Problem determination and troubleshooting

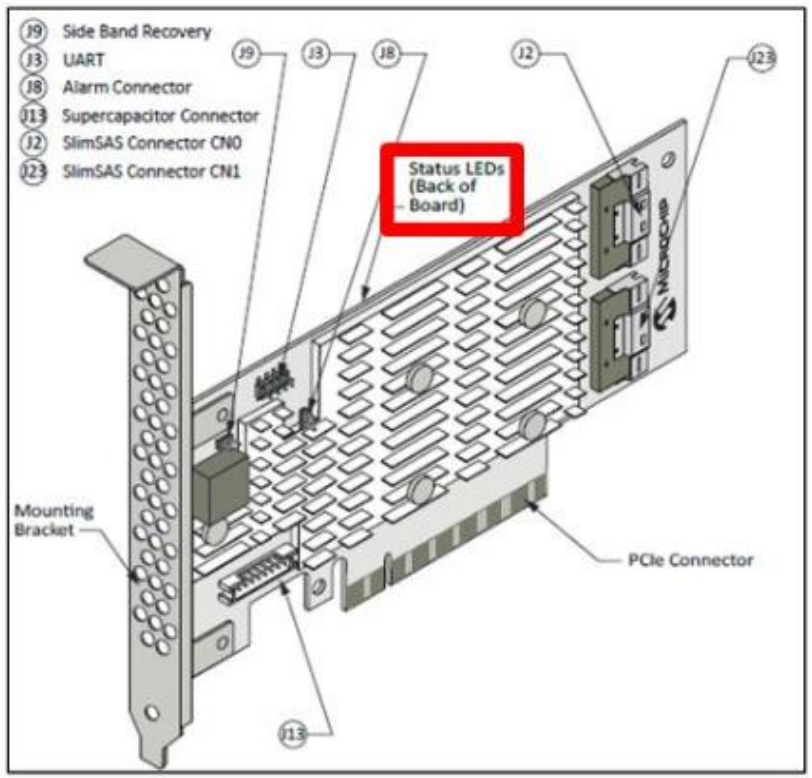
Problem determination and troubleshooting overview

Before starting any troubleshooting procedures on the new Lenovo RAID/HBA adapters, work through the following steps:

- Check the event that occurred before the suspected system problem. If possible, return the system to the previous state.
- Check the LEDs on the rear side of the adapter.
- Confirm the supported firmware levels on the current system.
- Record the symptoms, including poor performance and error messages.
- Determine whether the problem is repeatable.

LED descriptions

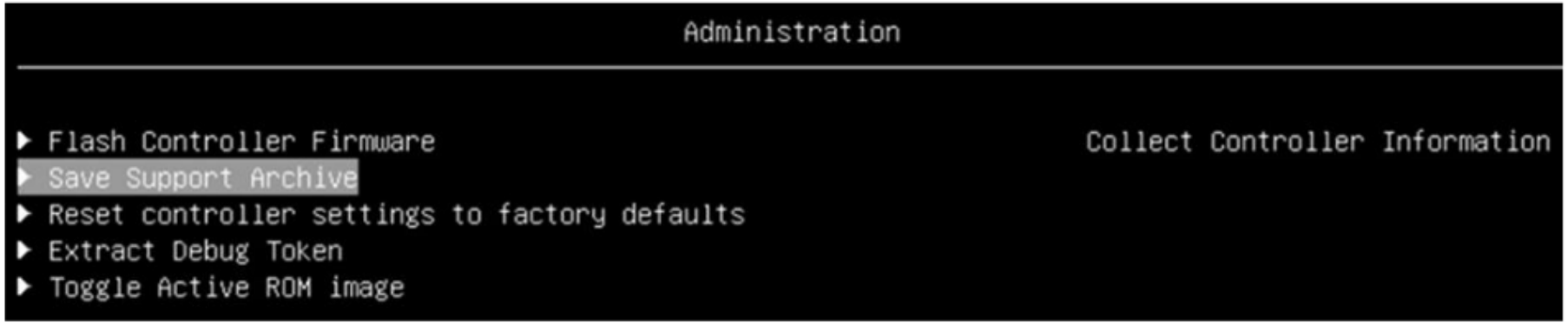
Use the LEDs on the back or rear side of the adapter for hardware status monitoring and problem determination. For more information about the LEDs on 4450/5450/9450 series adapters, refer to the *Visual Indicator* section of the adapter user guide on ThinkSystem 4450/5450/9450 Series Adapter page.



5450-16i LEDs locations

Collecting adapter service data through UEFI

Use UEFI to collect 4450/5450/9450 series adapter support archive logs for problem escalation. For some firmware level issues, PE might ask first line support personnel to collect the adapter debug token from UEFI for further service actions.



Click each number in turn to see the procedure.

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

Collecting adapter service data through UEFI

On the UEFI main page, select **System Settings**.

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

Collecting adapter service data through UEFI

On the **System Settings** page, select **Storage**.

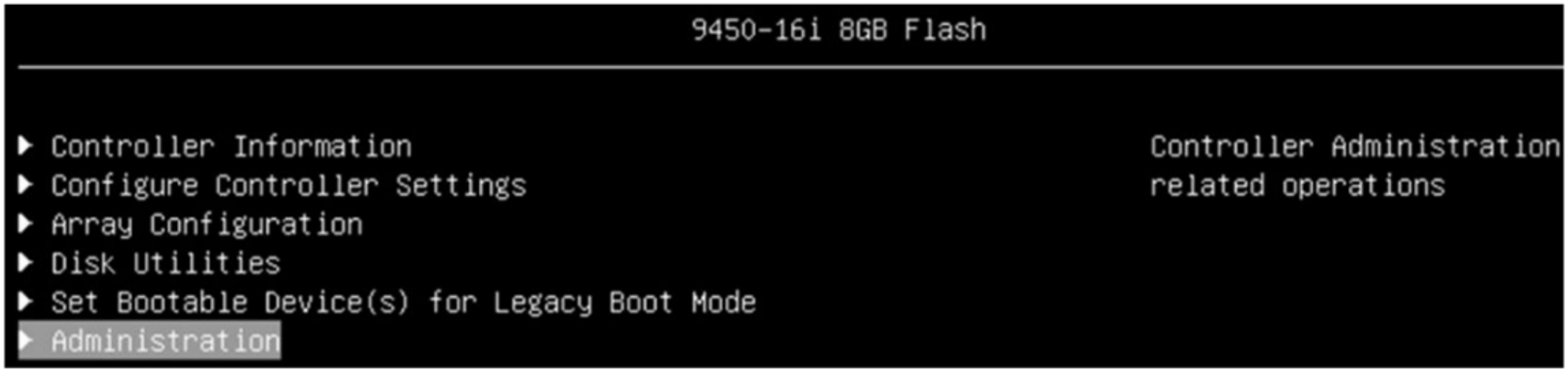
Step 1 2 3 4 5 6 7 8 9 10 11 12 13

Collecting adapter service data through UEFI

Select the adapter name.

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

Collecting adapter service data through UEFI



Select **Administration**.

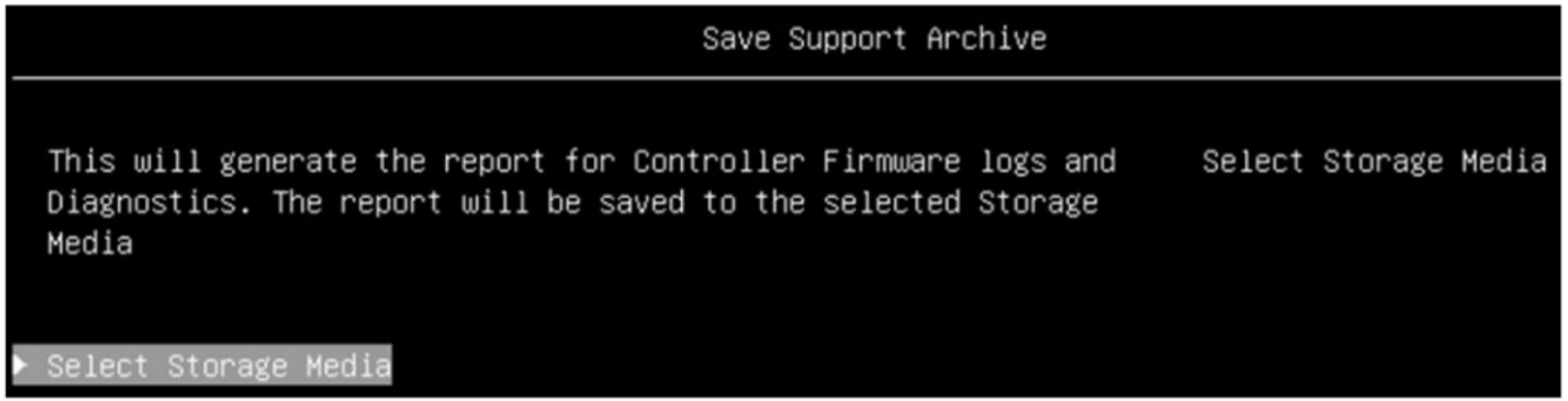
Step 1 2 3 4 5 6 7 8 9 10 11 12 13

Collecting adapter service data through UEFI

To collect service data for problem escalation, select **Save Support Archive**.

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

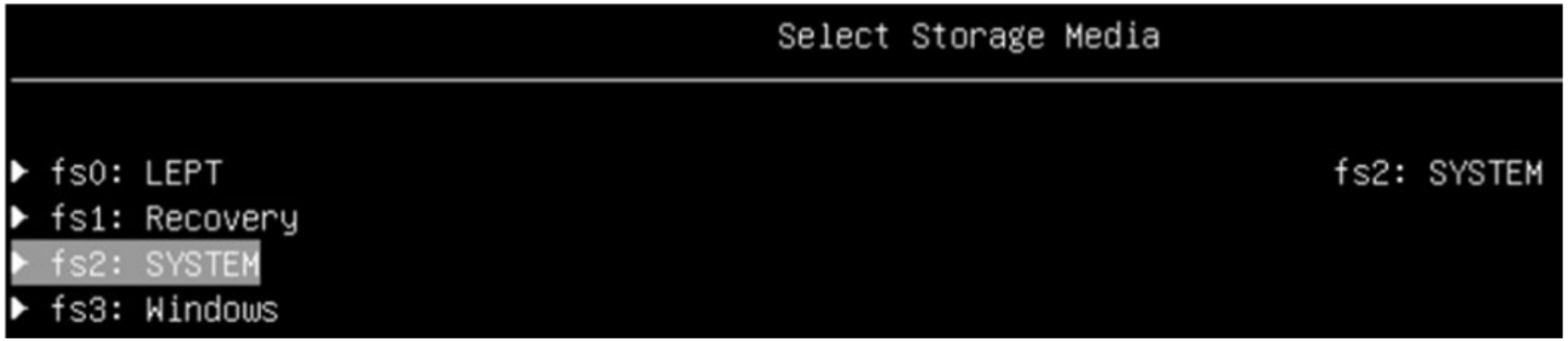
Collecting adapter service data through UEFI



Select **Select Storage Media**.

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

Collecting adapter service data through UEFI



Select one of storage media options.

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

Collecting adapter service data through UEFI

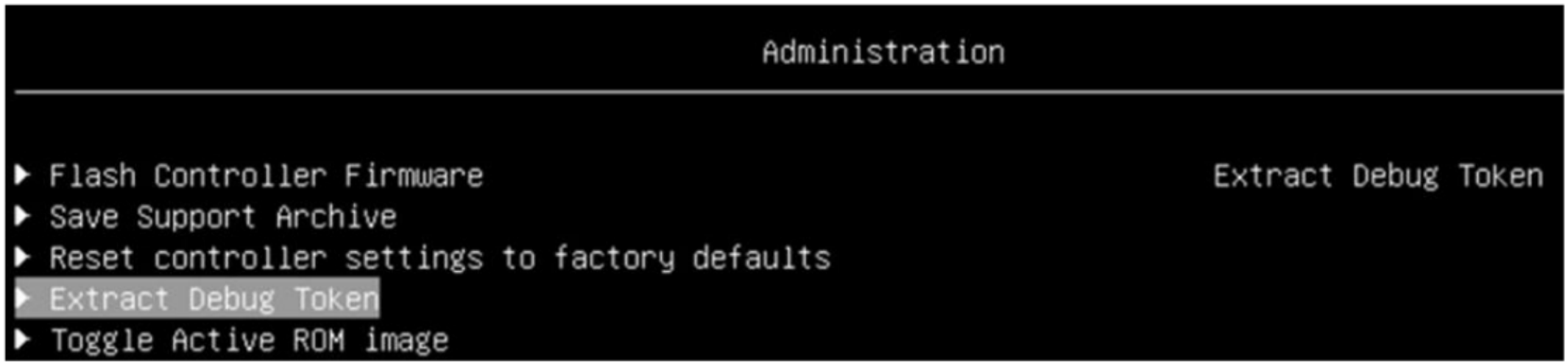
Select **Confirm**.

Collecting adapter service data through UEFI

A **Save Support log collected successfully** message should be displayed after a few minutes.

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

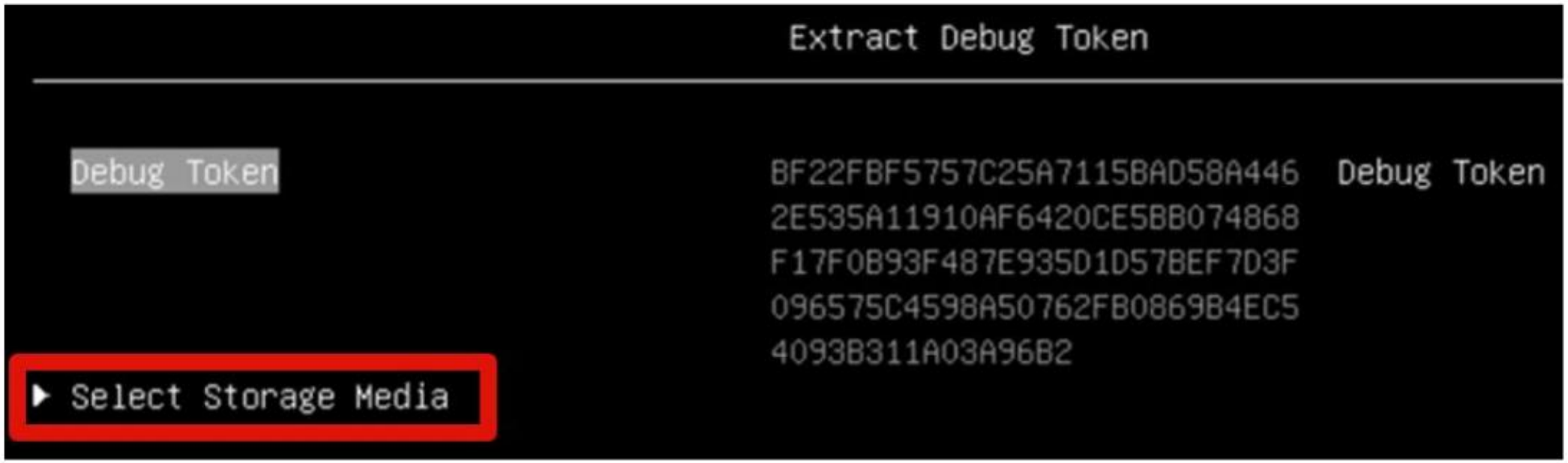
Collecting adapter service data through UEFI



For some firmware level issues, PE might ask first line support personnel to collect the adapter debug token from UEFI. To collect the debug token, select **Extract Debug Token** on the adapter's Administration page.

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

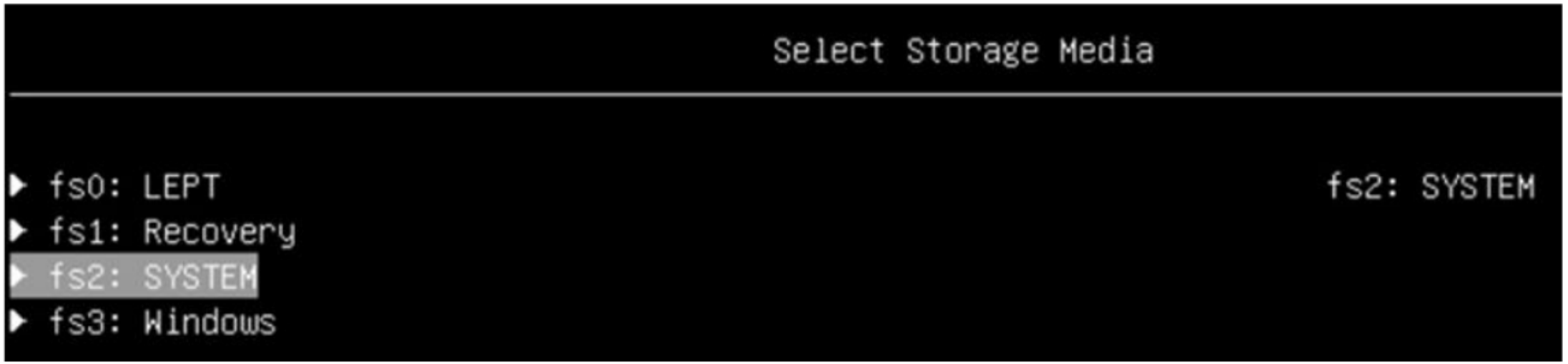
Collecting adapter service data through UEFI



Select **Select Storage Media**.

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

Collecting adapter service data through UEFI



Select one of the storage media options.

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

Collecting adapter service data through UEFI

Select **Confirm** to continue. After a few minutes, a **Debug token saved successfully** message should be displayed.

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

Lenovo

Collecting adapter service data through ARCCONF

Use the following ARCCONF command to collect support archive logs for problem escalation:

`ARCCONF SAVESUPPORTARCHIVE <file path>`

Example:

`ARCCONF SAVESUPPORTARCHIVE C:\Adaptec\maxView`

Use the following ARCCONF command to extract the debug token for firmware level issue escalation to PE-level support:

`ARCCONF GETCONFIG <controller #> DEBUGTOKEN`

Example: `ARCCONF GETCONFIG <controller #> DEBUGTOKEN`

Note: *<Controller #>* is the controller ID you want to operate

Common problems

Click the following links to see troubleshooting information about common problems with 4450/5450/9450 series adapters:

- The adapter cannot be seen in UEFI
- The adapter cannot be seen in the OS
- The adapter cannot be seen in XCC
- Drives cannot be seen in the OS
- Adapter firmware cannot be updated through XCC
- Drive link speeds are degraded

Common problems

Click the following links to see troubleshooting information about common problems with 4450/5450/9450 series adapters:

The adapter cannot be seen in UEFI

Troubleshooting actions

- Make sure the adapter's firmware version is up to date.
- Make sure the system's XCC and UEFI firmware versions are up to date.
- Check the heartbeat LED at the rear of the adapter.
  - If the heartbeat LED is blinking, the adapter firmware should work normally and the root cause might be connected to the UEFI, so make sure the UEFI firmware is up to date.
  - If the heartbeat LED is off, check if the fault LED is on as this could be an adapter hardware failure problem.
- If applicable, power off the system and reinstall the adapter and its cables.
- Use XCC to collect FFDC logs for further escalation.

Common problems

Click the following links to see troubleshooting information about common problems with 4450/5450/9450 series adapters:

The adapter cannot be seen in the OS

Troubleshooting actions

- If applicable, use the `arcconf list` command in the OS to see if the adapter can be seen in the ARCCONF command line output.
- Make sure the adapter's driver and firmware versions are up to date.
- Make sure the system OS version is up to date.
- Check the heartbeat LED at the rear of the adapter.
  - If the heartbeat LED is blinking, the adapter firmware should work normally and the root cause might be connected to the UEFI, so make sure the UEFI firmware is up to date.
  - If the heartbeat LED is off, check if the fault LED is on as this could be an adapter hardware failure problem.
- If applicable, power off the system and reinstall the adapter and its cables.
- Work through the following steps for further escalation:
  - Use XCC or OneCLI to collect FFDC logs.
  - Collect OS system level logs – for example, demeg dump files in a Linux environment.

Common problems

Click the following links to see troubleshooting information about common problems with 4450/5450/9450 series adapters:

The adapter cannot be seen in XCC

Troubleshooting actions

- Make sure the adapter's firmware version is up to date.
- Make sure the system's XCC and UEFI firmware versions are up to date.
- If the adapter can still be seen in the OS, the root cause could be connected to XCC itself. Work through the following steps for further escalation:
  - Use XCC or OneCLI to collect FFDC logs.
  - If applicable, use the `arcconf savesupportarchive <file path>` command in the OS to collect the support archive file.

Common problems

Click the following links to see troubleshooting information about common problems with 4450/5450/9450 series adapters:

Drives cannot be seen in the OS

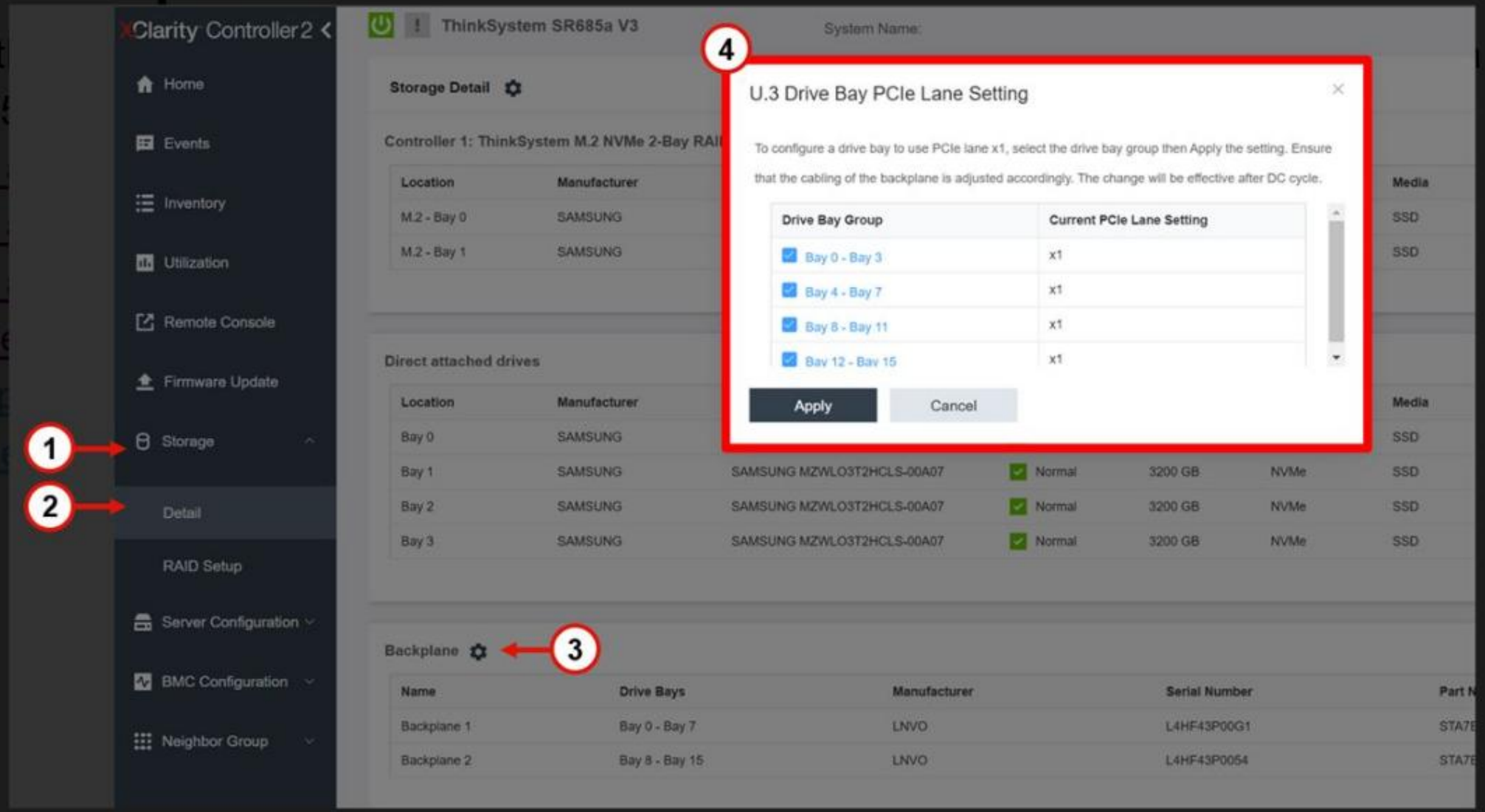
Troubleshooting actions

- If only one drive cannot be seen in the OS, go to XCC to check if the drive is in the fault status and might need to be replaced.
- If all the drives connected to the adapter cannot be seen, check whether XCC and the OS can recognize the adapter or if XCC is reporting any drive backplane problems. If these checks are OK, reinstall the adapter driver and firmware.
- If the drives are NVMe drives, check if the backplane PCIe lane settings are set to the correct mode in XCC (x4 for NVMe U.2 drives or x1 for NVMe U.3 drives). Click HERE to see an XCC screenshot.
- If the problem remains, work through the following steps:
  - Use the `arcconf getconfig <controller #ID> PD` command to see if ARCCONF can recognize the adapter. If it can, check whether the drives are foreign secured self-encrypting drives (SED). If they are, ask the user to enter the original credentials to import the SED settings to unlock the drives, or clean the drive data to reusing the drives.
  - If applicable, power off the system and reinstall the adapter and its cables.
  - Check whether the application or script the customer used has any issues.
- Work through the following steps for further escalation:
  - Use XCC or OneCLI to collect FFDC logs.
  - If applicable, use the `arcconf savesupportarchive <file path>` command in the OS to collect the support archive file.

Common problems

Click t
4450/5

- The
- The
- The
- Drive
- Adap
- Drive



Go to **Storage** → **Detail** → click the ⚙ icon next to **Backplane** to adjust the drive bay PCIe lane setting.

Common problems

Click the following links to see troubleshooting information about common problems with 4450/5450/9450 series adapters:

Adapter firmware cannot be updated through XCC

Troubleshooting actions

- Check the system's UEFI and XCC firmware versions are up to date.
- Ensure the adapter can be seen in UEFI, XCC, and ARCCONF.
- Ensure the system has completed the boot process.
  - You cannot update the firmware if the system in still in the boot process.
- Ensure the firmware file is downloaded from support.lenovo.com and that the file is not corrupted.
  - If necessary, download the firmware file from support.Lenovo.com and try to update the firmware again.
- If the problem remains, work through the following steps for problem escalation:
  - Use XCC to collect FFDC logs.
  - If applicable, use the `arcconf savesupportarchive <file path>` command in the OS to collect the support archive file.

Common problems

Click the following links to see troubleshooting information about common problems with 4450/5450/9450 series adapters:

Drive link speeds are degraded

Troubleshooting actions

- Using improper cables or an improper backplane with the adapter might cause drive link speed degradation problems.
  - Check if the user has installed improper cables. For example, a user might have installed a SAS-3 cable to connect the adapter to the backplane, but as the adapter can support SAS-4 speeds, there could be a link speed degradation problem.
  - Collect the cables, backplane, and the adapter FRU information to check the hardware capabilities.
- If necessary, collect the system XCC FFDC logs and adapter support archive logs for further escalation.

Summary

This course enabled you to:

- Describe the features of the 4450/5450/9450 RAID/HBA adapters
- Identify the differences between RAID/HBA adapters
- Describe how to configure RAID adapters with different tools
- Describe the problem determination steps and explain how to troubleshoot issues with the RAID/HBA adapters