# Problem determination and troubleshooting

The Firmware and TPM 2.0 Security Module

# Problem determination and troubleshooting overview

The SE450 uses XCC as the management console, so the problem determination and troubleshooting procedures are the same as those for other ThinkSystem platforms. For a better understanding, make sure you have gone thorough the ES41759B – ThinkSystem problem determination course.

The following troubleshooting items are specific to the SE450:

- System LEDs
- Firmware and TPM 2.0 Security Module

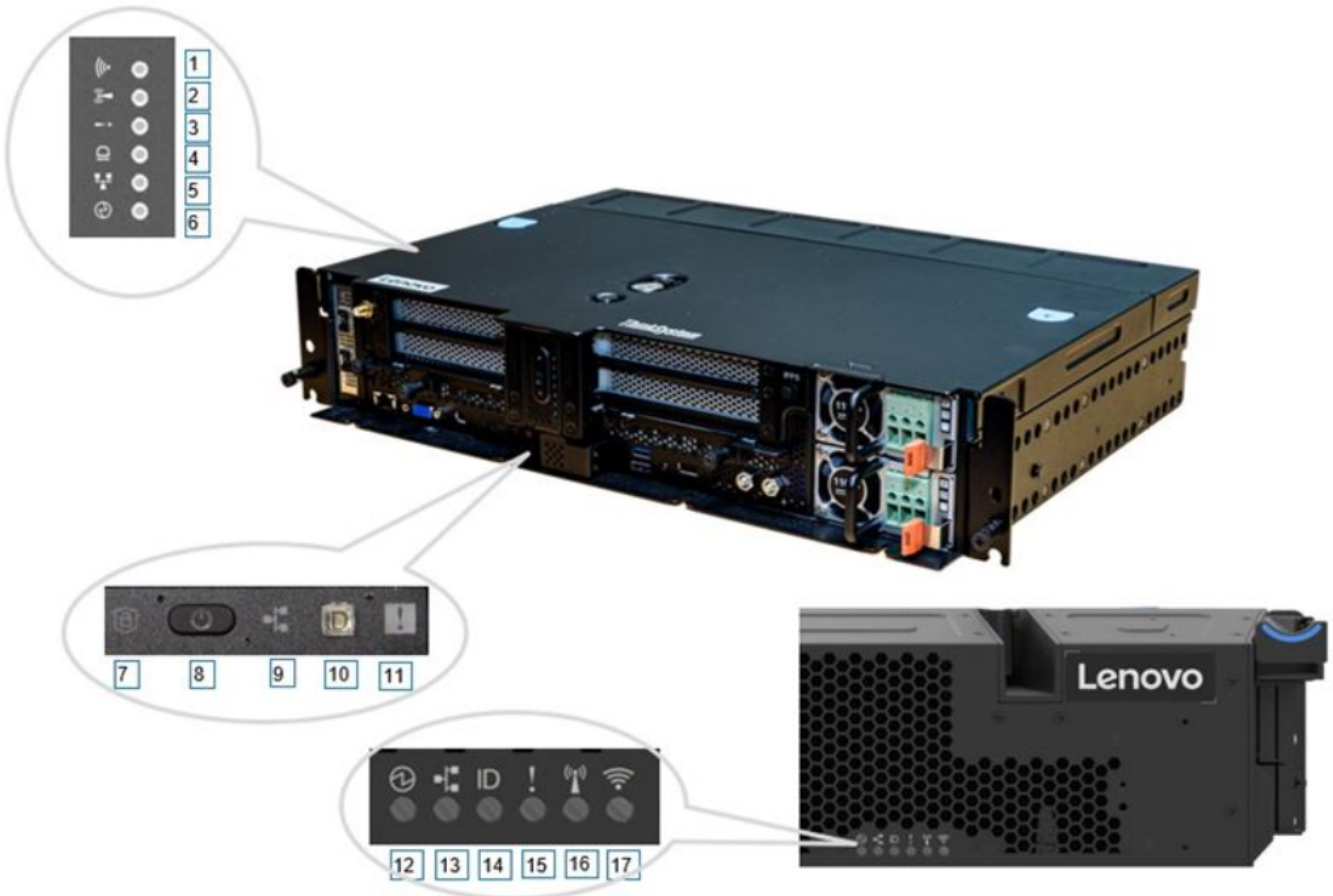
# System LEDs on the SE450

To accommodate the different mounting options, this server has three sets of system LEDs.

| LEDs visible from the top cover and wall mount | | | |
|---|---|---|---|
| 1 | Reserved | 4 | Identification (ID) LED (blue) |
| 2 | Reserved | 5 | Network activity LED (green) |
| 3 | System error LED (amber) | 6 | Power LED (green) |

| LEDs visible from the server front view | | | |
|---|---|---|---|
| 7 | Reserved | 10 | ID button / LED (blue) |
| 8 | Power button / LED (green) | 11 | System error LED (amber) |
| 9 | Network activity LED (green) | | |

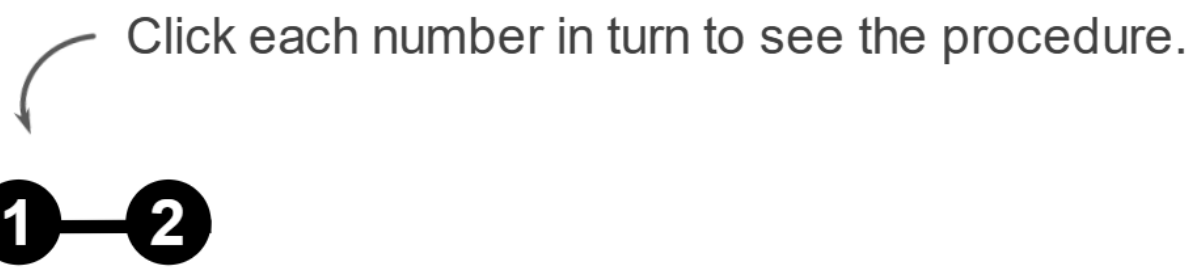
| LEDs visible from the security bezel | | | |
|---|---|---|---|
| 12 | Power LED (green) | 15 | System error LED (amber) |
| 13 | Network activity LED (green) | 16 | Reserved |
| 14 | ID LED (blue) | 17 | Reserved |



# Firmware and TPM 2.0 Security Module troubleshooting

The SE450 cannot boot without the Firmware and TPM 2.0 Security Module. When the system does not turn on, follow the troubleshooting methods to identify whether the module or system board has failed.

**Note:** The power-control button will not function until approximately 5 to 10 seconds after the server has been connected to power.



# Firmware and TPM 2.0 Security Module troubleshooting

If an additional optional device has just been installed, remove it and turn on the server again. If the server now starts, it indicates that the optional device uses more power than the system can afford.

Check the power button LED:

- If the power button LED is lit, check the system event log.
  - If there is a readable system event log without UEFI errors, replace the system board.
  - If there is a readable system event log with UEFI errors, replace the Firmware and TPM 2.0 Security Module.
  - If there is no readable system event log, but the power button LED is still lit, bring the replacement units listed below, run diagnostic isolation, and replace the faulty parts:
    - System board
    - Firmware and TPM 2.0 Security Module

Step 1—2

# Firmware and TPM 2.0 Security Module troubleshooting

- If the power button LED is not lit:
  - Disconnect and reconnect the power cable.
  - Make sure the power supplies are of the same type (the system-error LED would be lit if the power supply units do not match) and reseat all the units.
  - Check if any power supply error LEDs are lit, and if any faulty units are found, replace them.
  - If the problem persists, bring the replacement units listed below, run diagnostic isolation, and replace the faulty parts:
    - Power backplane
    - System board
    - Firmware and TPM 2.0 Security Module



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# Common questions about the Firmware and TPM 2.0 Security Module

| Question | Answer |
|---|---|
| Can the SE450 boot without the Firmware and TPM 2.0 Security Module? | The UEFI and XCC flash chips are on this module, and the system cannot boot without it. |
| Which configurations are on the Firmware and TPM 2.0 Security Module and which configurations are on the system board?<br>For example, XCC, UEFI, Intel VROC RAID configuration, hardware VPD | • The UEFI and XCC flash chips are on the Firmware and TPM 2.0 Security Module.<br>• The VROC configuration is stored in the VROC member disks.<br>• Hardware VPD is on system board. |
| Can you back up configurations from the Firmware and TPM 2.0 Security Module? | • The UEFI and XCC flash chips are on this module. UEFI stores the system UEFI configuration in XCC, and you can back up and restore these configurations while the system is normal. The procedure used to back up and restore UEFI and XCC configurations is the same as that on ThinkSystem servers. Refer to the Lenovo XClarity Controllers guide for more information.<br>• Hardware VPD is on the system board.<br>• The VROC configuration is stored in the VROC member disks. Unless there has been data corruption of the NVMe drives, the VROC configuration will not be lost.<br>**Attention**: For the VROC configuration, users should keep VMD on. If the VMD is disabled and the OS is rebooted, it might trigger an OS data recovery mechanism that corrupts the VROC configuration/metadata, especially with a Windows OS. |
| Which service action should be taken after replacing the Firmware and TPM 2.0 Security Module but not the system board? | Restore the UEFI/XCC user configuration manually or using OneCLI script. |
| Which service action should be taken after replacing the system board but not the Firmware and TPM 2.0 Security Module? | Restore the necessary data in VPD. |

# Backing up and restoring the BMC configuration using XCC

Refer to the following Lenovo website and YouTube video links for detailed information:

- How to back up the BMC configuration using XCC
  - https://support.lenovo.com/us/en/solutions/HT513677
  - https://www.youtube.com/watch?v=s7mmVo0Ckik

- How to restore the BMC configuration using XCC
  - https://support.lenovo.com/us/en/solutions/HT513679
  - https://www.youtube.com/watch?v=099sUAZNUaA

# Summary

This course enabled you to:

- Describe the ThinkEdge SE450 and its components
- Describe the features and specifications of the ThinkEdge SE450
- Describe the different PCIe and storage configurations of the ThinkEdge SE450
- Describe the scope of ThinkShield support on the ThinkEdge SE450
- Describe the problem determination steps and explain how to troubleshoot issues with the ThinkEdge SE450