Problem determination and troubleshooting

System event logs in BIOS, POST beeps, and LXPM diagnostics

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Problem determination and troubleshooting overview

The following procedures can be used to isolate and resolve issues, and also gather information while servicing the ThinkSystem ST50 V2:

- Checking the system event logs in the Setup Utility
- Listening to POST beeps while starting the server
- Using the Lenovo XClarity Provisioning Manager (LXPM) Lite diagnostic program to test server components and collect RAID logs

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Event logs overview

System event logs are available in the Setup Utility. Start the server and press F1 to access the Setup Utility. Then, go to **Security -> System Event Log -> View System Event Log** to access the list of events.

List of POST event logs

Logs of system events are available in the Setup Utility. The table on the right is the list of events that may appear in the system event log.

Note: For a detailed list and description of error messages, refer to the maintenance manual.

List of POST error messages
Setup data integrity check failure
Memory size decreased
Fan failure
Power supply overload
BIOS password changed
BIOS Setup data changed
Chassis intrusion
Password retry count exceeded
SATA device configuration changed
BIOS updated
Option ROM over Shadow RAM size
Hard disk password changed
PCI Mem Conflict
System event log cleared

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Checking ThinkSystem ST50 V2 event logs

Click each number in turn to see the procedure.

Step ①—②—③—④—⑤

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Checking ThinkSystem ST50 V2 event logs

Start the server and press F1 to access the Setup Utility.

```
Version 2.21.1278. Copyright (C) 2021 AMI
BIOS Date: 12/09/2021 08:14:38 Ver: TOE101E
Press <CTRL + P> to Enter MEBX setup menu

Main Processor: Intel(R) Xeon(R) E-2378G CPU @ 2.80GHz
Installed Memory: 8192MB

M.2 Drive 1:
SATA 1: Hard Disk ST1000DM014-2UB10D
SATA 2: Hard Disk
SATA 3: Hard Disk
SATA 4: Hard Disk

Error 0135: Aux Fan failure

Press F1 to enter Setup, F2 to resume
```

Step ①—❷—❸—❹—❺

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Checking ThinkSystem ST50 V2 event logs

Select **Security**.
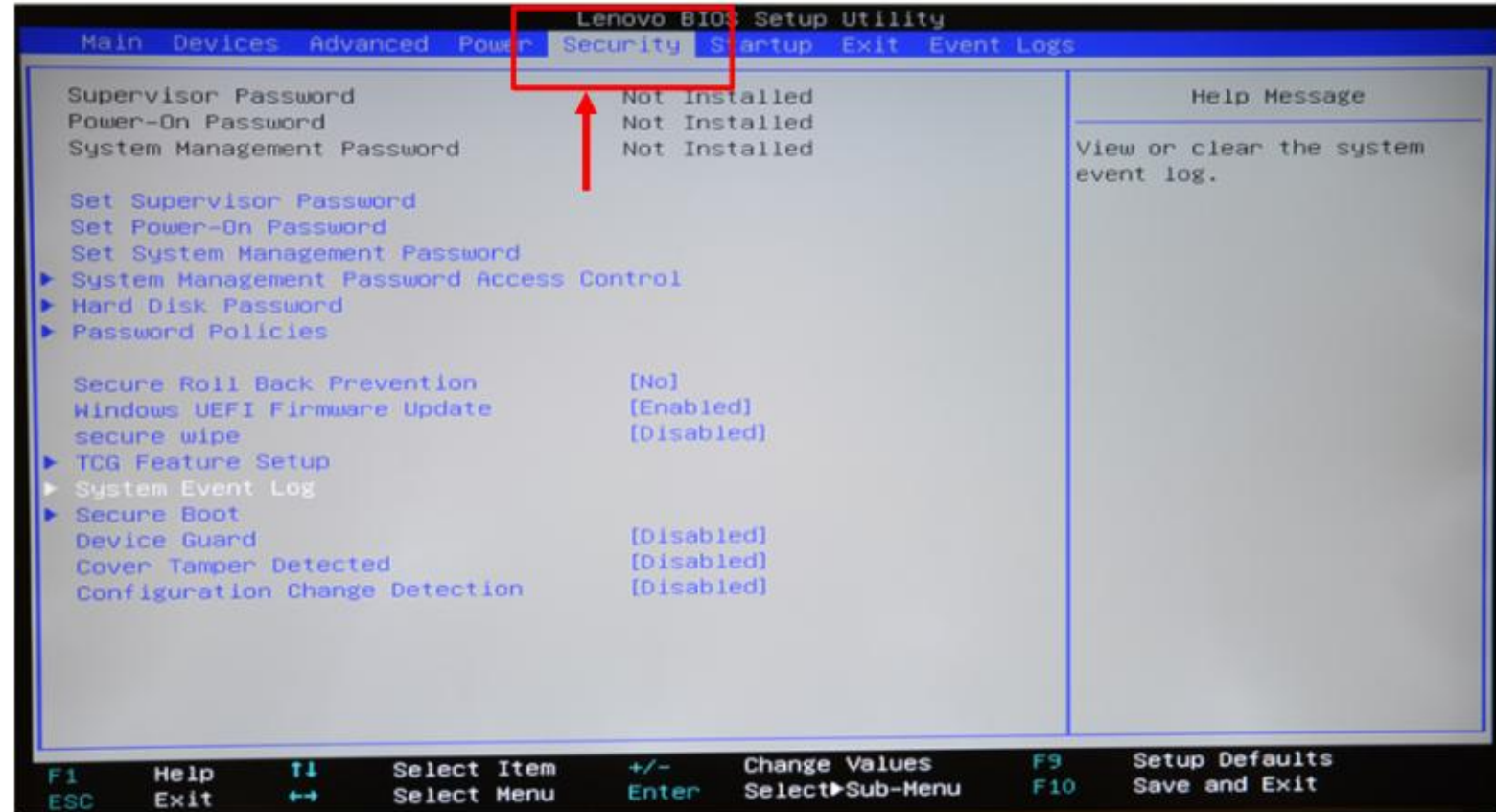
Step ①——②——③——④——⑤

Checking ThinkSystem ST50 V2 event logs

Select **System Event Log**.
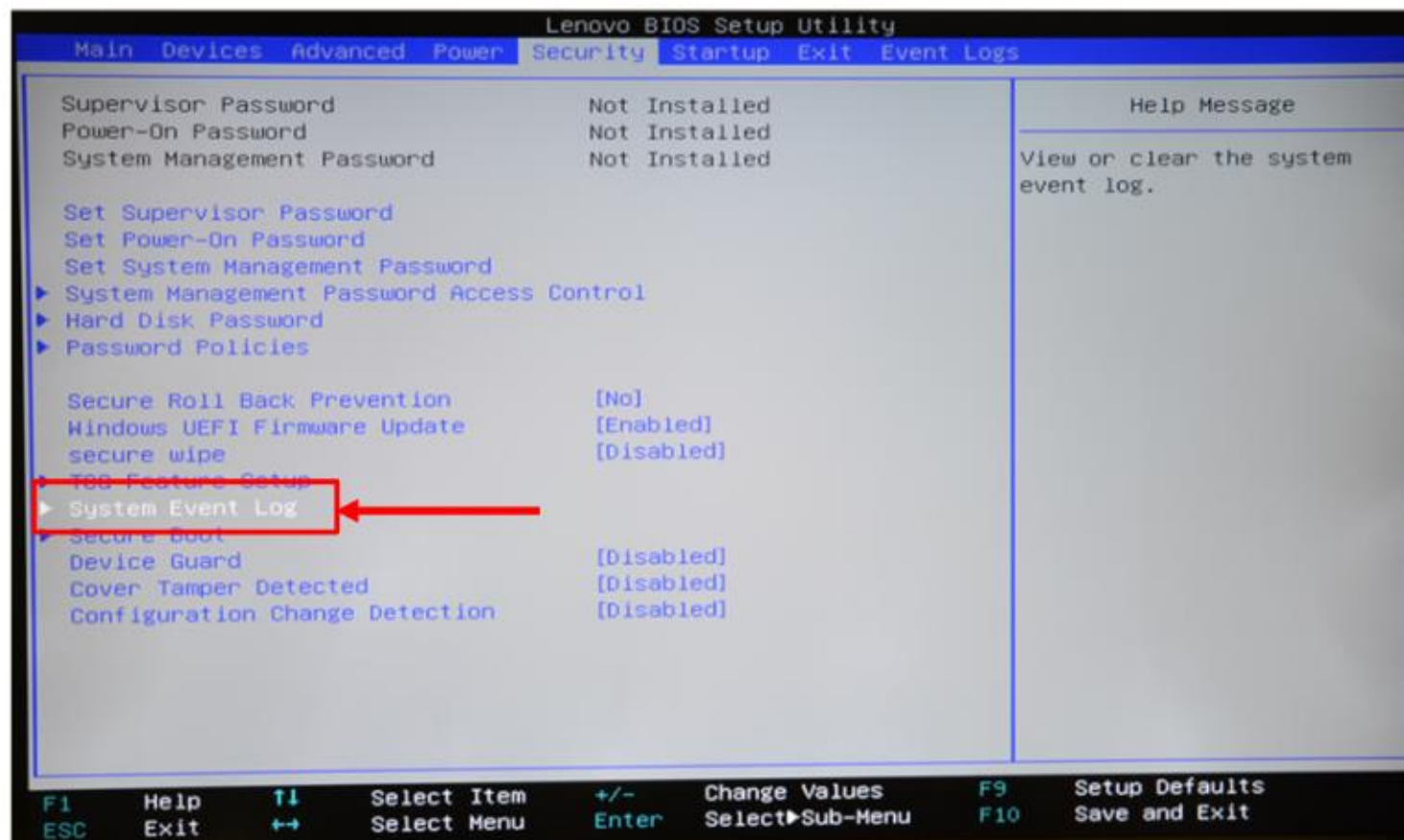
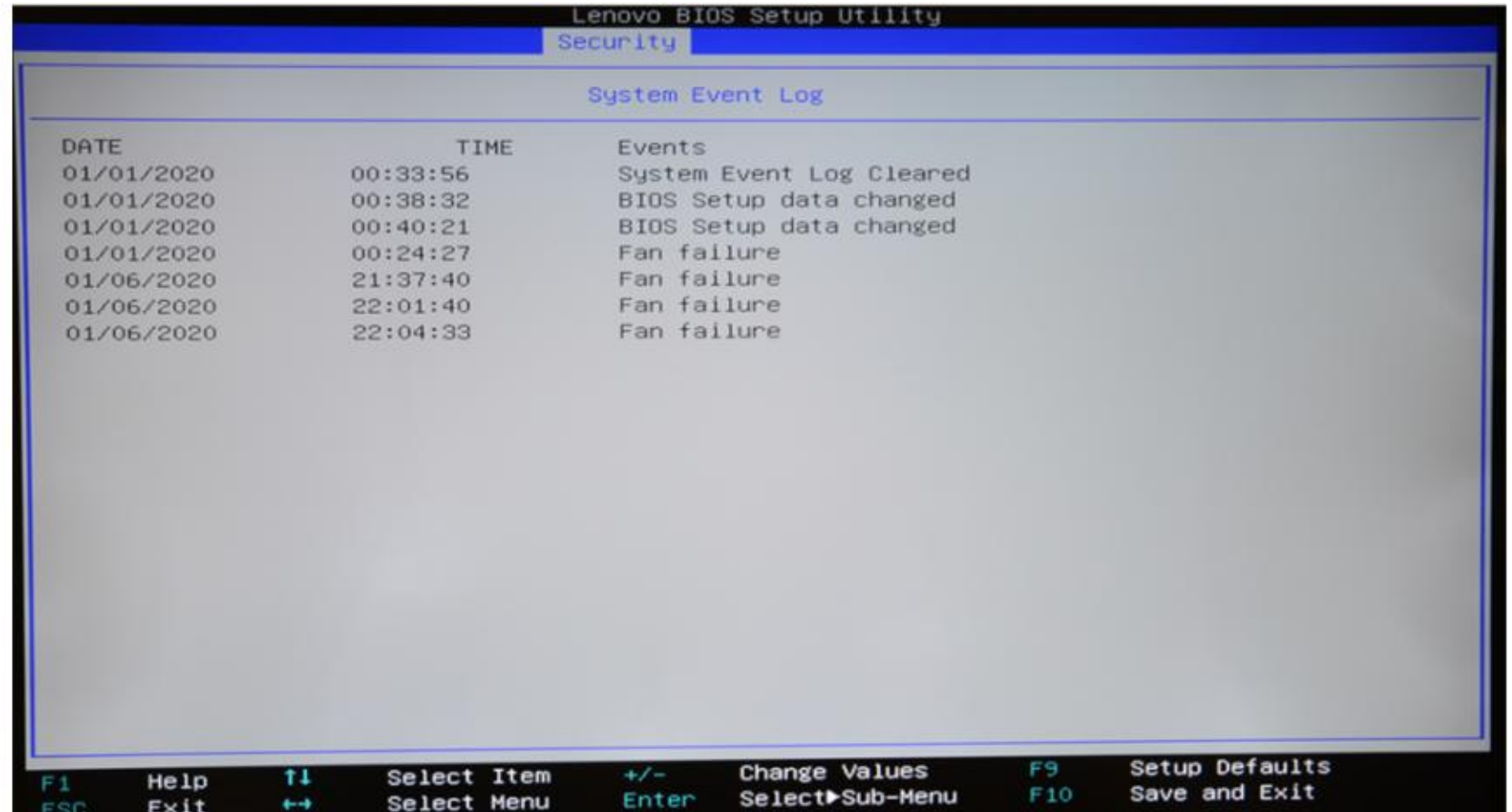Step ①——②——③——④——⑤

Checking ThinkSystem ST50 V2 event logs

Select **View System Event Log**.

Step ❶—❷—❸—④—❺
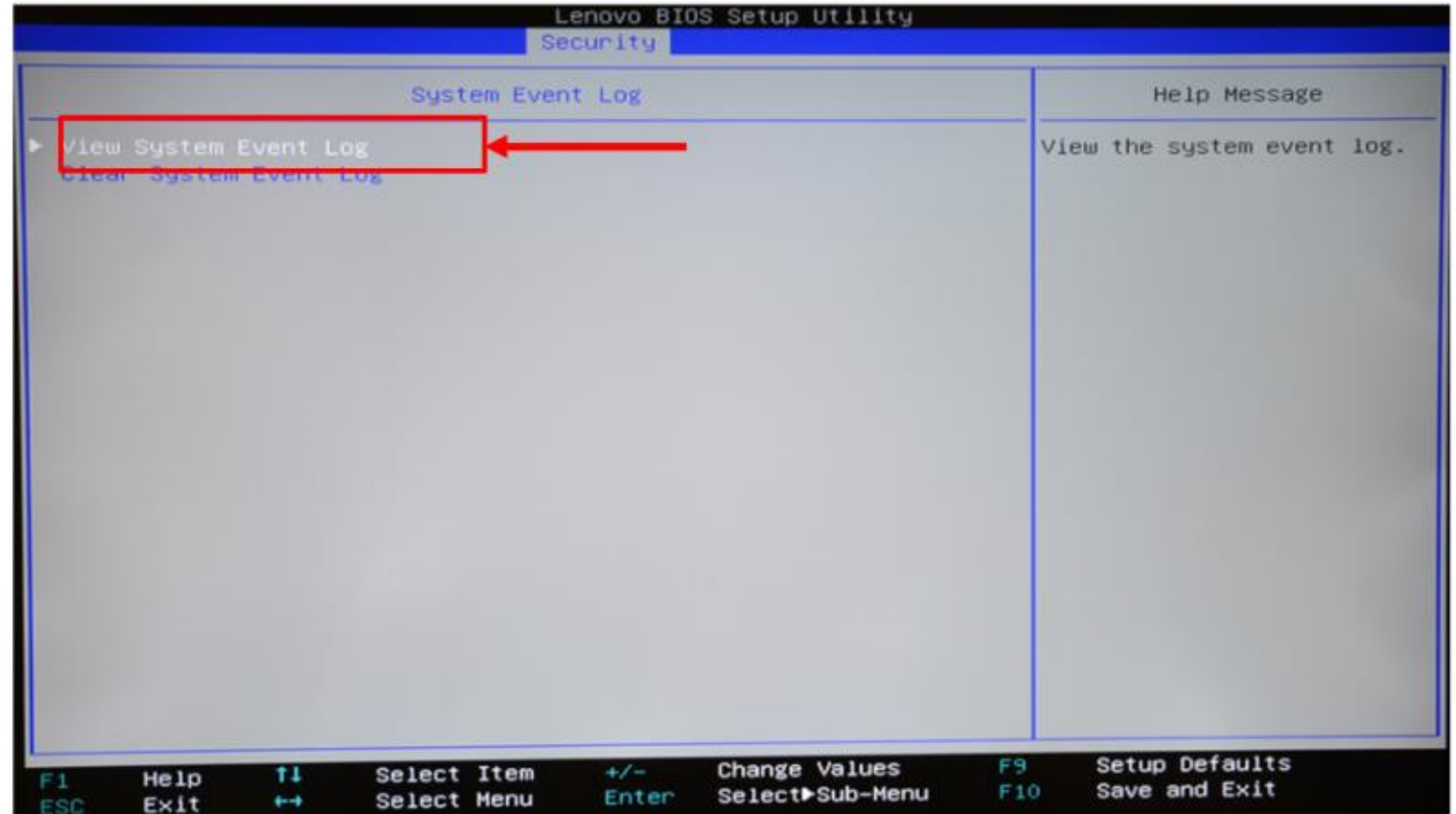
Checking ThinkSystem ST50 V2 event logs

Check the event logs.

```
                              Lenovo BIOS Setup Utility
                         Security

                         System Event Log

DATE                TIME              Events
01/01/2020          00:33:56          System Event Log Cleared
01/01/2020          00:38:32          BIOS Setup data changed
01/01/2020          00:40:21          BIOS Setup data changed
01/01/2020          00:24:27          Fan failure
01/06/2020          21:37:40          Fan failure
01/06/2020          22:01:40          Fan failure
01/06/2020          22:04:33          Fan failure




F1      Help      ↑↓    Select Item    +/-     Change Values    F9    Setup Defaults
ESC     Exit      ←→    Select Menu     Enter   Select▶Sub-Menu   F10   Save and Exit
```

Step ①—②—③—④—⑤

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POST beeps

The ThinkSystem ST50 V2 also supports POST beeps for problem determination. Users can listen to the POST beeps while starting the server.

Beep pattern	Error description
Three short beeps followed by one long one	No memory is detected by the system
Two long beeps followed by three short ones	No video cards (including the integrated video card) are detected by the system.

Note: A short beep lasts about 0.4 seconds, and a long beep lasts about 0.9 seconds.

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Lenovo XClarity Provisioning Manager Lite

LXPM Lite can also be used to manage the ThinkSystem ST50 V2. Users have to download the software to a USB disk and then boot the server from the USB disk. LXPM Lite has the following features:

- Configuration network settings
- System summary
- RAID setup
- OS installation
- Firmware upgrade
- Cloning
- Diagnostics on system memory and HDD
- RAID log collection

Note: For more information on LXPM Lite and for a software download, refer to Lenovo Data Center Support at https://datacentersupport.lenovo.com/us/en/solutions/ht507133-lenovo-xclarity-provisioning-manager-lite-lxpm-lite

UEFI BIOS firmware upgrade procedure

Work through the following procedure to perform a UEFI BIOS firmware upgrade on the ST50 V2. Users can choose to upgrade the UEFI BIOS from Linux, Red Hat, Windows, or a USB drive.

Note: Directly after replacing a system board, the field engineer must upgrade the UEFI BIOS of the new system board. For more information, refer to the Technical tips section of the ST50 V2 GLOSSE page.

Click each number in turn to see the procedure.

Step **1**—**2**—**3**—**4**

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UEFI BIOS firmware upgrade procedure

Step 1: Go to
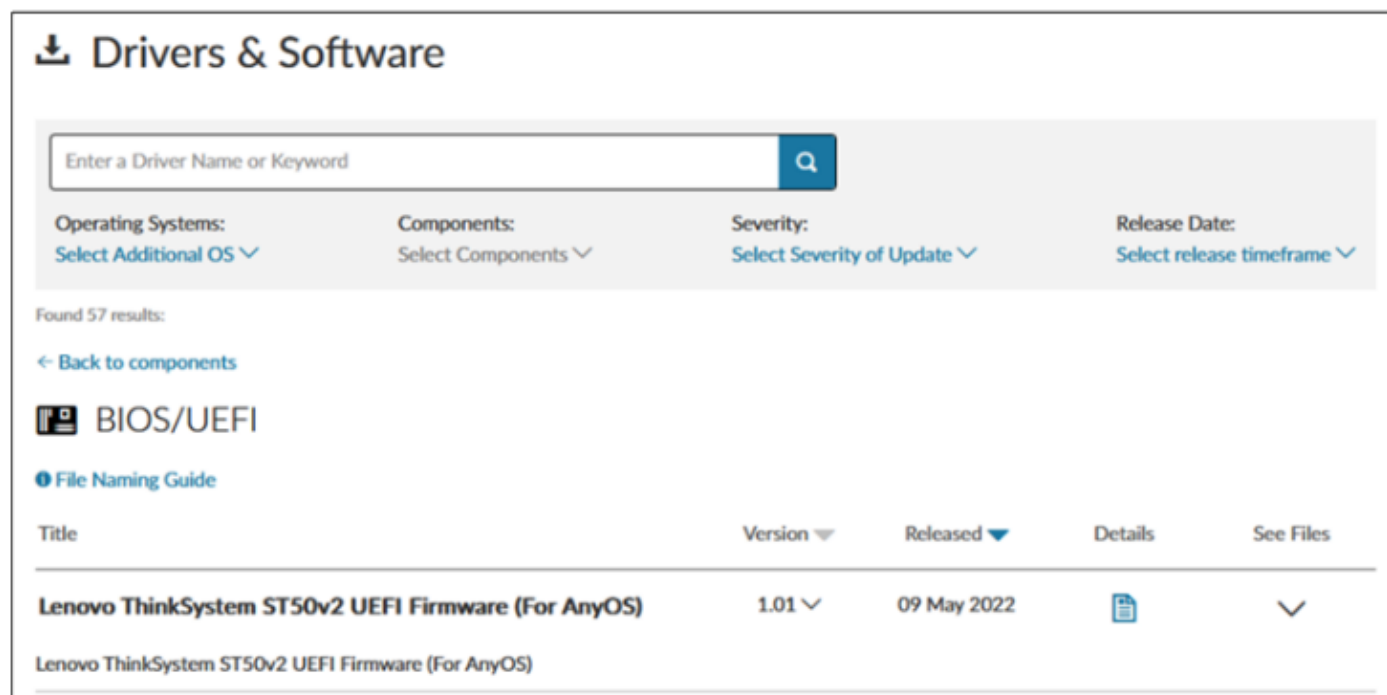
https://datacentersupport.lenovo.com/tw/en/products/servers/thinksystem/st50v2/downloads/driver-list/component?name=BIOS%2FUEFI and download the firmware package.

Step ①—②—③—④

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UEFI BIOS firmware upgrade procedure

Step 2: Unzip the utility. If you are using a USB drive to upgrade the firmware, copy all the files to the root directory of the USB drive. If you are working within an OS environment, open the corresponding directory.

Name	Type
Linux64	File folder
Redhat8	File folder
SHELL	File folder
Windows64	File folder
TOE102T_ST50v2_16MB.ROM	ROM File

Step ❶—②—❸—④

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UEFI BIOS firmware upgrade procedure

Step 3: The upgrade command is written in a file in each directory. Execute the file.

- Linux: `./FBIOS.SH`
- Red Hat 8: `./RH8_FBIOS.SH`
- Windows: `FlashWINx64.exe`

The AMI Firmware Update (AFU) utility can also be used to preform the upgrade.

- Linux: `./afulnx_64 ../TOE102T_ST50v2_16MB.ROM /P /B /K /CAPSULE`
- Red Hat 8: `./afulnx_RH8 ../TOE102T_ST50v2_16MB.ROM /P /B /K /CAPSULE`
- Windows: `AFUWINx64.exe ..\TOE102T_ST50v2_16MB.ROM /P /B /K /CAPSULE`

Note: After the upgrade, restart the system to allow the new version of the UEFI BIOS to take effect.

Step ❶—❷—③—❹

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UEFI BIOS firmware upgrade procedure

Step 4: After restarting the server, users can check the BIOS revision level in the BIOS SETUP menu.
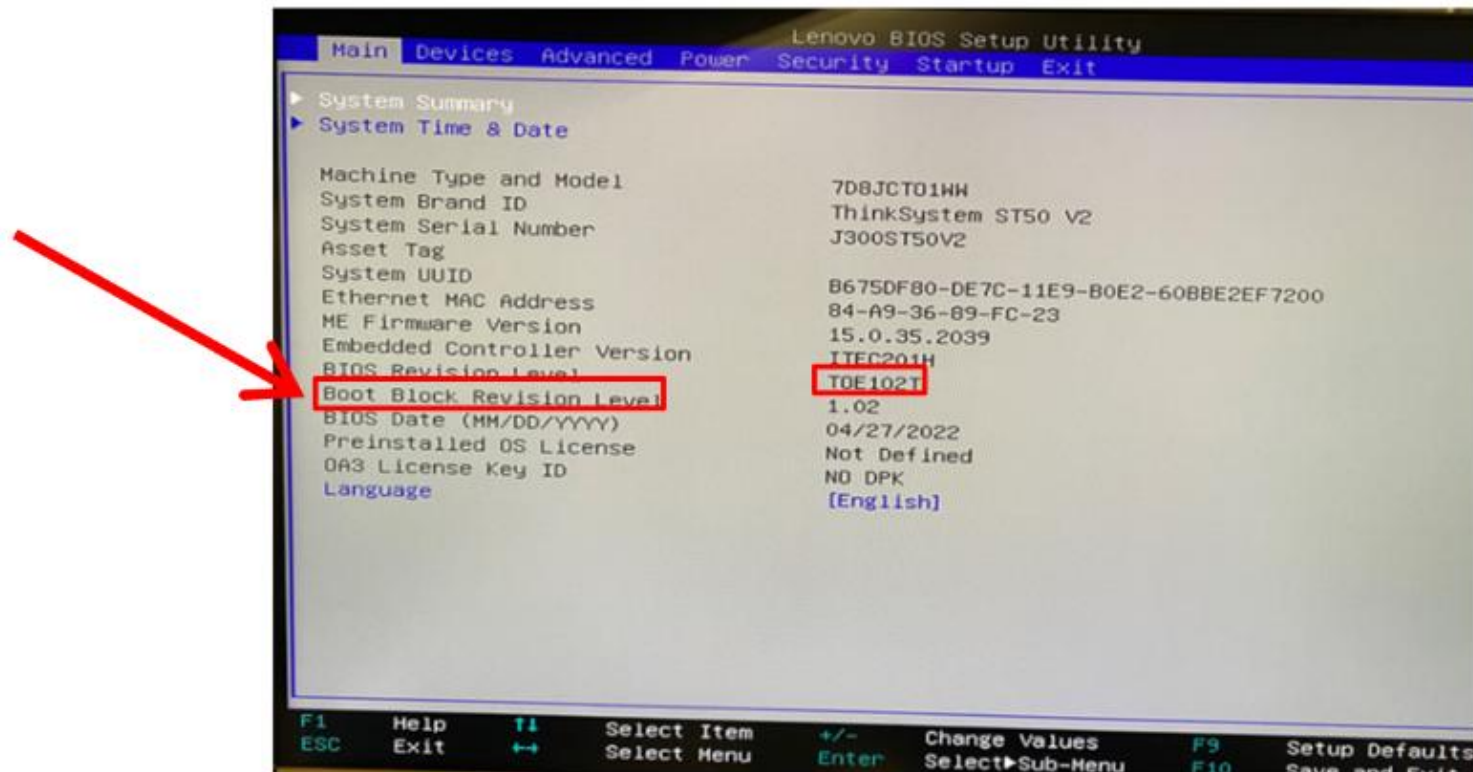
Step ❶─❷─❸─④

Updating Vital Product Data

After a system board has been replaced, the Vital Product Data (VPD) must be updated. To do this, field engineers have to prepare a USB drive and work through the following procedure:
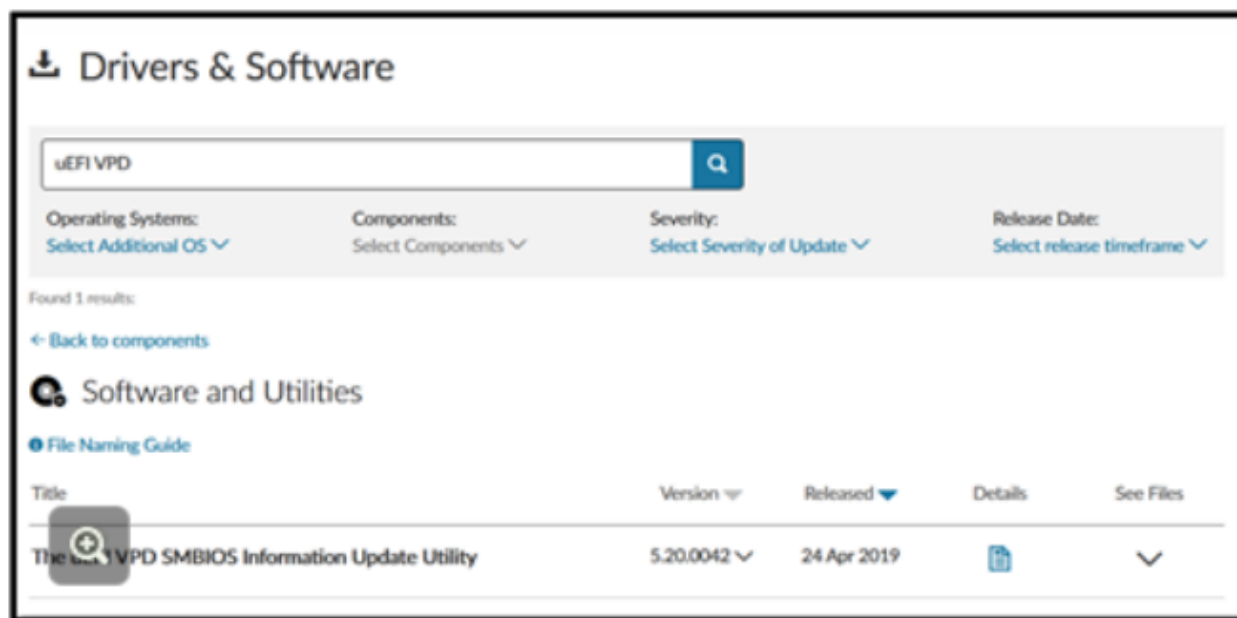
Click each number in turn to see the procedure.

Step **1**—**2**—**3**—**4**—**5**—**6**

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Updating Vital Product Data

- Click this link and select Software and Utilities. Download The uEFI VPD SMBIOS Information Update Utility.

- Field engineers can also download the utility from the Lenovo internal OSS website (search for ticket number 124770).

Step ①—②—③—④—⑤—⑥

Updating Vital Product Data

• Copy all the files to the USB disk root folder.

BackUp (D:) > WW_Except for PRC >				
名稱 ^	修改日期	類型	大小	
📁 1.VPD	2021/12/15 下午 03:08	檔案資料夾		
📁 2.ME Lock	2021/12/15 下午 03:08	檔案資料夾		
📁 3.MFGDONE	2021/12/15 下午 03:08	檔案資料夾		
📁 EFI	2021/12/15 下午 03:08	檔案資料夾		
📄 Readme2021(TBC).txt	2021/8/28 下午 02:56	文字文件	6 KB	

ODD_L1

> WW_Except for PRC > 2.ME Lock
名稱 ^
afuefix64.efi
amideefix64.efi
fparts.txt
Fpt.efi
ME_Lock.nsh
ME_Status_Check.nsh
MEinfo.efi

) > WW_Except for PRC > 3.MFGDONE
名稱 ^
GO_SET-CHK_mfgdone.nsh
mfgdone.nsh
fptefi

Step ❶—②—❸—④—⑤—⑥

Updating Vital Product Data

• Insert the USB disk into the server, and then boot from the USB disk by pressing F12 during the boot process.

```
                    Startup Device Menu

USB HDD: JetFlashTranscend 4GB 1100
    └ Legacy: JetFlashTranscend 4GB 1100
    └ UEFI: JetFlashTranscend 4GB 1100, Partition 1
Network 1:
    └ Legacy: IBA CL Slot 00FE v0113
    └ UEFI: PXE IP4 Intel(R) Ethernet Connection (7) I219-LM
    └ UEFI: PXE IP6 Intel(R) Ethernet Connection (7) I219-LM
Enter Setup

            ↑ and ↓ to move selection
```

Step ❶—❷—③—❹—❺—❻

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Updating Vital Product Data

- Execute the `ME Lock/ME_Lock.nsh` command, which will cause the server to automatically reboot.

Step ①—②—③—④—⑤—⑥

Updating Vital Product Data

• Enter the `ME Lock/ME_Status_Check.nsh` command to check the ME status.

Step ❶─❷─❸─❹─⑤─❻

Updating Vital Product Data

• Enter the `MFGDONE/GO_SET-CHK_mfgdone.nsh` command.

Step ①——②——③——④——⑤——⑥

Summary

This course enabled you to:
- Describe the ThinkSystem ST50 V2 server
- Describe the server features and specifications
- Identify the server diagram
- Describe the problem determination and VPD update procedures for the ST50 V2

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