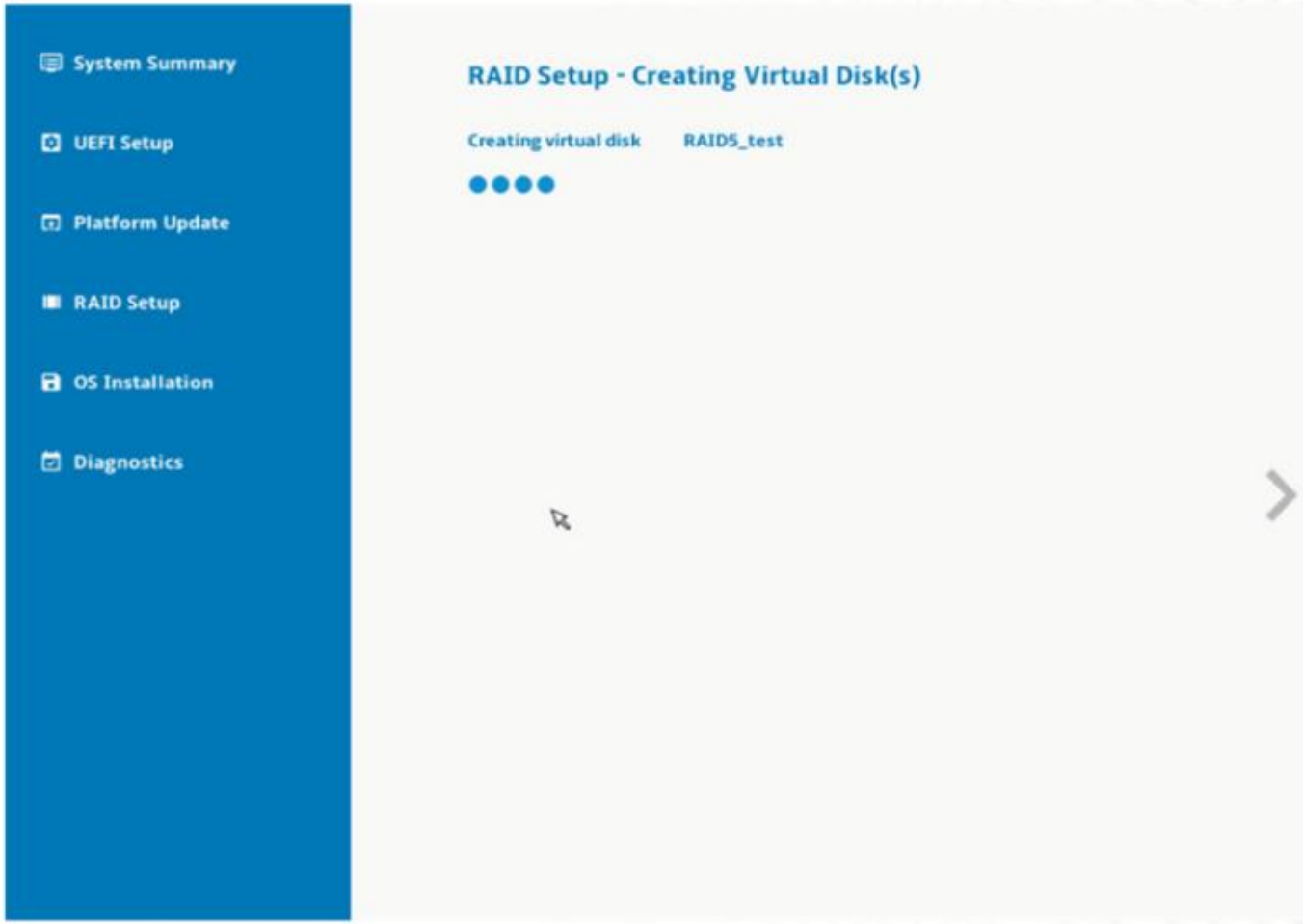
RAID Setup wizard in LXPM

Select **Yes** to create the virtual drive.



RAID Setup wizard in LXPM

The process of creating the virtual disk starts.



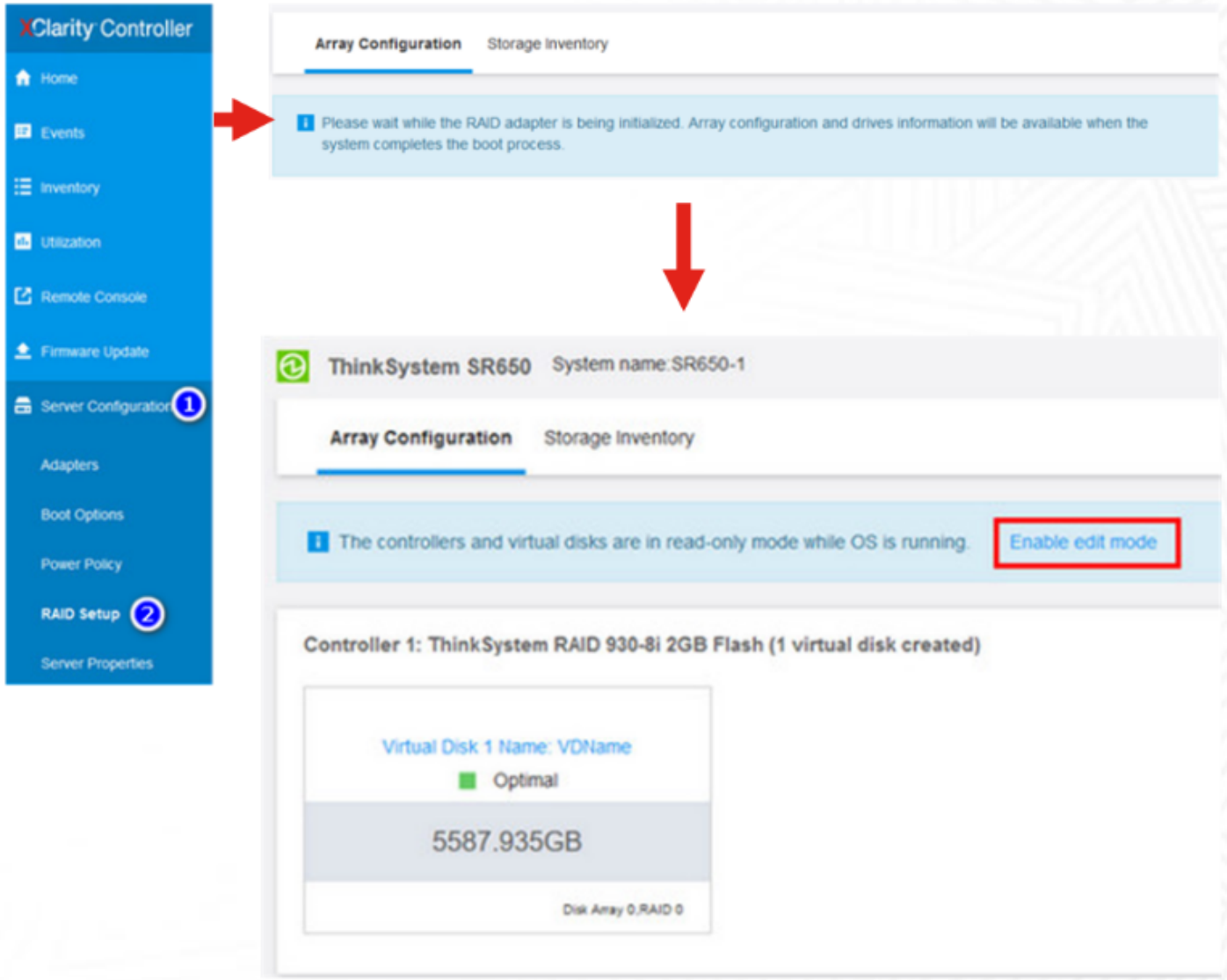
Step 1 2 3 4 5 6 7 8 9 10 11 12

RAID Setup in LXCC

Log in to the LXCC Web UI and select **Server Configuration → RAID Setup**. The RAID wizard appears. RAID setup is not applicable when the system is powered off or has not completes the POST process.

Select **Enable edit mode** and the virtual disks become editable and removable.

Properties including Read Policy, Write Policy, and I/O Policy are read-only if the controller does not have cache.



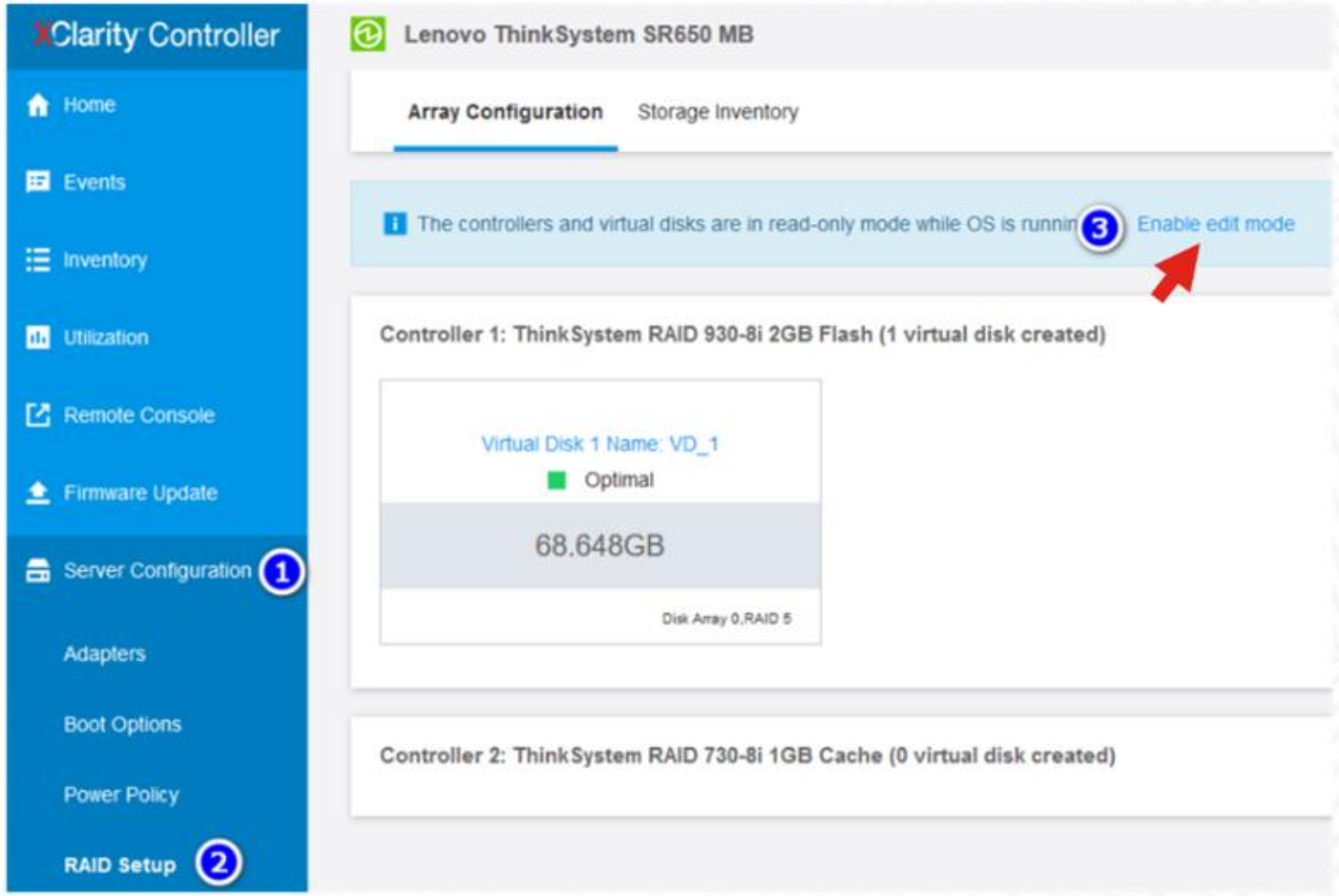
RAID setup in LXCC example

Use the following steps to create a virtual disk (known as RAID) in LXCC.

Click each step for more detailed instructions.

RAID setup in LXCC example

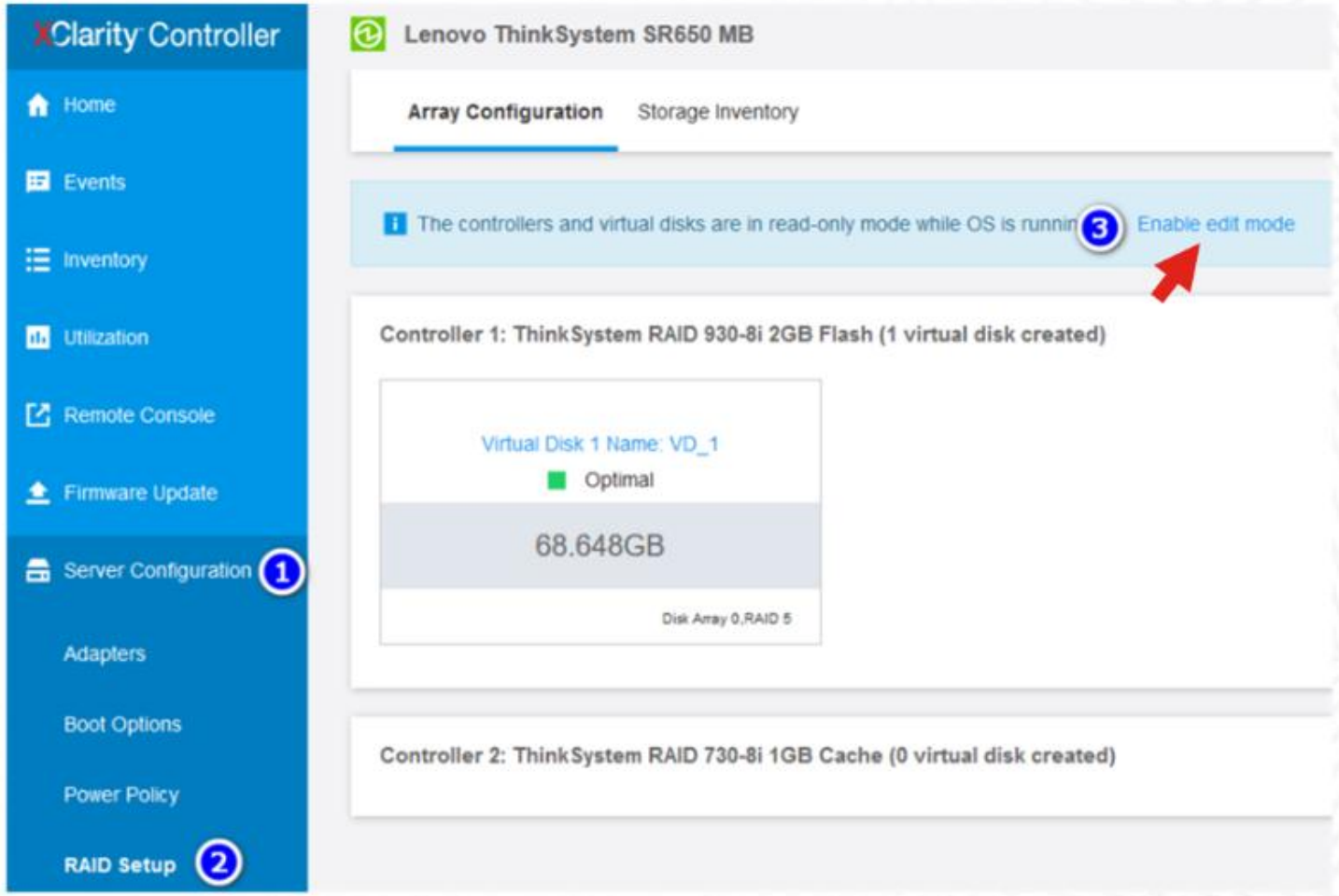
Log in to the LXCC Web UI and select **Server Configuration → RAID Setup → Enable edit mode**.



Step 1 — 2 — 3 — 4 — 5

RAID setup in LXCC example

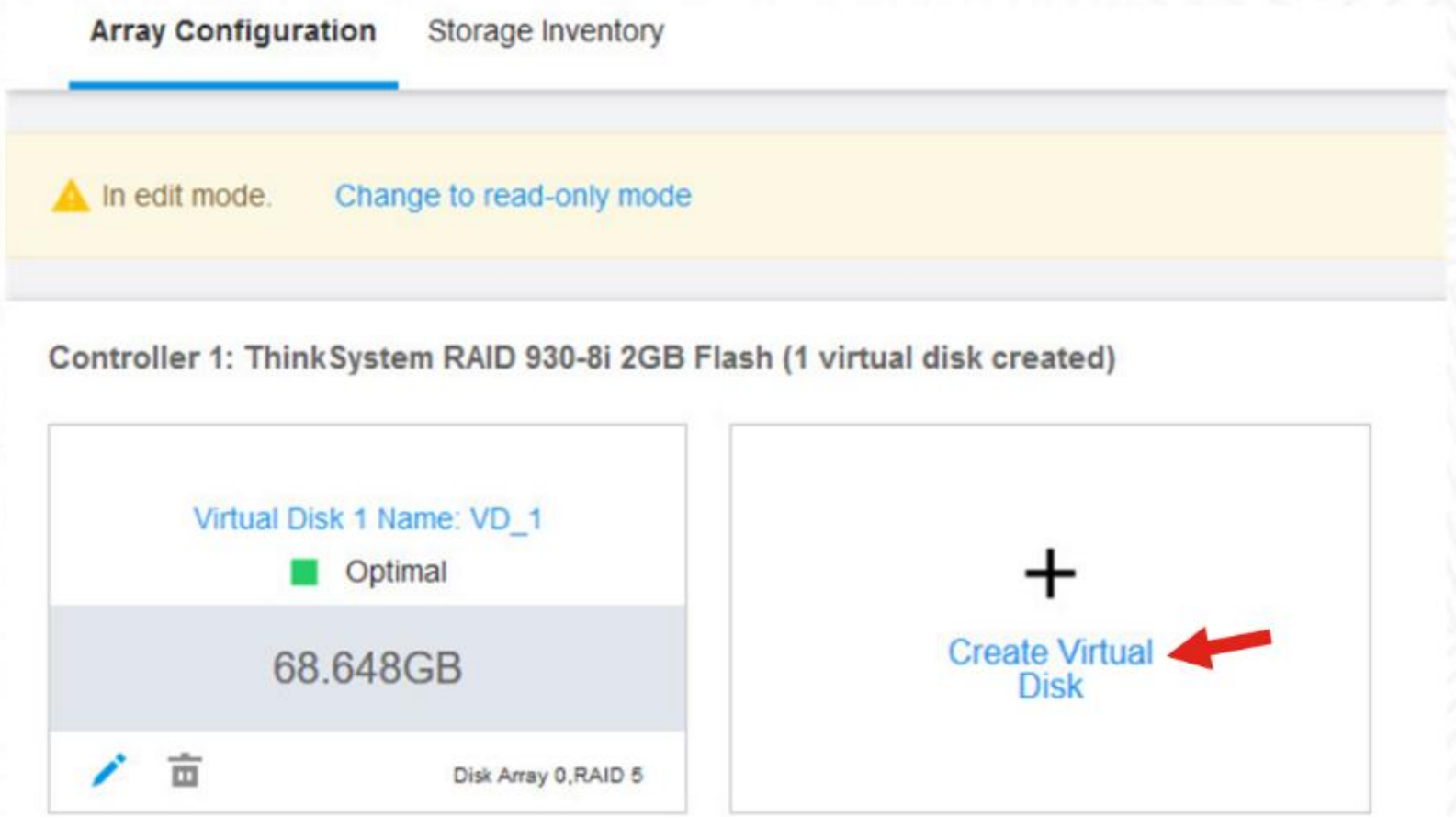
Log in to the LXCC Web UI and select **Server Configuration → RAID Setup → Enable edit mode**.



Step 1 — 2 — 3 — 4 — 5

RAID setup in LXCC example

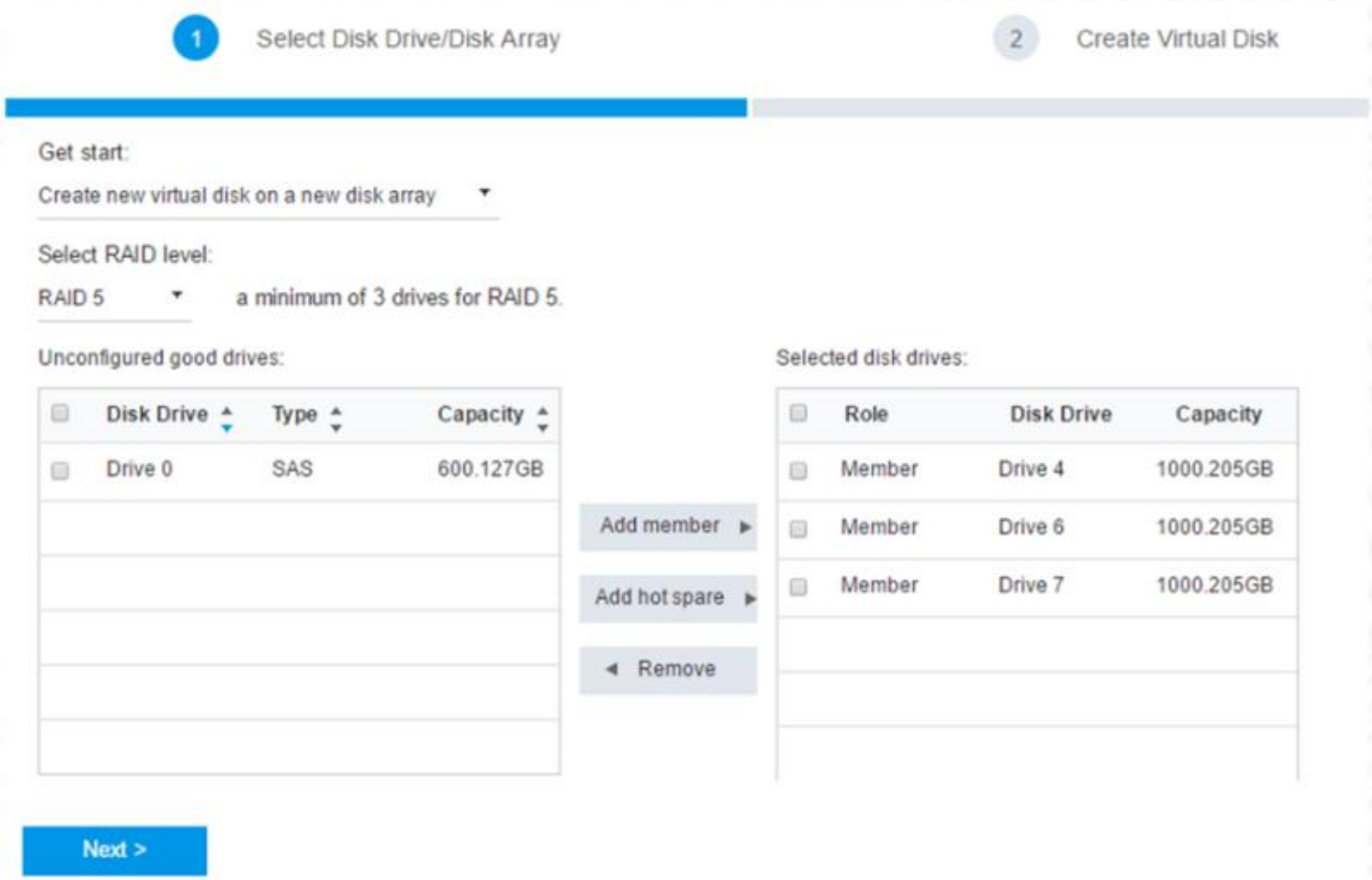
Select **Create Virtual Disk**.



Step 1 — 2 — 3 — 4 — 5

RAID setup in LXCC example

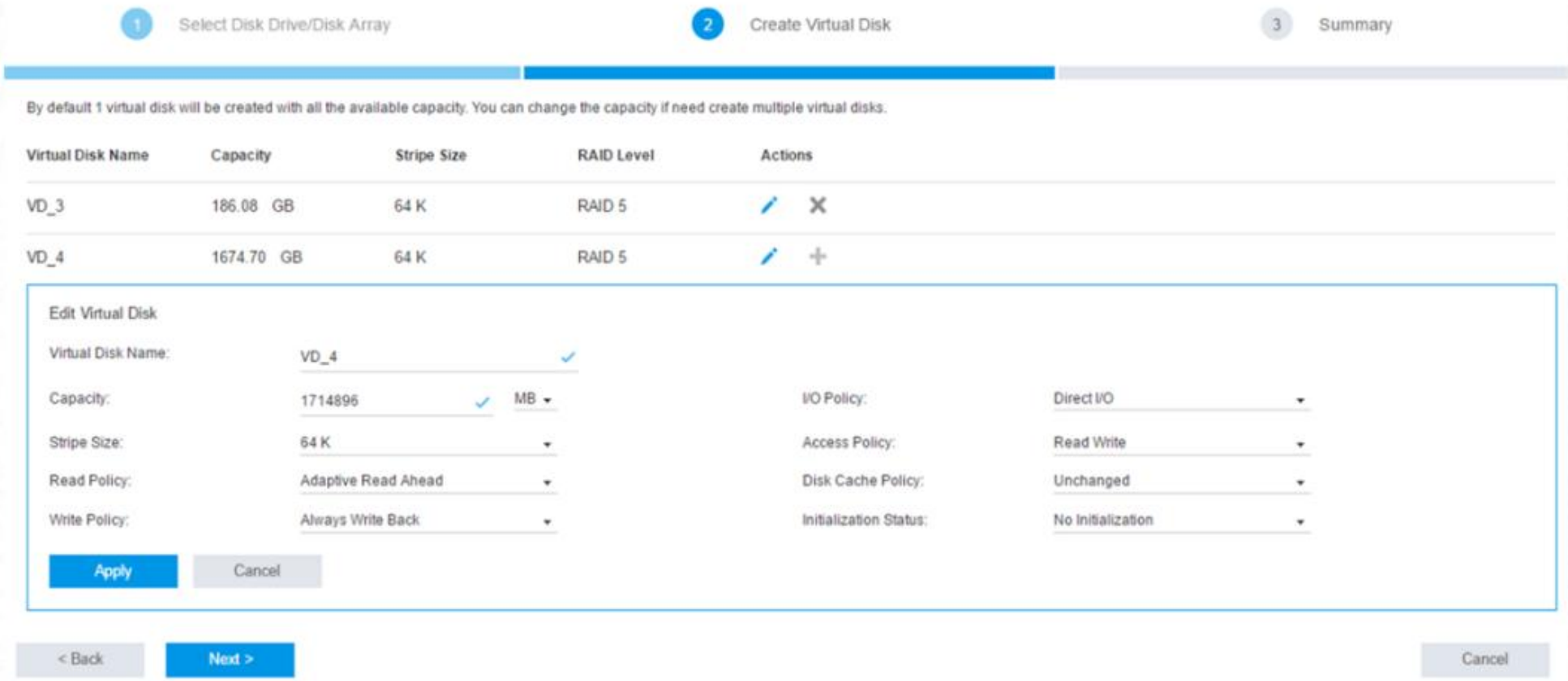
In the **Select Disk Drive/Disk Array** tab, the user can choose to create new virtual disk on a new disk array or an existing disk array.



Step 1 2 3 4 5

RAID setup in LXCC example

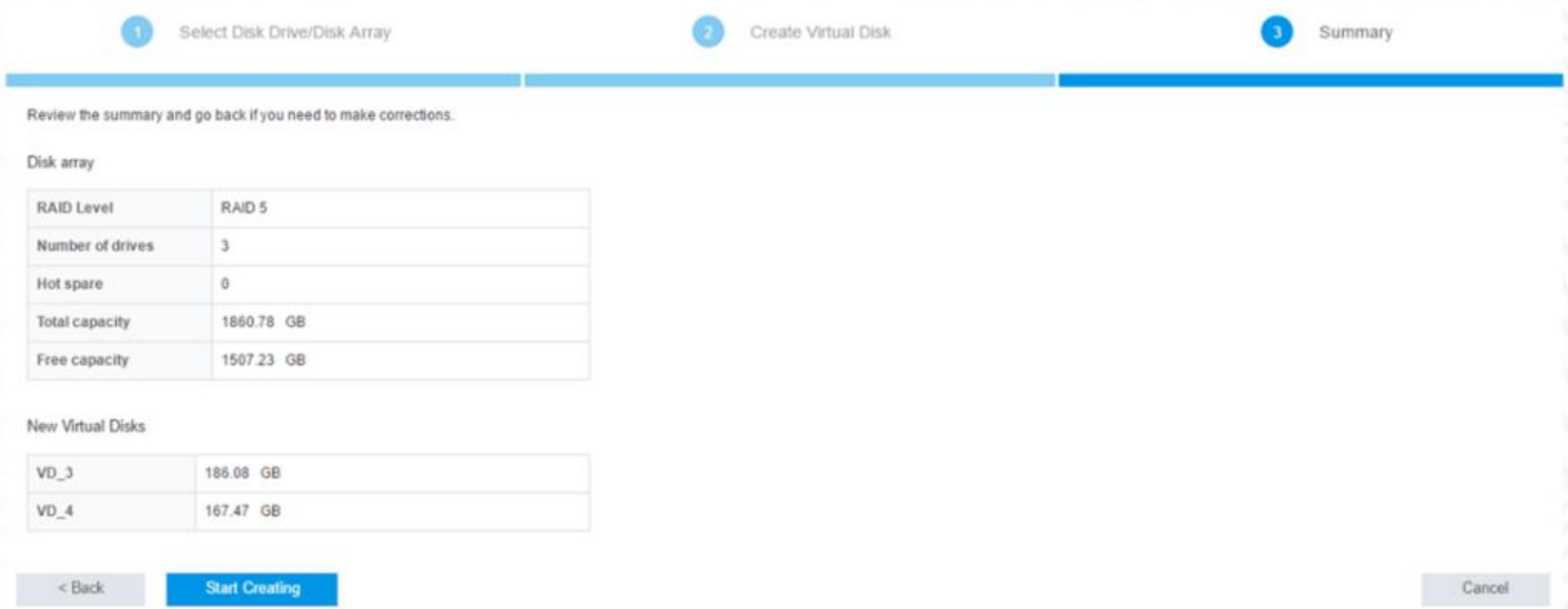
Edit virtual disk properties and add new virtual disk.



Step 1 2 3 4 5

RAID setup in LXCC example

Click **Start Creating** to submit and save the configuration.



Step 1 2 3 4 5

RAID setup in HII

Use the following steps to setup RAID in HII.

Click each step for more detailed instructions.

Step 1 2 3 4 5 6 7 8 9 10 11 12 13

RAID setup in HII

The setting of RAID in HII utility is almost the same as the previous System X servers.

Press **F1** during start up to into the UEFI setup menu, then select **System Settings**.

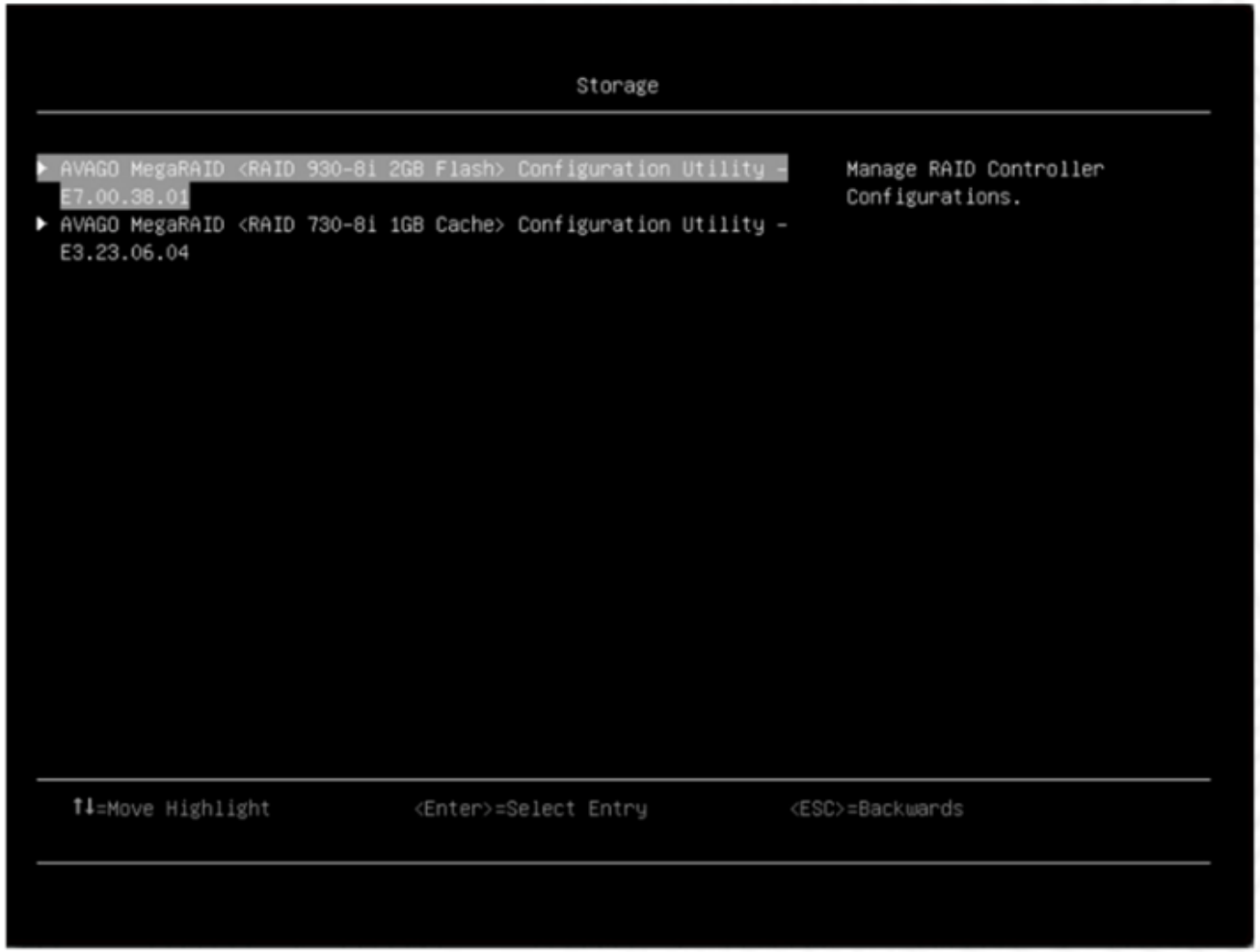
Step 1 2 3 4 5 6 7 8 9 10 11 12 13

RAID setup in HII

Select **Storage**.

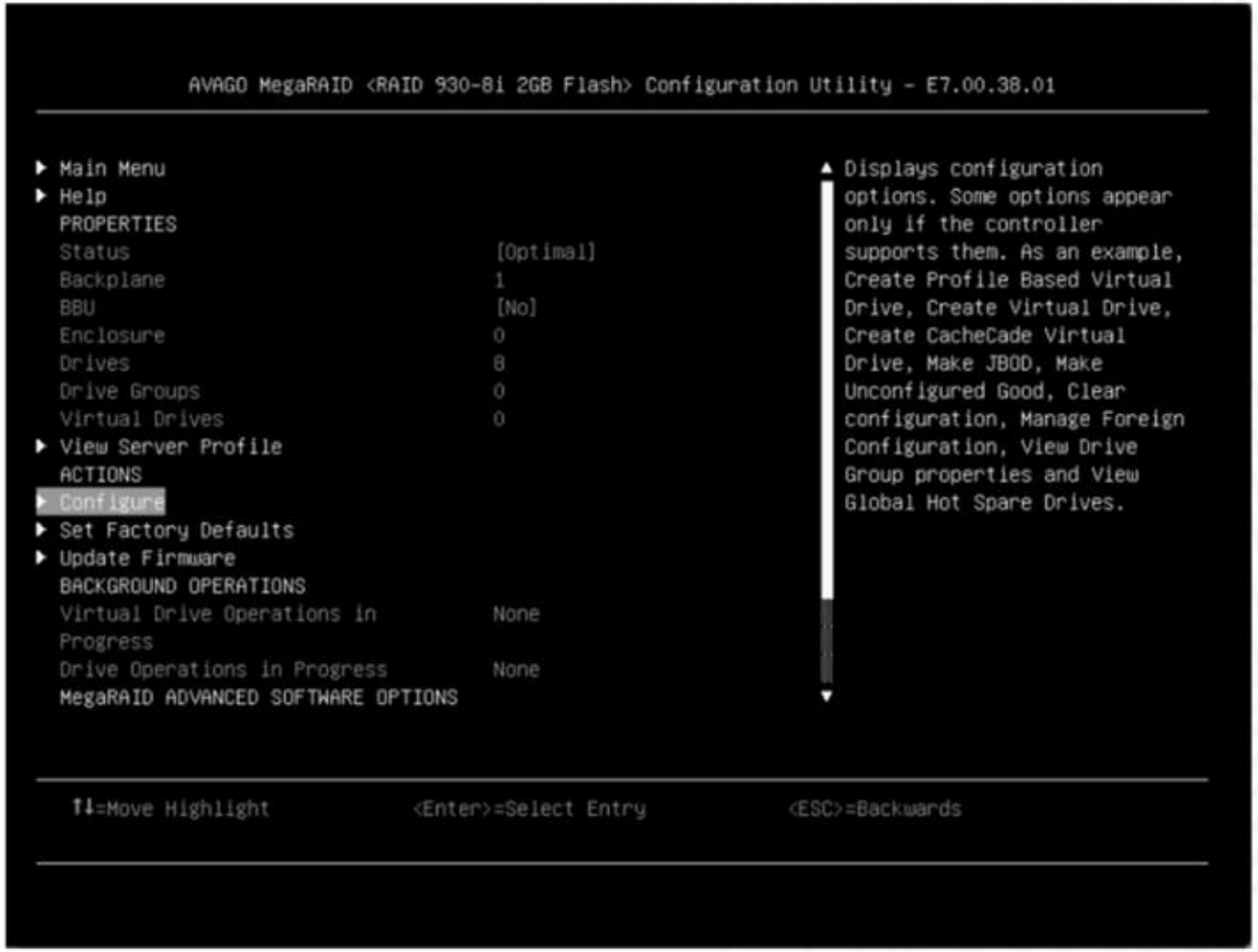
RAID setup in HII

The supported RAID controllers appear in the list for configuration. RAID 930-8i is selected for this example.



RAID setup in HII

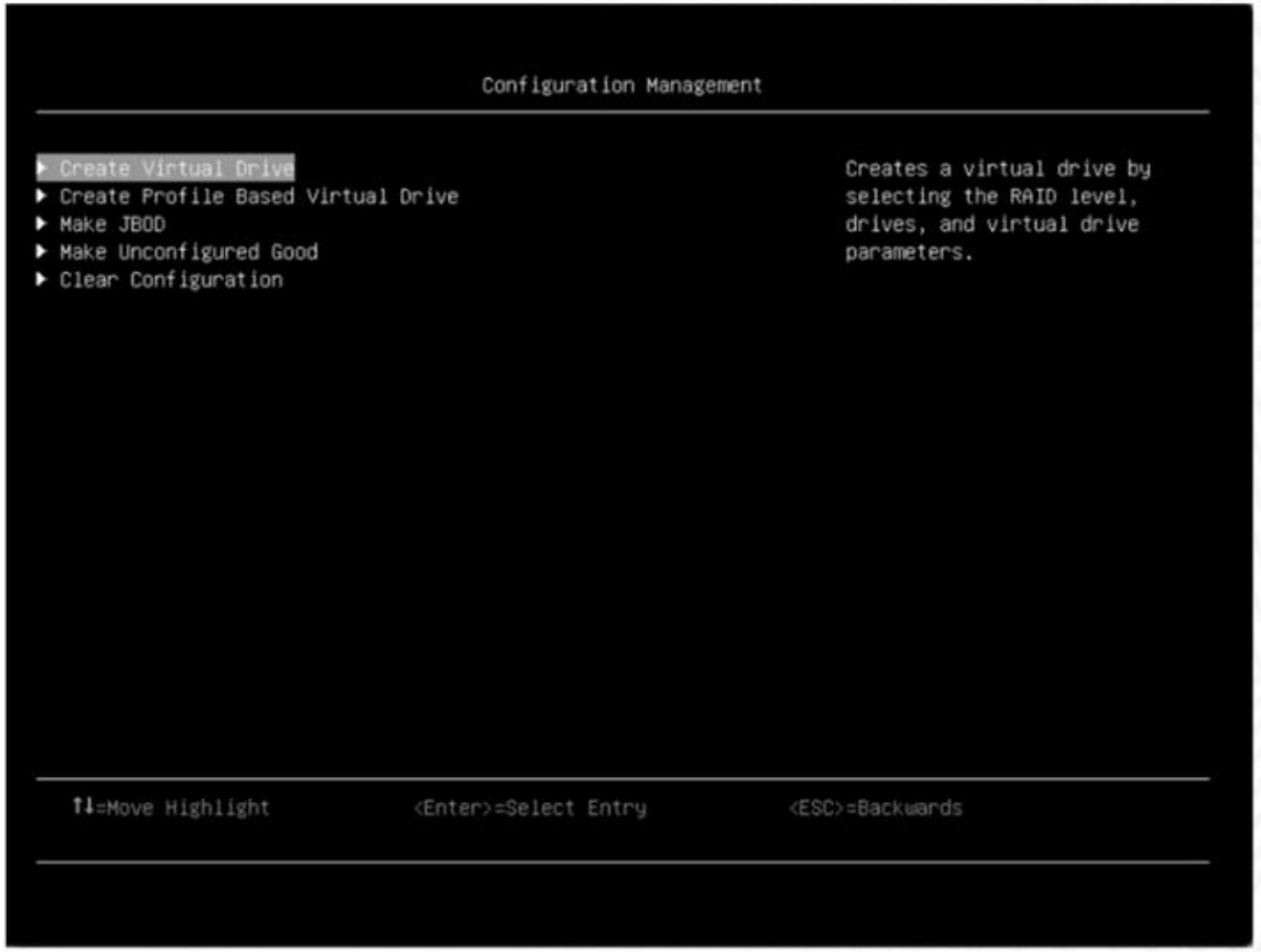
Select **Configure**.



Step 1 2 3 4 5 6 7 8 9 10 11 12 13

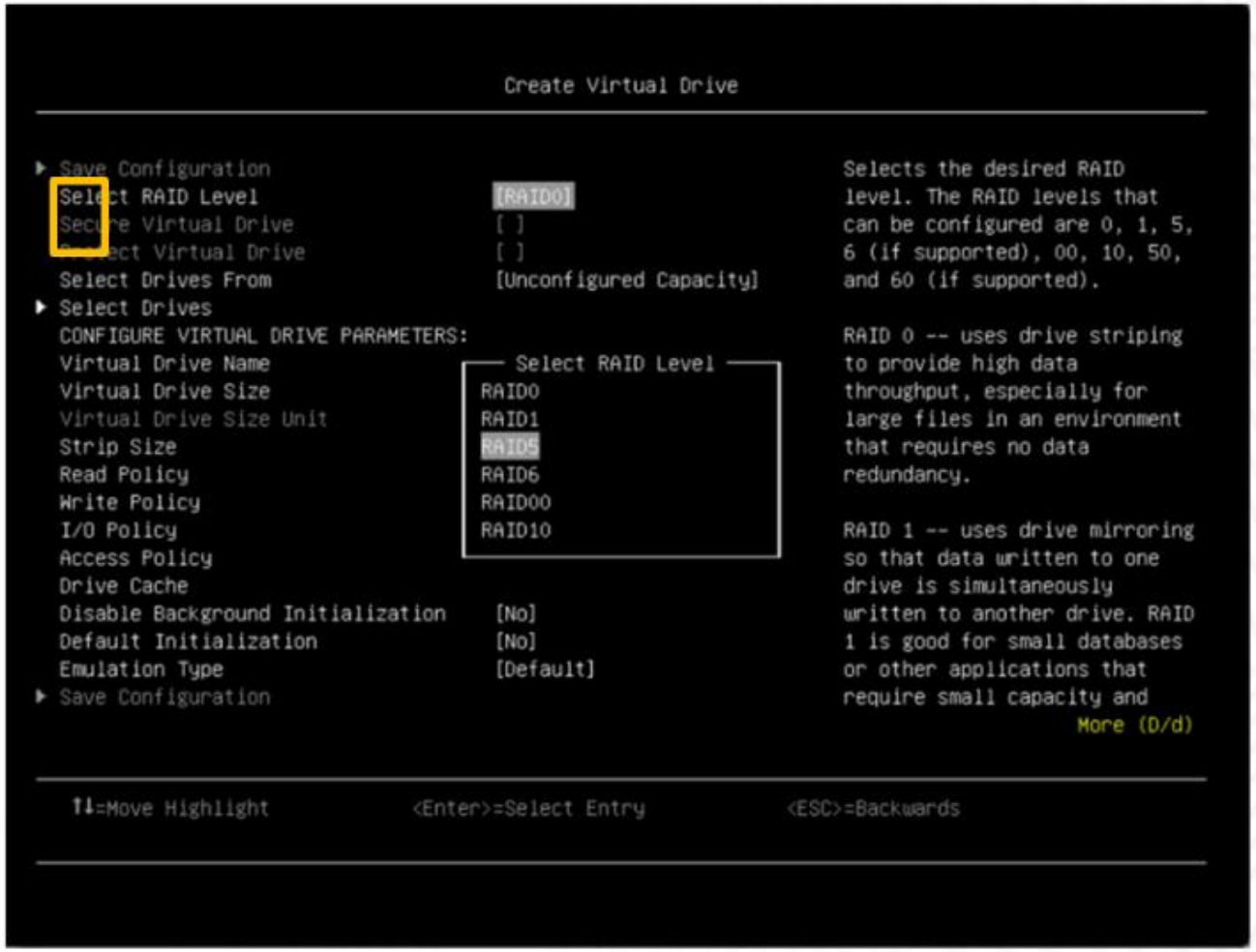
RAID setup in HII

Select **Create Virtual Drive**.



RAID setup in HII

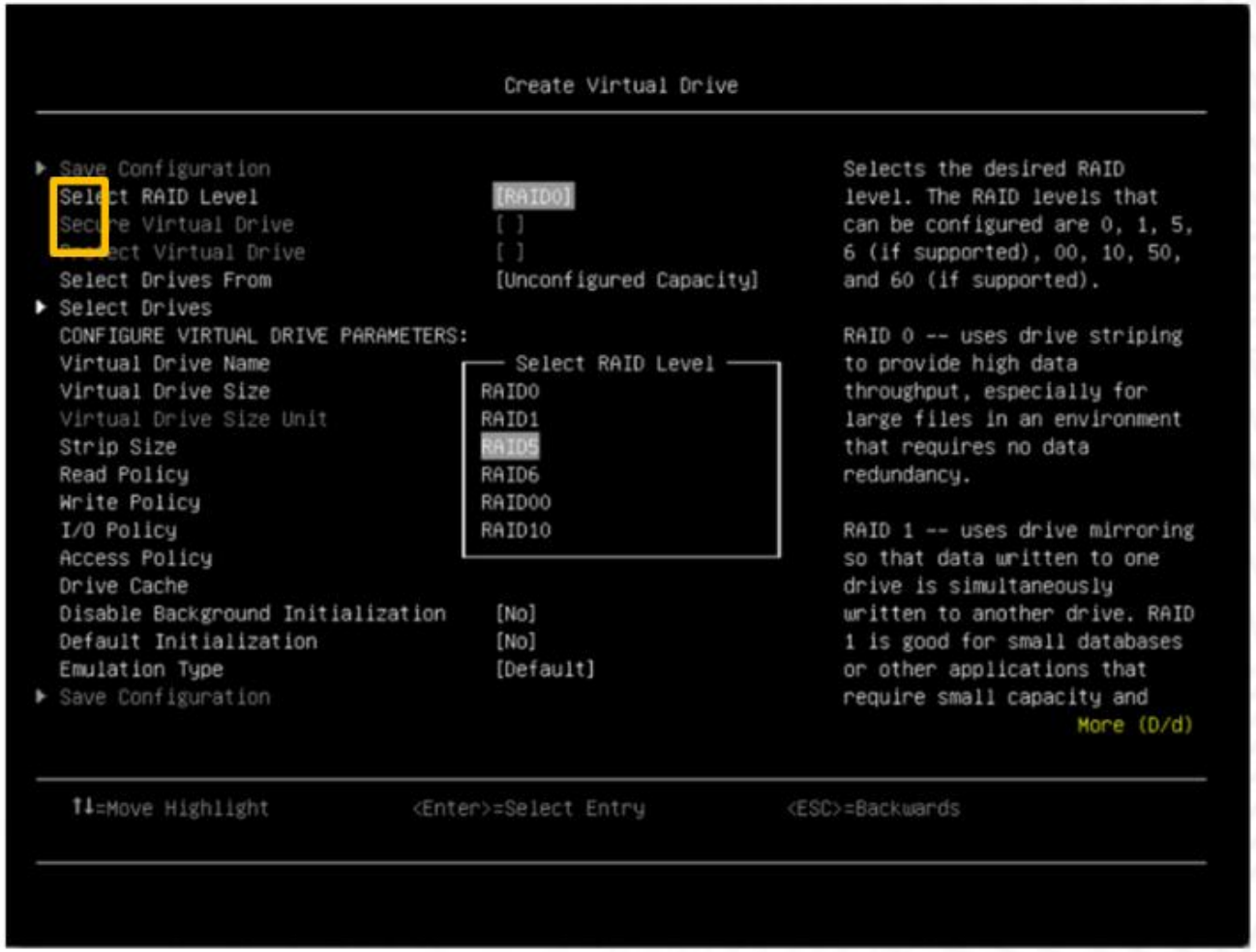
Select **Select RAID Level**. (Assume that RAID 5 is selected.)



Step 1 2 3 4 5 6 7 8 9 10 11 12 13

RAID setup in HII

Select **Select RAID Level**. (Assume that RAID 5 is selected.)



Step 1 2 3 4 5 6 7 8 9 10 11 12 13

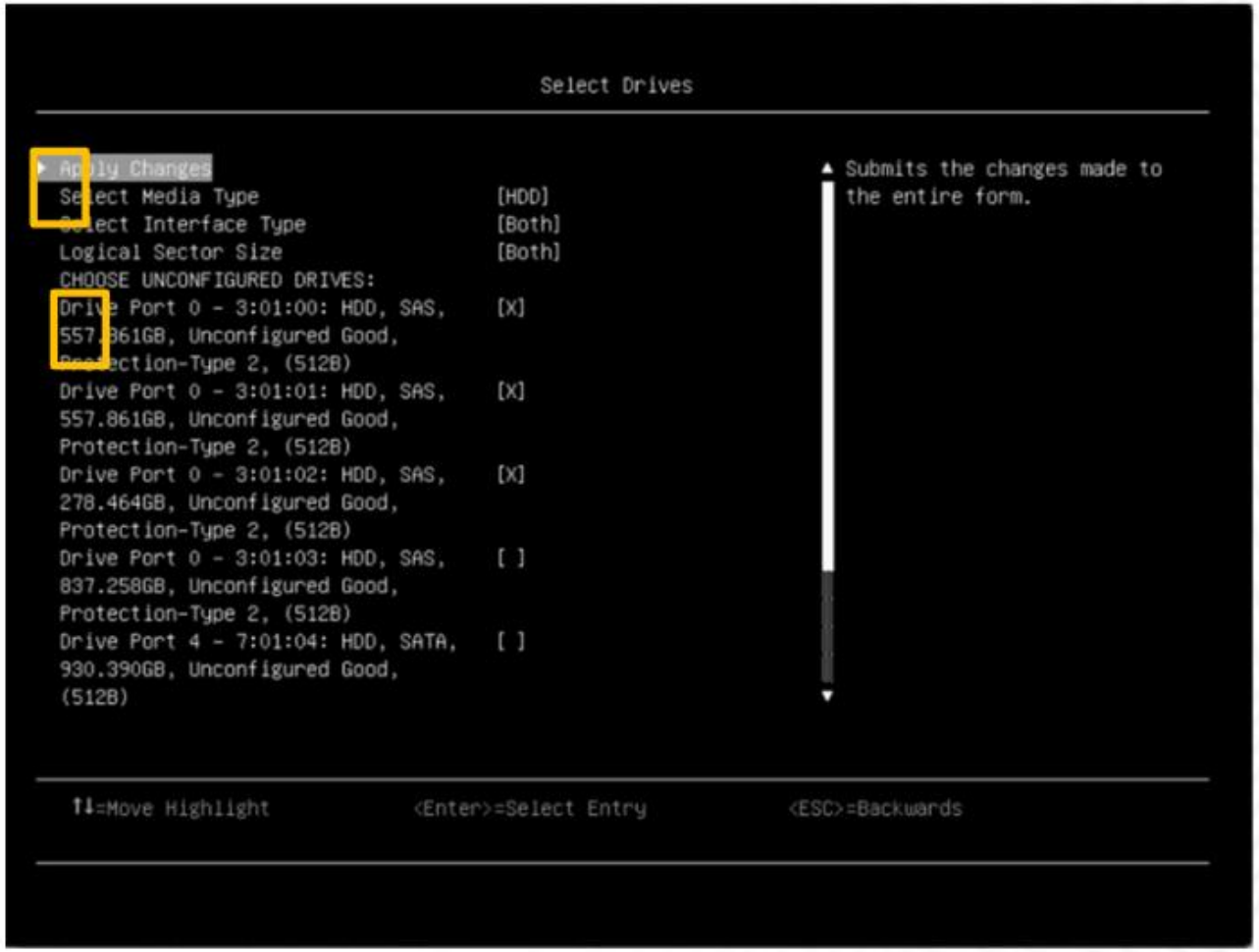
RAID setup in HII

Select **Select Drives**.

Step 1 2 3 4 5 6 7 8 9 10 11 12 13

RAID setup in HII

Select the appropriate number of hard drives to create RAID 5. Then, select **Apply Changes**.



RAID setup in HII

Select **Confirm** and then select **Yes**.

Step 1 2 3 4 5 6 7 8 9 10 11 12 13

RAID setup in HII

The **Success** page displays. Then press **ESC** to go back to main menu.

RAID setup in HII

The virtual drive information is listed here. Select **Save Configuration** to continue the process.

Step 1 2 3 4 5 6 7 8 9 10 11 12 13

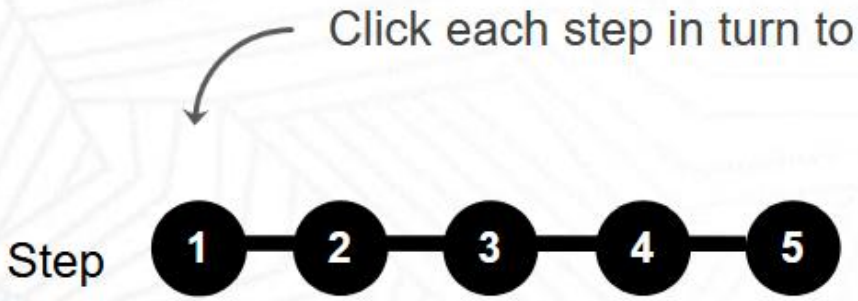
RAID setup in HII

Select **Confirm** and then select **Yes**. The virtual drive will be created.

Step 1 2 3 4 5 6 7 8 9 10 11 12 13

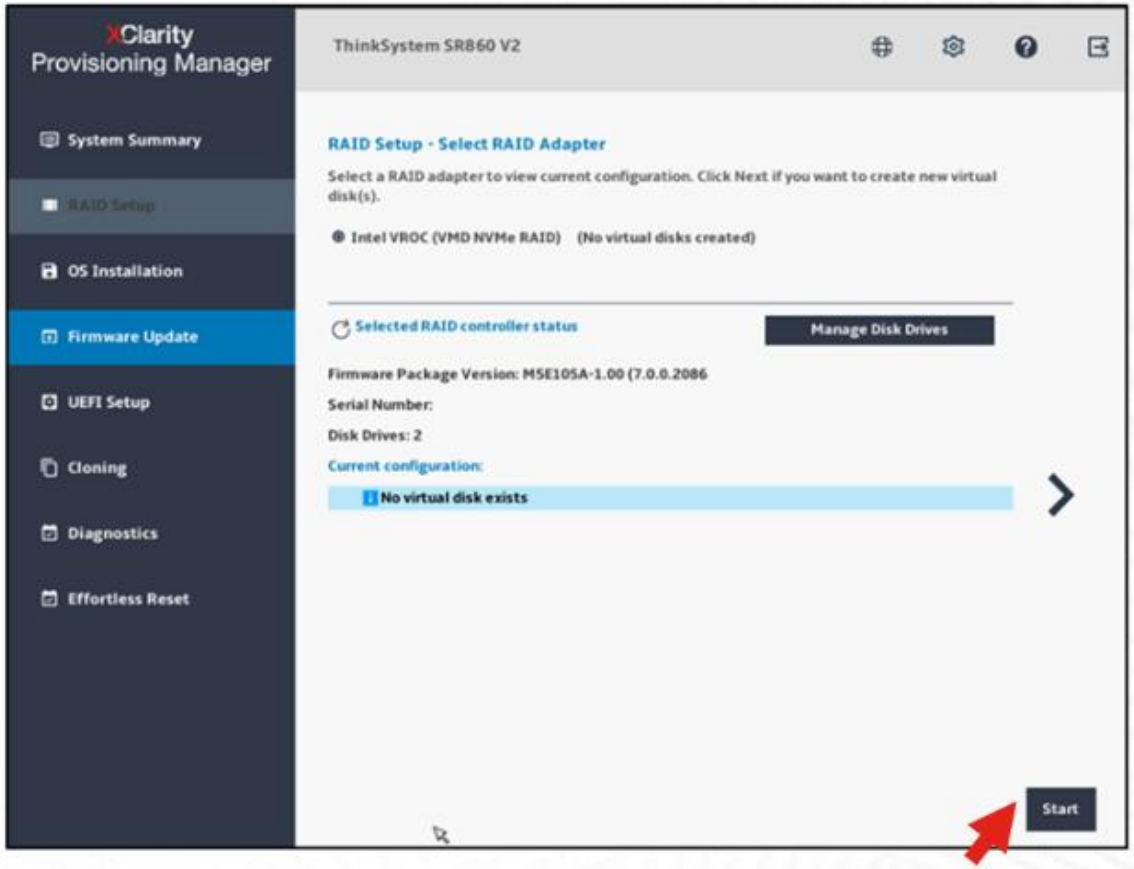
Setting up VMD NVMe RAID in LXPM

Work through the following procedure to create a virtual disk (VMD NVMe RAID) in LXPM.
Note: Intel VMD must be enabled in UEFI mode.



Setting up VMD NVMe RAID in LXPM

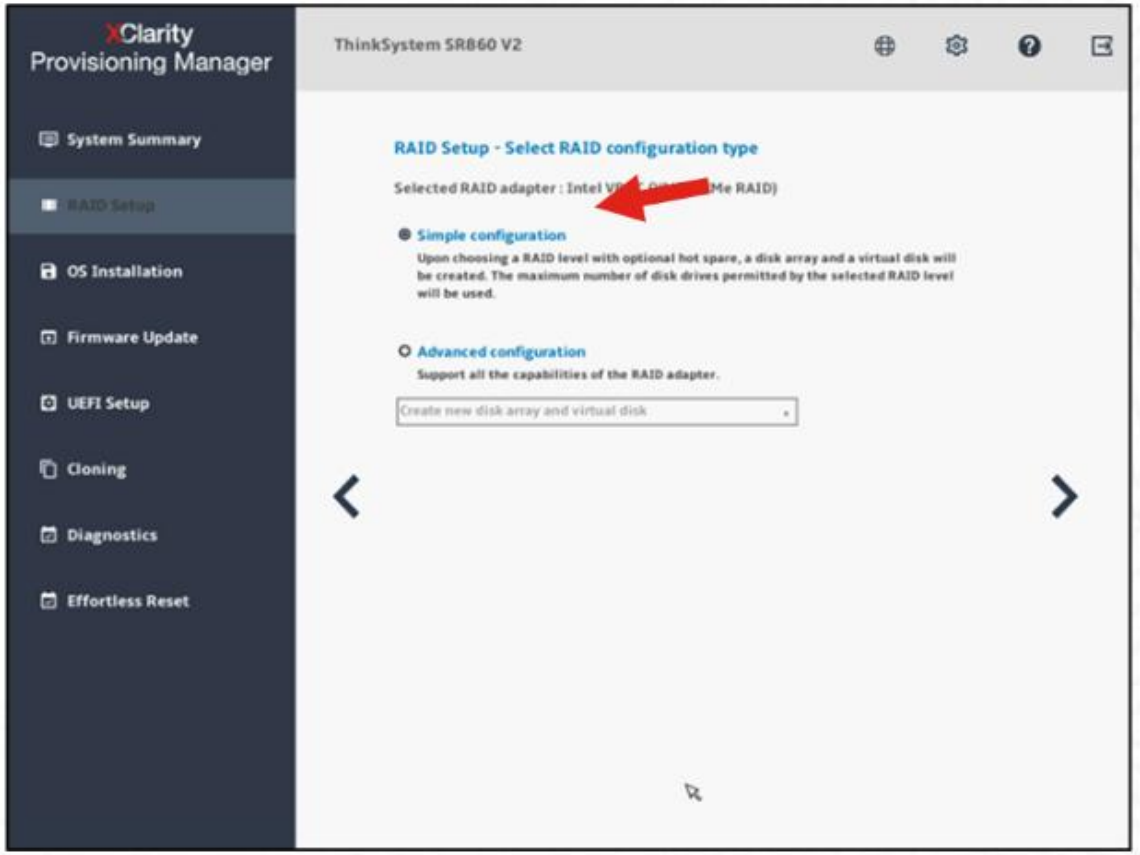
Log in to the LXPM Web UI and select **RAID Setup → Start**



Step 1 2 3 4 5

Setting up VMD NVMe RAID in LXPM

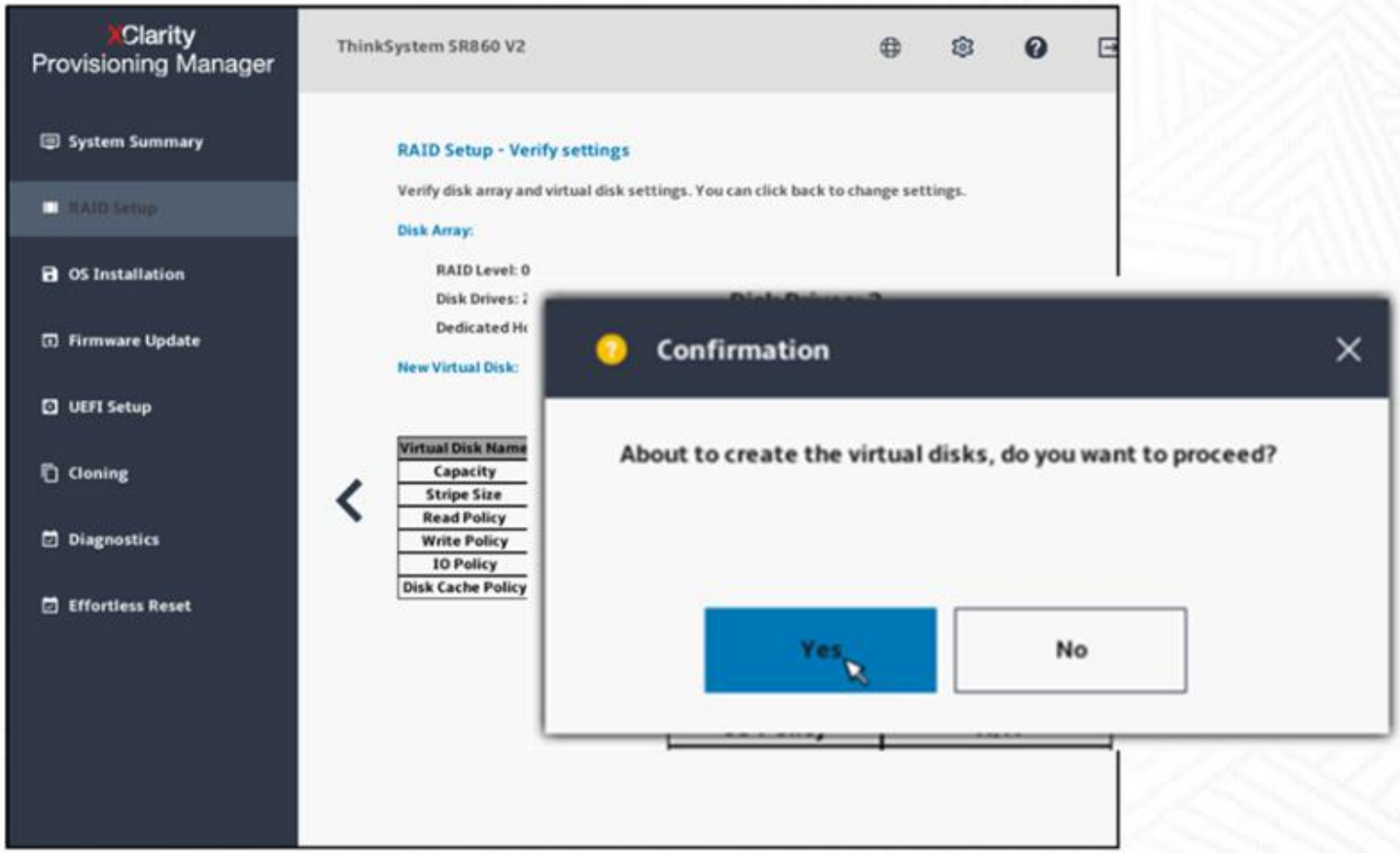
Select **Simple configuration**



Step 1 2 3 4 5

Setting up VMD NVMe RAID in LXPM

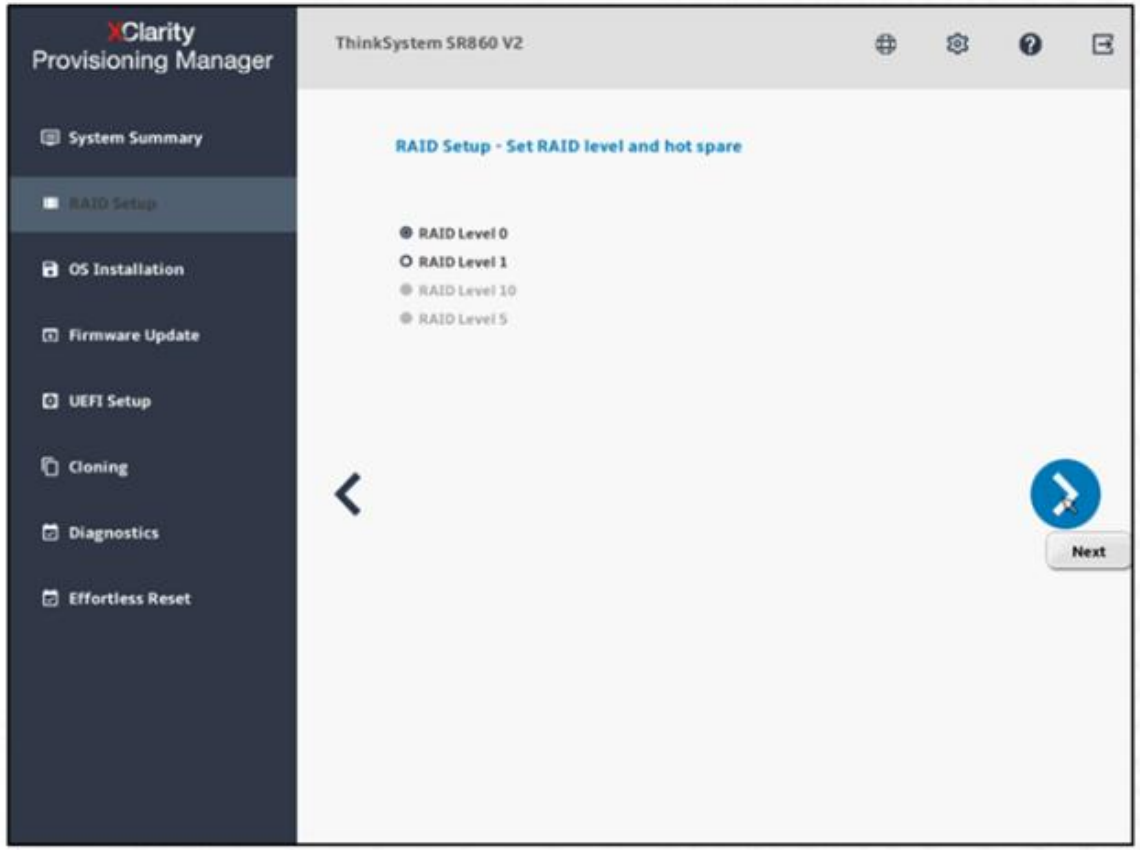
Verify the RAID settings, and then click **Yes** to confirm.



Step 1 2 3 4 5

Setting up VMD NVMe RAID in LXPM

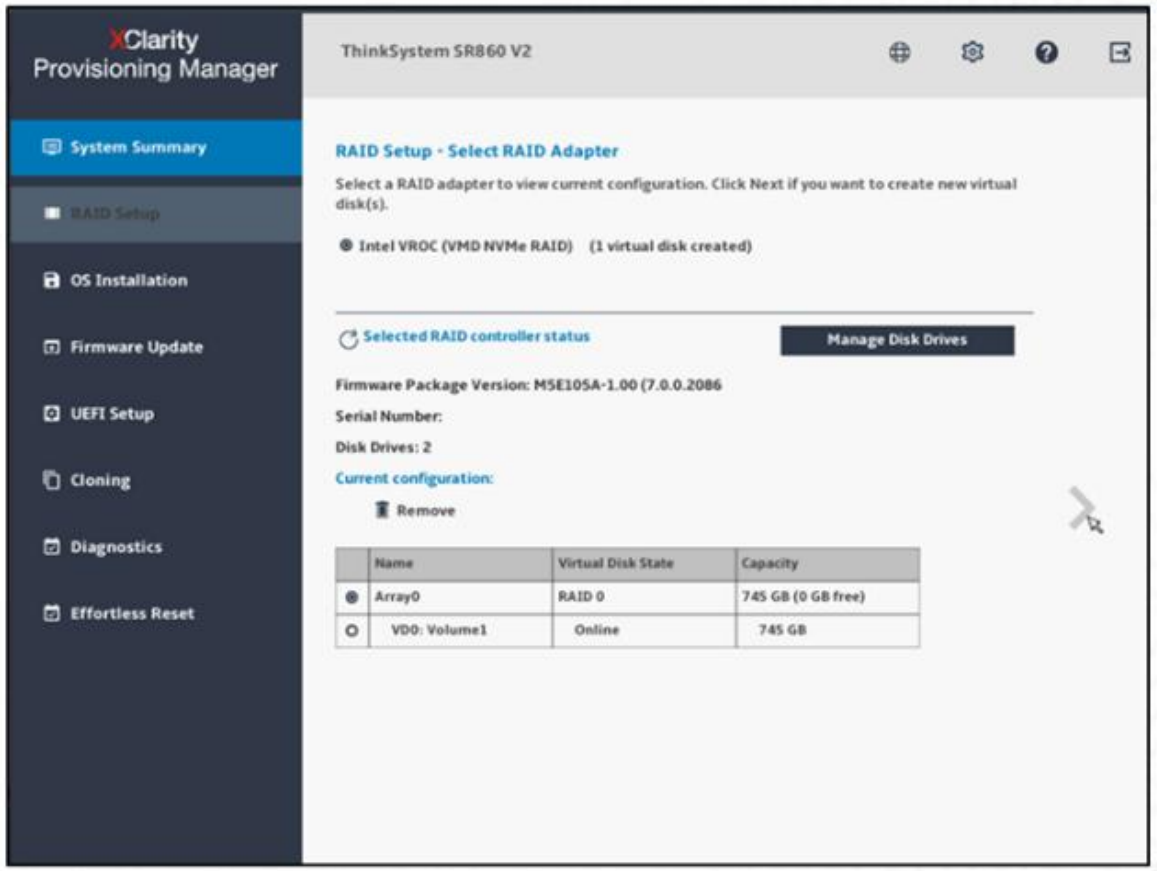
Select a **RAID level**. In this example, only two NVMe drives are attached, so only RAID 0 and RAID 1 are possible.



Step 1 2 3 4 5

Setting up VMD NVMe RAID in LXPM

After the virtual disk has been created, virtual disk information will be displayed.
Virtual volumes can be removed on the same page.



Step 1 2 3 4 5

Setting up VMD NVMe RAID in Legacy Mode

Work through the following procedure to create a virtual disk (VMD NVMe RAID) in UEFI Legacy Mode.

Note: Intel VMD must be enabled in Legacy mode.

Click each step in turn to see the procedure.

Step 1 2 3 4 5 6

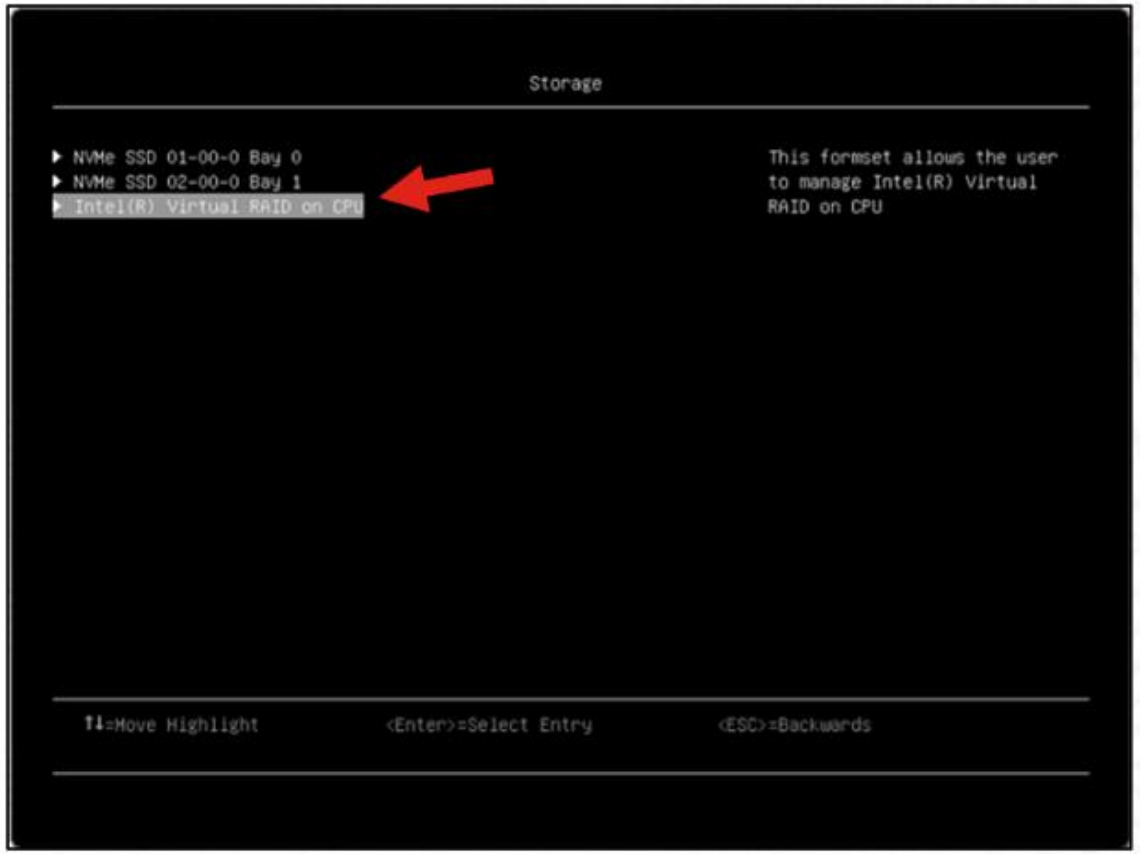
Setting up VMD NVMe RAID in Legacy Mode

Log in to UEFI Legacy Mode by pressing **F1** during the server boot up. Select **System Settings.**

Step 1 2 3 4 5 6

Setting up VMD NVMe RAID in Legacy Mode

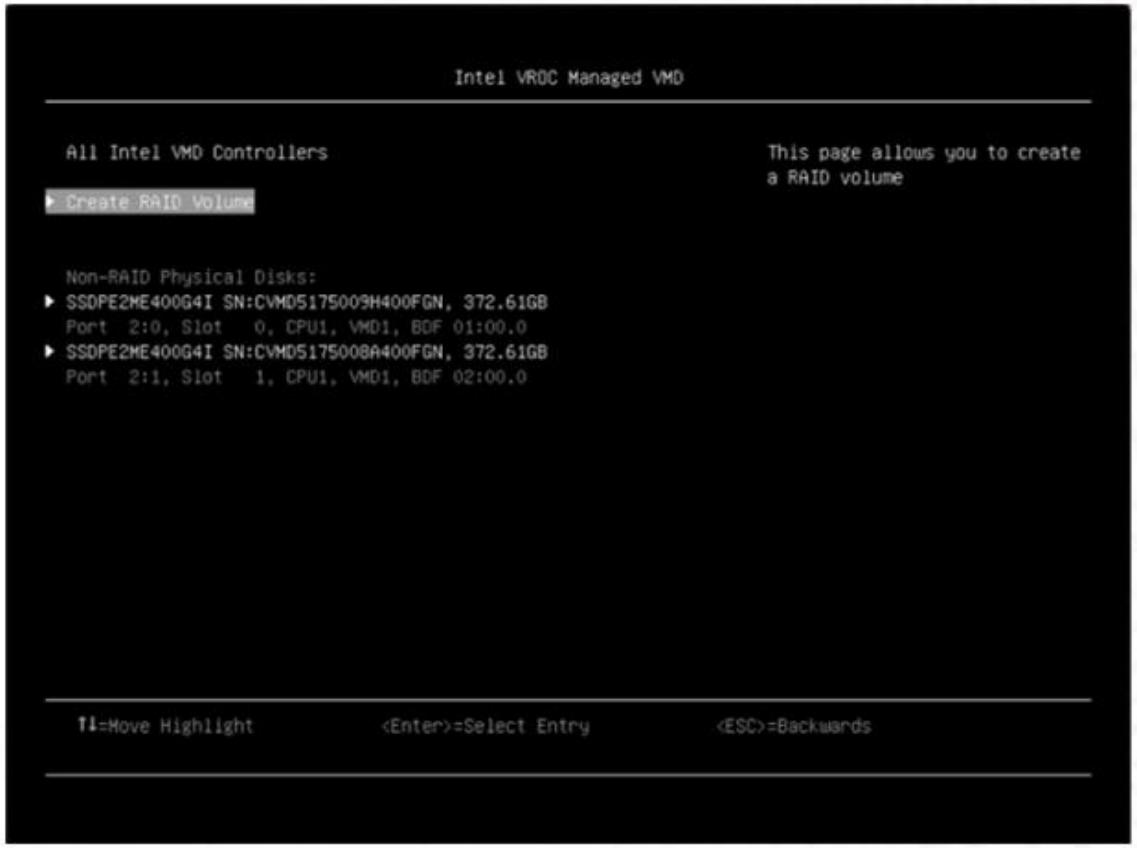
Select **Intel Virtual RAID on CPU**. Information about the NVMe disks attached to the system will be displayed.



Step 1 2 3 4 5 6

Setting up VMD NVMe RAID in Legacy Mode

Select **Create RAID Volume.**



Step 1 — 2 — 3 — 4 — 5 — 6

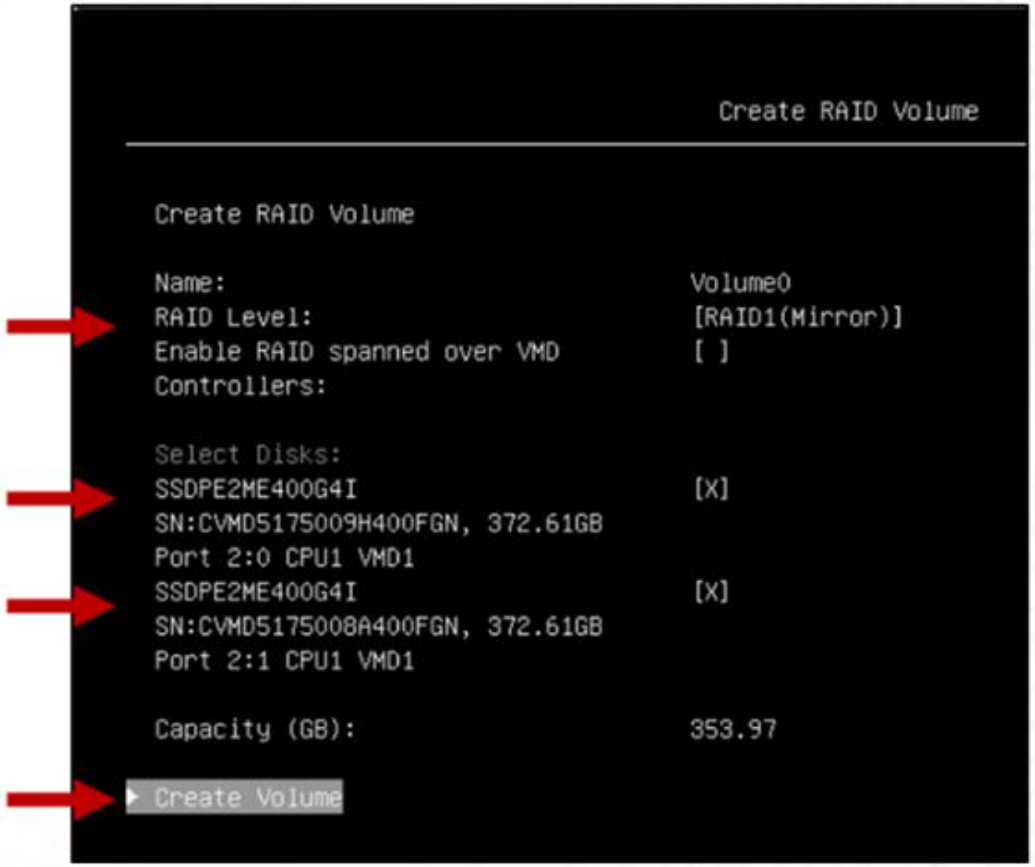
Setting up VMD NVMe RAID in Legacy Mode

Select **No RAID volumes on the system** to create NVMe RAID.

Step 1 2 3 4 5 6

Setting up VMD NVMe RAID in Legacy Mode

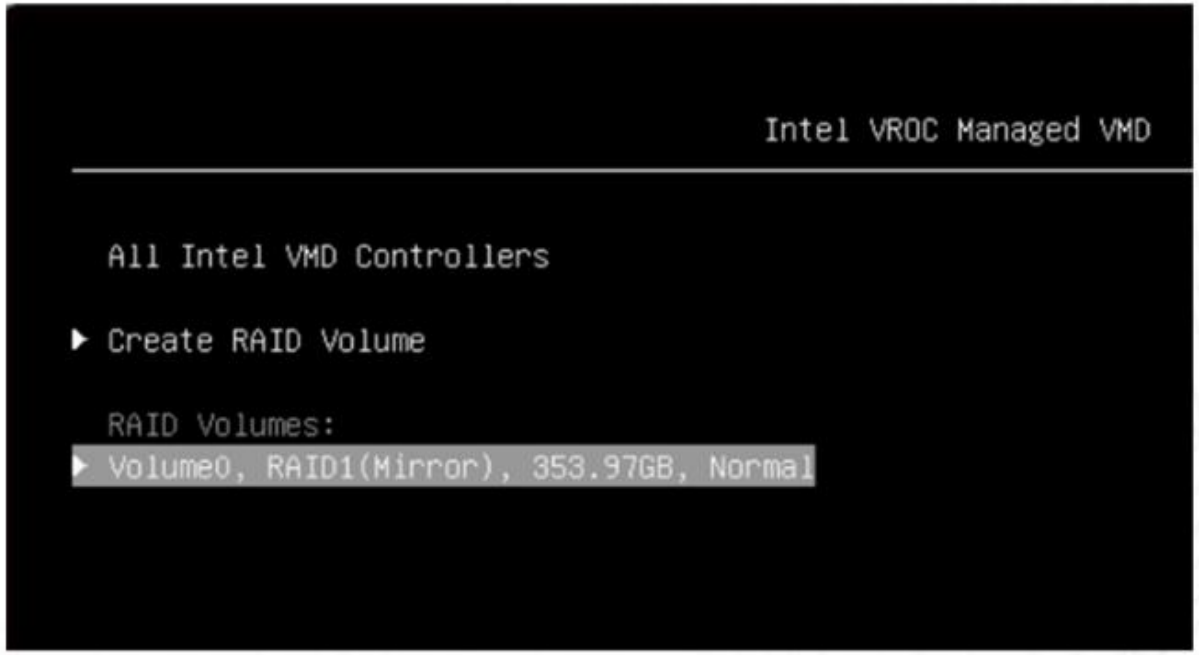
Select **RAID Level**, and then choose disks to add into RAID. Then select **Create volume**.



Step 1 — 2 — 3 — 4 — 5 — 6

Setting up VMD NVMe RAID in Legacy Mode

When RAID has been created, RAID information will be displayed in the menu.



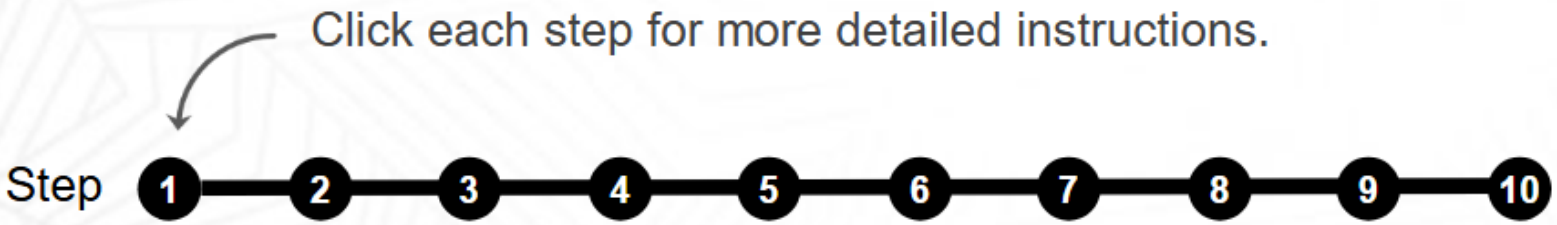
Step 1 2 3 4 5 6

Configure CacheCade SSD caching in HII

Things to consider before performing this process:

- Verify that you have a supported RAID controller installed.
- Make sure that the installed SSD are supported for SSD Caching. Check the following tip for more info: https://datacentersupport.lenovo.com/us/en/solutions/migr-5094754

Use the following steps to configure CacheCade SSD caching when all the above requirements are met.



Configure CacheCade SSD caching in HII

Press **F1** during start up to into the UEFI setup menu, then select **System Settings**.

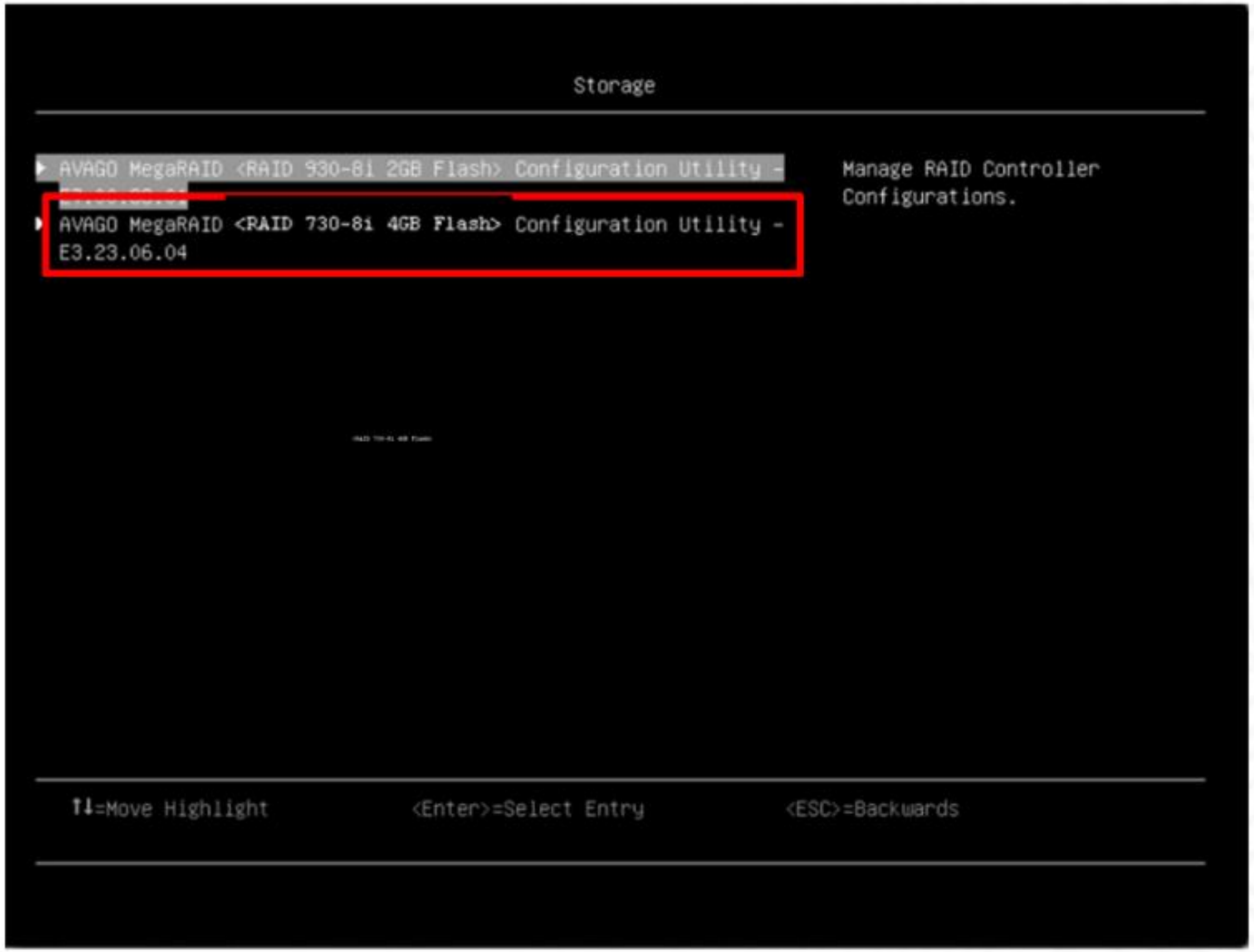
Configure CacheCade SSD caching in HII

Select **Storage**.

Step 1 2 3 4 5 6 7 8 9 10

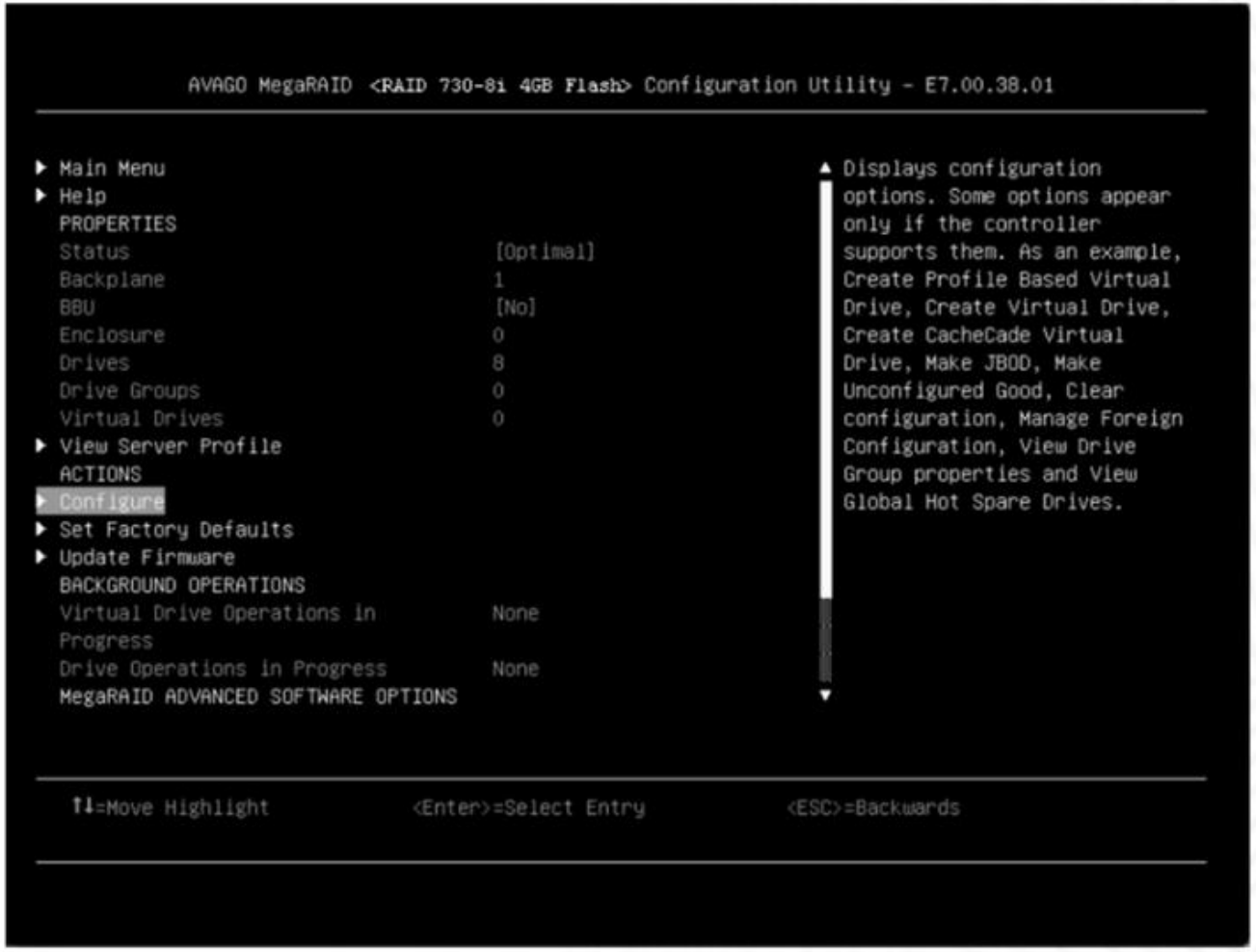
Configure CacheCade SSD caching in HII

The RAID controllers appear in the list for configuration. RAID 730-8i 4 GB Flash adapter is selected for this example.



Configure CacheCade SSD caching in HII

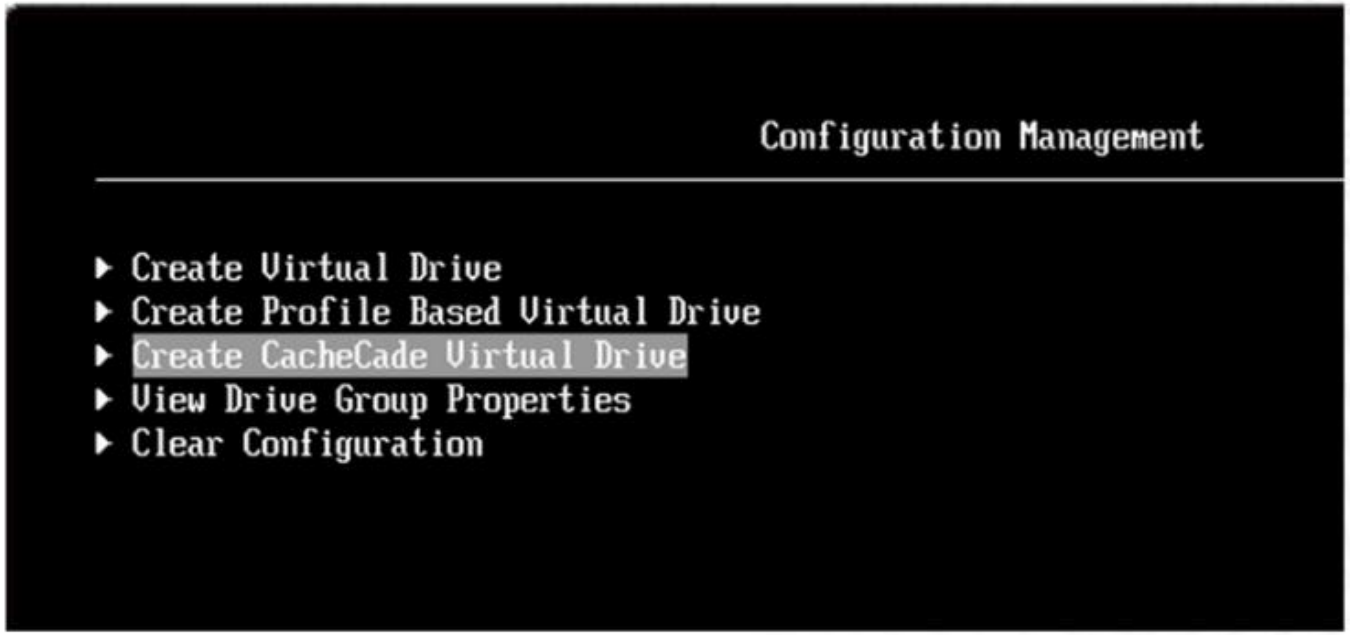
Select **Configure**.



Step 1 2 3 4 5 6 7 8 9 10

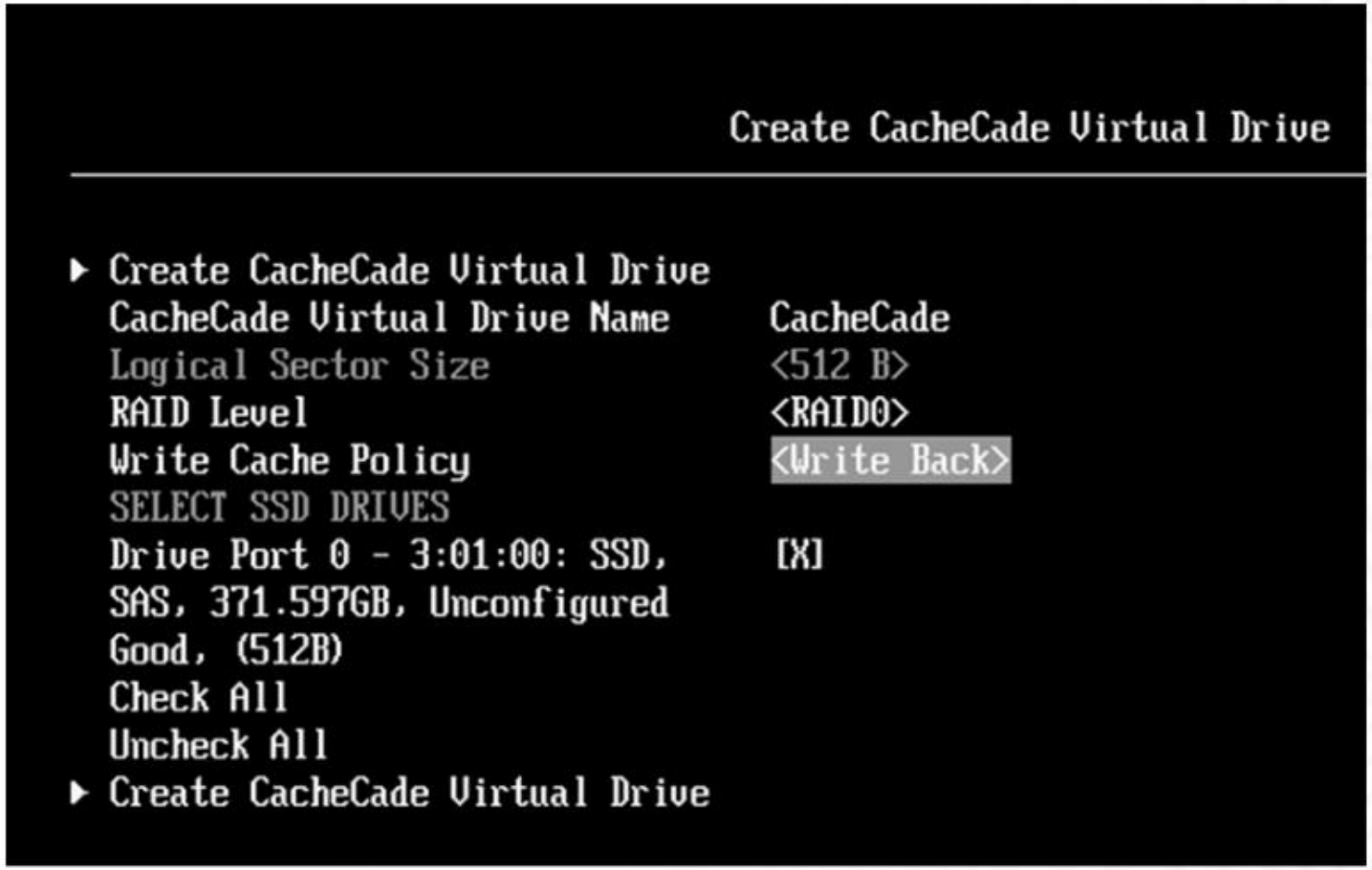
Configure CacheCade SSD caching in HII

Select **Create CacheCade Virtual Drive**.



Configure CacheCade SSD caching in HII

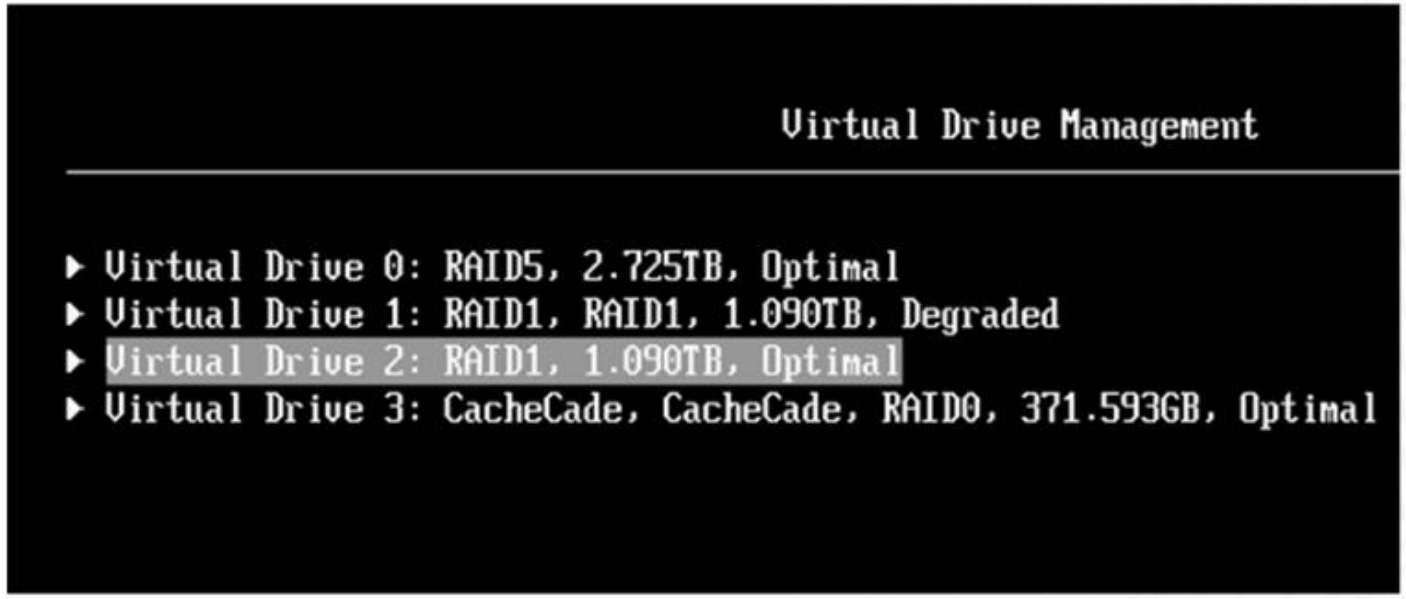
Configure the CacheCade based on your requirements and SSD availability.



Step 1 2 3 4 5 6 7 8 9 10

Configure CacheCade SSD caching in HII

Enable the SSD caching on any of the existing Virtual drives by selecting the VD that you want to enable SSD caching on under the Virtual Drive Management menu.



Step 1 2 3 4 5 6 7 8 9 10

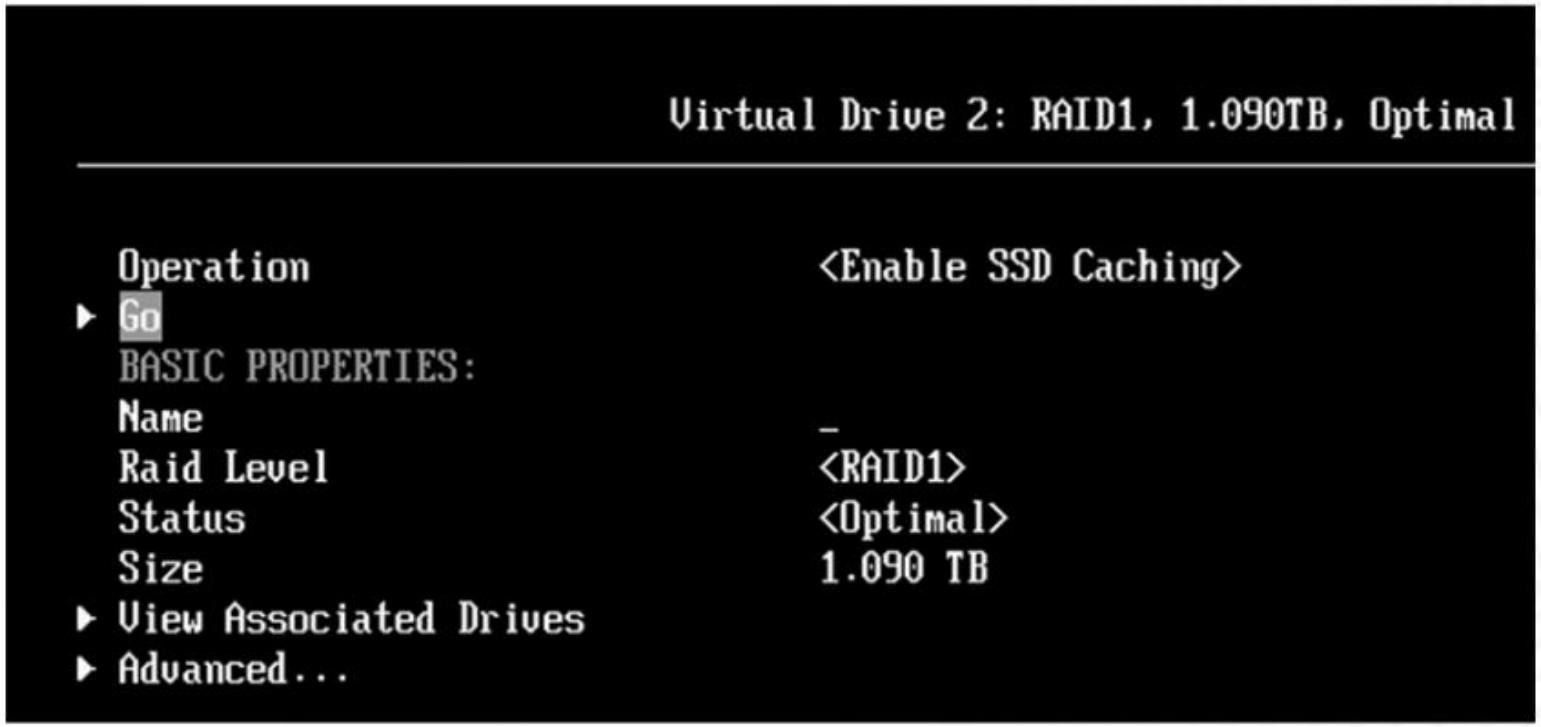
Configure CacheCade SSD caching in HII

Select **Operation** and choose **Enable SSD Caching**.

Step 1 2 3 4 5 6 7 8 9 10

Configure CacheCade SSD caching in HII

Select **Go**.



Configure CacheCade SSD caching in HII

- Select **Confirm** then **Yes**.
- You can confirm the SSD caching was enabled by going to the Virtual drive under the **Advanced** option.

Summary

This course enabled you to:

- Describe the features of the ThinkSystem storage adapters.
- Describe the features of the NVMe and M.2 storage device.
- Describe the features of the Intel VROC software RAID.
- Describe the features of the LSI Storage Authority software.
- Identify the differences between RAID adapters.
- Describe how to configure RAID adapters with the different tools.
- Describe how to configure CacheCade SSD caching in HII.