Lenovo ThinkServer Deployment Manager User Guide
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Chapter 1. Product overview

This chapter provides an overview of the Lenovo® ThinkServer® Deployment Manager program (hereinafter referred to as TDM). This chapter contains basic information about TDM introduction, TDM startup, main interface, keyboard navigation, and how to download useful information.

1.1 Introduction

TDM simplifies the process of configuring Basic Input Output System (BIOS) settings, configuring Redundant Array of Independent Disks (RAID), and updating applications and firmware. It also enables you to automate the process of installing the supported Windows® or Linux® operating systems and associated device drivers.

TDM main features are as follows:

- Easy-to-use, language-selectable interface
- Integrated help system
- Automatic hardware detection
- Supports BIOS settings configuration
- Supports firmware and applications update
- Contains RAID configuration utility
- Ability to install the operating system and device drivers in an unattended mode to save time
- Ability to create a reusable response file that can be used with similarly configured Lenovo servers to make future installations even faster
- Contains diagnostic utility

1.2 TDM startup

To start TDM, do the following:

1. Launch TDM through one of the following methods:
   - Turn on the server. Press F10 as soon as you see the logo screen. Then, wait for several seconds. TDM opens.
   - Turn on the server. Press F1 as soon as you see the logo screen. Then, wait for several seconds. The Setup Utility program opens. Select **Boot Manager → Launch TDM**. TDM opens.
2. Read and accept the license agreement if necessary.
3. Select the language in which you want to view the program if necessary. Then, you can start to use the program.
1.3 Main interface

The TDM main interface includes two parts: the left pane and the right pane. You can click the tabs in the left pane to enter corresponding interfaces in the right pane.

Figure 1-1 TDM main interface

1.3.1 Interfaces

The following are TDM basic interfaces and function descriptions for them:

- **System Summary** interface: View basic information about your server, such as CPU, memory, and PCI devices.
- **BIOS Setup** interface: View and change the settings in the Setup Utility program of your server.
- **Platform Update** interface: Update applications and firmware for your server.
- **Storage Management** interface: Configure RAID and disk settings.
- **Deployment** interface: Follow the wizard to install an operating system.
- **Cloning** interface: Clone BIOS, RAID, or OS installation settings by using response files.
- **Diagnostics** interface: Launch the Lenovo ThinkServer Diagnostics program.
1.3.2 Buttons

The following are the descriptions for buttons appear on the TDM interfaces:

<table>
<thead>
<tr>
<th>Button</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Language</td>
<td>Click it to select the language to be displayed. TDM supports 12 languages, including: English, Simplified Chinese, Dutch, French, German, Italian, Japanese, Brazilian Portuguese, Russian, Spanish, Turkish, and Danish.</td>
</tr>
<tr>
<td></td>
<td>Settings</td>
<td>Click it to display the Network Settings window. For details, refer to 2.1 Configuring network settings.</td>
</tr>
<tr>
<td></td>
<td>Help</td>
<td>Click it to view the help information. The help information might include TDM overview, compatibility notes, help messages that guide you to use TDM, and TDM version and copyright information.</td>
</tr>
<tr>
<td></td>
<td>Power</td>
<td>Click it to shut down or restart the server.</td>
</tr>
<tr>
<td></td>
<td>Previous Values</td>
<td>Discard changes and load previous values.</td>
</tr>
<tr>
<td></td>
<td>Optimized Defaults</td>
<td>Load the optimized default values.</td>
</tr>
<tr>
<td></td>
<td>Back</td>
<td>Return to the previous interface.</td>
</tr>
<tr>
<td></td>
<td>Save &amp; Reset</td>
<td>Save changes and then continue with further configuration or save changes and exit.</td>
</tr>
<tr>
<td></td>
<td>Save &amp; Exit</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Close</td>
<td>Exit the setup process and return to the main interface.</td>
</tr>
<tr>
<td></td>
<td>Previous</td>
<td>Return to the previous step.</td>
</tr>
<tr>
<td></td>
<td>Next</td>
<td>Go to the next step.</td>
</tr>
</tbody>
</table>

1.4 Keyboard navigation

TDM supports navigation either by using mouse or keyboard. The following are the keys used for keyboard navigation:

- Ctrl+Tab: Switch between the left pane and the right pane.
- Tab: Move forward to the next selectable item in the active pane.
- Shift+Tab: Move backward to the previous selectable item in the active pane.
- Space: Same as a click when a button is active.
- Up arrow: Scroll up.
- Down arrow: Scroll down.
1.5 Downloading useful information

You can download the TDM update bundle file, Linux driver bundle file, or Windows driver bundle file from the Lenovo support Web site at:

http://www.lenovo.com/drivers
Chapter 2. Using TDM

This chapter provides information about using TDM.

2.1 Configuring network settings

![Network Settings window](image)

To configure network settings, do the following:

1. Click the Settings button on the top right corner of the TDM main interface. The Network Settings window is displayed. The window includes two sections: **Network Settings** and **Network Share Settings**.

2. Configure the local IP address for your server in the **Network Settings** section.
   - If you want to obtain an IP address automatically, select **Obtain an IP address automatically**.
   - If you want to assign IP address by yourself, select **Use the following IP address**. Then, in the **IP Address**, **Subnet Mask**, and **Default Gateway** fields, type the necessary information.
3. Configure the shared network in the **Network Share Settings** section. In the **IP Address**, **User Name**, **Password**, and **Path** fields, type necessary information.

4. After configuring the network settings, you can click any of the following buttons:
   - **Save and Connect**: Save the settings and connect to the shared network. If the network cannot be connected, an error message will be shown.
   - **Save without Connect**: Save the settings without connecting to the shared network. Once the button is clicked, a confirmation window will be displayed. Click **Continue** to save the settings without connect, or click **Cancel** to go back to the Network Settings window.
   - **Cancel**: Discard the input and exit the Network Settings window.

### 2.2 System Summary

Click the **System Summary** tab in the left pane to enter the System Summary interface.

![System Summary interface](image)

The System Summary interface displays the following basic information about your server:

- Name
- BIOS version
• ThinkServer System Manager (TSM) version
• CPU information
• Memory information
• PCI device information

2.3 BIOS Setup

Click the **BIOS Setup** tab in the left pane to enter the BIOS Setup interface. In the BIOS Setup interface, you can view and change the settings in the Setup Utility program of your server. After you change the settings, you can save the settings as a response file for future use.

Figure 2-3 BIOS Setup interface

2.3.1 Setting BIOS parameters

The BIOS Setup interface consists of the following subinterfaces:

• **System Information**: View basic information about your server, such as the BIOS, microprocessor type, memory, and system date and time.
• **Advanced Settings**: View and change the settings of various server components.
- **TSM Settings**: View and change event log settings and Baseboard Management Controller (BMC) settings.
- **System Security**: Set passwords and configure the Trusted Platform Module (TPM) function.
- **Boot Manager**: View and change the server startup options, including the startup sequence and boot priority for various devices.
- **Save & Exit**: Choose a desired action to save changes, discard changes, or load default values, and exit the interface.

The settings in the BIOS Setup interface are the same as settings in the Setup Utility program. For detailed information, refer to the **Using the Setup Utility program** section in the system User Guide and Hardware Maintenance Manual (UGHMM). You can get the UGHMM from the documentation DVD that comes with your server. This document also is available on the Lenovo Support Web site at:

http://www.lenovo.com/UserManuals

### 2.3.2 Creating a BIOS response file

After you finish the settings, you can save the BIOS settings in a response file. Later, you can clone the BIOS settings in this response file to other similarly configured Lenovo servers.

To create a BIOS response file, do the following:

1. Attach a USB memory key to the server if you want to save the response file in it.
   Or, connect your server to a shared network folder if you want to save the response file to the network. For instructions on how to connect to a shared network folder, refer to **2.1 Configuring network settings**.
2. Click **Save & Exit → Save Changes and Reset** or click the **Save & Reset** button on the right side directly. A confirmation window is displayed.
3. Click **Yes**. Another confirmation window is displayed, asking if you want to save a response file.
4. Click **Yes**. The Save Response File window is displayed.
5. Select the location to save the response file, and input a file name.
   **Notes**:
   - The maximum length of the file name is 226 characters.
   - Do not include the following symbols in the file name: \ / : * ? “ < > |
6. Click **Save**. Wait for several minutes until the saving process is completed.

### 2.4 Platform Update

Click the **Platform Update** tab in the left pane to enter the Platform Update interface. You can update applications and firmware for your server in the Platform Update interface. To download the update bundle files, go to the Lenovo support Web site at:

http://www.lenovo.com/drivers
2.4.1 Updating applications

The applications you can update includes TDM, Windows drivers, Linux drivers, and the Lenovo ThinkServer Diagnostics program.
Figure 2-5 Applications update interface

To update applications, do the following:

1. Select **Application** on the Platform Update interface and click **Next**. A list of applications will be shown.
2. If the update bundle file is stored on a USB memory key, insert the USB memory key to the server. If the update bundle file is stored in a shared network folder, ensure that you have configured the network settings. For instructions on how to configure the network settings, refer to 2.1 Configuring network settings.
3. Click the **Browse** button for the application you want to update. The Select File window is displayed.
4. Select the corresponding update bundle file and click **OK**. The version information is displayed in the **Available Version** column and the check box is selected automatically.
   **Note:** If the available version is older than the current version, a confirmation window will be displayed. Click **Yes** to continue, or click **No** to exit and reselect an update bundle file.
5. Repeat step 3 to step 4 to prepare all the applications you want to update.
6. When all the applications you want to update are checked, click **Flash**.
7. The update process takes several minutes. When the status for all the applications are shown as **Success**, restart the server.
8. Launch TDM and select **Platform Update** → **Application** to check if the current
versions for the applications are updated.

2.4.2 Updating firmware

Three types of firmware can be updated in the Platform Update interface, including BIOS, TSM, and Complex Programmable Logic Device (CPLD).

Note: CPLD can be updated only by Lenovo service technicians.

![Firmware update interface](image)

Figure 2-6 Firmware update interface

To update firmware, do the following:

1. Select **Firmware** in the Platform Update interface and click **Next**. A list of firmware will be shown.
   **Note:** The firmware cannot be updated in batches. The operation steps are the same for each firmware.
2. If the update bundle file is stored on a USB memory key, insert the USB memory key to the server. If the update bundle file is stored in a shared network folder, ensure that you have configured the network settings. For instructions on how to configure the network settings, refer to 2.1 Configuring network settings.
3. Click **Add Bundle Package**. The Select File window is displayed.
4. Select the corresponding update bundle file and click **OK**. The version information
is displayed in the Available Version column and the check box is selected automatically.

**Notes:**
- If the available version is older than the current version, a confirmation window will be displayed. Click Yes to continue, or click No to exit and reselect an update bundle file.
- You can view the last update information by clicking Last Bundle Status. If it is the first time to update this firmware, the Last Bundle Status button is disabled.

5. Click **Flash**. The update process takes a period of time. Ensure that the server is connected to an ac power source.

6. The server will be restarted automatically. Then, launch TDM and select **Platform Update → Firmware**. Click Last Bundle Status to verify if the update is successful.

### 2.5 Storage Management

Click the **Storage Management** tab in the left pane to open the Storage Management interface. In the Storage Management interface, you can configure RAID and hard disks. You also can save the configuration as a response file for future use.

![Figure 2-7 Storage Management interface](image-url)
2.5.1 Configuring RAID

The configurations in the Storage Management interface are the same as configurations in the ThinkServer MegaRAID SAS Software. For detailed information, refer to the MegaRAID SAS Software User Guide on the documentation DVD that comes with your server. This document also is available on the Lenovo Support Web site at:

http://www.lenovo.com/UserManuals

This document provides information about RAID and how to configure, monitor, and maintain your server RAID and related devices. This document is in English only.

Note: If you are configuring RAID, ensure that Boot Mode is set to UEFI Only or Auto in the BIOS Setup interface. Go to BIOS Setup → Boot Manager → Boot Mode. Select UEFI Only or Auto.

2.5.2 Clearing RAID configuration

To clear RAID configuration, do the following:

1. In the Storage Management interface, click Configuration Management → Clear Configuration. A confirmation window is displayed.
2. Click Yes to clear the configuration.

2.5.3 Creating a RAID response file

After you finish the RAID configuration, you can save the RAID configuration as a response file. Later, you can clone the RAID configuration in this response file to other similarly configured Lenovo servers.

To create a RAID response file, do the following:

1. Attach a USB memory key to the server if you want to save the response file in it. Or, connect your server to a shared network folder if you want to save the response file to the network. For instructions on how to connect to a shared network folder, refer to 2.1 Configuring network settings.
2. Click Save & Exit. A confirmation window is displayed.
3. Click Yes. Another confirmation window is displayed, asking if you want to save a response file.
4. Click Yes. The Save Response File window is displayed.
5. Select the location to save the response file, and input the file name.

Notes:
- The maximum length of the file name is 226 characters.
- Do not include the following symbols in the file name: \ / : * ? “ < > |
6. Click Save. Wait for several minutes until the saving process is completed.
2.6 Deployment

Click the Deployment tab in the left pane to open the Deployment interface. The Deployment interface provides you a configuration wizard for installing an operating system and saving a response file for future use.

Note: If the operating system you want to install is not supported by TDM, refer to the documentation that comes with the operating system for the instructions.

Figure 2-8 Deployment interface

2.6.1 Installing a Windows operating system

The wizard contains five steps, including Volume Selection, OS Selection, Installation Settings, Partition Options, and Summary. Follow the steps to install an operating system.
Step 1: Volume Selection

In the Volume Selection step, select a volume to install the operating system.

Notes:
- If only one RAID controller is detected, it will be selected automatically. If several RAID controllers are detected, you need to select one to install the operating system. If no RAID controller is detected, an error message will be shown. Ensure that at least one RAID controller is configured in the Storage Management interface.
- The selected RAID controller will be formatted during the installation. Be sure to back up all data in it before the installation.

Then, click the Next button to go to the OS Selection step.
Step 2: OS Selection

In the OS Selection step, select the operating system to be installed and the location of the installation files.

If the installation files are stored on a local storage device (CD/DVD/USB memory key), select **Local** and insert the storage device to your server. If the installation files are stored in a shared network folder, select **Network** and input the network information, including **IP Address**, **User Name**, **Password**, **Path**, and **File Name**.

**Note:** For **IP Address**, the number filled in the first blank must be between 1 and 223. The numbers filled in other blanks must be between 0 and 225. If you input an invalid number, an error message will be shown, and the number input will be cleared.

Then, click the Next button to go to the Installation Settings step.
Step 3: Installation Settings

![Installation Setting step (1)](image1)

Figure 2-11 Installation Setting step (1)

![Installation Setting step (2)](image2)

Figure 2-12 Installation Setting step (2)
In the Installation Settings step, do the following settings:

- **Installation Type**: Select **Core Installation** to install the core functions of the operating system or select **Full Installation** to install all the functions of the operating system.
- **Boot Mode**: Select Unified Extensible Firmware Interface (UEFI) mode or Legacy mode as the boot mode. Currently, TDM only supports UEFI mode.  
  **Note**: Ensure that the boot mode is consistent with the settings in the BIOS Setup interface.
- **Time Zone**: Select your time zone.
- **OS Language & Keyboard**: Select your preferred operating system language and the keyboard format.
- **License Key**: Input the license key. If your operating system installation file does not need a license key, select **My installation disc does not need a license key**.
- **Computer Name**: TDM will automatically create a unique computer name for your server. You can change the computer name if needed. The maximum length of the computer name is 15 characters. Do not include a space or symbol in your computer name.
- **Administrator Password**: Input your administrator password in the **Admin. Password** field and then input it again in the **Confirm Password** field. The password later can be changed by using the password tools provided by the operating system.
If you want to do more advanced configurations for the server, click the **Advanced** drop-down list icon to do the following settings:

**Figure 2-13 Installation Settings step – Advanced (1)**

**Figure 2-14 Installation Settings step – Advanced (2)**
• **Domain & Workgroup**: Configure the server to be part of a workgroup or a domain. If you select **Domain**, input the domain name, the domain administrator account, and the domain administrator password. If you select **Workgroup**, you can input the workgroup name or use the default name.

**Note**: **Workgroup** is not supported in Windows Small Business Server 2003.

- **Ethernet Controller**: Select the Ethernet controller that you want to configure network settings.
- **IP Address Settings**: If you select **Obtain an IP address automatically**, the IP address is assigned automatically by the Dynamic Host Configuration Protocol (DHCP) server. If you select **Use the following IP address**, input the **IP Address**, **Subnet Mask**, and **Default Gateway** by yourself.

**Note**: For **IP Address**, the number filled in the first blank must be between 1 and 223, except for 127. The numbers filled in the second and third blanks must be between 0 and 255. The number filled in the fourth blank must be between 1 and 254. For **Subnet Mask** and **Default Gateway**, the numbers filled in each blank must be between 0 and 255.

- **DNS Settings**: If you select **Obtain DNS server address automatically**, the Domain Name System (DNS) address is assigned automatically. If you select **Use the following DNS server address**, input the addresses of the **Preferred DNS Server** and the **Alternate DNS Server** by yourself.

**Note**: For both of the two addresses, the number filled in the first blank must be between 1 and 223, except for 127. The numbers filled in other blanks must between 0 and 255.

- **Components**: You can select one or more components for installation according to your requirements.

- **Include run-once command**: If you want to run specified commands at the end of the installation process, select the check box. A command-inputting area appears. Type one command and click **Add**. The command is added to the command list. You can add five commands at most. If you want to remove a certain command from the command list, select it and click **Remove**. The commands in the command list will be run one time only and in the order you input them.

Then, click the Next button to go to the Partition Options step.
Step 4: Partition Options

In the Partition Options step, there are two options for installing the operating system:

- **Use existing partition**: Select this option if you want to install the operating system in the existing partition of the drive. The data in other partitions will not be cleared. **Note**: If no existing partition is detected on the drive, you need to choose **Repartition the drive during installation**.

- **Repartition the drive during installation**: If you select this option, the entire drive will be repartitioned during the installation process and all data on the drive will be cleared. You need to specify the file system type and the partition size. **Notes**:
  - The default setting for the file system type is NTFS.
  - You can use the slider bar to define the partition size or input the partition size directly.

Then, click the Next button to go to the Summary step.
Step 5: Summary

All the settings you have done are listed on the Summary page. Check to see if all the settings are complete and accurate. If you need to change some settings, click the Previous button until you return to the page where you can make the changes. If all the settings are complete and accurate, click the Next button. The license agreement page for the operating system will be displayed.

**Note:** If you want to create an OS response file, select the Save response file as (.xml) check box. For details, refer to 2.6.4 Creating an OS response file.

Then, read and accept the license agreement. Click Next. The installation process starts. Wait for the installation to be finished.

### 2.6.2 Installing a Red Hat or SUSE Linux operating system

The wizard contains five steps, including Volume Selection, OS Selection, Installation Settings, Partition Options, and Summary. Follow the steps to install an operating system.
Step 1: Volume Selection

In the Volume Selection step, select a volume to install the operating system.

Notes:

- If only one RAID controller is detected, it will be selected automatically. If several RAID controllers are detected, you need to select one to install the operating system. If no RAID controller is detected, an error message will be shown. Ensure that at least one RAID controller is configured in the Storage Management interface.
- The selected RAID controller will be formatted during the installation. Be sure to back up all data in it before the installation.

Then, click the Next button to go to the OS Selection step.
Step 2: OS Selection

In the OS Selection step, select the operating system to be installed and the location of the installation files.

If the installation files are stored on a local storage device (CD/DVD/USB memory key), select Local and insert the storage device to your server. If the installation files are stored in a shared network folder, select Network and input the network information, including IP Address, User Name, Password, Path, and File Name.

Note: For IP Address, the number filled in the first blank must be between 1 and 223. The numbers filled in other blanks must be between 0 and 225. If you input an invalid number, an error message will be shown, and the number input will be cleared.

Then, click the Next button to go to the Installation Settings step.
Step 3: Installation Settings

Figure 2-19 Installation Settings step (1)

Figure 2-20 Installation Setting step (2)
In the Installation Settings step, you can do the following settings:

- **Installation Type**: Select **Core Installation** to install the core functions of the operating system or select **Full Installation** to install all the functions of the operating system.
- **Boot Mode**: Select UEFI mode or Legacy mode as the boot mode. Currently, TDM only supports UEFI mode.
  
  **Note**: Ensure that the boot mode is consistent with the settings in the BIOS Setup interface.
- **Time Zone**: Select your time zone.
- **OS Language & Keyboard**: Select your preferred operating system language and the keyboard format.
- **Host Name**: TDM will automatically create a unique host name for your server. You can change the host name if needed. The maximum length of the host name is 15 characters. Do not include a space or symbol in your host name.
- **Root Password**: Input your root user password in the **Root Password** field and then input it again in the **Confirm Password** field. The root password later can be changed by using the password tools provided by the operating system.

If you want to do more advanced configurations for the server, click the **Advanced** drop-down list icon to do the following settings:

![Figure 2-21 Installation Settings step – Advanced](image-url)
• **Ethernet Controller**: Select the Ethernet controller that you want to configure network settings.

• **IP Address Settings**: If you select **Obtain an IP address automatically**, the IP address is assigned automatically by the DHCP server. If you select **Use the following IP address**, input the IP Address, Subnet Mask, and Default Gateway by yourself.

  **Note**: For **IP Address**, the number filled in the first blank must be between 1 and 223, except for 127. The numbers filled in the second and third blanks must be between 0 and 255. The number filled in the fourth blank must be between 1 and 254. For **Subnet Mask** and **Default Gateway**, the numbers filled in each blank must be between 0 and 255.

• **DNS Settings**: If you select **Obtain DNS server address automatically**, the DNS address is assigned automatically. If you select **Use the following DNS server address**, input the addresses of the Preferred DNS Server and the Alternate DNS Server by yourself.

  **Note**: For both of the two addresses, the number filled in the first blank must be between 1 and 223, except for 127. The numbers filled in other blanks must be between 0 and 255.

Then, click the Next button to go to the Partition Options step.

**Step 4: Partition Options**

![Partition Options step](image-url)
In the Partition Options step, there are two options for installing the operating system:

- **Use existing partition**: Select this option if you want to install the operating system in the existing partition of the drive. The data in other partitions will not be cleared. **Note**: If no existing partition is detected on the drive, you need to choose **Repartition the drive during installation**.

- **Repartition the drive during installation**: If you select this option, the entire drive will be repartitioned during the installation process and all data on the drive will be cleared. You need to specify the file system type and the partition size. Three partition types need to be set:
  - **Root Partition**: The root partition size depends on the space required for the operating system and applications.
  - **Boot Partition**: This partition contains files required to boot the operating system.
  - **Swap Partition**: Swap partition is the virtual memory in Linux. When the Random Access Memory (RAM) is full, data will be stored on the swap partition temporarily. Although swap partition can be used to store data, it should not be considered as a replacement for RAM. It is located on hard disks, and has slower access speed than RAM.

**Notes**:
- The file system type for each partition type is assigned automatically. You can change the file system type by selecting an option in the drop-down list.
- You can use the slider bar to define the partition size or input the partition size directly.

Then, click the Next button to go to the Summary step.
Step 5: Summary

All the settings you have done are listed on the Summary page. Check to see if all the settings are complete and accurate. If you need to change some settings, click the Previous button until you return to the page where you can make the changes. If all the settings are complete and accurate, click the Next button. The license agreement page for the operating system will be displayed.

Note: If you want to create an OS response file, select the Save response file as (.xml) check box. For details, refer to 2.6.4 Creating an OS response file.

Then, read and accept the license agreement. Click Next. The installation process starts. Wait for the installation to be finished.

2.6.3 Installing a VMware® Linux operating system

The wizard contains three steps, including Volume Selection, OS Selection, and Installation Settings. Follow the steps to install an operating system.
Step 1: Volume Selection

In the Volume Selection step, select a volume to install the operating system.

**Notes:**

- If only one RAID controller is detected, it will be selected automatically. If several RAID controllers are detected, you need to select one to install the operating system. If no RAID controller is detected, an error message will be shown. Ensure that at least one RAID controller is configured in the Storage Management interface.
- The selected RAID controller will be formatted during the installation. Be sure to back up all data in it before the installation.

Then, click the Next button to go to the OS Selection step.
Step 2: OS Selection

In the OS Selection step, select the operating system to be installed and the location of the installation files.

If the installation files are stored on a local storage device (CD/DVD/USB memory key), select Local and insert the storage device to your server. If the installation files are stored in a shared network folder, select Network and input the network information, including IP Address, User Name, Password, Path, and File Name by yourself.

Note: For IP Address, the number filled in the first blank must be between 1 and 223. The numbers filled in other blanks must be between 0 and 225. If you input an invalid number, an error message will be shown, and the number input will be cleared.

Then, click the Next button to go to the Installation Settings step.
Step 3: Installation Settings

In the Installation Settings step, select UEFI mode or Legacy mode as the boot mode. Currently, TDM only supports UEFI mode.

**Note:** Ensure that the boot mode is consistent with the settings in the BIOS Setup interface.

Click the Next button. A confirmation window will be displayed.

Click **OK**. The installation process starts. When prompted, input the necessary commands. Wait for the installation to be finished.

### 2.6.4 Creating an OS response file

If you are installing a Windows operating system, a Red Hat® Linux operating system, or a SUSE® Linux operating system, you can save the OS deployment settings as a response file. Later, you can clone the OS deployment settings in this response file to other similarly configured Lenovo servers.

To create an OS response file, do the following:

1. Follow the wizard to go through the Volume Selection, OS Selection, Installation Settings, and Partition Options steps. For details, refer to [2.6.1 Installing a Windows operating system](#) and [2.6.2 Installing a Red Hat or SUSE Linux operating system](#).
2. Click the Next button to enter the Summary step. If all the settings are complete and accurate, select the **Save response file as (.xml)** check box, and click the Next button. A confirmation window is displayed asking you to save a response file.
3. Click **Yes**. The Save Response File window is displayed.
4. Select the location to save the response file, and input the file name.
   **Notes:**
   - The maximum length of the file name is 226 characters.
   - Do not include the following symbols in the file name: \ / : * ? “ ‘ < > |
5. Click **Save**. Wait for several minutes until the saving process is completed. The response file will be saved to the storage device (CD/DVD/USB memory key) or the shared network folder where the installation files are stored. The location is preset in the OS Selection step.
   **Note:** If you are installing a Linux operating system, and the response file is saved on a USB memory key, the USB memory key should include an FAT32 partition.

### 2.7 Cloning

Click the **Cloning** tab in the left pane to open the Cloning interface. In the Cloning interface, you can clone BIOS, RAID, or OS installation settings to your server by using response files you have created.

![Figure 2-27 Cloning interface](image)
2.7.1 BIOS cloning

To clone BIOS settings in a response file to your server, do the following:

1. Attach the USB memory key where the response file is stored to the server. Or, connect your server to the shared network folder where the response file is stored. For instructions on how to connect to a shared network folder, refer to 2.1 Configuring network settings.
2. In the Cloning interface, select the BIOS check box. The corresponding Browse button is enabled.
3. Click the Browse button. The Select File window is displayed.
4. Select the corresponding BIOS response file and click OK. The selected file name appears in the Response file name: field.
5. Click the Next button. The BIOS cloning process starts.
6. If the BIOS cloning is successful, a confirmation window will be displayed. Click OK to restart your server. The cloning process is finished.

2.7.2 RAID cloning

Note: Before RAID cloning, ensure that no RAID controller has been configured in the Storage Management interface. If any RAID controller is configured, clear the configuration first. For instructions on how to clear the RAID configuration, refer to 2.5.2 Clearing RAID configuration.

To clone RAID configuration in a response file to your server, do the following:

1. Attach the USB memory key where the response file is stored to the server. Or, connect your server to the shared network folder where the response file is stored. For instructions on how to connect to a shared network folder, refer to 2.1 Configuring network settings.
2. In the Cloning interface, select the RAID check box. The corresponding Browse button is enabled.
3. Click the Browse button. The Select File window is displayed.
4. Select the corresponding RAID response file and click OK. The selected file name appears in the Response file name: field.
5. Click the Next button. The RAID cloning process starts.
6. If the RAID cloning is successful, a Success window will be displayed. Click OK. The cloning process is finished.

2.7.3 OS cloning

Note: Before OS cloning, ensure that you have configured at least one RAID controller in the Storage Management interface. For instructions on how to configure RAID, refer to 2.5.1 Configuring RAID.

To clone OS installation settings in a response file to your server, do the following:

1. Attach the USB memory key where the response file is stored to the server. Or,
connect your server to the shared network folder where the response file is stored. For instructions on how to connect to a shared network folder, refer to 2.1 Configuring network settings.

2. In the Cloning interface, select the OS Installation check box. The corresponding Browse button is enabled.

3. Click the Browse button. The Select File window is displayed.

4. Select the corresponding OS response file and click OK. The selected file name appears in the Response file name: field.

5. Click the Next button. The Installation Summary page appears. All the settings in the OS response file are listed in this page.

6. Check to see if all the settings are consistent with your requirements.
   • If all the settings are consistent with your requirements, click the Next button to start the operating system installation process, and wait for the installation to be finished.
   • If you want to change some settings, select Modify the configuration before the OS deployment. Then, click the Next button. TDM jumps to the Deployment interface. Then, you can change the settings according to your requirements and follow the wizard to finish configurations and install the operating system.

2.8 Diagnostics

You can click the Diagnostics tab to launch the Lenovo ThinkServer Diagnostics program. The program enables you to diagnose server problems, perform some diagnostic tests, and collect system information.

For more information about Lenovo ThinkServer Diagnostics, go to http://support.lenovo.com/us/en/lenovodiagnosticssolutions/downloads. Locate the Lenovo ThinkServer Diagnostics section at the bottom of the Web page. Then, click the desired link for more information.
Chapter 3. Troubleshooting and diagnostics

This chapter provides information about basic troubleshooting and diagnostic methods to help you solve problems that might occur while using TDM.

If you cannot diagnose and solve a problem by using the information in this chapter, go to the Lenovo Support Web site at [http://www.lenovo.com/support](http://www.lenovo.com/support) for additional troubleshooting resources. You also can get help and information by telephone through the Customer Support Center. The most up-to-date telephone list for Lenovo Support is always available on the Web site at:


The following are symptoms you might experience and the suggested actions.

<table>
<thead>
<tr>
<th>No.</th>
<th>Symptom</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The process for installing an operating system continuously loops.</td>
<td>Make more space available on the HDD.</td>
</tr>
<tr>
<td>2</td>
<td>TDM cannot start the operating system media.</td>
<td>Ensure that the operating system is supported by the TDM you are using. To view the list of the supported operating systems, click the help button in the TDM main interface, and click Compatibility Notes.</td>
</tr>
<tr>
<td>3</td>
<td>No volume is found in <strong>Deployment → Volume Selection</strong>.</td>
<td>Ensure that you have configured a RAID controller for the server in the Storage Management interface. For instructions on how to configure a RAID controller, refer to 2.5.1 Configuring RAID.</td>
</tr>
<tr>
<td>4</td>
<td>When you are deploying an operating system, in the Summary step, when you click the Next button, the error message &quot;Failed to read License RTF file&quot; is displayed.</td>
<td>Click OK to continue the installation.</td>
</tr>
</tbody>
</table>
| 5   | During the operating system installation process, the error message "Failed to boot to the selected OS, press any key to reboot. Returned Status = 2" is displayed on the blank screen. | 1. Press any key to restart the server.  
2. Turn off the server.  
3. Disconnect the server from the ac power source and reconnect the server to the ac power source.  
4. Turn on the server and go to TDM to reinstall the operating system. |
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