Lenovo CE0128TB/CE0128PB and CE0152TB/CE0152PB Switches

# Quick Start Guide

For Lenovo Campus NOS 8.4.3

# Lenovo™

**Note:** Before using this information and the product it supports, read Appendix B, "Notices" of this manual. Also read the product *Warranty Information* document and the *Important Notices* document included with the product.

# Contents

# Preface

The *Lenovo Campus NOS 8.4.3 Quick Start Guide for CE0128TB/CE0128PB and CE0152TB/CE0152PB Switches* describes how to operate the Lenovo Campus NOS 8.4.3 software and the CE0128TB/CE0128PB and CE0152TB/CE0152PB switches (referred to as CE0128XB/CE0152XB throughout this document).

## Who Should Use This Guide

This guide is intended for:

- System administrators who are responsible for configuring and operating a network using CE0128XB/CE0152XB software

- Level 1 and/or Level 2 Support providers

To obtain the greatest benefit from this guide, you should have an understanding of the base software and should have read the specification for your networking device platform. You should also have basic knowledge of Ethernet and networking concepts.

## What You'll Find in This Guide

This guide will help you plan, implement, and administer Campus NOS software. Where possible, each section provides feature overviews, usage examples, and configuration instructions. The following material is included:

- Chapter 1, "Lenovo CE0128XB/CE0152XB Hardware

- Chapter 2, "Initializing the CE0128XB/CE0152XB

- Appendix A, "Getting Help and Technical Assistance," describes where to get help with your product.

- Appendix B, "Notices," contains legal notices.

## Additional References

Additional information about installing and configuring the CE0128XB/CE0152XB is available in the following guides:

- *Lenovo CE0128TB/CE0128PB and CE0152TB/CE0152PB CLI Command Reference*

- *Lenovo CE0128TB/CE0128PB and CE0152TB/CE0152PB Web GUI Reference*

# Typographic Conventions

The following table describes the typographic styles used in this book.

**Table 1.** *Typographic Conventions*

| Typeface or Symbol | Meaning | Example |
|---|---|---|
| ABC123 | This type is used for names of commands, files, and directories used within the text. | View the readme.txt file. |
| | It also depicts on-screen computer output and prompts. | Main# |
| **ABC123** | This bold type appears in command examples. It shows text that must be typed in exactly as shown. | Main# **sys** |
| *<ABC123>* | This italicized type appears in command examples as a parameter placeholder. Replace the indicated text with the appropriate real name or value when using the command. Do not type the brackets. | To establish a Telnet session, enter:<br>host# **telnet** *<IP address>* |
| | This also shows book titles, special terms, or words to be emphasized. | Read your *User's Guide* thoroughly. |
| [ ] | Command items shown inside brackets are optional and can be used or excluded as the situation demands. Do not type the brackets. | host# **ls [-a]** |
| \| | The vertical bar ( \| ) is used in command examples to separate choices where multiple options exist. Select only one of the listed options. Do not type the vertical bar. | host# **set left\|right** |
| **AaBbCc123** | This block type depicts menus, buttons, and other controls that appear in Web browsers and other graphical interfaces. | Click the **Save** button. |

# Chapter 1. Lenovo CE0128XB/CE0152XB Hardware

The Lenovo CE0128TB and CE0128PB switch models both have 24 ports of 10/100/1000 full or half duplex copper Ethernet RJ-45 ports in a 1U rack mountable form factor. Auto-negotiation and MDIX are supported on all Ethernet RJ-45 ports. Both models also support 4 x 10G/1G SFP+ ports. Transceivers are sold separately.

Both models support an unswitched RJ45 Ethernet service port (top) for out-of-band management of the switch along with an RJ45 RS-232 connector (bottom) for serial console access. These ports are located to the left of the Ethernet RJ-45 ports.

The Lenovo CE0128PB switch supports PoE/PoE+ on the switched front panel Ethernet RJ-45 ports. Up to 24 PoE ports or 6 PoE+ and 12 PoE ports may be powered using a PoE power budget of 184W.

The Lenovo CE0152TB and CE0152PB switch models both have 48 ports of 10/100/1000 full or half duplex copper Ethernet RJ-45 ports in a 1U rack mountable form factor. Auto-negotiation and MDIX are supported on all Ethernet RJ-45 ports. Both models also support 4 x 10G/1G SFP+ ports. Transceivers are sold separately.

On CE0152TB/CE0152PB platforms, when front panel traffic intends to pass from ports: 1-24,49,50 to ports: 25-48,51,52 and exceeds 26G of bandwidth, then there is a possibility of experiencing 3% to 6% traffic loss due to the limitation in switch silicon. The traffic loss is more for smaller packet sizes (64 bytes).

Although unlikely, it is possible to provision the network to forward 24G of traffic from the first 24 ports to the other 24 ports and vice-versa. Likewise, it is possible to provision all 24 1G ports on a single switching device to forward 24G of traffic over the two directly connected 10G ports. Such a scenario will also result in traffic loss.

Operators are advised to provision their network such that long term and high burst packet forwarding is balanced across the upper and lower 1G and 10G uplink ports to mitigate the occurrence of the above described scenarios. A provisioning example would be to distribute redundant server or link aggregation links evenly across the upper and lower 24 1G ports. This principle also applies to the 10G ports.

Both models support an unswitched RJ45 Ethernet service port (top) for out-of-band management of the switch along with an RJ45 RS-232 connector (bottom) for serial console access. These ports are located to the left of the Ethernet RJ-45 ports.

The Lenovo CE0152PB switch supports PoE/PoE+ on the switched front panel Ethernet RJ-45 ports. Up to 48 PoE ports or 12 PoE+ and 24 PoE ports may be powered using a PoE power budget of 369W.

# Chapter 2. Initializing the CE0128XB/CE0152XB

## Connecting to the Switch

To enable remote management of the switch through telnet, a Web browser, or SNMP, you must connect the switch to the network. By default, the switch has no IP address assigned and DHCP is enabled on the service port.

To access the switch over a network you must first configure it with network information (an IP address, subnet mask, and default gateway). You can configure the IP information using any of the following:

- BOOTP

- DHCP

- Terminal interface via the EIA-232 port

After you configure network information, such as the IP address and subnet mask, and the switch is physically and logically connected to the network, you can manage and monitor the switch remotely through SSH, telnet, a Web browser, or an SNMP-based network management system. You can also continue to manage the switch through the terminal interface via the EIA-232 port.

The CE0128XB/CE0152XB switch supports a Service port located on the front panel next to the EIA-232 port. The Service port is an Ethernet port dedicated to switch management. The Service port does not switch or route packets to or from the other front panel Ethernet ports. Because the Service port is assigned an IP address, it appears in the Routing table.

**Note:** Do NOT assign the default routing gateway to the Service port.

After you perform the physical hardware installation, you need to make a serial connection to the switch so that you can do one of the following:

- Manually configure network information for the management interface, or

- Enable the management interface as a DHCP or BootP client on your network (if not already enabled) and then view the network information after it is assigned by the DHCP server.

To connect to the switch and configure or view network information, use the following steps:

1. Using a straight-through modem cable, connect a VT100/ANSI terminal or a workstation to the console (serial) port.

    If you attached a PC, Apple, or UNIX workstation, start a terminal-emulation program, such as HyperTerminal or Tera Term.

2. Configure the terminal-emulation program to use the following settings:

   o Baud rate: 115,200 bps

   o Data bits: 8

   o Parity: none

   o Stop bit: 1

   o Flow control: none

3. Power on the switch.

   For information about the boot process, including how to access the utility menu, see "Logging into the Switch" on page 9.

4. Press the return key, and the User: prompt appears.

   Enter **admin** as the user name. The default password is **admin**.

5. Change the default password for user **admin** to provide better protection for the device.

6. After logging in again using the new password, the screen shows the system prompt, for example (switch)>.

7. At the (switch)> prompt, enter **enable** to enter the Privileged EXEC command mode. There is no default password to enter Privileged EXEC mode.

   The command prompt changes to (switch)#.

8.  Configure network information.

    o   To have the service port address assigned through DHCP:

        By default, the port is configured as a DHCP client. If your network has a DHCP server, then you need only to connect the switch to your network.

    o   To use BootP, change the protocol by entering:

        **serviceport protocol bootp**

    o   To disable DHCP/BootP and manually assign an IPv4 address, enter:

        **serviceport protocol none**

        **serviceport ip** *<ipaddress>* *<netmask>* [*<gateway>*]

        For example:

        serviceport ip 192.168.2.23 255.255.255.0 192.168.2.1

    o   To disable DHCP/BootP and manually assign an IPv6 address and (optionally) default gateway, enter:

        **serviceport protocol none**

        **serviceport ipv6 address** *<address>*/*<prefix-length>* *[eui64]*

        **serviceport ipv6 gateway** *<gateway>*

    o   To view the assigned or configured network address, enter:

        **show serviceport**

    **To enable switch management via the front panel ports:**

    o   To use a DHCP server to obtain the IP address, subnet mask, and default gateway information, enter:

        **network protocol dhcp**

    o   To use a BootP server to obtain the IP address, subnet mask, and default gateway information, enter:

        **network protocol bootp**

    o   To manually configure the IPv4 address, subnet mask, and (optionally) default gateway, enter:

        **network parms** *<ipaddress>* *<netmask>* *[<gateway>]*

        For example:

        network parms 192.168.2.23 255.255.255.0 192.168.2.1

    o   To manually configure the IPv6 address, subnet mask, and (optionally) default gateway, enter:

        **network ipv6 address** *<address>*/*<prefix-length>* *[eui64]*

        **network ipv6 gateway** *<gateway>*

    o   To view the network information, enter **show network**.

    o   To save these changes so they are retained during a switch reset, enter the following command:

        **copy system:running-config nvram:startup-config**

After the switch is connected to the network, you can use the IP address for remote access to the switch by using a Web browser or through SSH.

# Accessing the Switch via SSH/HTTPS

DSA and RSA keys, and HTTPS certificate are generated by manufacturing before shipping the switch so that customers can access the switch through SSH/HTTPS default keys. The customer can also generate other RSA or DSA key pairs that will overwrite the existing ones. From the console, issue the following commands:

**crypto key generate dsa**

**crypto key generate rsa**

These commands will generate new RSA/DSA key pairs, overwriting any existing key pairs. The private key is discarded after this process completes. Once the keys are generated, access to the switch via SSH is allowed.

To generate a self-signed certificate for HTTPS access, issue the following command:

**crypto certificate generate**

Once the certificate is generated, access to the switch via HTTPS is allowed.

Other **crypto certificate** commands are:

- **crypto certificate import**–Import a certificate signed by a Certification Authority for HTTPS.
- **crypto certificate request**–Request certificate for HTTPS.

Refer to the *Lenovo CE0128TB/CE0128PB and CE0152TB/CE0152PB CLI Command Reference* for more information.

# Logging into the Switch

When the power is turned on with the local terminal already connected, the switch goes through Power-On Self-Test (POST). POST runs every time the switch is initialized and checks hardware components to determine if the switch is fully operational before completely booting.

If a critical problem is detected, the program flow stops. If POST passes successfully, a valid executable image is loaded into RAM.

POST messages are displayed on the terminal and indicate test success or failure.

To boot the switch, perform the following steps:

1. Make sure that the serial cable is connected to the terminal.

2. Connect the power supply to the switch.

3. Power on the switch.

   As the switch boots, the bootup test first counts the switch memory availability and then continues to boot.

4. During boot, you can use the Utility menu, if necessary, to run special procedures. To enter the Utility menu, press **2** within the first three seconds after the following message appears.

```
Lenovo Campus NOS Startup Rev: 8.4.3
Select startup mode.  If no selection is made within 3 seconds,
the Lenovo Campus NOS Application will start automatically...

Lenovo Campus NOS  Startup -- Main Menu

1 - Start Lenovo Campus NOS Application
2 - Display Utility Menu
Select (1, 2): 2
```

For information about the Utility menu, see "Utility Menu Functions" on page 10.

5. If you do not start the Utility menu, the operational code continues to load.

After the switch boots successfully, the User login prompt appears and you can use the local terminal to begin configuring the switch. However, before configuring the switch, make sure that the software version installed on the switch is the latest version. If it is not the latest version, download and install the latest version. For more information, refer to "AutoInstall" in the *Lenovo CE0128TB/CE0128PB and CE0152TB/CE0152PB Web GUI Reference*.

## Utility Menu Functions

You can perform many configuration tasks through the Utility menu, which can be invoked after the first part of the POST is completed.

Use the following procedures to display the Utility menu:

1. During the boot process, press **2** within three seconds after the following message displays:

```
 Lenovo Campus NOS Startup Rev: 8.4.3

    Select startup mode.  If no selection is made within 3 seconds,
    the Lenovo Campus NOS Application will start automatically...

    Lenovo Campus NOS Startup -- Main Menu

     1 - Start Lenovo Campus NOS Application
     2 - Display Utility Menu

Select (1, 2): 2
    Lenovo Campus NOS Startup Rev: 8.4.3

    Lenovo Campus NOS Startup -- Utility Menu

     1  - Start Lenovo Campus NOS Application
     2  - Load Code Update Package
     3  - Load Configuration
     4  - Select Serial Speed
     5  - Retrieve Error Log
     6  - Erase Current Configuration
     7  - Erase Permanent Storage
     8  - Select Boot Method
     9  - Activate Backup Image
    10  - Start Diagnostic Application
    11  - Reboot
    12  - Erase All Configuration Files
    13  - Start Password Recovery

     Q  - Quit from Lenovo Campus NOS Startup
```

Select any of above (options or Q):

The following sections describe the Utility menu options. If no selection is made within 3 seconds (default), the switch waits for user input.

## *Start Lenovo Campus NOS 8.4.3 Application*

Use option 1 to resume loading the Lenovo Campus NOS 8.4.3 Application code.

To relaunch the boot process from the Utility menu:

1. On the **Utility menu**, select **1** and press **Enter**.

   The following prompt displays:

```
Select any of above (options or Q): 1
Loading image2 from /dev/mtd4
Extracting application from .stk file...done.
Loading Lenovo Campus NOS...done.
Uncompressing apps.lzma
Changing lighttpd file ownership to lighttpd:lighttpd
Expanding websrc.tar.gz into /mnt/www/htdocs...done
Product Name = Lenovo CE0128PB Switch, Product Id = 0x518
<185> Jan  1 00:02:00 0.0.0.0-0 General[fp_main_task]: unitmgr.c(6603) 1 %% ALRT Reboot 1 (0x1)
DMA pool size: 16777216
AXI unit 0: Dev 0xb150, Rev 0x01, Chip BCM56150_A0, Driver BCM56150_A0
SOC unit 0 attached to PCI device BCM56150_A0
```

## *Load Code Update Package*

Use option 2 when a new software version must be downloaded to replace corrupted files, update, or upgrade the system software.

To download software from the Utility menu:

1. On the **Utility menu**, select **2** and press **Enter**.

2. Select the transfer mode (Press **T**/**X**/**Y**/**Z** for TFTP/XMODEM/YMODEM/ZMODEM).

3. When using HyperTerminal for XMODEM/YMODEM/ZMODEM transfers, click **Transfer** on the **HyperTerminal** menu bar.

4. From the **Transfer** menu, click **Send File**.

   The HyperTerminal **Send File** window displays.

5. Enter the file path for the file to be downloaded.

6. Make sure the protocol is defined per the transfer option selected in step 2 (XMODEM/YMODEM/ZMODEM).

7. Click **Send**.

   The software is downloaded. Software downloading takes several minutes. The terminal emulation application, such as HyperTerminal, may display the loading process progress.

   After software downloads, the switch reboots automatically.

### TFTP Transfer Option

When the TFTP transfer option is selected:

1. The switch prompts:

   Downloading code file...
   Select Mode of IP address configuration (Press D for DHCP or S for Static) []: S

2. If Static is selected, the switch will prompt for the Host IP address, Host Subnet, Gateway IP, TFTP Server IP address and the Filename as shown below:

   Enter Host IP []:
   Enter Host Subnet Mask [255.255.255.0]:
   Enter Gateway IP []:
   Enter Server IP []:
   Enter Filename []:
   Do you want to continue? Press(Y/N):

3. Enter the required information and press Y to start the file transfer. Pressing **N** returns.

4. If dynamic address assignment is selected, the switch prompts for the TFTP Server IP address and the Filename as shown below:

   Enter Server IP []:
   Enter Filename []:
   Do you want to continue? Press(Y/N):

5. Enter the required information and press **Y** to start the file transfer.

## *Load Configuration*

Use option 3 when a new configuration file must be downloaded to replace the saved system configuration file.

To download software from the Utility menu:

1. On the **Utility menu**, select **3** and press **Enter**.

   Creating tmpfs filesystem on tmpfs for download...done.

2. Select Configuration Type (Press **T/B** for Text/Binary) []:**t**

3. Select the transfer mode (Press **T/X/Y/Z** for TFTP/XMODEM/YMODEM/ZMODEM).

4. When using HyperTerminal, click **Transfer** on the **HyperTerminal** menu bar.

5. From the **Transfer** menu, click **Send File**.

   The **Send File** window displays.

6. Enter the file path for the file to be downloaded.

7. Make sure the protocol is defined per the transfer option selected in step 2 (XMODEM/YMODEM/ZMODEM).

8. Click **Send**.

   The configuration file is downloaded. The terminal emulation application, such as HyperTerminal, may display the loading process progress.

### TFTP Transfer Option

When the TFTP transfer option is selected:

1. The switch prompts:

```
Creating tmpfs filesystem on tmpfs for download...done.
Select Configuration Type (Press T/B for Text/Binary) []: T
Select Mode of Transfer (Press T/X/Y/Z for TFTP/XMODEM/YMODEM/ZMODEM) []:T
Select Mode of IP address configuration (Press D for DHCP or S for Static) []:S
```

2. If Static is selected, the switch will prompt for the Host IP address, Host Subnet, Gateway IP, TFTP Server IP address and the Filename as shown below:

```
Enter Host IP []:
Enter Host Subnet Mask [255.255.255.0]:
Enter Gateway IP []:
Enter Server IP []:
Enter Filename []:
Do you want to continue? Press(Y/N):
```

3. Enter the required information and press **Y** to start the file transfer. Pressing **N** returns.

4. If dynamic address assignment is selected, the switch prompts for the TFTP Server IP address and the Filename as shown below:

```
Enter Server IP []:
Enter Filename []:
Do you want to continue? Press(Y/N):
```

5. Enter the required information and press **Y** to start the file transfer.

## Select Serial Speed

Use option 4 to change the baud rate of the serial interface.

To change the baud rate from the Utility menu:

1. On the **Utility menu**, select **4** and press **Enter**.

   The following prompt displays:

```
Select option (1-12 or Q):
1 - 1200
2 - 2400
3 - 4800
4 - 9600
5 - 19200
6 - 38400
7 - 57600
8 - 115200
9 - Exit without change
```

   **Note:** The selected baud rate takes effect immediately.

2. The Utility menu reappears.

## *Retrieve Error Log*

Use option 5 to retrieve the event log and download it to your ASCII terminal.

To retrieve the event log from the Utility menu:

1. On the **Utility menu**, select **5** and press **Enter**.

   The following prompt displays:

```
Select Mode of Transfer (Press T/X/Y/Z for TFTP/XMODEM/YMODEM/ZMODEM)
```

2. Select the transfer mode (Press **T**/**X**/**Y**/**Z** for TFTP/XMODEM/YMODEM/ZMODEM).

   The following prompt displays:

   File asciilog.bin Ready to SEND in binary mode
   Estimated File Size 169K, 1345 Sectors, 172032 Bytes
   Estimated transmission time 3 minutes 20 seconds
   Send several Control-X characters to cancel before transfer starts.

3. The Utility menu is displayed.

## TFTP Transfer Option

When the TFTP transfer option is selected:

1. The switch prompts:

   Creating tmpfs filesystem on tmpfs for download...done.
   Select Configuration Type (Press T/B for Text/Binary) []: **T**
   Select Mode of Transfer (Press T/X/Y/Z for TFTP/XMODEM/YMODEM/ZMODEM) []:**T**
   Select Mode of IP address configuration (Press D for DHCP or S for Static) []:**S**

2. If Static is selected, the switch will prompt for the Host IP address, Host Subnet, Gateway IP, TFTP Server IP address and the Filename as shown below:

   Enter Host IP []:
   Enter Host Subnet Mask [255.255.255.0]:
   Enter Gateway IP []:
   Enter Server IP []:
   Enter Filename []:
   Do you want to continue? Press(Y/N):

3. Enter the required information and press **Y** to start the file transfer. Pressing **N** returns.

4. If dynamic address assignment is selected, the switch prompts for the TFTP Server IP address and the Filename as shown below:

   Enter Server IP []:
   Enter Filename []:
   Do you want to continue? Press(Y/N):

5. Enter the required information and press **Y** to start the file transfer.

## *Erase Current Configuration*

Use option 6 to erase the startup configuration. Selecting 6 from the Utility menu restores system defaults. Boot Sequence can then be started by selecting 1 from the Utility menu.

To erase the current configuration from the Utility menu:

1. On the **Utility menu**, select **6** and press **Enter**.

2. The switch requests confirmation of the selected action. Enter **Y** to confirm or **N** to continue without performing the action:

   Are you sure you want to Erase Current Configuration? (Y/N)

3. The Utility menu reappears.

## Erase Permanent Storage

Use option 7 to to reformat the file system. All configuration information is removed from the switch. The active and backup images are not disturbed by this operation. User action is confirmed with a Y/N question before executing the command.

This operation will take several minutes. Do not remove power during this operation.

To reformat the file system from the Utility menu:

On the **Utility menu**, select **7** and press **Enter**.

1. The switch requests confirmation of the selected action. Enter **Y** to confirm or **N** to continue without performing the action:

   ```
   Do you want to erase the permanent storage? (Press Y/N):y
   Unmounting filesystem...done.
   Formatting filesystem...Mounting filesystem...done
   ```

2. The Utility menu reappears.

## Select Boot Method

Use option 8 to select the method used to boot the system (FLASH, Network, or Serial boot). The default selection is FLASH.

To select the boot method from the Utility menu:

1. On the **Utility menu**, select **8** and press **Enter**.

   The following prompt displays:

   ```
   Current boot method: FLASH
   1 - Flash Boot
   2 - Network Boot
   3 - Serial Boot
   4 - Exit without change
   Select option (1-4):
   ```

2. The Utility menu reappears.

## Activate Backup Image

Use option 9 to activate the backup image. The active image becomes the backup when this option is selected.

To activate the backup image:

1. From the **Utility menu**, select **9** and press **Enter**.

   The following message displays:

   ```
   Backup image - image2 activated -- system reboot recommended!
   Reboot? (Y/N):
   ```

2. Enter **Y** to reboot.

## Start Diagnostic Application

Use option 10 to enter the diagnostic shell.

1. On the **Utility menu**, select **10** and press **Enter**.

     The following message displays:

     ```
     Loading image2 from /dev/mtd4
     Extracting application from .stk file...done.
     Loading Lenovo Campus NOS...done.
     Uncompressing apps.lzma
     Changing lighttpd file ownership to lighttpd:lighttpd
     Mounting websrc.sqfs onto /mnt/www/htdocs...done
     Product Name = Lenovo CE0128TB Switch, Product Id = 0x517
     Enter diag password:
     ```

2. The diagnostic application is protected by the password **LeNoVoCe**. After the user enters the password, the system enters the bcm shell. Use the **exit** command to exit the diagnostic shell and continue the boot process.

     ```
     Broadcom Command Monitor: Copyright (c) 1998-no d Broadcom
     Release: unknown built no datestamp (no date)
     From unknown@unknown:unknown
     Platform: IPROC_CMICD
     OS: Unix (Posix)
     DMA pool size: 16777216
     AXI unit 0: Dev 0xb150, Rev 0x01, Chip BCM56150_A0, Driver BCM56150_A0
     SOC unit 0 attached to PCI device BCM56150_A0
     ERROR loading rc script on unit 0
     BCM.0>
     ```

3. Use the **exit** command to reload the switch.

4. The bootup process resumes.

## *Reboot*

Use option 11 to reboot the system.

To reboot the system:

1. From the **Utility menu**, select **11** and press **Enter**.

2. The switch is rebooted.

## Erase All Configuration Files

Use option 12 to remove the startup-config, factory-defaults, and *.cfg configuration files from the flash.

Selecting 12 from the Utility menu restores system defaults. Boot Sequence can then be started by selecting 1 from the Utility menu.

To erase the configuration files from the Utility menu:

1. On the **Utility menu**, select **12** and press **Enter**.

2. The switch requests confirmation of the selected action. Enter **Y** to confirm or **N** to continue without performing the action:

     ```
     Are you sure you want to erase all configuration files? (Y/N):
     ```

3. The Utility menu reappears.

## Start Password Recovery

If the user forgets the admin password, there is no simple way to reconfigure the password without losing the configuration. To facilitate a mechanism to reconfigure the admin password without losing the configuration, a *Password Recovery Procedure* option is under the boot menu options as shown in the following example. This allows the switch to boot one time without prompting for a console password.

**Notes:**

- The *enable* password is not prompted for in this mode.
- This is applicable only for the session when the user has started the device with the password recovery mode option. If the device is restarted, the device expects the password as per the startup configuration.
- The user has to configure the password and save it, after starting the device in the password recovery mode.
- Passwords and login types of all other users remain as per the startup configuration, and are not changed while logging into the device, even in password recovery mode.
- Password recovery mode is only for the admin user and is not for any other user.

Use option **13** to start password recovery.

### Example Boot Menu

```
Boot menu option during NOS startup.
    Lenovo Campus NOS Startup -- Main Menu
     1 - Start Lenovo Campus NOS Application
     2 - Display Utility Menu
Select (1, 2): 2
  Lenovo Campus NOS Startup Rev: 8.4.3
  Lenovo Campus NOS Startup -- Utility Menu
   1  - Start Lenovo Campus NOS Application
   2  - Load Code Update Package
   3  - Load Configuration
   4  - Select Serial Speed
   5  - Retrieve Error Log
   6  - Erase Current Configuration
   7  - Erase Permanent Storage
   8  - Select Boot Method
   9  - Activate Backup Image
  10  - Start Diagnostic Application
  11  - Reboot
  12  - Erase All Configuration Files
  13  - Start Password Recovery
   Q  - Quit from Lenovo Campus NOS Startup

Select any of above (options or Q): 13
Starting Lenovo Campus NOS for Password Recovery...
Applying Global configuration, please wait ...

Applying Interface configuration, please wait ...

Box is in recovery mode;Please configure password for admin
```

## Q - Quit from Lenovo Campus NOS Startup

To exit the Utility menu and obtain the login prompt, press **Q** (Quit) at the Utility menu prompt as shown below:

```
Lenovo Campus NOS Startup Rev: 8.4.3

   Lenovo Campus NOS Startup -- Utility Menu

     1  - Start Lenovo Campus NOS Application
     2  - Load Code Update Package
     3  - Load Configuration
     4  - Select Serial Speed
     5  - Retrieve Error Log
     6  - Erase Current Configuration
     7  - Erase Permanent Storage
     8  - Select Boot Method
     9  - Activate Backup Image
    10  - Start Diagnostic Application
    11  - Reboot
    12  - Erase All Configuration Files
    13  - Start Password Recovery

     Q  - Quit from Lenovo Campus NOS Startup

Select any of above (options or Q): Q
Quitting...done.

(none) login: root
Password:
```

Enter a **Ctrl-D** at the login prompt to return to the boot menu or enter the **root** user name and **LeNoVoCe** password to enter a linux shell. Use the **exit** command to exit the shell and restart the boot process.

# Using the Web Interface

To access the switch by using a Web browser, the browser must meet the following software requirements:

- HTML version 4.0, or later

- HTTP version 1.1, or later

- JavaScript version 1.5, or later

Use the following procedures to log on to the Web Interface:

1. Open a Web browser and enter the IP address of the switch in the Web browser address field.  The user has to use a secure connection because, by default, only https is enabled and not http too.

2. Type the user name and password into the fields on the login screen, and then click **Login**.

   The user name and password are the same as those you use to log on to the command-line interface. If this is the first time you log on to the switch, the default user name is **admin**, and the default password is **admin** (passwords are case sensitive), and you are immediately required to change the default password for user **admin** for better protection of the device.

**Note:** Per the California Privacy Law, for better protection, the user is required to change the factory-default password when logging in to the switch for the first time, or when upgrading from a pre-8.4.3.9 version having the default password set. In case the user had a non-default password, there is no requirement to change the password, it is maintained. This enforcement applies for both default switch user accounts: admin and guest.



3.  After login using the new password and the system authenticates you, the System Description page displays.

    For more information about the user interfaces and the layout of the CE0128XB/CE0152XB software Web interface, refer to the *Lenovo CE0128TB/CE0128PB and CE0152TB/CE0152PB Web GUI Reference.*

# Appendix A. Getting Help and Technical Assistance

If you need help, service, or technical assistance or just want more information about Lenovo products, you will find a wide variety of sources available from Lenovo to assist you.

Use this information to obtain additional information about Lenovo and Lenovo products, and determine what to do if you experience a problem with your Lenovo system or optional device.

Before you call, make sure that you have taken these steps to try to solve the problem yourself.

If you believe that you require warranty service for your Lenovo product, the service technicians will be able to assist you more efficiently if you prepare before you call.

- Check all cables to make sure that they are connected.

- Check the power switches to make sure that the system and any optional devices are turned on.

- Check for updated software, firmware, and operating-system device drivers for your Lenovo product. The Lenovo Warranty terms and conditions state that you, the owner of the Lenovo product, are responsible for maintaining and updating all software and firmware for the product (unless it is covered by an additional maintenance contract). Your service technician will request that you upgrade your software and firmware if the problem has a documented solution within a software upgrade.

Go to the Lenovo Support portal at https://datacentersupport.lenovo.com/us/en/ to check the product service information.

- Gather the following information to provide to the service technician. This data will help the service technician quickly provide a solution to your problem and ensure that you receive the level of service for which you might have contracted.

    o Hardware and Software Maintenance agreement contract numbers, if applicable

    o Machine type number

    o Model number

    o Serial number

    o Current firmware levels

    o Other pertinent information such as error messages and logs

- Start the process of determining a solution to your problem by making the pertinent information available to the service technicians. The Lenovo service technicians can start working on your solution as soon as you have completed and submitted an Electronic Service Request.

You can solve many problems without outside assistance by following the troubleshooting procedures that Lenovo provides in the online help or in the Lenovo product documentation. The Lenovo product documentation also describes the diagnostic tests that you can perform. The documentation for most

systems, operating systems, and programs contains troubleshooting procedures and explanations of error messages and error codes. If you suspect a software problem, see the documentation for the operating system or program.

# Appendix B. Notices

Lenovo may not offer the products, services, or features discussed in this document in all countries. Consult your local Lenovo representative for information on the products and services currently available in your area.

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1009 Think Place - Building One
Morrisville, NC 27560
U.S.A.

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Any performance data contained herein was determined in a controlled environment. Therefore, the result obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurements may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

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Internet Explorer, Microsoft, and Windows are trademarks of the Microsoft group of companies.

Linux is a registered trademark of Linus Torvalds.

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# Important Notes

Processor speed indicates the internal clock speed of the microprocessor; other factors also affect application performance.

CD or DVD drive speed is the variable read rate. Actual speeds vary and are often less than the possible maximum.

When referring to processor storage, real and virtual storage, or channel volume, KB stands for 1 024 bytes, MB stands for 1 048 576 bytes, and GB stands for 1 073 741 824 bytes.

When referring to hard disk drive capacity or communications volume, MB stands for 1 000 000 bytes, and GB stands for 1 000 000 000 bytes. Total user-accessible capacity can vary depending on operating environments.

Maximum internal hard disk drive capacities assume the replacement of any standard hard disk drives and population of all hard-disk-drive bays with the largest currently supported drives that are available from Lenovo.

Maximum memory might require replacement of the standard memory with an optional memory module.

Each solid-state memory cell has an intrinsic, finite number of write cycles that the cell can incur. Therefore, a solid-state device has a maximum number of write cycles that it can be subjected to, expressed as total bytes written (TBW). A device that has exceeded this limit might fail to respond to system-generated commands or might be incapable of being written to. Lenovo is not responsible for replacement of a device that has exceeded its maximum guaranteed number of program/erase cycles, as documented in the Official Published Specifications for the device.

Lenovo makes no representations or warranties with respect to non-Lenovo products. Support (if any) for the non-Lenovo products is provided by the third party, not Lenovo.

Some software might differ from its retail version (if available) and might not include user manuals or all program functionality.

# Open Source Information

This Lenovo Switch may include software made publicly available by Lenovo, including software licensed under the General Public License and/or the Lesser General Public License (the "open source software").

You may obtain the corresponding machine-readable copy for any such open source software licensed under the General Public License and/or the Lesser General Public License (or any other license requiring us to make a written offer to provide corresponding source code to you) from Lenovo for a period of three years without charge except for the cost of media, shipping, and handling, upon written request to Lenovo. This offer is valid to anyone in receipt of this Lenovo Switch. You may send your request in writing to the address below accompanied by a check or money order for $5 to:

Lenovo Legal Department

Attn: Open Source Team / Source Code Requests

8001 Development Dr.

Morrisville, NC 27560

Please include both a "NOS" Release version and model number or Machine Type (MT) of your Lenovo Switch as part of your request. Be sure to provide a return address.

The open source software is distributed in hope it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See for example the GNU General Public License and/or the Lesser General Public License for more information.

Visit https://datacentersupport.lenovo.com/us/en/ and enter the model number or Machine Type (MT) for your Switch to view additional information regarding licenses, acknowledgments and required copyright notices for the open source software used on your Switch.

# Recycling Information

Lenovo encourages owners of information technology (IT) equipment to responsibly recycle their equipment when it is no longer needed. Lenovo offers a variety of programs and services to assist equipment owners in recycling their IT products. For information on recycling Lenovo products, go to:

http://www.lenovo.com/recycling

# Particulate Contamination

**Attention:** Airborne particulates (including metal flakes or particles) and reactive gases acting alone or in combination with other environmental factors such as humidity or temperature might pose a risk to the device that is described in this document.

Risks that are posed by the presence of excessive particulate levels or concentrations of harmful gases include damage that might cause the device to malfunction or cease functioning altogether. This specification sets forth limits for particulates and gases that are intended to avoid such damage. The limits must not be viewed or used as definitive limits, because numerous other factors, such as temperature or moisture content of the air, can influence the impact of particulates or environmental corrosives and gaseous contaminant transfer. In the absence of specific limits that are set forth in this document, you must implement practices that maintain particulate and gas levels that are consistent with the protection of human health and safety. If Lenovo determines that the levels of particulates or gases in your environment have caused damage to the device, Lenovo may condition provision of repair or replacement of devices or parts on implementation of appropriate remedial measures to mitigate such environmental contamination. Implementation of such remedial measures is a customer responsibility..

| Contaminant | Limits |
|---|---|
| Particulate | • The room air must be continuously filtered with 40% atmospheric dust spot efficiency (MERV 9) according to ASHRAE Standard 52.2[1]. <br>• Air that enters a data center must be filtered to 99.97% efficiency or greater, using high-efficiency particulate air (HEPA) filters that meet MIL-STD-282. <br>• The deliquescent relative humidity of the particulate contamination must be more than 60%[2]. <br>• The room must be free of conductive contamination such as zinc whiskers. |
| Gaseous | • Copper: Class G1 as per ANSI/ISA 71.04-1985[3] <br>• Silver: Corrosion rate of less than 300 Å in 30 days |

[1] ASHRAE 52.2-2008 - *Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size*. Atlanta: American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.

[2] The deliquescent relative humidity of particulate contamination is the relative humidity at which the dust absorbs enough water to become wet and promote ionic conduction.

[3] ANSI/ISA-71.04-1985. *Environmental conditions for process measurement and control systems: Airborne contaminants*. Instrument Society of America, Research Triangle Park, North Carolina, U.S.A.

# Telecommunication Regulatory Statement

This product may not be certified in your country for connection by any means whatsoever to interfaces of public telecommunications networks. Further certification may be required by law prior to making any such connection. Contact a Lenovo representative or reseller for any questions.

# Electronic Emission Notices

When you attach a monitor to the equipment, you must use the designated monitor cable and any interference suppression devices that are supplied with the monitor.

## Federal Communications Commission (FCC) Statement

**Note:** This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used to meet FCC emission limits. Lenovo is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that might cause undesired operation.

## Industry Canada Class A Emission Compliance Statement

This Class A digital apparatus complies with Canadian ICES-003.

## Avis de Conformité à la Réglementation d'Industrie Canada

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

## Australia and New Zealand Class A Statement

**Attention:** This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

## European Union - Compliance to the Electromagnetic Compatibility Directive

This product is in conformity with the protection requirements of EU Council Directive 2004/108/EC (until April 19, 2016) and EU Council Directive 2014/30/EU (from April 20, 2016) on the approximation of the laws of the Member States relating to electromagnetic compatibility. Lenovo cannot accept responsibility for

any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the installation of option cards from other manufacturers.

This product has been tested and found to comply with the limits for Class A equipment according to European Standards harmonized in the Directives in compliance. The limits for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.

$\epsilon$ Lenovo, Einsteinova 21, 851 01 Bratislava, Slovakia

**Warning:** This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

## Germany Class A Statement

**Zulassungsbescheinigung laut dem Deutschen Gesetz über die elektromagnetische Verträglichkeit von Betriebsmitteln, EMVG vom 20. Juli 2007 (früher Gesetz über die elektromagnetische Verträglichkeit von Geräten), bzw. der EMV EG Richtlinie 2004/108/EC (früher 89/336/EWG), für Geräte der Klasse A.**

Dieses Gerät ist berechtigt, in übereinstimmung mit dem Deutschen EMVG das EG-Konformitätszeichen - CE - zu führen. Verantwortlich für die Konformitätserklärung nach Paragraf 5 des EMVG ist die Lenovo (Deutschland) GmbH, Gropiusplatz 10, D-70563 Stuttgart.

Informationen in Hinsicht EMVG Paragraf 4 Abs. (1) 4:

**Das Gerät erfüllt die Schutzanforderungen nach EN 55024 und EN 55022 Klasse A.**

Nach der EN 55022: "Dies ist eine Einrichtung der Klasse A. Diese Einrichtung kann im Wohnbereich Funkstörungen verursachen; in diesem Fall kann vom Betreiber verlangt werden, angemessene Maßnahmen durchzuführen und dafür aufzukommen."

Nach dem EMVG: Dieses Produkt entspricht den Schutzanforderungen der EU-Richtlinie 2004/108/EG (früher 89/336/EWG) zur Angleichung der Rechtsvorschriften über die elektromagnetische Verträglichkeit in den EU-Mitgliedsstaaten und hält die Grenzwerte der EN 55022 Klasse A ein.

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**Deutschland:**

**Einhaltung des Gesetzes über die elektromagnetische Verträglichkeit von Betriebsmittein**
Dieses Produkt entspricht dem "Gesetz über die elektromagnetische Verträglichkeit von Betriebsmitteln" EMVG (früher "Gesetz über die elektromagnetische Verträglichkeit von Geräten"). Dies ist die Umsetzung der EU-Richtlinie 2004/108/EG (früher 89/336/EWG) in der Bundesrepublik Deutschland.

**Zulassungsbescheinigung laut dem Deutschen Gesetz über die elektromagnetische Verträglichkeit von Betriebsmitteln, EMVG vom 20. Juli 2007 (früher Gesetz über die elektromagnetische Verträglichkeit von Geräten), bzw. der EMV EG Richtlinie 2004/108/EC (früher 89/336/EWG), für Geräte der Klasse A.**

Dieses Gerät ist berechtigt, in übereinstimmung mit dem Deutschen EMVG das EG-Konformitätszeichen - CE - zu führen. Verantwortlich für die Konformitätserklärung nach Paragraf 5 des EMVG ist die Lenovo (Deutschland) GmbH, Gropiusplatz 10, D-70563 Stuttgart.

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Anmerkung: Um die Einhaltung des EMVG sicherzustellen sind die Geräte, wie in den Handbüchern angegeben, zu installieren und zu betreiben.

## Japan VCCI Class A Statement

この装置は、クラス A 情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。　　VCCI-A

This is a Class A product based on the standard of the Voluntary Control Council for Interference (VCCI). If this equipment is used in a domestic environment, radio interference may occur, in which case the user may be required to take corrective actions.

## Japan Electronics and Information Technology Industries Association (JEITA) Statement

高調波ガイドライン適合品

Japan Electronics and Information Technology Industries Association (JEITA) Confirmed Harmonics Guidelines (products less than or equal to 20 A per phase)

高調波ガイドライン準用品

Japan Electronics and Information Technology Industries Association (JEITA) Confirmed Harmonics Guidelines with Modifications (products greater than 20 A per phase).

## Korea Communications Commission (KCC) Statement

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바라며, 가정외의 지역에서 사용하는 것을 목
적으로 합니다.

This is electromagnetic wave compatibility equipment for business (Type A). Sellers and users need to pay attention to it. This is for any areas other than home.

## Russia Electromagnetic Interference (EMI) Class A statement

ВНИМАНИЕ! Настоящее изделие относится к классу А.
В жилых помещениях оно может создавать радиопомехи, для
снижения которых необходимы дополнительные меры

## People's Republic of China Class A electronic emission statement

中华人民共和国 "A类" 警告声明

声 明
此为A级产品，在生活环境中，该产品可能会造成无线电干扰。在这种情况下，
可能需要用户对其干扰采取切实可行的措施。

## Taiwan Class A compliance statement

警告使用者：
這是甲類的資訊產品，在
居住的環境中使用時，可
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求採取某些適當的對策。