ThinkServer System Manager User Guide

Note: Before using the information and the product it supports, be sure to read and understand Appendix A "Notices".

First Edition (June 2014)

Contents

Chapter 1. Introduction

Welcome to “Lenovo ThinkServer System Manager (TSM)” User Guide. For simplicity, in the next sections, the term “TSM” will refer to “Lenovo ThinkServer System Manager”.

This *User Guide* describes how to use the TSM on RD550, RD650 and TD350, the overview of the module features and how to set up and operate the module.

The *User Guide* is for system administrators responsible for configuring, upgrading, and maintaining the TSM. As a system administrator once you are familiar with the User Guide, you can access the TSM remotely from any location to respond to emergencies. If further assistance is required, please, proceed to the Lenovo support web site.

Some screenshots in this document may be not same as the actual TSM UI, they’re only for reference.

Terminology

The following table lists the terms that are used in this document and its corresponding descriptions.

Abbreviation	Definition
AD	Active Directory
BIOS	Basic Input Output System
BMC	Baseboard Management Controller
CPLD	Complex Programmable Logic Device
DCMI	Data Center Manageability Interface
DHCP	Dynamic Host Configuration Protocol
DIMM	Dual-Inline-Memory-Modules
DNS	Domain Name Service
FRU	Field Replaceable Unit
FQDN	Fully Qualified Domain Name
IP	Internet Protocol
IPMI	Intelligent Platform Management Interface
KVM	Keyboard, Video, and Mouse
LAN	Local Area Network
LDAP	Lightweight Directory Access Protocol
MAC	Media Access Controller

ME/NM	Node Manager
NCSI	Network Communication Services Interface
NFS	Network File System
NIC	Network Interface Controller
Nsupdate	Direct Dynamic DNS
NTP	Network Time Protocol
PEF	Platform Event Filter
POST	Power On Self Test
PSU	Power Supply Unit
RAID	Redundant Arrays of independent Disks
RADIUS	Remote Authentication Dial In User Service
SEL	System Event Log
SMASH	Systems Management Architecture for Server Hardware
SMTP	Simple Mail Transfer Protocol
SNMP	Simple Network Management Protocol
SOL	Serial Over LAN
SSH	Secure Shell
SSL	Secure Sockets Layer
TCP/IP	Transfer Control Protocol/Internet Protocol
TDM	ThinkServer Deployment Manager
TSM	ThinkServer System Manager
TSIG	Transaction SIGnature
USB	Universal Serial Bus
VLAN	Virtual Local Area Network

Safety information

WARNING

With reference to either the Guide or other documents, you should always pay particular attention to safety information before operating the ThinkServer. To ensure full compliance with the existing certification and licensing, you must follow the installation instructions in the Guide.

Power on / off: the power button does not disable TSM power. To disable the TSM, you must disconnect the AC power cord from the power outlet. When opening the chassis to install or remove the parts, you should make sure the AC power cord has been disconnected.

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Chapter 2. Overview of the Lenovo TSM

This topic describes the features of the TSM. The TSM has an embedded operating system that is integrated in the ThinkServer. Independent of the server operating system, the embedded operating system can provide a whole set of complete, stable and effective solutions for the server. As a system administrator, you can manage the server remotely through the network and view system event log messages.

Features of the TSM

The TSM is accessed through a network connection and if a remote KVM is installed, the user can remotely connect to an operating system, Embedded with remote access and related control software.

Key features of the TSM are as follows:

- Embedded Web UI - Remote power on / off, system health, system information, alert notification and event log.
- Security - open source SSL
- Compatible with IPMI V2.0
- KVM - allow remote viewing and configuring in the POST and the BIOS setup utility
- Supports Platform deployment management
- Supports SNMP using both IPv4 and IPv6.
- Supports the NTP client.
- Supports USB redirection/ Remote Media (Virtual Media) with the TSM key.
- Supports routing of management traffic through embedded AnyFabric cards.
- Supports firmware update, backup, roll back and recovery function.
- Supports Extended SEL.
- Supports chassis intrusion detection and alerting.
- Supports LDAP and LDAPS.
- Support Email alert for log notification via SMTP.
- Supports the ME/ NM function.
- Supports TSM, BIOS and software like TDM, Windows/Linux driver firmware update.
- Supports SMASH

Chapter 3. Configuring of the TSM

This topic describes how to use the server configuration utility to configure the TSM. When first installed, the TSM by default will search the DHCP server on the network to automatically assign an IP address, subnet mask and gateway. It is recommended that users manually set a fixed IP address in the BIOS.

To set an IP address, do the following:

1. Press F1 as soon as you see the Lenovo logo screen.
2. From the BIOS setup menu, select **TSM Settings → TSM Network Settings →Configuration Address Source**.
3. From the Configuration option, you can choose **Static** or **DHCP** to set the IP address.
4. When you finish the configuration, save the settings.

Table 1. IPMI 2.0 Configuration submenu

Configuration Address Source	**Static**	Static IP configuration. IP and the subnet mask can be set manually
	DHCP	Dynamic IP configuration. System can obtain IP automatically

System requirements

Supported Browsers:

- Firefox version 21+
- Internet Explorer version 10 or 11
- Google Chrome version 26+
- Safari version 5+

To use the Virtual Console, you must also have the Java Run-Time Environment (JRE) properly installed and working, including the Java plugin for your preferred Web browser. Depending on the JRE version installed, you may need to lower your Java security to run the Virtual Console.

Supported Java :

- Java 1.6 to 1.7 Update 55 for KVM/VM

Languages

The TSM supports different languages and locales. Depending on your browser, you may need to follow some specific steps to use the TSM with your preferred language.

Firefox 28

1. Select menu [Tools].
2. Select menu item [Options].
3. Select tab [Content].
4. Click button on Languages [Choose].
5. Click drop-down-box [Select a language to add...].
6. Mark a language e.g. English (United Kingdom) and click [Add].
7. Use button [Move Up] to place your language at the top of the list.
8. Click [OK] twice.
9. Reload web page (e.g. by [F5]).

Note: These steps are designed for Firefox 28. It may vary for other versions of Firefox.

Google Chrome 34

1. Select menu [ALT+E].
2. Select menu item [Settings].
3. Scroll down to the Languages option and click button [Language and input settings...].
4. Click button [Add].
5. Select a language e.g. English (United Kingdom) and click [OK].
6. Click button [Display Google Chrome in this language].
7. Close all Google Chrome windows and re-launch it for this change to take effect.

Note: These steps are designed for Google Chrome 34. It may vary for other versions of Google Chrome.

Internet Explorer 11

1. Go to Windows Control Panel.
2. Choose Clock, Language, and Region.
3. Click Region and Language.
4. Select tab [Formats].
5. Click drop-down [Format].
6. Choose a language e.g. English (United Kingdom) and click [Ok].
7. Reload web page (e.g. by [F5]).

Note: These steps are designed for Internet Explorer 11. It may vary for other versions of Internet Explorer.

Safari 5.1.17:

1. Go to Windows Control Panel.
2. Choose Clock, Language, and Region.
3. Click on Install or uninstall display languages.
4. Choose Install display languages.
5. If you have not downloaded the language pack file you have to launch the Windows Update.
6. Most of the languages packs that you need, will be hidden, so choose 'Restore hidden updates' and you will see all language packs.
7. Select the language pack you want and click 'Restore' button.
8. After downloading and installing the language pack you might have to restart your computer.

Note: These steps are designed for Safari 5.1.17. It may vary for other versions of Safari.

Supported Locales

The list below presents the locales that are supported by TSM:

- Chinese Simplified (zh-cn)
- Chinese Traditional (zh-tw)
- Chinese Traditional (zh-hk)
- Danish (da)
- Dutch (nl)
- English (en)
- English (en-us)
- French (fr)
- French (fr-fr)
- German (de)
- German (de-de)
- Italian (it)
- Japanese (ja)
- Korean (ko)
- Korean (ko-kr)
- Portuguese (pt-br)
- Russian (ru)
- Spanish (es)
- Spanish (es-es)
- Thai (th)

Chapter 4. TSM Quick Start

Connecting to the TSM

The TSM has an embedded Web server and an application with multiple standard interfaces. This topic describes these interfaces and their usages. You can use the TCP/IP protocol to access these interfaces.

For more information about the initial settings, see Chapter 3 “Configuring of the TSM” on page 7. The default user name and password are as follows:

- Username = lenovo
- Password = len0vO

The TSM is accessible through standard Java-enabled Web browsers with HTTP and HTTPS. When accessing the TSM via the HTTPS protocol, the browser may prompt you to trust and install the security digital certification. Just follow the prompts to import and confirm the certification.

Logging on

To log on to the TSM, please do following:

1. Enter the IP address assigned by the TSM into the Web browser.
   For example:
   http://10.99.87.131/
   For secure connection, refer to the following example:
   https://10.99.87.131/
   The web browser will then be directed to the logon page of the TSM.
2. On the logon page of the TSM, enter the user name and password.
   For example:
   • Username = lenovo
   • Password = len0vO

3. Click **Sign in** to view the home page of the TSM.

Navigation

When you have successfully logged on to the TSM, the TSM dashboard is displayed. You can select the left or right arrows to navigate between dashboard pages. The information and tasks found on each dashboard page is listed in the following table.

Table 2 . Properties on the TSM dashboard:

Tab	Comments
Dashboard1	This dashboard contains the following information: • Current Time • SYSTEM SUMMARY • LATEST EVENT LOG ENTRIES • Ambient and PSU status • POWER CONTROL • LAUNCH CONSOLE • NIC
Dashboard2	This dashboard contains the following features: • FRU Inventory • Power Management • Users • Networking • Virtual Console • Logging • SMTP Settings • NTP Settings • SSL Cert. Settings • Services Management • Sensor Monitoring • Firewall • Factory Reset • PEF Management • Firmware Update • Backup and Restore • Serial Over LAN

Table 3. Properties on the top of the TSM dashboard:

Tab	Comments
Hostname	Show current server MAC address
Username	Show current user name
Search icon	Search the features by key word

Logging out

You can log out of the dashboard at any time by clicking on the gear icon located in the bottom right corner of the page and selecting “Logout.” The TSM will only terminate sessions that are properly logged out from or if they have exceeded the inactive timeout period. The inactive timeout period can be configured through the Services Management page. The default timeout period for a Web session is 30 minutes. Also, in the same Services Management page, it is possible to terminate any session, including these inactive sessions not properly ended by a log out.

Chapter 5. TSM Web Console Options

This topic describes the TSM web console. You can check the status of sensors presented by the ThinkServer, view the installed hardware components, grant access to other users, and configure TSM settings. This section presents all available features and the possible operations for each one.

Log in and access control

In order to access all features available on the TSM, you must first log in. The TSM supports local users as well as Active Directory and LDAP. You may need to ask your system administrator about credentials to log in.

Note:

To log in to the TSM web interface, you must provide both a valid Username and a Password. Both fields are mandatory and should be filled properly. For Active Directory and LDAP services, the Username field **doesn't** require the domain before the username itself (for example, domainABC\userXYZ).

By default, the TSM will try to authenticate the provided credentials in the following order:

1. Locally
2. LDAP (if enabled)
3. Active Directory (if enabled)

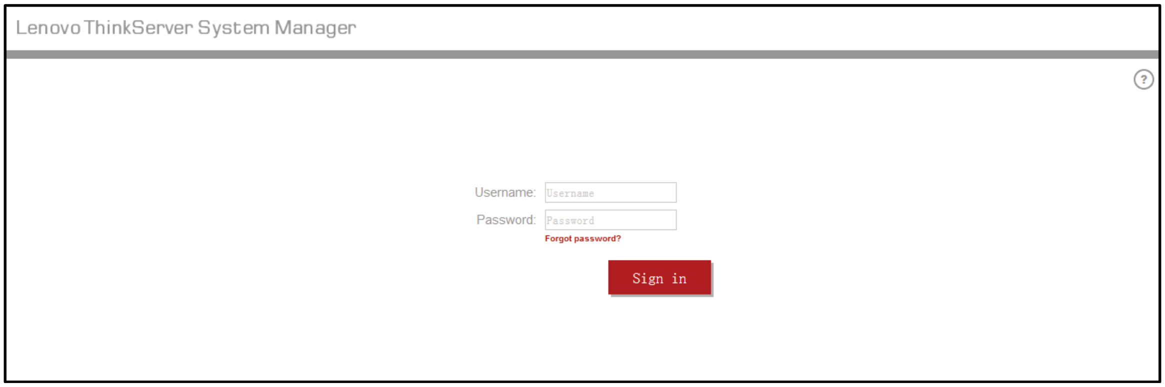


Figure 1. Logon page

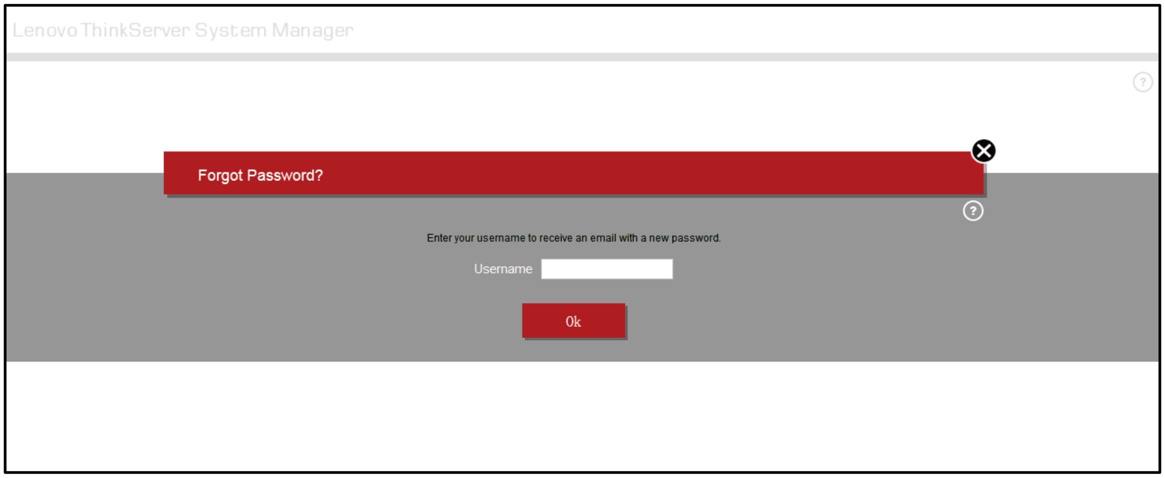
Forgot password

The “Forgot password” mechanism is only available for local users that have a valid email address registered in TSM. LDAP and Active Directory users must contact the system administrator to reset their password. Also, because the “Forgot password” mechanism relies on email messages SMTP must be properly configured in TSM.

If you forget your password, the TSM can create a new password and send it to your registered email. Just click the "Forgot Password?" link and input your username. You will receive an email message containing the new password to access the TSM. After logging in using your new password, you can change the password by accessing your profile.

Another method can be used to reset a forgotten password:

Go into the BIOS setup menu and select “TSM Settings” -> ”TSM User Account settings” -> “Change Pa ssword” . Select the option “Create New Password”. This password is for User ID 2 and Administrative P assword.



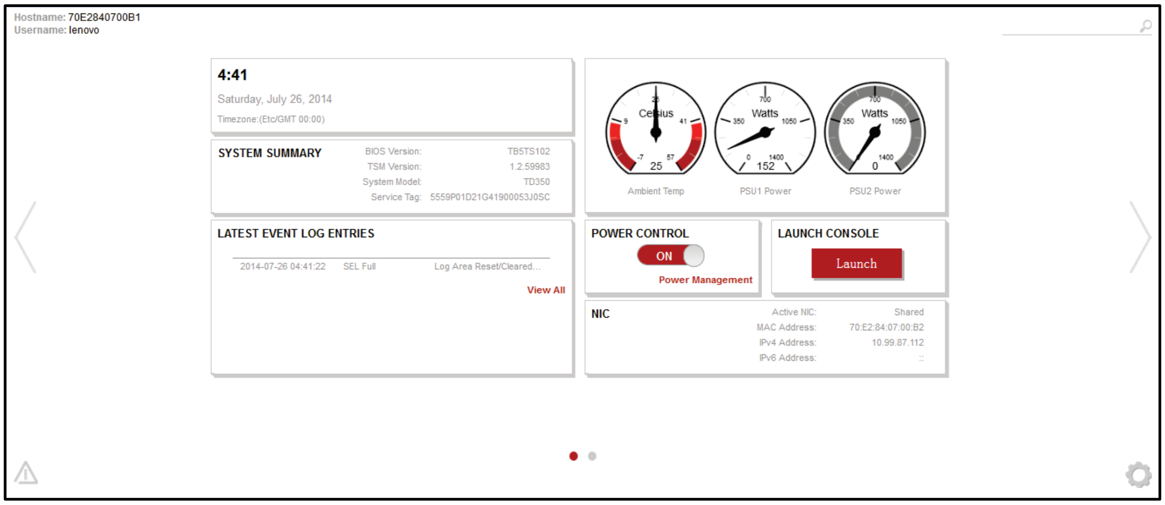
Enter your username to receive an email with a new password.

Figure 2. Forgot Password dialog

Dashboard

After logging in, the TSM presents a Dashboard page showing overall server status. Use the left and right arrows to navigate through other Dashboard pages that contain icons to access features such as “**SMTP Settings**”, “**Users**” and “**Virtual Console**”.

In addition to the left and right arrows, all pages have a “**Search**” button to search for specific features or functions. Moreover, if a new log entry is added due to an abnormal sensor state, an “**Alerts**” icon will appear at the bottom left of the Dashboard.


Hostname: 70E2840700B1
Username: lenovo

4:41
Saturday, July 26, 2014
Timezone:(Etc/GMT 00:00)

SYSTEM SUMMARY
BIOS Version: TB5TS102
TSM Version: 1.2.59983
System Model: TD350
Service Tag: 5559P01D21G41900053J0SC

LATEST EVENT LOG ENTRIES
2014-07-26 04:41:22 SEL Full Log Area Reset/Cleared...

NIC
Active NIC: Shared
MAC Address: 70:E2:84:07:00:B2
IPv4 Address: 10.99.87.112
IPv6 Address: ::

Figure 3-1. Dashboard 1

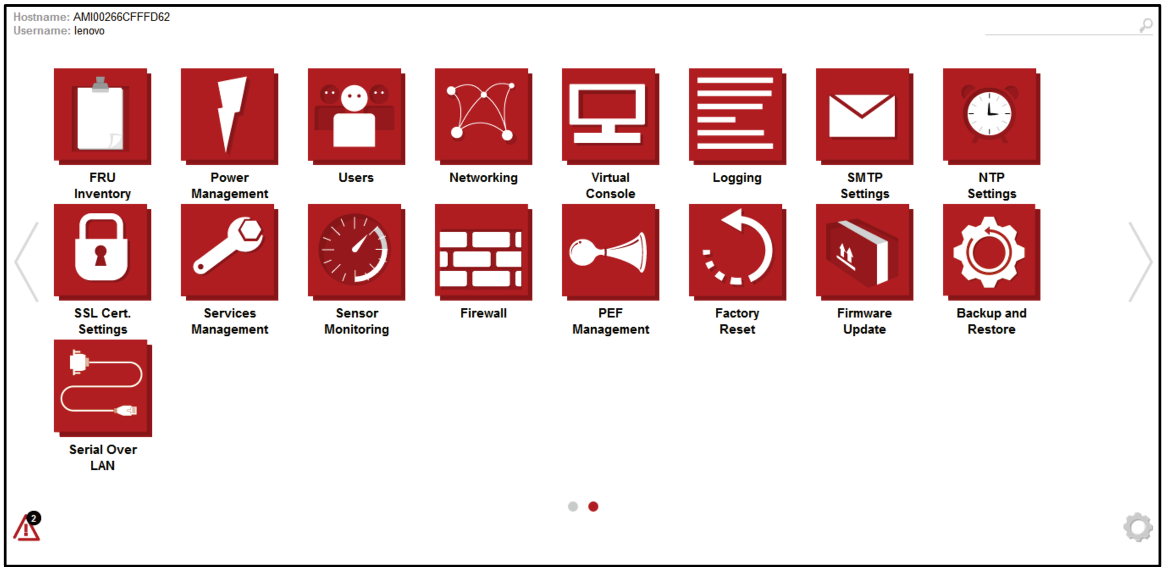
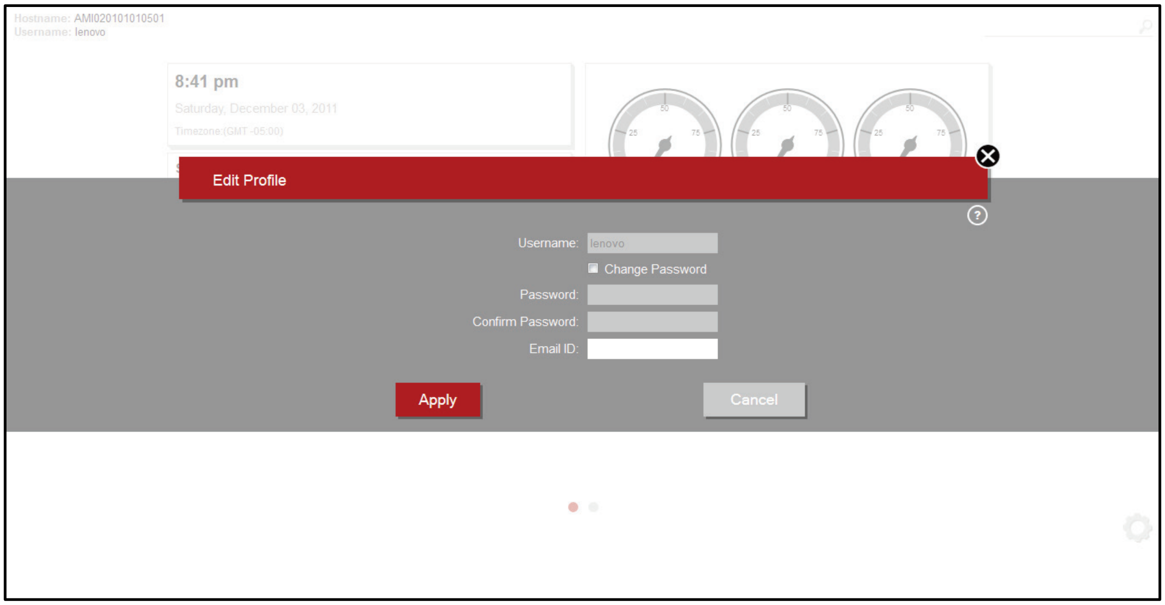

Hostname: AMI00266CFFFD62
Username: lenovo

Figure 3-2. Dashboard 2

Edit profile

The "**Edit Profile**" option of the TSM allows you to change your own password and email address. "**Edit Profile**" is available only for local users. Active Directory and LDAP users should contact the system administrator and request to change the password.

To edit your profile select the Settings icon at the bottom right of the Dashboard.



Hostname: AMI020101010501
Username: lenovo

8:41 pm
Saturday, December 03, 2011
Timezone:(GMT -05:00)

Edit Profile

Username: lenovo
□ Change Password
Password:
Confirm Password:
Email ID:

Figure 4. Edit profile

Change password

To change your password, select the "**Change password**" option and provide a new password. Some rules must be observed when changing a password:

- The password must be at the least 1 character long and at the most 16 characters long.
- Values entered in "Password" and "Confirm password" fields must be the same.

Email address

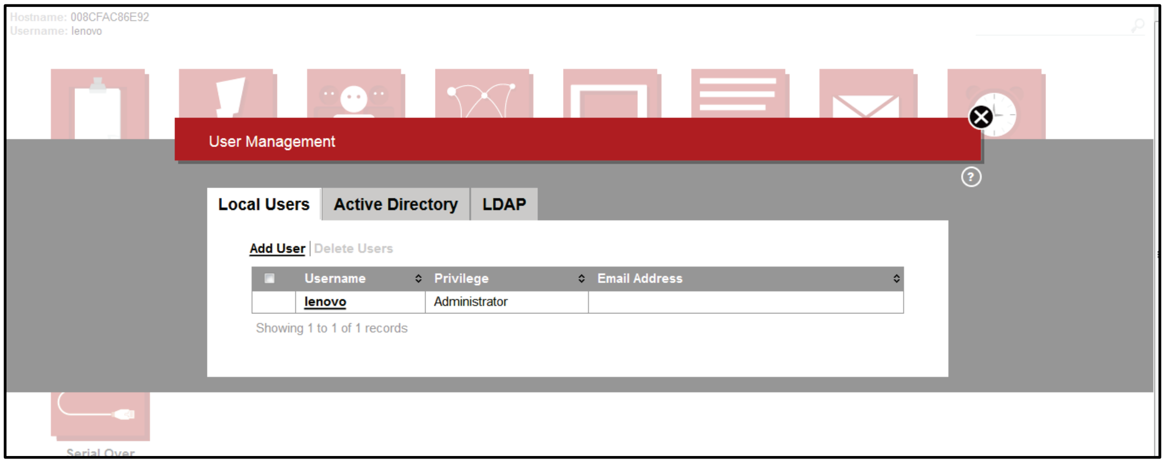
It is recommended that you enter a valid email address when editing your user profile. Local users can use the "Forgot password" mechanism provided on the Login page to reset a forgotten password. A new password is generated and sent to the configured email address.

In addition, it is possible to configure the TSM to send email messages when the status of the system changes or a critical error occurs. To receive email messages from the TSM, a valid SMTP server must be configured.

User Management

The User Management feature allows you to manage all users that have access to the TSM. It is possible, for example, to create local users configure Active Directory and LDAP servers and grant access rights to Active Directory or LDAP groups to use the features available on the TSM.

Local Users



□	Username	Privilege	Email Address
	lenovo	Administrator	

Showing 1 to 1 of 1 records

Figure 5. Local Users

Local users are user accounts that are valid only to access TSM and are not related to any other directory services such as Active Directory and LDAP. The Local Users tab presents a table with all existing users.

In order to create a new local user account, click the "**Add User**" option. Another dialog will open with fields to configure a new local user account. It is possible to have up to 9 local users configured.

To remove local user accounts, you must first select the local users to be removed by checking the boxes next to the usernames. When one or more local users are selected, the "**Delete Users**" option will be enabled. Clicking on this option will remove the selected local user accounts. Note that it is not possible to remove the user currently logged in.

To edit local user account, click on the username. A dialog will open that allows you to change password, email address, and other fields. However, it is not possible to change the username itself.

Username

When adding a new user, a username must be provided. A valid username must follow a few rules:

- Username must be at the least 1 character long and at the most 16 characters long.
- Alpha-numeric characters are allowed in the username, but it must start with an alphabetical character.
- Special characters, such as ','(comma), '.'(period), ':'(colon), ';'(semicolon), ' '(space), '/'(slash),

'\'(backslash), '('(left bracket) and ')'(right bracket), are not allowed.

- Usernames are case-sensitive.

Note: If a username is edited, the user must logout and login again for the changes to be applied.

Changing password

All local users must have a password configured. Some rules must be observed when setting or changing the password:

- The password must be at the least 1 character long and at the most 16 characters long.
- Values entered in "Password" and "Confirm password" fields must be the same.

Email address configuration

It is recommended that you enter a valid email address when adding a new local user or editing an existing local user. Local users can use the "Forgot password" mechanism provided on the Login page to reset a forgotten password. A new password is generated and sent to the configured email address.

In addition, it is possible to configure the TSM to send email messages when the status of the system changes or a critical error occurs.

To receive email messages from the TSM, a valid SMTP server must be configured.

Privileges

The “Privilege” drop-down allows you to select the access rights a user will have when accessing the TSM. Depending on the feature in TSM, Administrator rights are required to access and change configurations. Users with the “**Operator**” or “**User**” privileges have restricted access. Please, refer to the Privileges Table in this document to view the detailed access rights for “**Operator**” and “**User**”.

In addition to the overall user privilege, it is also possible to explicitly configure access rights to Virtual Console (KVM) and Virtual Media when adding or editing a group.

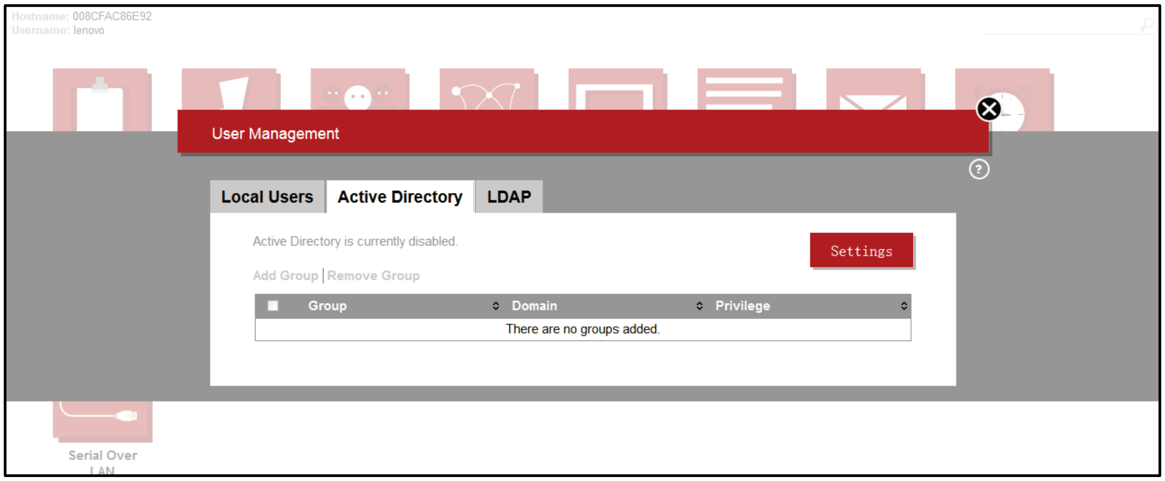
Active Directory

The “Active Directory” is a directory service for Windows domain networks that can be used to authenticate users in this kind of network. Once properly configured, it is possible to grant access rights to Active Directory groups and their members to access the TSM.

Table 4. Active Directory settings:

Option	Comments

Settings	Configure and manage the domain controller of the Active Directory to access TSM.
Add Group	Grant access rights to an Active Directory group. Up to **5** Active Directory groups can be configured to access TSM.
Remove Group	Remove access rights from the selected groups.
Group	Group name must be at the least **1** character long and at the most **64** characters long. Only alpha-numeric, '-' (hyphen) and '_' (underscore) are allowed.
Domain	The domain where the group is located must be entered. By default, this is the same domain that was configured in the Active Directory settings dialog.
Privilege	The access rights the members of the group will have when accessing the TSM. Administrator rights are required to change access and change configurations. Users with the "**Operator**" or "**User**" privileges have restricted access. Please, refer to the Privileges Table in this document to check the detailed view rights for "**Operator**" and "**User**".



Hostname: 008CFAC86E92
Username: lenovo

Active Directory is currently disabled.

Group	Domain	Privilege
There are no groups added.		

Figure 6. Active Directory

LDAP

Similar to Active Directory, the Lightweight Directory Access Protocol (LDAP) is another directory service over network that can be used to authenticate users. Once configured, it is possible to grant access rights to LDAP groups and their members to access the TSM.

Setting

The "LDAP Settings" dialog allows you to enable or disable the LDAP Authentication and configure the server address where the directories are available.

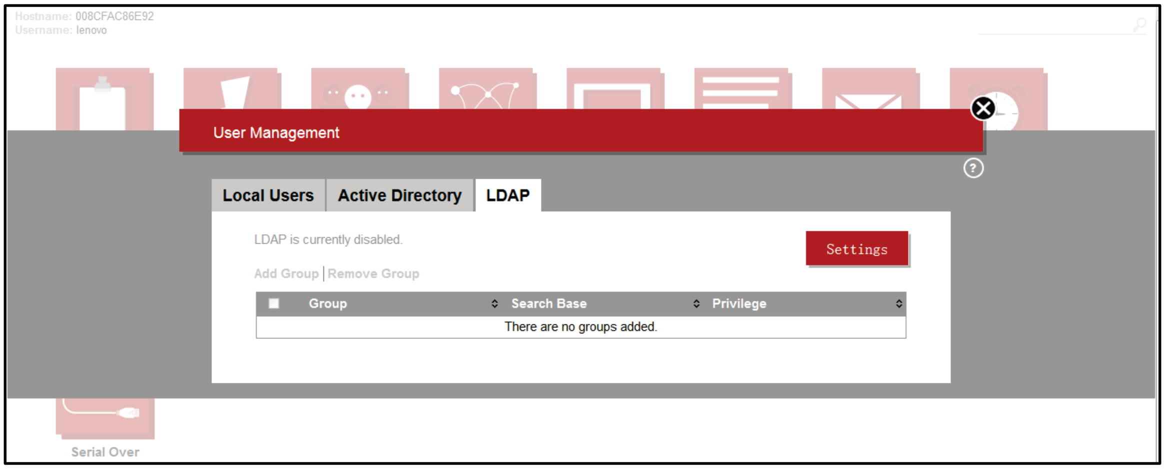
To enable or disable the LDAP, use "LDAP Authentication" switch.

An encryption type can be chosen in the Encrypted Type dropdown. The possible values are 'No Encrypted', 'SSL' and 'StartTLS'. If StartTLS is chosen, Common Name Type offers two options: IP Address or FQDN (Fully Qualified Domain Name).

To configure the location of the LDAP, a valid server address and a port in this server address must be properly specified. Port value by default is 389, but it can be a value in a range from 1 to 65535.

Additionally, a Distinguished Name (DN) and a Search Base must be provided. Both should be at the least 4 and at the most 63 alpha-numeric characters long.

'Attribute of User Login' tells the LDAP server which attribute should be used to identify the user. Supported values are 'cn' or 'uid'. 'CA Certificate File', 'Certificate File' and 'Private Key' are optional and can be provided when encryption type is set to 'StartTLS'. The extension for these files is usually '.pem'.



Hostname: 008CFAC86E92
Username: lenovo

User Management

LDAP is currently disabled.

□	Group	Search Base	Privilege
There are no groups added.			

Figure 7. LDAP

Table 5. LDAP settings:

Option	Comments
Settings	Set and manage the LDAP server to access TSM.
Add Group	Grant access rights to an LDAP group.Up to 5 LDAP groups can be configured to access TSM.
Remove Group	Remove access rights from the selected groups.
Group name	Group name must be at the least 1 character long and at the most 16 characters long. Alpha-numeric characters are allowed in the group name, but it must start with an alphabetical character. Special characters, such as ','(comma), '.'(period), ':'(colon), ';'(semicolon), ' '(space), '/'(slash), '\'(backslash), '('(left bracket) and ')'(right bracket), are not allowed. Group names are case-sensitive

Search Base	Retrieve information about all objects within a specific scope that have certain characteristics
Privilege	The access rights the members of the group will have when accessing the TSM. Administrator rights are required to change access and change configurations. Users with the "**Operator**" or "**User**" privileges have restricted access. Please, refer to the Privileges Table in this document to view the detailed access rights for "**Operator**" and "**User**". Besides the overall user privilege, it is also possible to explicitly configure access rights to Virtual Console (KVM) and Virtual Media when adding or editing a group.

Authentication Order

Authentication Order presents which authentication method will be applied when the user is logging in. The provided credentials will be checked against the first authentication method. If failed, the second authentication method will be tried and so on.

This tab will only be displayed if Active Directory or LDAP are enabled. Otherwise it will be hidden.

It's possible to reorder the methods by dragging and dropping their boxes. Also, it's possible to restore the default sorting by clicking on 'Restore to default order' link. The default order is the following:

- Local
- LDAP (if enabled)
- Active Directory (if enabled)

Privileges Table

TSM allows granting different access rights for users. "Administrator" users have access to all features and settings available and can modify them. Users with "Operator" and "User" privileges will have limited access to the features. The tables below present the access rights for users with "Operator" and "User" privileges.

Table 6. Privileges Table (Operator):

Feature	Access Rights (Operator)
Dashboard	Read all information provided, but can't use the On/Off switch of Power Management.
Backup and Restore	Can't access the feature, backup or restore configurations.
Factory Reset	Can't access the feature or start a factory reset.
Firewall	Read all settings, but can't change them.
Firmware Update	Can't access the feature or update firmware.
FRU Inventory	Read all information provided.
Logging - Event Log	Read all information provided, but can't clear the event log entries.
Logging - Audit Log	Read all information provided, but can't enable/disable audit log.
Networking - NIC	Read all settings, but can't change them.
Networking - DNS	Read all settings, but can't change them.
Networking - Link	Read all settings, but can't change them.
NTP Settings	Read all settings, but can't change them.
PEF Management	View the list of event filters, alert policies and LAN Destinations, but can't add, edit or remove them.
Power Management - Power Status	Check the Power Status, but can't use any of the power controls
Power Management - Power Button	Can't access or change the power button settings.
Sensor Monitoring	View current readings of the sensors, but can't open the details for the sensors.
Serial Over LAN	Read all settings, but can't change them.
Services Management	View current settings for all services, but can't change them or view active sessions.
SMTP Settings	Read all settings, but can't change them.
SSL Certificate Settings	Access information about the current certificate, but can't change the certificate.
Users - Local Users	View list of users, but can't add, edit or remove users.
Users - Active Directory	View list of groups and if Active Directory is active, but can't add, edit or remove groups and can't change Active Directory settings.
Users - LDAP	View list of groups and if LDAP is active, but can't add, edit or remove groups and can't change LDAP settings.
Users - Authentication Order	View current authentication order but can’t change.
Virtual Console - Console Launcher	View the console screenshot and launch console if the specific privilege has been given.
Virtual Console - Settings	Read all settings, but can't change them.
Virtual Console - Remote Images	View if remote images are enabled or not and the list of remote images, but can't change anything.

Table 7. Privileges Table (User):

Feature	Access Rights (User)
Dashboard	View System Summary, the latest Event Logs, Sensors and Launch Console (if the specific privilege has been granted), but can't use the On/Off switch of Power Management, view time or network information.
Backup and Restore	Can't access the feature, backup or restore configurations.
Factory Reset	Can't access the feature or start a factory reset.
Firewall	Can't access the feature or configure firewall rules.
Firmware Update	Can't access the feature or update firmware.
FRU Inventory	Read all information provided.
Logging - Event Log	Read all information provided, but can't clear the event log entries.
Logging - Audit Log	Read all information provided, but can't enable/disable audit log.
Networking - NIC, DNS and Link	Can't access or configure any of the network settings.
NTP Settings	Can't access the feature or change NTP settings.
PEF Management	Can't access the feature or configure event filters.
Power Management - Power Status	Check the Power Status, but can't use any of the power controls
Power Management - Power Button	Can't access or change the power button settings.
Sensor Monitoring	View current readings of the sensors, but can't open the details for the sensors.
Serial Over LAN	Can't access the feature or configure Serial Over LAN.
Services Management	View current list but can't configure services.
SMTP Settings	Can't access the feature or configure SMTP Settings.
SSL Certificate Settings	Access information about the current certificate, but can't change the certificate.
Users - Local Users, Active Directory, LDAP and Authentication Order	Can't access or configure any of the user settings.
Virtual Console - Console Launcher	View the console screenshot and launch console if the specific privilege has been given.
Virtual Console - Settings	Read all settings, but can't change them.
Virtual Console - Remote Images	View if remote images are enabled or not and the list of remote images, but can't change anything.

FRU Inventory

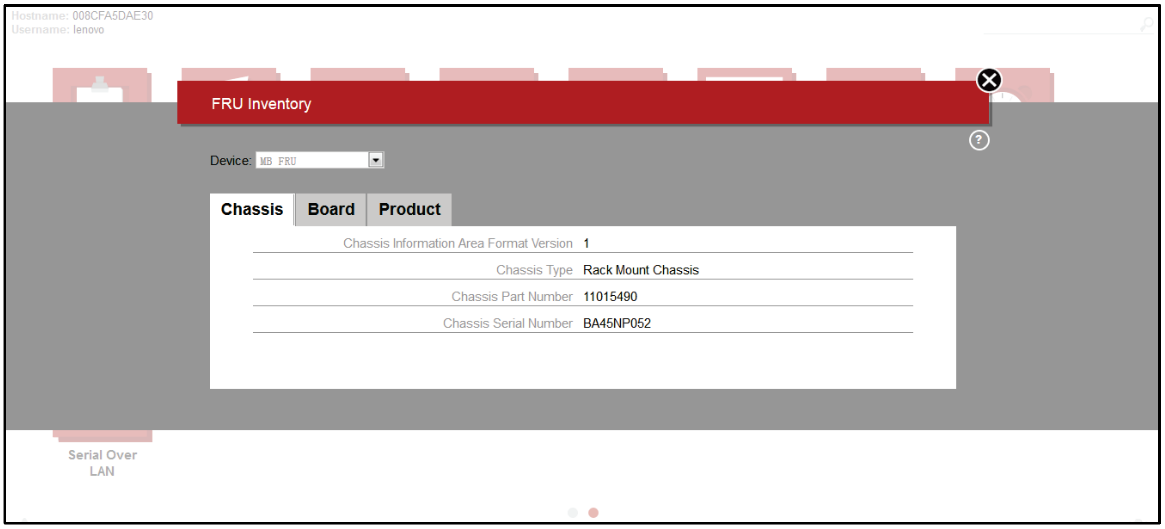
A FRU (Field Replaceable Unit) is a ThinkServer component that can be easily removed and replaced without having to send the entire system for repair. The TSM displays FRU part information for AnyFabric card, riser card, midplane, backplane, CPU, DIMM, PSU, and RAID components if they are installed.

The FRU Inventory dialog lists all of the existing FRUs and provides detailed information about them, such as:

- Chassis: type, serial number, part number.
- Board: manufacturer, product name, serial number, part number.
- Product: manufacturer, part number, version.

It is important to notice that CPU and DIMM information will be available only after the host is powered on at least once. If any CPU or DIMM item is modified while the host is powered off, you must power it on again in order to get the updated information in TSM.

Use the dropdown list at the top of the page to select a specific FRU and see details about it.



Hostname: 008CFA5DAE30
Username: lenovo

FRU Inventory

Device: MB FRU

Chassis Information Area Format Version	1
Chassis Type	Rack Mount Chassis
Chassis Part Number	11015490
Chassis Serial Number	BA45NP052

Figure 8. FRU Inventory

Power Management

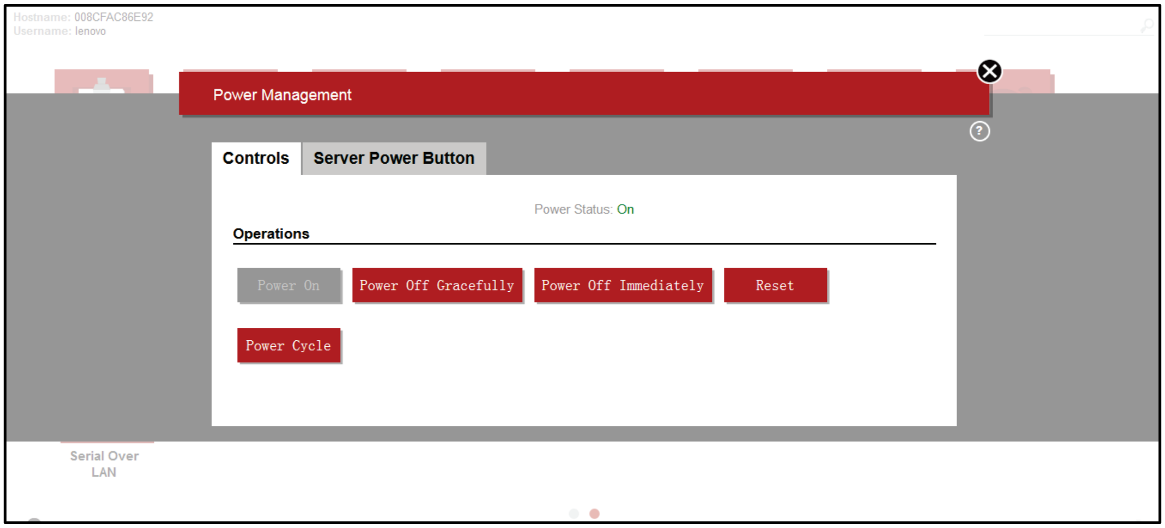
Power Management allows you to monitor and manipulate the power status of the TSM. It is possible, for example, to power on/off the server, and enable or disable the physical power button.

Controls

The Controls tab presents the power status of the server; on or off. There are 5 options for powering the server on or off:

- Power On: power on the server.
- Power Off Gracefully: initiate the operating system shutdown prior to the shutdown.
- Power Off Immediately: immediately power off the server.

- Reset: reboot the server without powering off.
- Power Cycle: power off and then reboot the server.


Hostname: 008CFAC86E92
Username: lenovo

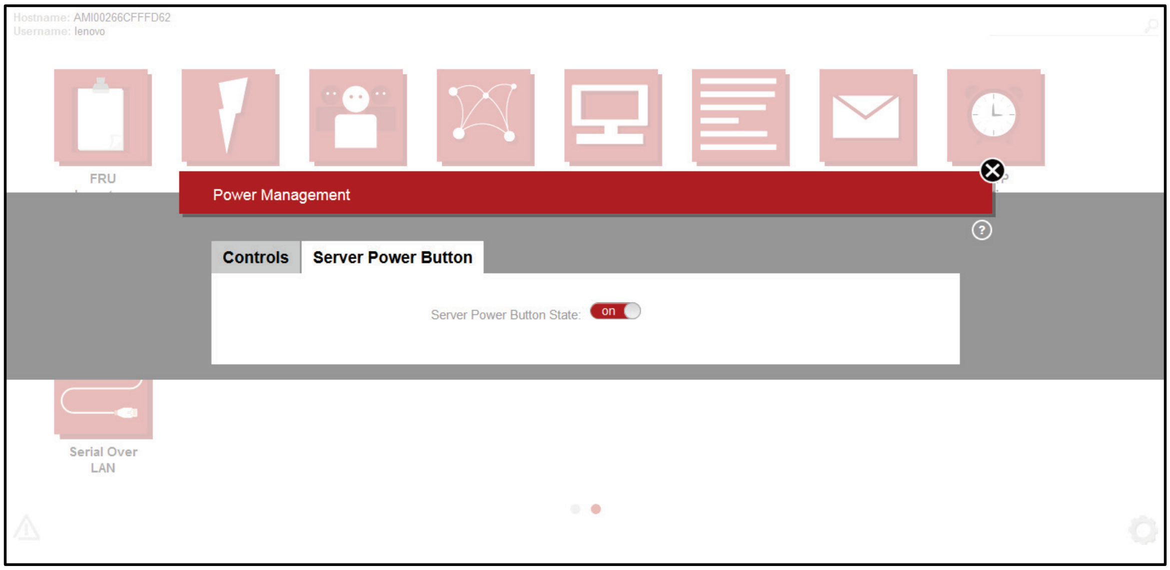
Power Management

Power Status: On

Figure 9. Controls

Server Power Button

This tab allows you to enable/disable the physical power button on the server. If enabled (switch control is "On"), the physical power button can power on/off the server. If disabled (switch control is "Off"), the power button can’t power the server on or off.


Hostname: AMI00266CFFFD62
Username: lenovo

Power Management

Server Power Button State: on

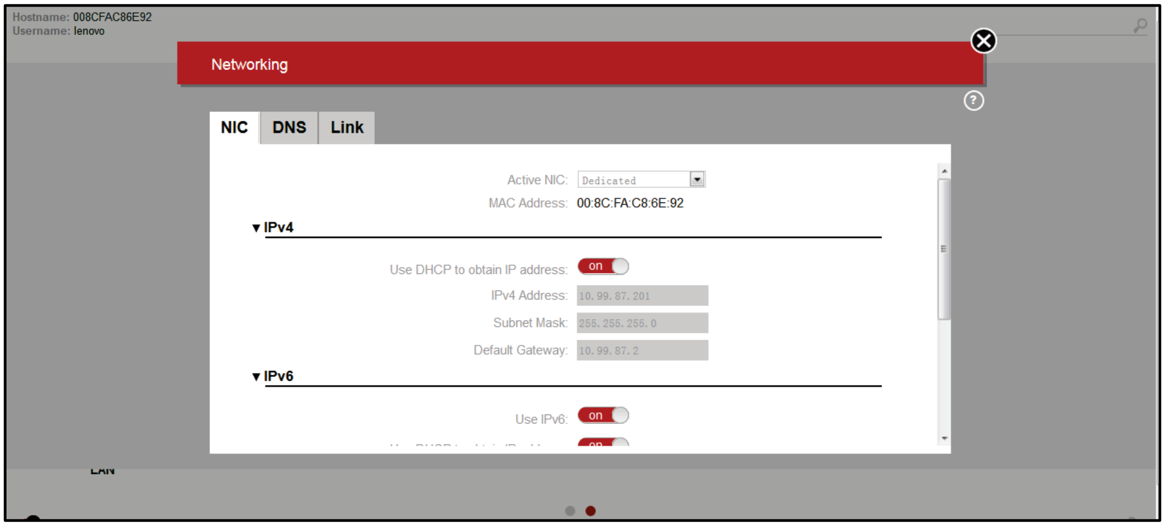
Figure 10. Server Power Button

Networking

The Networking dialog provides settings for network configuration from the TSM. The available settings are grouped in tabs: NIC, DNS and Link.

NIC

The NIC (Network Interface Controller) tab allows you to configure the IP address and VLAN for the active NIC. It also shows the MAC address of the active NIC.



Hostname: 008CFAC86E92
Username: lenovo

Active NIC: Dedicated
MAC Address: 00:8C:FA:C8:6E:92

▾ IPv4

Use DHCP to obtain IP address: on
IPv4 Address: 10.99.87.201
Subnet Mask: 255.255.255.0
Default Gateway: 10.99.87.2

▾ IPv6

Use IPv6: on

Figure 11. NIC

Table 8. NIC settings:

Option		Comment
NIC	(Dedicated / Shared)	With 'Active NIC' control, it is possible to select which NIC to use. With the shared NIC, it is not possible to configure the link speed or duplex mode in the 'Link' tab. MAC Address is read only.
IP	IPv4 / IPv6	Only IPv6 can be disabled. For both IPv4 and IPv6 it is possible to enable DHCP to get an address automatically. If DHCP is disabled, all fields to configure IPv4 or IPv6 must be filled and OS installation through the iKVM is only supported in dedicated mode.
VLAN		Select to enable VLAN. The VLAN ID range is from 2 to 4094. The VLAN priority value is from 1 to 7.

DNS

There are several DNS (Domain Name Service) settings that can be configured in the "DNS" tab. The "DNS Service" switch allows you to enable or disable all DNS configurations in the TSM. There is also a specific switch control to enable or disable multicast DNS, which provides a zero configuration host name resolution service.

The host name can be automatically or manually configured using the controls available in the "DNS" tab. If the host name needs to be manually configured, there are a few rules to be observed:

- Must have only alpha-numeric characters and '-' (hyphen) and '_' (underscore).
- No other special characters are allowed.
- The first and the last character can’t be '-' (hyphen).
- Host name must be 1 to 63 characters long.
- This function may change the IP address of the device, and you may lose the connectivity in this browser session. Reconnect using a new browser session after applying the changes

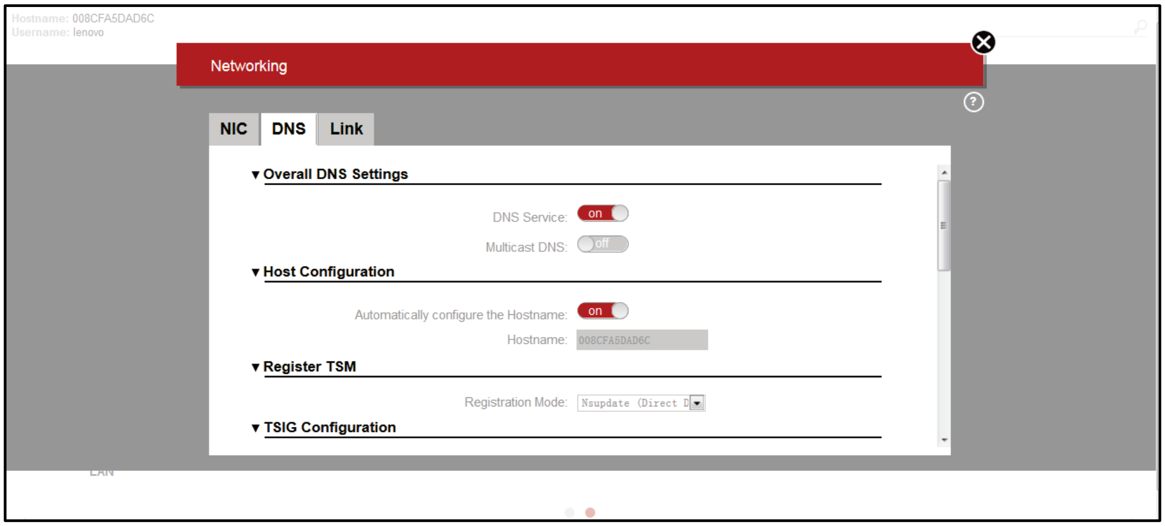
The ‘Register BMC’ option allows you to register the TSM using one of the following options: Nsupdate (Direct Dynamic DNS), DHCP Client “FQDN” to register through the DHCP server, “Hostname” or None. If ‘Nsupdate’ is selected, TSIG authentication may also be required. In this case, a TSIG private file will be needed. Use the 'Choose File' button to select a TSIG private file on your computer. The date and time of the configuration will be displayed in the 'Current TSIG Private File' field.

The domain name for the NIC can be viewed using the 'Domain Settings' control under the 'Domain Name Configuration' group. The same control has a 'Manual' option, allows the user to manually enter the domain name.

The last DNS configurations are to set up the DNS server addresses (the ones used to retrieve URLs and other addresses). The DNS server addresses can be automatically retrieved or manually entered.

If the 'DNS Server Settings' is configured to 'Automatic', the IP addresses for the DNS servers will be automatically retrieved using DHCP. Therefore, this option is only valid if DHCP is enabled. In this case, the 'IP Priority' must be selected between 'IPv4' and 'IPv6'. If 'IPv4' is selected, it will retrieve 2 IPv4 DNS servers and 1 IPv6 DNS server. Otherwise, it will retrieve 2 IPv6 DNS servers and 1 IPv4 DNS server.

Selecting the 'Manual' option for 'DNS Server Settings', at least one DNS server must be typed - it can be an IPv4 or an IPv6 address. If desirable, two additional DNS servers can be entered in either IPv4 or IPv6 format. In other words, with the 'Manual' option, it is possible to configure 1 to 3 DNS servers using any mix of IPv4 or IPv6 formats.



Hostname: 008CFA5DAD6C
Username: lenovo

Networking

▾ Overall DNS Settings

DNS Service: on

Multicast DNS: off

▾ Host Configuration

Automatically configure the Hostname: on

Hostname: 008CFA5DAD6C

▾ Register TSM

Registration Mode: Nsupdate (Direct D

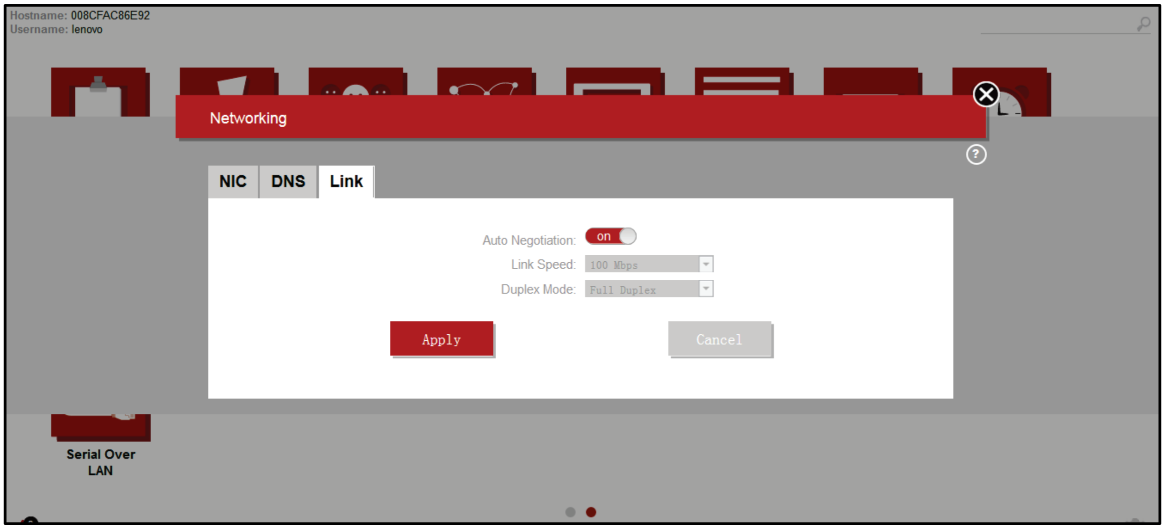
▾ TSIG Configuration

Figure 12. DNS

Link

The 'Link' tab provides settings to configure link speed and duplex mode. However, these settings can be changed only if the dedicated NIC is active. Otherwise, if the user has a shared NIC configured, it is not possible to configure link speed or duplex mode.

If 'Auto Negotiation' is turned on, both link speed and duplex mode are automatically set to achieve the best possible mode of operation. However, it is possible to manually configure link speed and duplex mode by turning off 'Auto Negotiation'.



Hostname: 008CFAC86E92
Username: lenovo

Networking

Auto Negotiation: on

Link Speed: 100 Mbps

Duplex Mode: Full Duplex

Figure 13. Link

Virtual Console

Use the Virtual Console to access the server through the network. The Virtual Console dialog provides both "Launch Console" feature and the whole set of configurations for the console.

Console Launcher

The "**Console Launcher**" tab has a button to launch the Virtual Console. In addition to the "**Launch Console**" button, the tab also presents a screenshot of the server.

In order to launch the Virtual Console, you must have the Java Run-Time Environment (JRE) properly installed and working, including the Java Plugin for your preferred Web browser. Depending on the JRE version installed, you may need to lower your Java security to run the Virtual Console. The recommended JRE version to use with the Virtual Console is JRE1.7.0_51-b13.

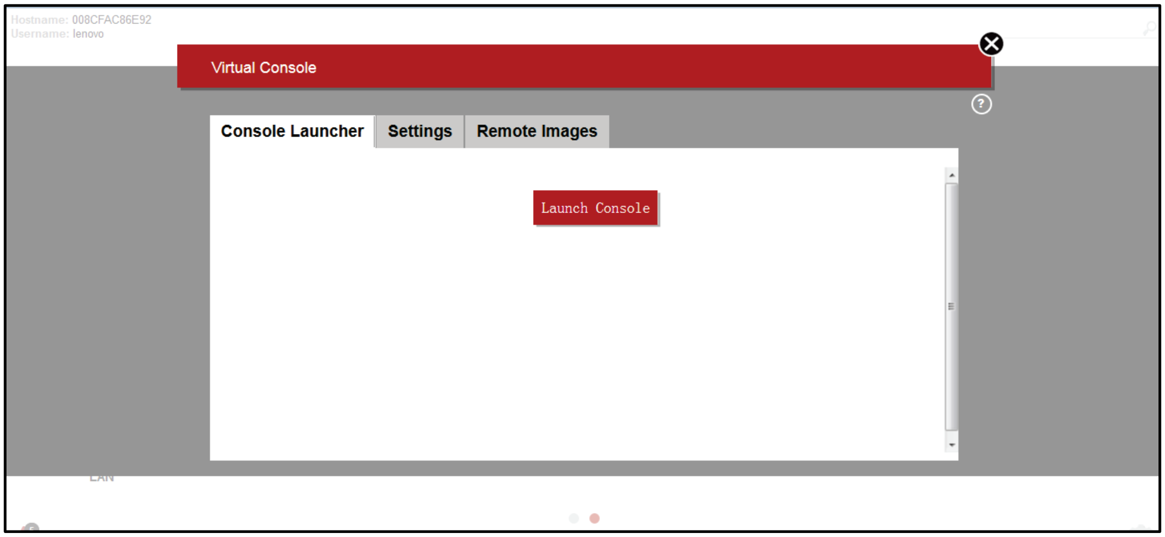
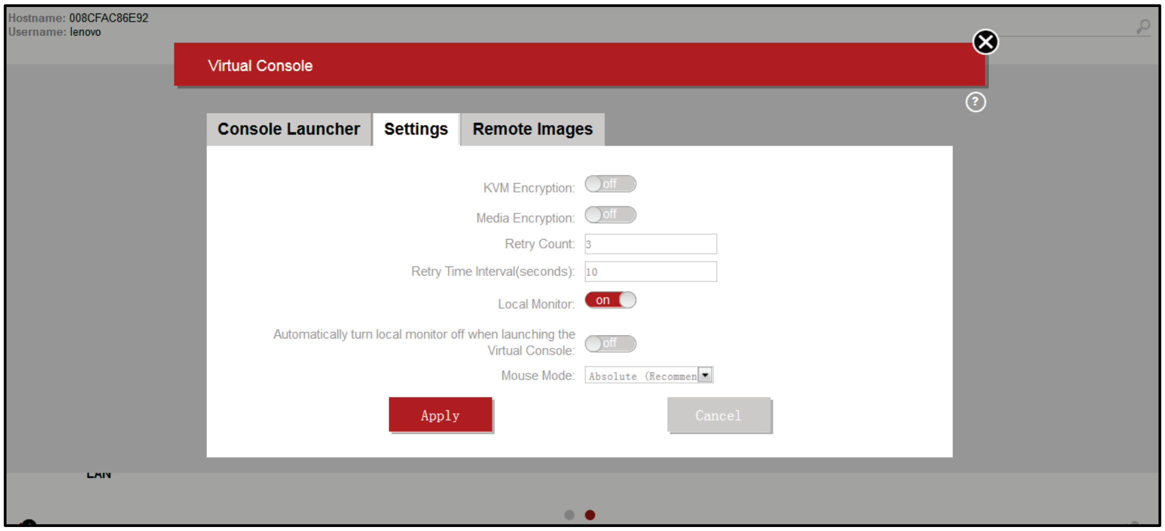


Figure 14. Console Launcher

Settings

The ‘Settings’ tab presents all available settings for the Virtual Console.



Hostname: 008CFAC86E92
Username: lenovo

KVM Encryption: off

Media Encryption: off

Retry Count: 3

Retry Time Interval(seconds): 10

Local Monitor: on

Automatically turn local monitor off when launching the Virtual Console: off

Mouse Mode: Absolute (Recommen

Figure 15. Virtual Console Settings

Table 9. Virtual Console settings:

Option	Comment
KVM Encryption	Enable/Disable encryption on the KVM data for the next redirection session.
Media Encryption	Enable/Disable encryption on Media data for the next redirection session. Note enabling this will automatically close any existing remote KVM or Virtual Media sessions.
Retry Count	Used to configure the number of times to be retried in case a KVM failure occurs.
Retry Time Interval	Used to configure the number of seconds to wait for subsequent retries.
Local Monitor	The “Local Monitor” option is used to control whether or not it will be possible to turn on and turn off the host monitor in the Virtual Console.
Automatically turn local monitor off when launching the Virtual Console	Used to automatically turn the host monitor off when the Virtual Console is launched. It is also available only if 'Local Monitor' is enabled.
Mouse Mode	The mouse mode setting should be configured according to the installed operating system. Choose “absolute” for Windows operating systems and RHEL 6 and later. Choose “relative” for RHEL 4 or RHEL 5. Choose “other” for SLES 11.

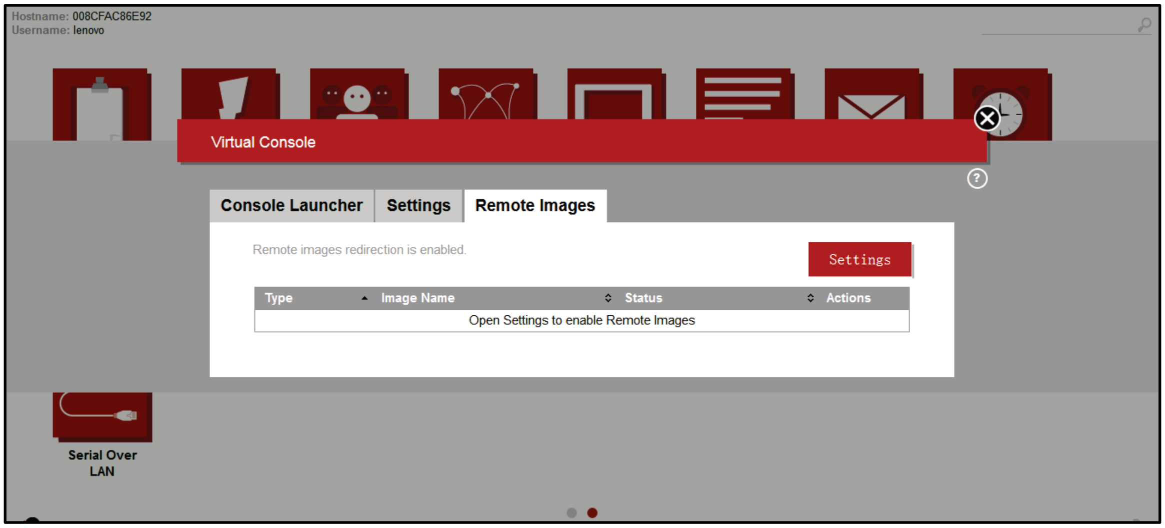
Remote Images

Remote images are image files that can be used by the server. The “Remove Images” tab provides all the configurations needed. TSM assumes that all images will be on the same remote path. To enable or disable remote images and configure the path where the remote images will be available, click on the “Settings” button.

When remote media support is turned “on”, it is possible to select a remote image file by clicking on an image type and the user can start or stop remote media direction the remote media redirection by using the action buttons. However, only one remote image can be configured for each image type: Floppy, CD/DVD and HD.

To start or stop the remote images redirection, there are action buttons available for each one of them. If the image redirection failed for some reason, its status will be updated properly.

Among the action buttons, there is also a specific button to clear the image redirection. By clicking on this button, the image file name is de-associated from the image type.



Hostname: 008CFAC86E92
Username: lenovo

Remote images redirection is enabled.

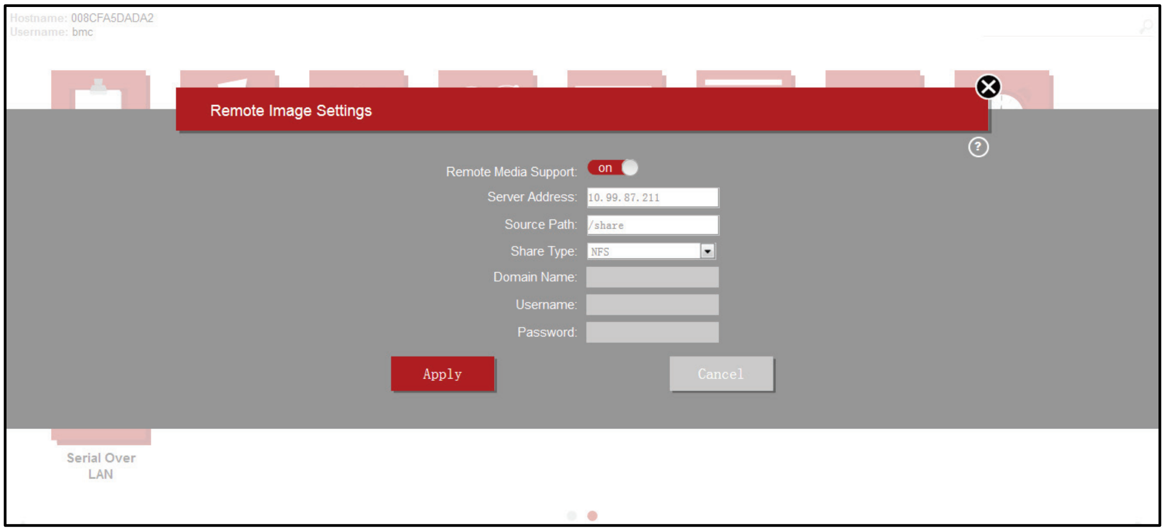
Type	Image Name	Status	Actions
Open Settings to enable Remote Images			

Figure 16. Virtual Console Remote Images

The "**Remote Images Settings**" dialog allows enabling or disabling remote images redirection and configuring the network location where the image files are available.

To enable or disable the remote images redirection, use the "Remote Media Support" switch.

To configure the location of the remote image files, a valid server address and a source path in this server address must be properly specified. Additionally, it is required to select between "NFS" and "Samba (CIFS)" in the Share Type drop down. If "Samba (CIFS)" is selected, the domain name and valid username and password must also be provided in order to grant access to the files located in the specified path. Any change in the remote media settings will close all virtual media redirection sessions and restart them.



Hostname: 008CFA5DADA2
Username: bmc

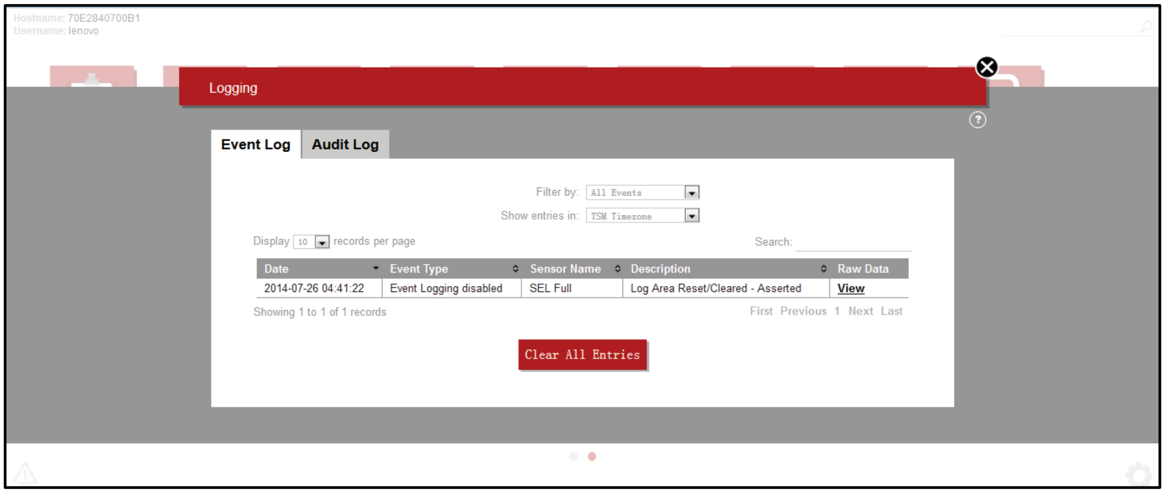
Remote Image Settings

Remote Media Support: on
Server Address: 10.99.87.211
Source Path: /share
Share Type: NFS
Domain Name:
Username:
Password:

Figure 17. Virtual Console Remote Image Settings

Logging

The Logging dialog presents two different logs: Event Log and Audit Log. Event Log, as the name says, presents the events related to the sensors available in the TSM. Audit Log, on the other hand, displays events related to actions performed by the users.



Hostname: 70E2840700B1
Username: lenovo

Logging

Filter by: All Events
Show entries in: TSM Timezone

Display 10 records per page

Search:

Date	Event Type	Sensor Name	Description	Raw Data
2014-07-26 04:41:22	Event Logging disabled	SEL Full	Log Area Reset/Cleared - Asserted	View

Showing 1 to 1 of 1 records

Figure 18. Logging

Event Log

To assist the event log analysis, there are a few options available. The "Filter By" drop down list allows log entries for a single sensor to be shown. Also, the date of the log entries can be shown using the timezone from TSM or the time zone from the client. Switching between client and TSM time zone may be useful if they are not located in the same time zone.

If desirable, it is possible to clear the event log using the "Clear All Entries" option.

SEL Record Details

The ThinkServer System Manager is able to show detailed information about an event log entry: SEL Data and Extended SEL Data.

SEL Data

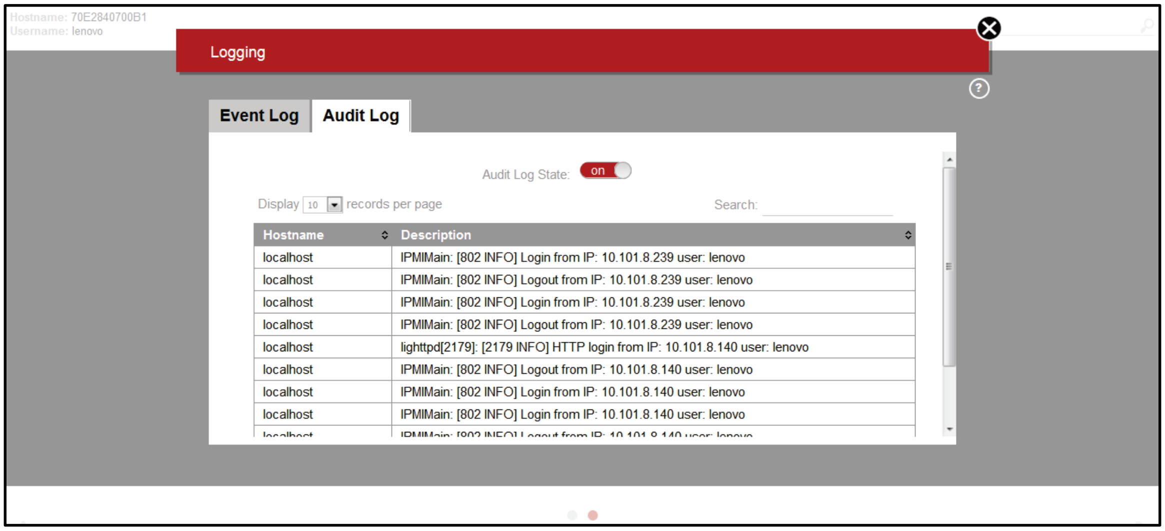
The 'SEL Data' table displays the raw data of an event log entry, using a hexadecimal format.

Extended SEL Data

The 'Extended SEL Data' table displays the extended raw data of an event log entry, using a hexadecimal format. It is important to notice that not every event log entry has extended data.

Audit Log

The Audit Log can be disabled so that no new events are registered to this log. To access this functionality, change the Audit Log State switches.



Hostname: 70E2840700B1
Username: lenovo

Audit Log State: on

Display 10 records per page

Search:

Hostname	Description
localhost	IPMIMain: [802 INFO] Login from IP: 10.101.8.239 user: lenovo
localhost	IPMIMain: [802 INFO] Logout from IP: 10.101.8.239 user: lenovo
localhost	IPMIMain: [802 INFO] Login from IP: 10.101.8.239 user: lenovo
localhost	IPMIMain: [802 INFO] Logout from IP: 10.101.8.239 user: lenovo
localhost	lighttpd[2179]: [2179 INFO] HTTP login from IP: 10.101.8.140 user: lenovo
localhost	IPMIMain: [802 INFO] Logout from IP: 10.101.8.140 user: lenovo
localhost	IPMIMain: [802 INFO] Login from IP: 10.101.8.140 user: lenovo
localhost	IPMIMain: [802 INFO] Login from IP: 10.101.8.140 user: lenovo
localhost	IPMIMain: [802 INFO] Logout from IP: 10.101.8.140 user: lenovo

Figure 19. Audit Log

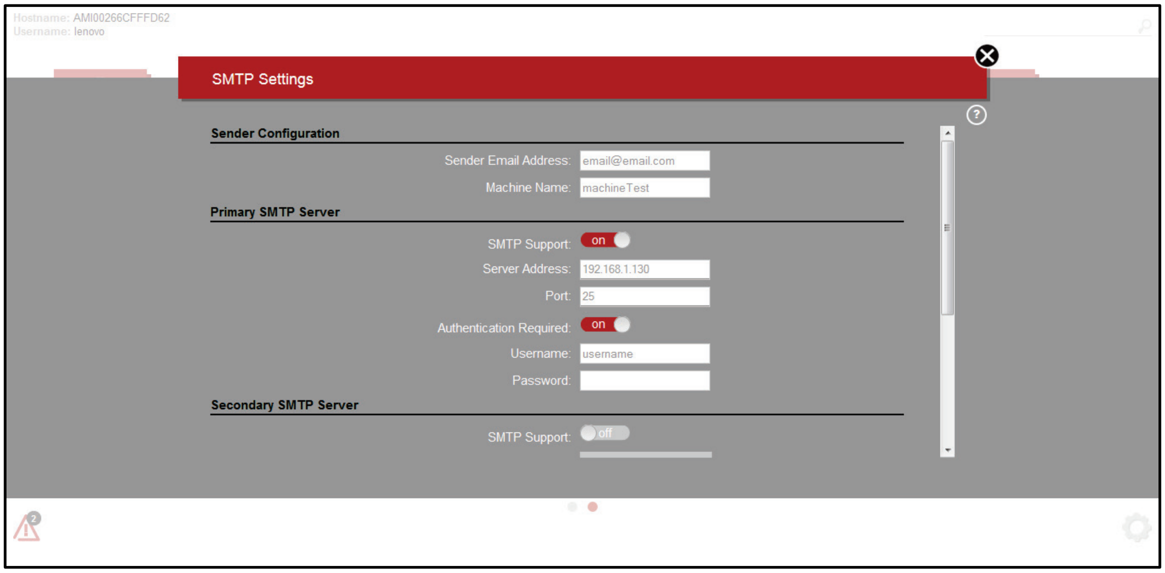
SMTP Settings

In the SMTP Settings dialog, it is possible to configure SMTP servers so that the TSM can send email notifications to the users when the status of the system changes or a critical error happens. An email message can be also sent to a local user in case of a forgotten password.

When configuring the SMTP settings, both sender address (the email address that will be included as the sender of all messages sent through TSM) and machine name (the name of the SMTP server). In addition, an SMTP server must be configured.

The TSM allows configuration of both the primary and the secondary SMTP server. For each one, a valid IPv4 address must be entered as "Server Address" as well as a port number (default is 25). In addition, if the SMTP server requires authentication, the "Authentication required" switch must be moved to "On" and both username and password must be filled. Username must be a 4-64 characters and must start with an alphabet. Also, the following characters are not permitted: comma, colon, semicolon, space and backslash. Password must be between 4-64 characters.

At any time, primary or secondary SMTP servers can be disabled, which means that they won't be used by TSM. To do that, just move the SMTP Support switch to off.



Hostname: AMI00266CFFFD62
Username: lenovo

SMTP Settings

Sender Configuration

Sender Email Address: email@email.com
Machine Name: machineTest

Primary SMTP Server

SMTP Support: on
Server Address: 192.168.1.130
Port: 25
Authentication Required: on
Username: username
Password:

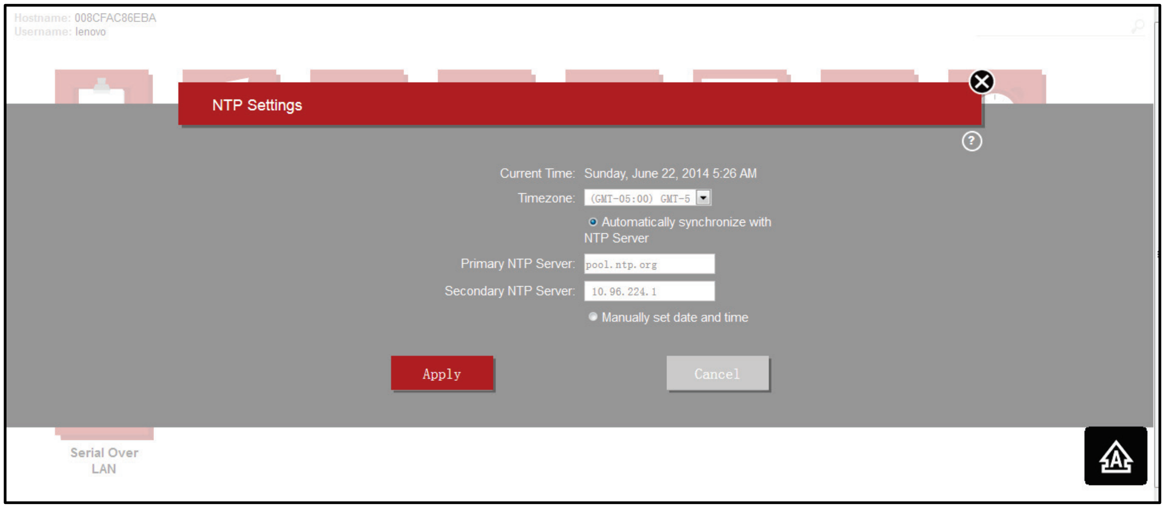
Secondary SMTP Server

SMTP Support: off

Figure 20. SMTP Settings

NTP Settings

In the NTP Settings dialog, you can set the date and time of TSM. Basically, there are two options available: **Automatically synchronize with NTP Server** or **Manually set date and time**. Besides, in the NTP Settings dialog, you must provide the time zone where the TSM is located.



Hostname: 008CFAC86EBA
Username: lenovo

NTP Settings

Current Time: Sunday, June 22, 2014 5:26 AM
Timezone: (GMT-05:00) GMT-5
● Automatically synchronize with NTP Server
Primary NTP Server: pool.ntp.org
Secondary NTP Server: 10.96.224.1
○ Manually set date and time

Figure 21. NTP Settings

Automatically synchronize with NTP Server

When selecting this option, date and time will be automatically synchronized with an NTP server. It is possible to configure two NTP servers, primary and secondary. In case the primary NTP server is not reachable, the secondary NTP server will be contacted to synchronize date and time.

Manually set date and time

In this option, both date and time must be manually entered. There are specific formats to be followed when entering values for date and time. For date, the following format should be used: mm/dd/yyyy. And, for time, the TSM expects 24-hour format.

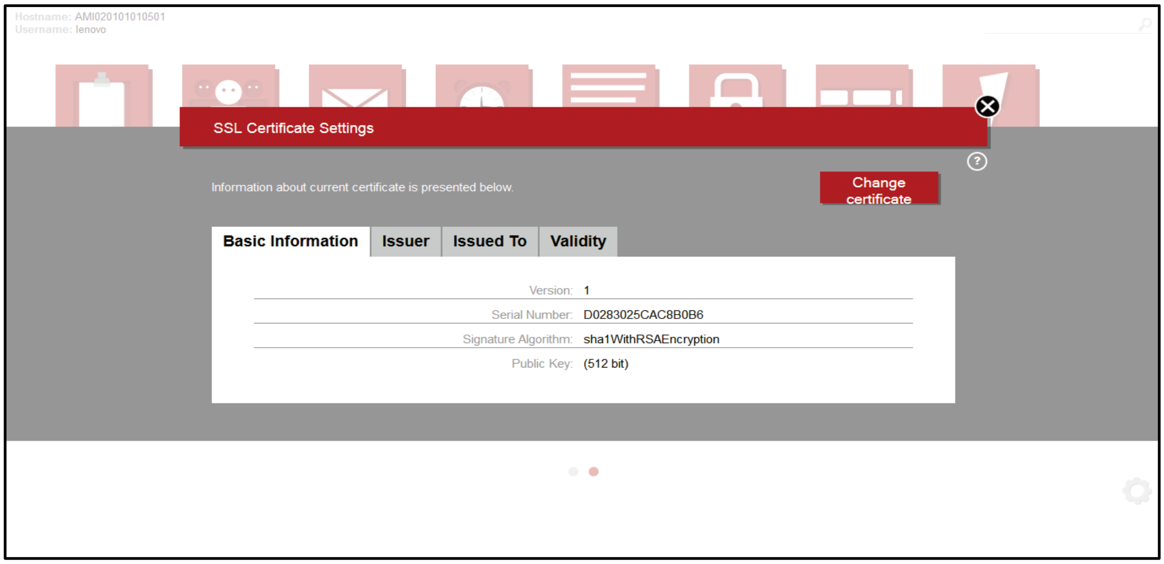
SSL Certificate Settings

If you want to secure access to TSM, you can configure an SSL certificate. In the SSL Certificate Settings dialog, it is possible to view details about the current SSL certificate, upload a new certificate or generate a self-signed certificate.

Basic Information

When accessing the SSL Certificate Settings dialog, details about the current certificate are presented in tabs, such as the size of the public key, issuer information and expiration date.

To change the certificate, there is a "Change certificate" option available, with two possibilities: upload a certificate or generate a self-signed certificate.



Hostname: AMI020101010501
Username: lenovo

Information about current certificate is presented below.

Version: 1
Serial Number: D0283025CAC8B0B6
Signature Algorithm: sha1WithRSAEncryption
Public Key: (512 bit)

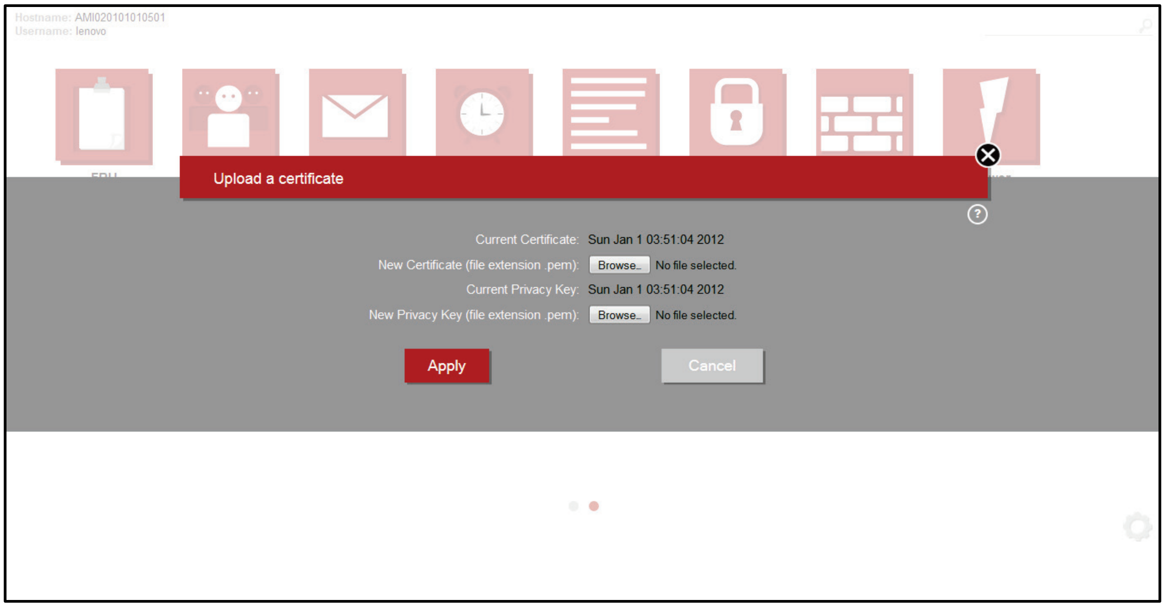
Figure 22. Basic Information

Upload a certificate

If you have acquired a certificate signed by a certificate authority, you can use this option to upload your certificate.

To use a certificate from a trusted certificate authority, two files are required: the certificate itself and the privacy key. Both files should be of pem format. Click on the “Browse” buttons to select the pem files from your desktop. After selecting the certificate and the privacy key files, click apply to upload the files to TSM.

If the files are fine, TSM will restart the HTTPs service, which can take a while. If the uploaded certificate is not from a trusted certificate authority, the browser will show a certificate warning. Any user accessing TSM will need to accept this certificate warning before proceeding.



Hostname: AMI020101010501
Username: lenovo

Upload a certificate

Current Certificate: Sun Jan 1 03:51:04 2012
New Certificate (file extension .pem): Browse... No file selected.
Current Privacy Key: Sun Jan 1 03:51:04 2012
New Privacy Key (file extension .pem): Browse... No file selected.

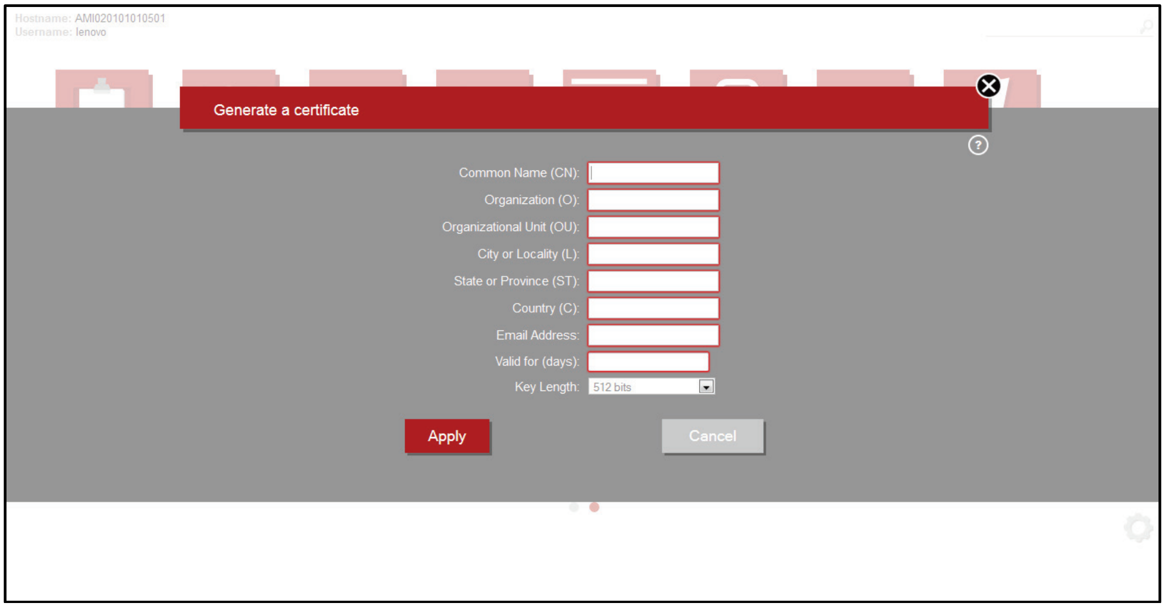
Figure 23. Upload a certificate

Generate a certificate

If you want to secure access to TSM but don't have a certificate signed by a trusted certificate authority, you still can use a certificate by selecting the "Generate a certificate" option in the "Change certificate" menu.

To generate a self-signed certificate, all fields presented in the corresponding dialog must be properly filled. Specifically about the certificate validity, a self-signed certificate can be valid from 1 to 3650 days.

When generating a new SSL certificate, TSM will restart the HTTPs service, which can take a while. Additionally, when the HTTPs service is back again, the browser will show a certificate warning, as this is not a certificate from a trusted certificate authority, although it is not a security risk. Any user accessing TSM will need to accept this certificate warning before proceeding.



Hostname: AMI020101010501
Username: lenovo

Generate a certificate

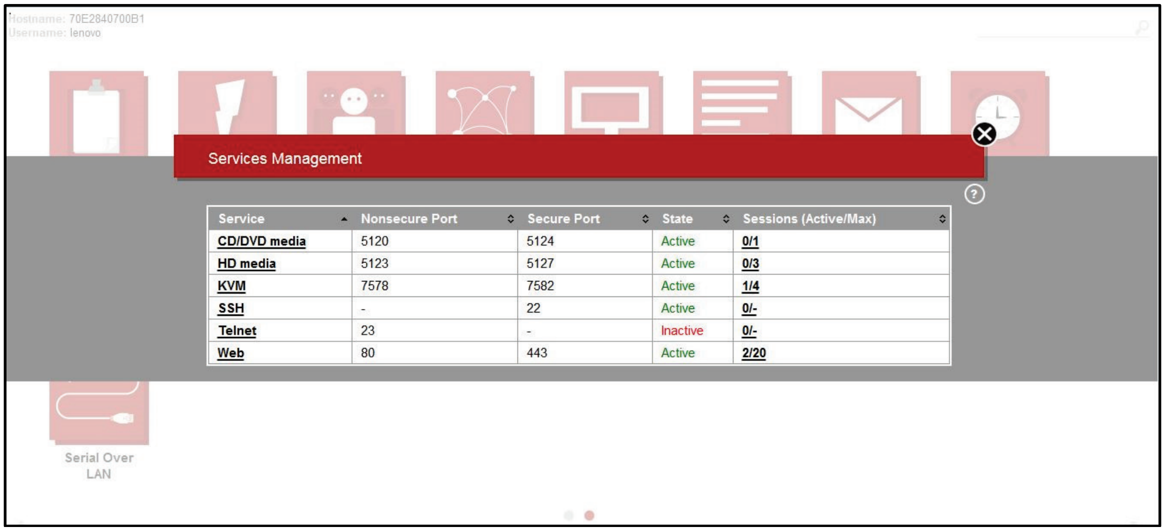
Common Name (CN):
Organization (O):
Organizational Unit (OU):
City or Locality (L):
State or Province (ST):
Country (C):
Email Address:
Valid for (days):
Key Length: 512 bits

Figure 24. Generate a certificate

Services Management

Use the Services Management to handle the services running on TSM. In the Services Management, there are details about the status of the services (active/inactive), the secured and non-secured ports being used and the number of active sessions by each service.

Click on a service name to activate or de-activate it and to change its settings. In addition, to see more details about the opened sessions, click on the numbers in the Sessions cell.



Hostname: 70E2840700B1
Username: lenovo

Services Management

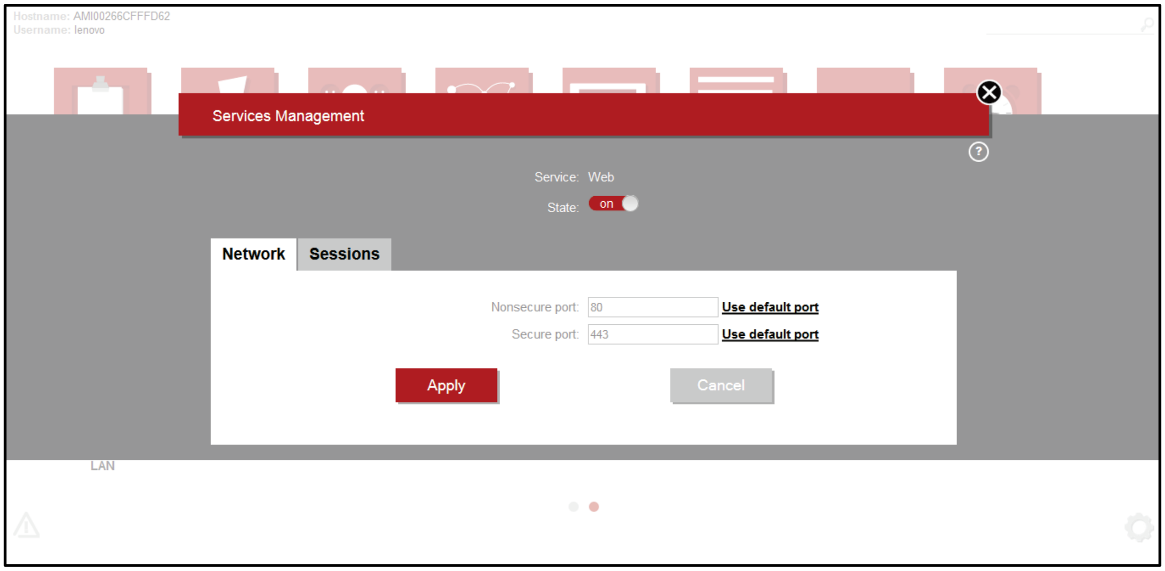
Service	Nonsecure Port	Secure Port	State	Sessions (Active/Max)
CD/DVD media	5120	5124	Active	0/1
HD media	5123	5127	Active	0/3
KVM	7578	7582	Active	1/4
SSH	-	22	Active	0/-
Telnet	23	-	Inactive	0/-
Web	80	443	Active	2/20

Figure 25. Services Management

The services settings dialog provides controls to activate/de-activate the selected service. Also, depending on the selected service, a few configurations can be performed.

To activate or de-activate the service, change the "State" switch to "On" or "Off". When de-activating a service, all opened sessions will be terminated.

There are two tabs in the services settings dialog, providing information and some possible configurations: Network and Sessions.



Hostname: AMI00266CFFFD62
Username: lenovo

Services Management

Service: Web
State: on

Nonsecure port: 80 Use default port
Secure port: 443 Use default port

Figure 26. Service Management – Network

The Network tab presents the non-secured and secured ports configured for the selected service. However, not every service allows changing the port numbers. More specifically, it is not possible to change the ports for media services (CD/DVD, and HD), as well as for KVM. In addition, telnet provides only a non-secure port whereas SSH provides only a secure port.

Both for non-secure and secure ports, the acceptable values range from 1 to 65535. If required, it is always possible to restore the port to the default value by using the "Use default port" option.

In the Sessions tab, the number of active sessions and the maximum number of sessions is displayed. As “Figure 25. Services Management” shows, the maximum number of sessions for CD/DVD media is 1, for HD media service is 3, for KVM service is 4 and for Web service is 20. Clicking on them will open the session management, which allows managing the active sessions. Also, for KVM, SSH, telnet and Web services, there is an extra option to configure the session time-out by directly entering a value in the text input or by moving the cursors from the slider control.

Web and the KVM timeout values can be set from 5 - 30 minutes. SSH and Telnet values can be set from 1 – 30 minutes. These values should be in multiples of 1 minute. Session time-out for SSH and Telnet are the same. So if a timeout is set in SSH, the TSM will do the same for Telnet service.
Please note that after reset TSM may need 8 minutes to use SSH connection TSM.

It is worth to mention that, when changing a service configuration, as the service needs to be restarted, all opened sessions will be terminated. In addition, it is not possible to modify the maximum number of sessions for any service.

Sensor Monitoring

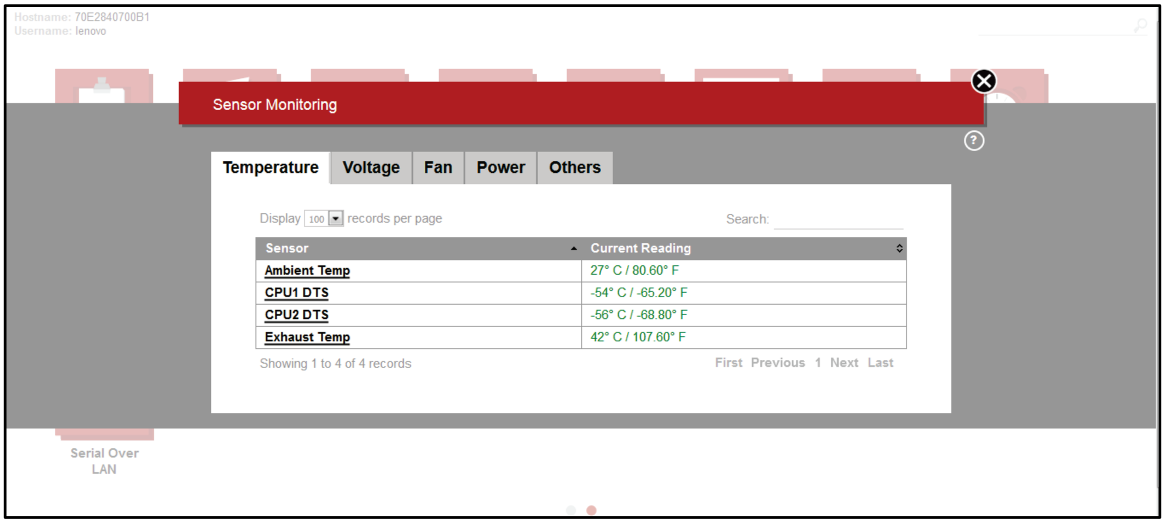
Detailed information about the sensors is shown in the Sensor Monitoring dialog. Sensors are organized in the following categories:

- Temperature
- Voltage
- Fan
- Power
- Others

To analyze sensors from a specified category, just access the corresponding tab. Inside of each category (tab), a table presents the sensors for that category and the current readings. If the value for current reading is fine, the color of the current reading will be green. Otherwise, the color may change to orange or red. Sensors not available at the moment will appear in gray.

For temperature sensors, the values can be shown in Celsius (°C) or Fahrenheit (°F). The "Current Reading" field for CPU1 and CPU2 DTS represents the number of degrees Celsius below the maximum temperature of the CPU. Having a negative value displayed in those fields shows the system is working correctly.

Clicking on a sensor name will open another dialog presenting a real-time gauge with the current reading, the thresholds and a bar chart for log entries. However, as the current reading and the bar chart don't make sense for non-scalable sensors, these sensors won't open a dialog to present detailed information.



Hostname: 70E2840700B1
Username: lenovo

Display 100 records per page Search:

Sensor	Current Reading
Ambient Temp	27° C / 80.60° F
CPU1 DTS	-54° C / -65.20° F
CPU2 DTS	-56° C / -68.80° F
Exhaust Temp	42° C / 107.60° F

Showing 1 to 4 of 4 records

Figure 27. Sensors Monitoring - Temperature

The TSM is able to show detailed information about the sensors: current reading, thresholds and a bar chart to represent the quantity of events already stored in the system event logs.

Thresholds

All scalable sensors in TSM have a few thresholds to determine their status:

- Lower Non-Recoverable
- Lower Critical
- Lower Non-Critical
- Upper Non-Critical
- Upper Critical
- Upper Non-Recoverable

When the reading for a sensor reaches one of these thresholds, a new system event log entry is included and some action may be required from the system administrator. For example, if a CPU temperature sensor overpasses the "Upper Non-Recoverable" threshold, the system administrator could try to decrease the ambient temperature and check if the readings for this sensor decrease too.

Current Reading

The current reading gauge represents the sections delimited by these thresholds too. Readings lower than "Lower Non-Recoverable" are represented as a darker red section. Readings between "Lower Non-Critical" and "Lower Non-Recoverable" are located in the lighter red section. And any reading between

"Lower Non-Critical" and "Upper Non-Critical" are in the white section. Similarly, other darker and lighter red sections are presented in the gauge for the "Upper" thresholds.

Historical Data

The Historical Data area presents a bar chart with how many times each of the thresholds was reached. As the chart is based on the existing system event log entries, if there are no log entries for the sensor related to the thresholds, the Historical Data area may appear in blank.

Firewall

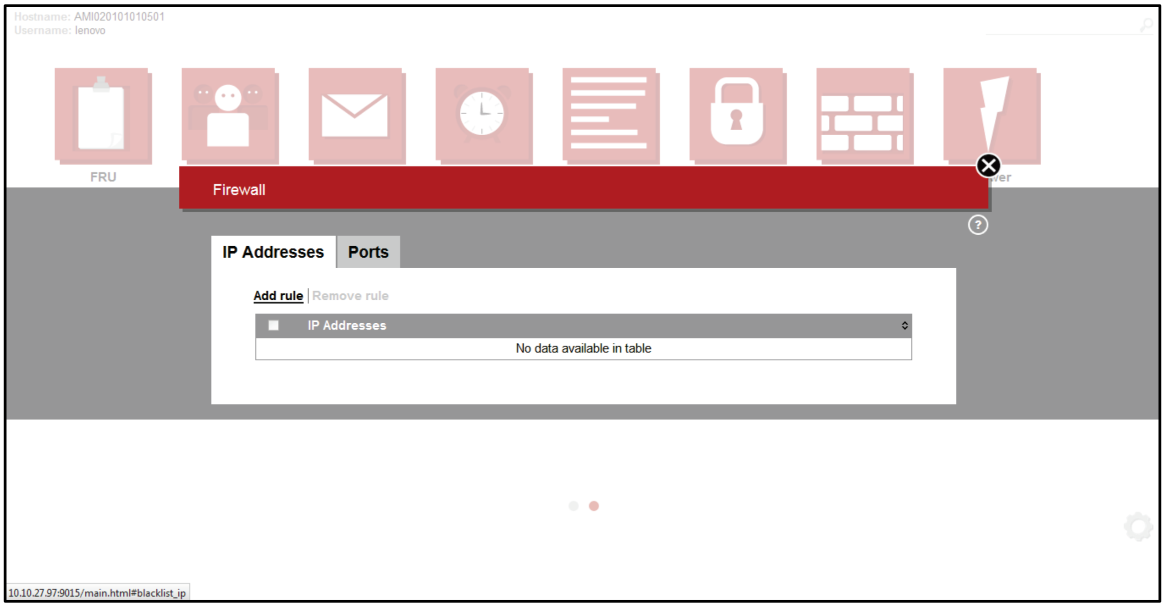
Firewall can be used to define rules to block network traffic from/to specific IP addresses and ports. Any IP addresses or ports not included in the lists presented in Firewall are allowed to access the TSM.

IP Address

It is possible to configure a specific IP address or a range of IP addresses to be blocked in the IP Addresses tab.

Clicking on "Add rule" will open a dialog to select the IP addresses to be blocked. All IP addresses to be blocked must be in IPv4 format. Once an IP address rule is added, it is not possible to modify it. However, it is still possible to remove a rule if it is not required anymore.

To remove a rule, you must first select the rules to be removed by checking the boxes near the IP addresses listed in the rule. When one or more rules are selected, the "Remove rule" option will be enabled. Clicking on this option will remove all rules selected.



Hostname: AMI020101010501
Username: lenovo

FRU
wer
Firewall
IP Addresses
Ports
Add rule
Remove rule
IP Addresses
No data available in table
10.10.27.97:9015/main.html#blacklist_ip

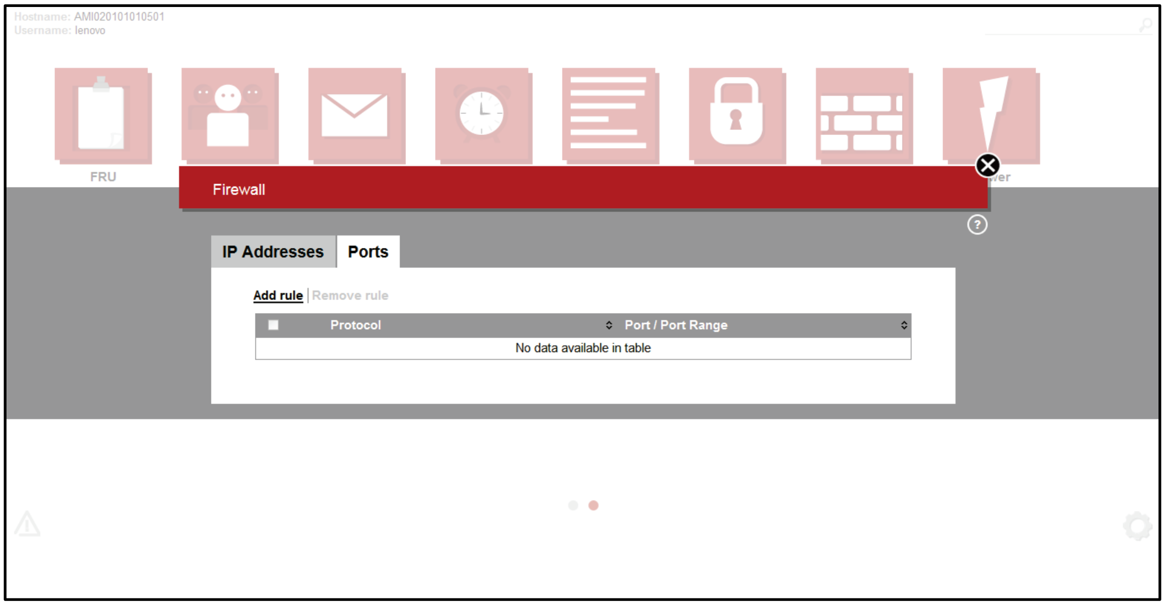
Figure 28. Firewall

Ports

In addition to blocking IP Addresses, it is also possible to create rules to block all the communication through specific port numbers. This can be done by accessing the "Ports" tab in the Firewall dialog.

In this tab, Clicking on "Add rule" will open a dialog to select the ports to be blocked and the protocol (TCP/UDP). The acceptable values for the port fields range from 1 to 65535. Once a port rule is added, it is not possible to modify it. However, it is still possible to remove a rule if it is not required anymore.

To remove a rule, you must first select the rules to be removed by checking the boxes near the port numbers listed in the rule. When one or more rules are selected, the "Remove rule" option will be enabled. Clicking on this option will remove all rules selected.



Hostname: AMI020101010501
Username: lenovo

Firewall

□	Protocol	Port / Port Range
No data available in table		

Figure 29. Port

Add an IP address rule

There are two options while creating an IP address rule: block an IP address or block a range of IP addresses. In both cases, the expected values for IP addresses are in IPv4 format.

When the "Block an IP address" is selected, it is possible to enter a valid IPv4 address to be blocked. In other words, communications from/to the specified IPv4 address will not be allowed.

Instead of blocking only one IP address at a time, the Firewall allows user to specify a range of IPv4 addresses to be blocked by selecting the "Block a range of IP addresses". For that, the fields "IP address from:" and "IP address to:" must be filled with valid IPv4 addresses.

When a new IP address rule is saved, all related IP addresses are immediately blocked so that opened sessions in TSM from the blocked IP addresses will be closed.

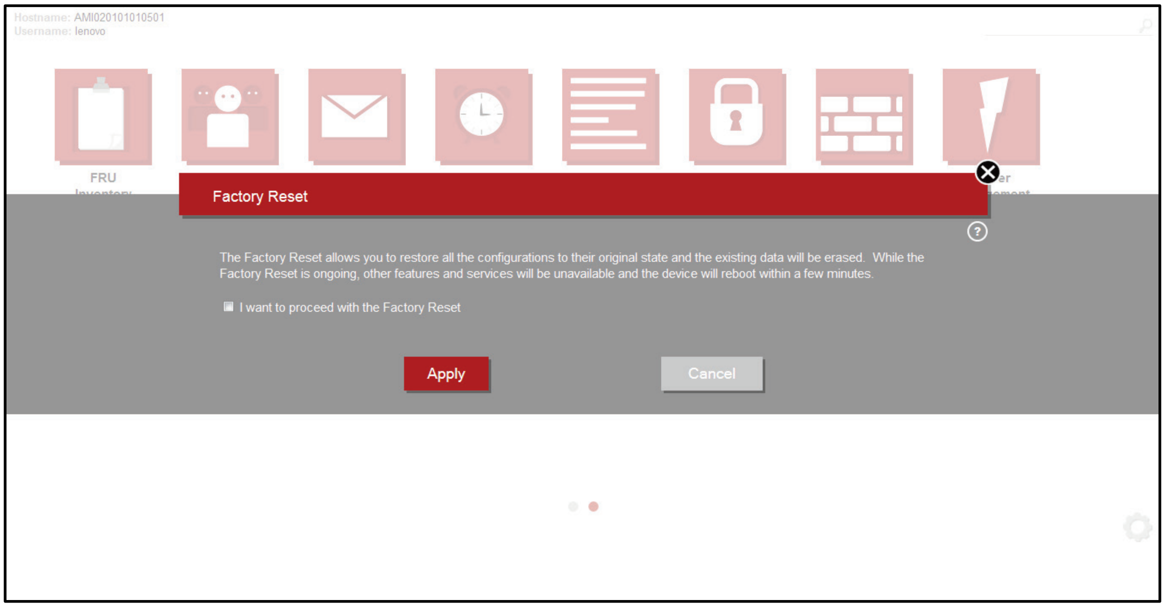
Add port rule

The rules to block ports are very similar to the IP address rules. When adding a new port rule, it is possible to determine a unique port to be blocked or a range of ports. Either way, the acceptable values for the port fields range from 1 to 65535 and the protocol, TCP or UDP, must be selected when configuring a new rule.

When the "Block a port" option is selected, it is possible to enter a port number to be blocked. On the other hand, a range of ports to be blocked can also be configured by selecting the "Block a port range". For the last option, the fields "Port range from" and "Port range to" must be filled.

Factory Reset

The Factory Reset allows you to restore all the configurations to their original state and the existing data will be erased. While the Factory Reset is ongoing, other features and services will be unavailable and the device will reboot within a few minutes. Once you proceed with the operation all the current configuration is lost and the factory reset can’t be undone.



Hostname: AMI020101010501
Username: lenovo

Factory Reset

The Factory Reset allows you to restore all the configurations to their original state and the existing data will be erased. While the Factory Reset is ongoing, other features and services will be unavailable and the device will reboot within a few minutes.

□ I want to proceed with the Factory Reset

Figure 30. Factory Reset

PEF

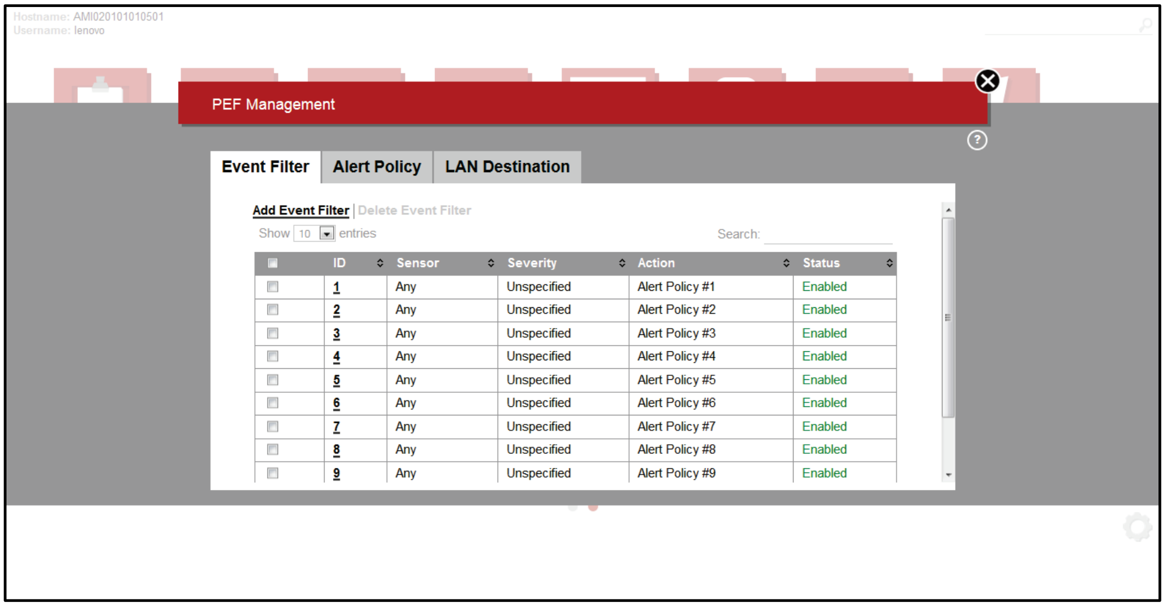
The Platform Event Filter (PEF) Management provides a mechanism to configure specific actions to be performed on certain event messages. These actions include reboot, power cycle, power off, and trigger an alert (Platform Events Trap [PET] and/or e-mail). When a platform event occurs (for example, a fan probe failure), a system event is generated and recorded in the System Event Log (SEL). If this event matches a platform event filter previously configured, this filter will generate an alert, and then a PET or an e-mail alert is sent. If the same platform event filter is also configured to perform an action, such as rebooting the system, that action is also performed.

Therefore, in order to properly configure a platform event filter, you must follow the steps below:

1. Add a LAN Destination.
2. Add an Alert Policy using the previously created LAN Destination and associate with a specific policy number.
3. Add an Event Filter using the same policy number previously used in the step above.

Event Filter

The Event Filter tab displays a table with event filters currently in use. It is possible to add new event filters, delete the existing event filters by marking them. In order to edit an existing event filter, click on its ID.



Hostname: AMI020101010501
Username: lenovo

PEF Management

□	ID	Sensor	Severity	Action	Status
□	1	Any	Unspecified	Alert Policy #1	Enabled
□	2	Any	Unspecified	Alert Policy #2	Enabled
□	3	Any	Unspecified	Alert Policy #3	Enabled
□	4	Any	Unspecified	Alert Policy #4	Enabled
□	5	Any	Unspecified	Alert Policy #5	Enabled
□	6	Any	Unspecified	Alert Policy #6	Enabled
□	7	Any	Unspecified	Alert Policy #7	Enabled
□	8	Any	Unspecified	Alert Policy #8	Enabled
□	9	Any	Unspecified	Alert Policy #9	Enabled

Figure 31. PEF - Event Filter

Add and edit an event filter

TSM allows adding an event filter to trigger a message to a specific destination when a specific sensor event happens. The message and destination are configured on 'Alert Policy' tab and can be chosen on 'Filter Action' section.

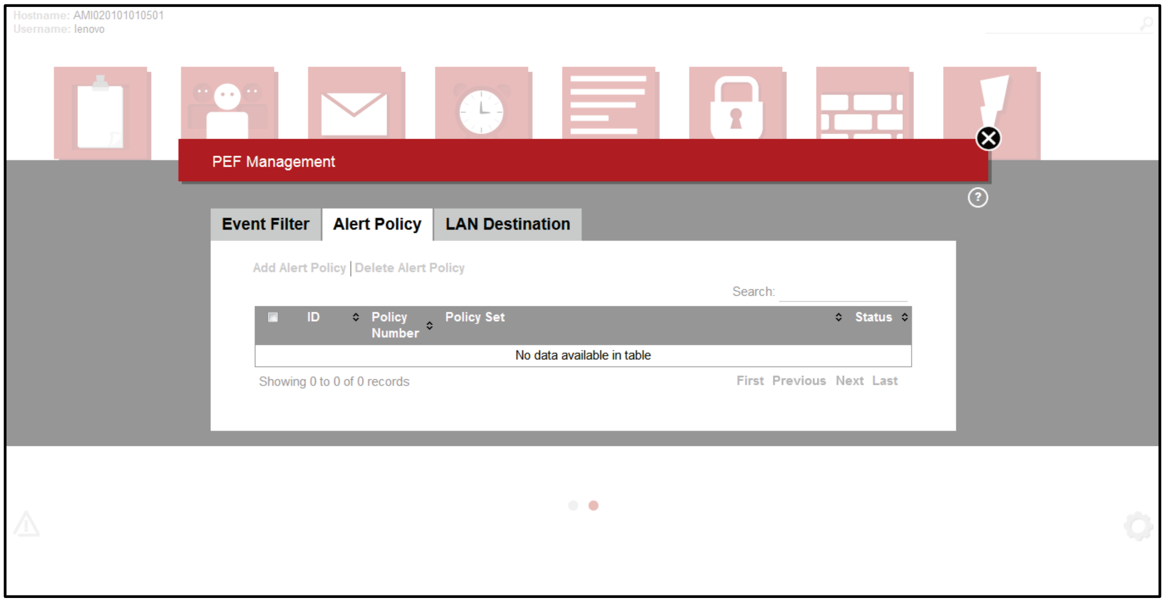
When adding or editing an event filter, it is possible to specify which sensor event will trigger an action or an alert. In order to do that, the 'Sensor Configuration' section presents some controls: Sensor Type, Sensor Name and Events. Sensor Type filters the existing sensors by categories such as Temperature, Voltage, Fan, among others. When specifying a sensor type, only the sensors related to that type will be listed on the Sensor Name dropdown. Then, selecting a sensor in the Sensor Name dropdown, the Events dropdown is updated and allows selecting between all events from that sensor or sensor specific events. If the latest option is selected, some additional controls will appear to choose the sensor events for the filter being configured.

In the 'Filter Action' section, it is possible to select both the Alert Policy Number and a Power Action. There are 15 different Alert Policy Numbers available and each of them may have one or more alert policies associated. To configure the alert policies and associate them with an alert policy number, please access the Alert Policy tab.

The Power Action is performed right after the alerts and can be useful to avoid some damages to the server. The available power actions are: Power Down, Power Reset and Power Cycle. The Power Down will immediately power off the server, the Power Reset will reboot the server without powering off and the Power Cycle will power off and then reboot. It is also possible to configure an event filter without a Power Action by selecting the None option.

Alert Policy

The Alert Policy tab displays a table with all alert policies created so far. In this tab, there are also options to add, delete and edit alert policies similar to the available options from the Event Filter tab.



Hostname: AMI020101010501
Username: lenovo

PEF Management

□	ID	Policy Number	Policy Set	Status
No data available in table				

Showing 0 to 0 of 0 records

Figure 32. PEF - Alert Policy

Add and edit an alert policy

It is possible to configure alert policies that contain an action, a destination and a string message which will be sent when the event filter is reached and the alert policy status is on.

Each alert policy must be associated with a Policy Number that will be used by the event filter. Then, multiple alert policies with the same Policy Number can be triggered by the same event filter.

The Policy Set consists on a list of actions that will be performed when an event filter is reached.

The LAN Destination displays a list of destinations that will receive the alert message when an event filter is reached. The LAN Destination is pre-configured on “LAN Destination” tab of the PEF Management dialog.

Finally, an alert policy also allows selecting the Alert String which will be sent to the destination when the event filter is reached. Alert String Key has values from 0 to 127.

LAN Destination

The LAN Destination tab displays a table with all existing LAN destinations (the SNMP trap or the email). This tab provides controls to add and delete LAN destinations. To edit an existing LAN destination, click on its LAN Destination.

It is also possible to test the existing LAN destinations by selecting one or more of them and using the 'Send Test Alert' option.

Add and edit a LAN destination

In order to have an Alert Policy properly configured, you must first configure at least one LAN Destination. There are two types of LAN destinations: SNMP Trap and/or Email Alert.

SNMP Trap allows you to inform an IPv4 or IPv6 address to receive an alert whereas an Email Alert option allows you to inform a username which will receive an email alert.

Firmware Update

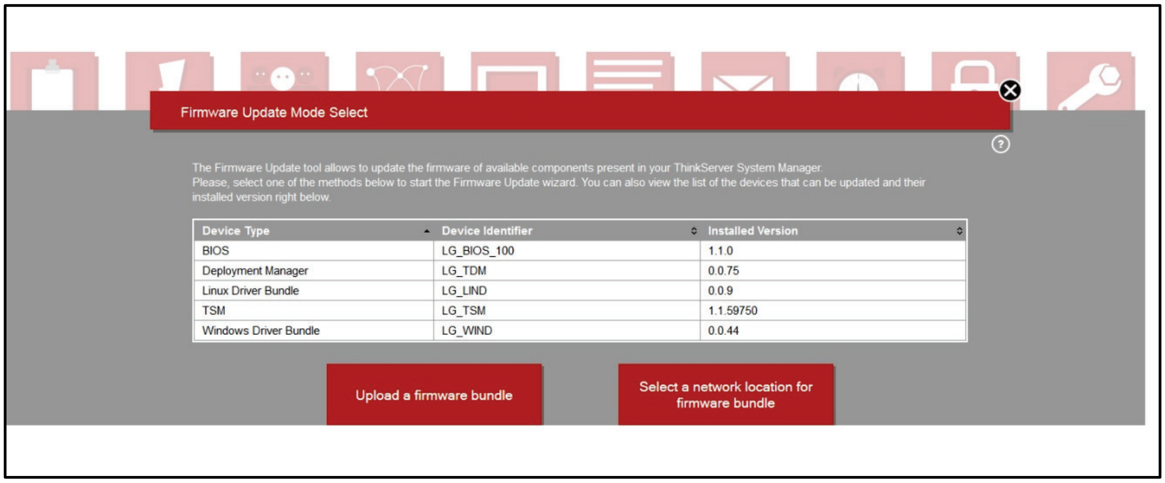
The Firmware Update tool allows updating the firmware of available components present in your TSM. There are two available options to update the firmware:

- Upload a firmware bundle: upload a firmware bundle file from your computer to TSM and then start the update.
- Select a network location for a firmware update bundle: use this option to copy a firmware bundle file available in your network.

The TSM will restart after one of the above options is performed and all TSM connections will be interrupted.

Please power on the host if the TSM shows 'N/A' in BIOS version information after performing either firmware update, factory reset or if TSM has just been turned on.

It is important to note that any kind of downgrade is not supported by TSM.
To avoid problems during firmware update, do not open a new TSM session in the same browser.



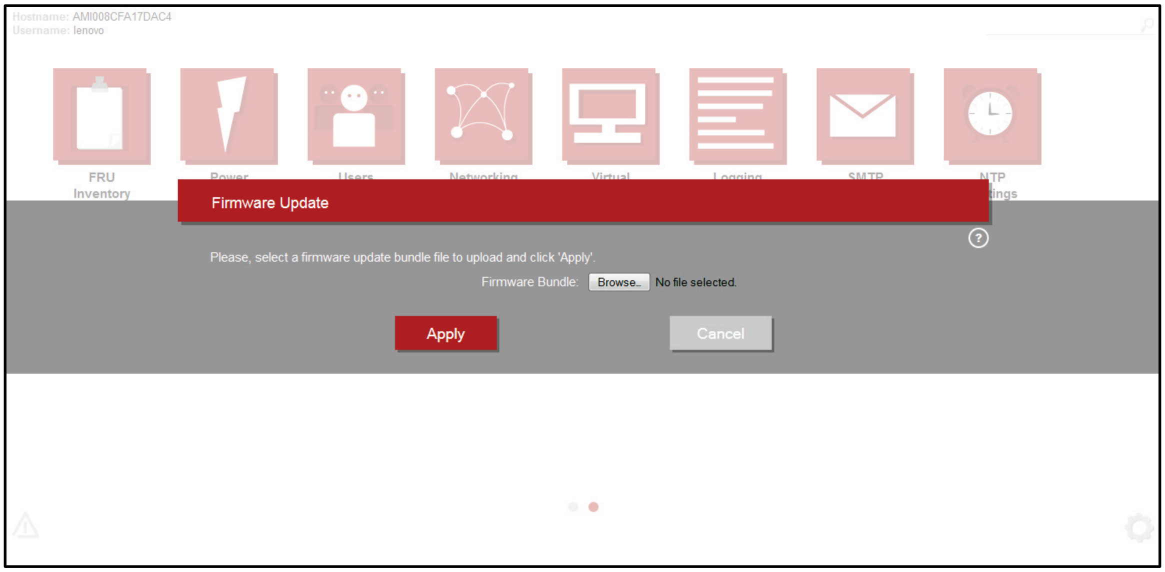
The Firmware Update tool allows to update the firmware of available components present in your ThinkServer System Manager.
Please, select one of the methods below to start the Firmware Update wizard. You can also view the list of the devices that can be updated and their installed version right below.

Device Type	Device Identifier	Installed Version
BIOS	LG_BIOS_100	1.1.0
Deployment Manager	LG_TDM	0.0.75
Linux Driver Bundle	LG_LIND	0.0.9
TSM	LG_TSM	1.1.59750
Windows Driver Bundle	LG_WIND	0.0.44

Figure 33. Firmware Update Mode Select

Upload a firmware bundle

This simple option is useful to upload a firmware update bundle file from your computer to TSM. After the upload succeeds, you will be able to revise all updates available in the file.



Hostname: AMI008CFA17DAC4
Username: lenovo

Firmware Update

Please, select a firmware update bundle file to upload and click 'Apply'.

Firmware Bundle: Browse... No file selected.

Figure 34. Firmware Update

Select a network location for firmware bundle

The user can copy a firmware update bundle file to a network location and provide the TSM with this location to update the TSM. Network location, credentials, IP address, path and file name are required for this.

It is possible to reach the network location where the firmware update bundle file resides using one of the supported network protocols: Samba (CIFS), NFS and TFTP. If Samba (CIFS) is selected, credentials will be required to grant access to the network path.

After configuring the network path and clicking Apply, the firmware update bundle file will be transferred to TSM and you will be able to review all updates available in the file.

Reviewing and applying available updates

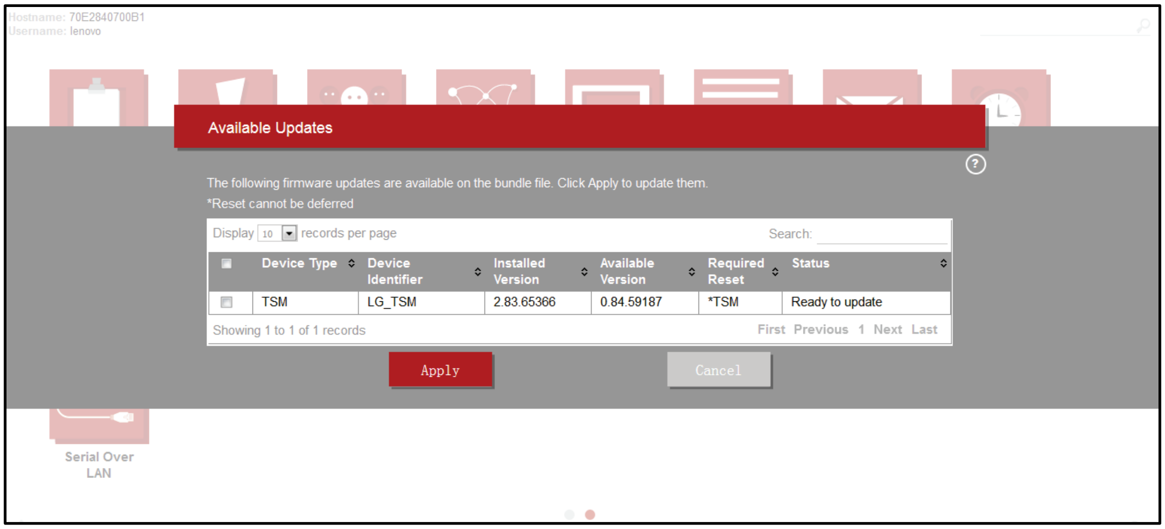
After the transfer of the firmware update bundle file to TSM is completed, a new dialog is presented containing a list of the available updates for the components so that you can review which components will be updated. Clicking 'Apply' will start the firmware update whereas clicking 'Cancel' will exit the firmware update.

As soon as the firmware update starts, TSM displays the current status of the firmware update. Each component listed here has its own status, which can be 'Pending', 'Success', 'Failure' or 'In progress'. The status of the components is automatically updated every 30 seconds.

While the firmware update is in progress, please do not remove the power cord or network cable from the ThinkServer.

The 'Discard Pending Updates' button will cancel all the pending updates, but it will not cancel updates in progress or roll back updated components to a previous version.

When all updates are completed or canceled, the message at the top of the dialog will inform that the update process is finished.


Hostname: 70E2840700B1
Username: lenovo

Available Updates

The following firmware updates are available on the bundle file. Click Apply to update them.
*Reset cannot be deferred

Display 10 records per page

Search:

☐	Device Type	Device Identifier	Installed Version	Available Version	Required Reset	Status
☐	TSM	LG_TSM	2.83.65366	0.84.59187	*TSM	Ready to update

Showing 1 to 1 of 1 records

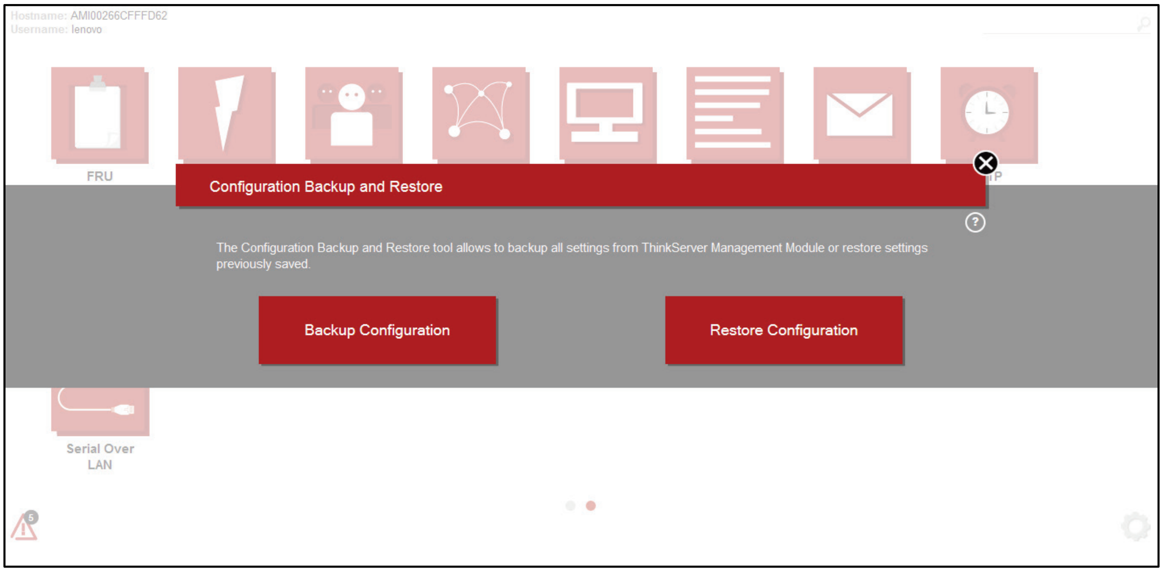
Figure 35. Available Updates

Backup and Restore

The Configuration Backup and Restore tool allows to back up the settings from TSM or restore settings previously saved according customer requirement. Please, refer to the Backup and Restore Features Table in this document to view the supported features about Backup and Restore function. When accessing the feature, two options will be presented: Backup Configuration and Restore Configuration.

The Backup Configuration option allows backing up the whole TSM configuration. It may take a few minutes to complete and, after it finishes, a link will be provided to download the configuration file. By default, the configuration file generated by TSM is named 'config.bak'.

The Restore Configuration option can be used to restore the TSM settings from a configuration file previously saved. The restore operation requires the TSM to be rebooted and, after that, you will need to log in again.



Hostname: AMI00266CFFFD62
Username: lenovo

Configuration Backup and Restore

The Configuration Backup and Restore tool allows to backup all settings from ThinkServer Management Module or restore settings previously saved.

Figure 36. Configuration Backup and Restore

Table 10. Backup and Restore Features Table:

Entity	Description
Active Directory	Configure the Active Directory Server Settings
Network	Configuring the services in the BMC, network configuration and network bonding configuration for the network interfaces.
DNS	Configure the DNS and Dynamic DNS update utility used to submit Dynamic DNS Update requests to a name server.
DHCP mode	Configure the devices that are connected to a network (known as hosts) so they can communicate on that network using the internet (IP).
VLAN Tag	To configure the VLAN settings
NCSI Config	To configure Network Controller Sideband Interface (NCSI) configuration settings.
Misc	Configure the auto negotiations, speed, duplex and mtu.
Serial Config	Serial configuration like authentication, and channel configuration
PEF Config	Configuring the BMC to take selected actions on event messages that it receives or has internally generated
Notification setting	Email Configurations
BIOS	Boot order settings
Thermal & Power control	To allow selection of the Thermal Profiles
Debug Flags	Enable/Disable the RAWCommandLog and debug flag
NTP Client	Configure the synchronizing the clocks of computer systems over packet-switched, variable-

	latency data networks.
LDAP config	Configure the application protocol for querying and modifying data of directory services implemented in Internet Protocol (IP) networks.
User Account	User information and password encryption. To configure the PAM ordering for user authentication into the BMC.
Session Timeout	Configuring the services running in the BMC
BMC	It holds the ipmipar information
DCMI	Data Center Manageability Interface
Images Redirection	Uploading an image into BMC or mounting the image from the remote media server
KVM	Used to auto video record configurations
Log Files	Configure the list of system logs and audit logs occurred in this device.
Mouse Mode	Handles mouse emulation from local window to remote screen
Password	User authentication
RADIUS	Provides centralized authentication, authorization and accounting management for computers that connect in a network.
SSH	Secure Shell is cryptographic network protocol for secure data communication, remote command-line login, remote command exection.
WatchDogTimer	WDT is an electronic timer that is used to detect and recover from computer malfunctions.
HPM	Configure the hpm components
Hostname	Host name.
MAC	Machine physical address
Lenovo SW	256 bytes of binary data
Platform config	Only in special cases this will be set as default instead of Default Lenovo config
Lenovo config	It is a default config file available from Lenovo factory. It will be used when user sets reset to default
Software Interface	It has hardware key. Based on data on the HW we will control whether to enable WSMAN, KVM etc
FRU	To get the firmware inventory list
Hardware Inventory List	Show hardware Inventory
Firmware Inventory List	Show firmware Inventory
SDR	It has sensor based information.
SEL	Configuring the system event logs.

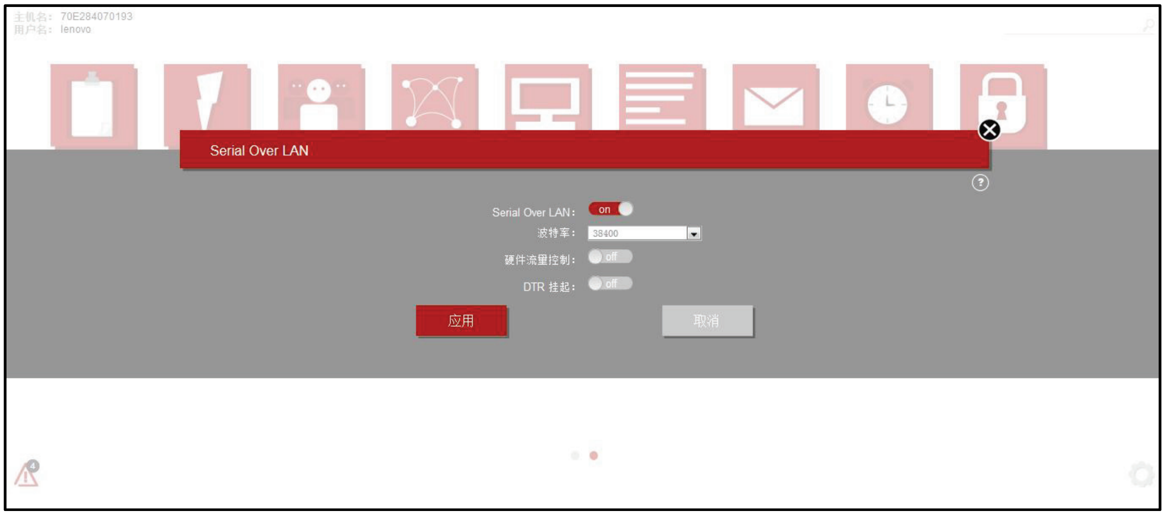
Serial Over LAN

The Serial Over LAN allows user to configure the serial output so that TSM can be remotely viewed over the LAN. It is possible to activate or deactivate Serial Over LAN and configure baud rate, flow control configuration and DTR hang up state.

Baud Rate is the number of symbols per second transferred. Valid values are '9600', '19200', '38400', '57600' and '115200'.

Hardware Flow Control is the process of managing the rate of data transmission between two nodes to prevent a fast sender from overwhelming a slow receiver. It is possible to enable or disable Hardware Flow Control in the Serial Over LAN settings.

Finally, the DTR Hang Up, when activated, turns off the computer's DTR (Data Terminal Ready) signal for a period of time.


主机名：70E284070193
用户名：lenovo

Serial Over LAN

Serial Over LAN：on
波特率：38400
硬件流量控制：off
DTR 挂起：off

Figure 37. Serial Over LAN

Chapter 6. Force Recover BIOS from TSM

If the server's power is removed while the BIOS is being updated, the server might not restart correctly. If this happens, perform the following procedure to recover from the BIOS update failure.

1. Disconnect all power cords from electrical outlets and disconnect all cables that are connected to the server.
3. If the server is installed in a rack cabinet, remove the server from the rack cabinet and place it on a flat, clean, and static-protective surface.
4. Remove the server cover.
5. Locate the BIOS recovery jumper on the system board. See "System board jumpers" in "ThinkServer User Guide and Hardware Maintenance Manual".
6. Move the BIOS recovery jump to the BIOS recovery position.
7. Connect the server to an AC power source and then the server will power on and then power off again. Remove and replace the BIOS recovery jumper to its original position and wait for approximately 10 minutes. Once the recovery process completes, your server will automatically turn on.
8. Power off your server, reinstall any parts and reconnect any cables. Then, reinstall the server cover.
9. Connect the server to an AC power source and turn on the server. The BIOS settings recover to the factory default settings. You need to check and configure the BIOS settings for your specific needs.

Note: If you cannot recover the BIOS after using the instructions in this topic, the BIOS ROM might be damaged and you may need to replace the system board. Contact the Lenovo Customer Support Center.

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