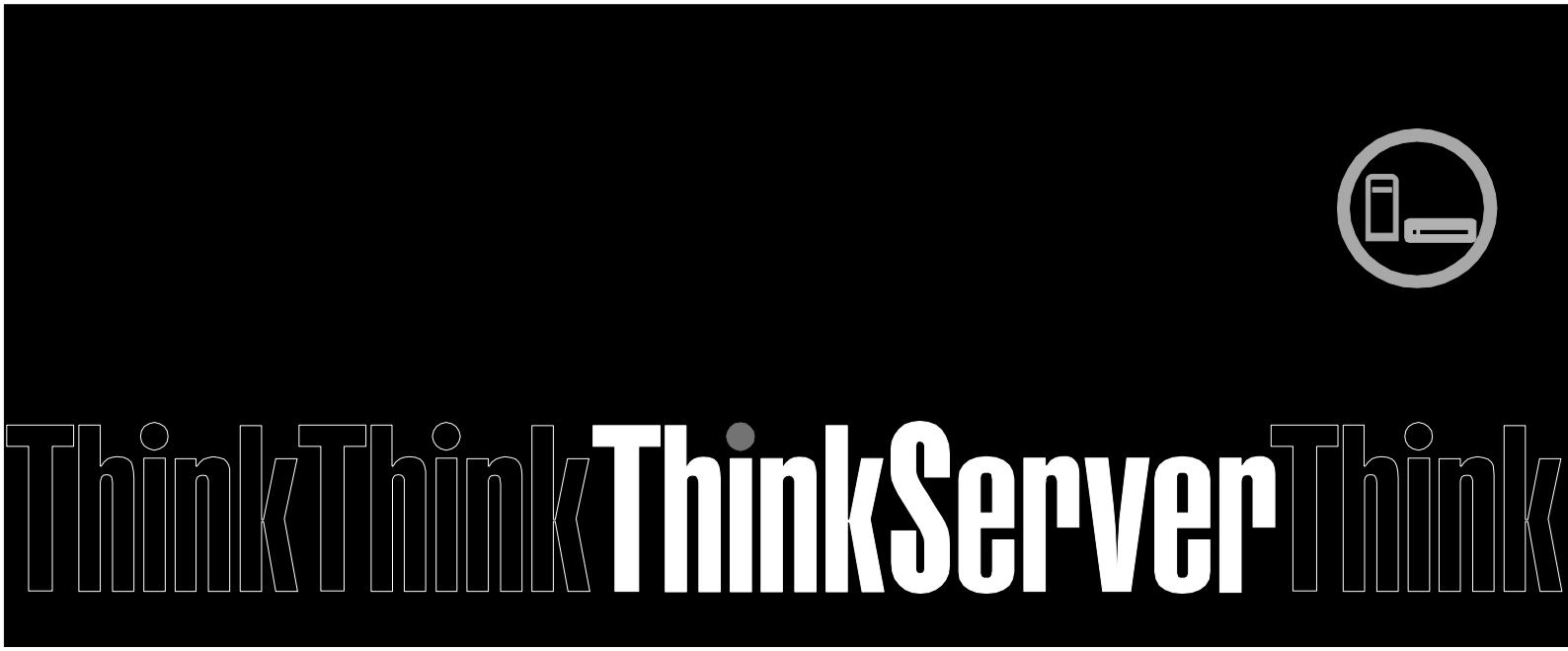
Lenovo

Lenovo ThinkServer Partner Pack for VMware vCenter User Guide



Note: Before using this information and the product it supports, ensure that you read and understand Appendix A “Notices” on page 41.

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1 Introduction

1.1 Purpose

The purpose of this guide is to explain the processes involved in monitoring and managing Lenovo ThinkServers through the Lenovo ThinkServer Partner Pack for VMware vCenter.

1.2 System Overview

The Lenovo ThinkServer Partner Pack for VMware vCenter provides detailed system information about the Lenovo ThinkServer hosts in the VMware virtualized environment. The information includes extended inventory and status information about processors, memory, fans, temperature sensors, and more. It also enables additional capabilities such as launching a remote console or the Lenovo ThinkServer System Manager interface, and firmware upgrade. It can be used to manage any ESXi host that is managed by a vCenter Server.

The Partner Pack integrates into vCenter by using the open plug-in architecture and allows “one pane of glass” management for the virtualized environment.

1.3 Key Features and Benefits

The features of the Lenovo ThinkServer Partner Pack for VMware vCenter are as follows:

- The Auto discovery of Lenovo Hosts in a Data center feature enables you to easily identify all the ESXi hosts and BMC IPs and to add multiple hosts to the vCenter in a single click.
- The Custom polling interval configuration overrides the default vSphere Web Client polling interval value and allows you to quickly acquire the health of inventory.
- The Link and Launch options at Host Actions widget launches ThinkServer’ s Lenovo ThinkServer System Manager page & Console of the server.
- Firmware Upgrade entries provide a wizard for user to upgrade the firmware of servers’ components, including BIOS, BMC and LEPT.
- The Lenovo ThinkServer Partner Pack for VMware vCenter:
    - Provides details for inventory and alerting of Lenovo hosts within the vSphere Web Client page and recommends or executes the vCenter actions based on the Lenovo server events.
    - Displays detailed information of Lenovo servers at the vSphere Web Client host level.
    - Displays server information including Host Name, Lenovo ThinkServer System Manager IP, BIOS Version and Lenovo ThinkServer System Manager version under Web Client Summary Page for each host.
    - Provides inventory of the detailed server information including FRUs, Memory, System board, Fan, Sensor, Power Supplies and Processors are available under the **Manage > Settings > Hardware option**.
    - Contains the System Event Log that provides the detailed System Event Log (SEL) entries that can be filtered based on the alert type and severity type. The **Clear Log** link clears the accumulated system event logs. The **Export Log** link exports system event logs into a file.

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Notice: when ***TSM NIC Selection*** of BIOS is configured as ***Shared NIC Port***, all features of this plugin are not available.

1.4 User Roles and Responsibilities

To access the Lenovo ThinkServer Partner Pack for VMware vCenter, the user should be logged on to the VMware vSphere Web Client. The Partner Pack works closely with the vCenter provided role-based security access. vCenter classifies these roles into three categories:

Role	Responsibilities
Administrator- The vCenter administrator role maps to this category	• Runs the setup wizard • Edits the password database • Uses the properties link to edit properties • Accesses the Lenovo ThinkServer Partner Pack for VMware vCenter at homepage. • Firmware Upgrade.

Table 1: vCenter Roles and Responsibilities

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2 Installing Lenovo ThinkServer Partner Pack for VMware vCenter

Run the *LenovoThinkServerPartnerPack.exe* installation file from the installation package and follow the prompts. The installation wizard installs the Lenovo ThinkServer Partner Pack for VMware vCenter at the desired location and easily registers to vCenter / VCSA (vCenter Server Appliance) through an HTML application, which is integrated along with the Partner Pack installation component. For detailed information on Installing Lenovo ThinkServer Partner Pack for VMware vCenter, refer to the installation guide.

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3 Working with Lenovo ThinkServer Partner Pack for VMware vCenter

This section explains navigation of Web Client, which helps users to understand the Web Client UI and its functionalities.

3.1 Navigating to Web Client

1. Open the browser and enter the URL https://VcenterIP:Port/vSphere-client. For instance, https://10.12.13.25:9443/vSphere-client
2. Enter the username and password for the Web Client. If you do not have the credentials, contact the Administrator and receive the authentication information to log on to Web Client.
3. Click **Login**.

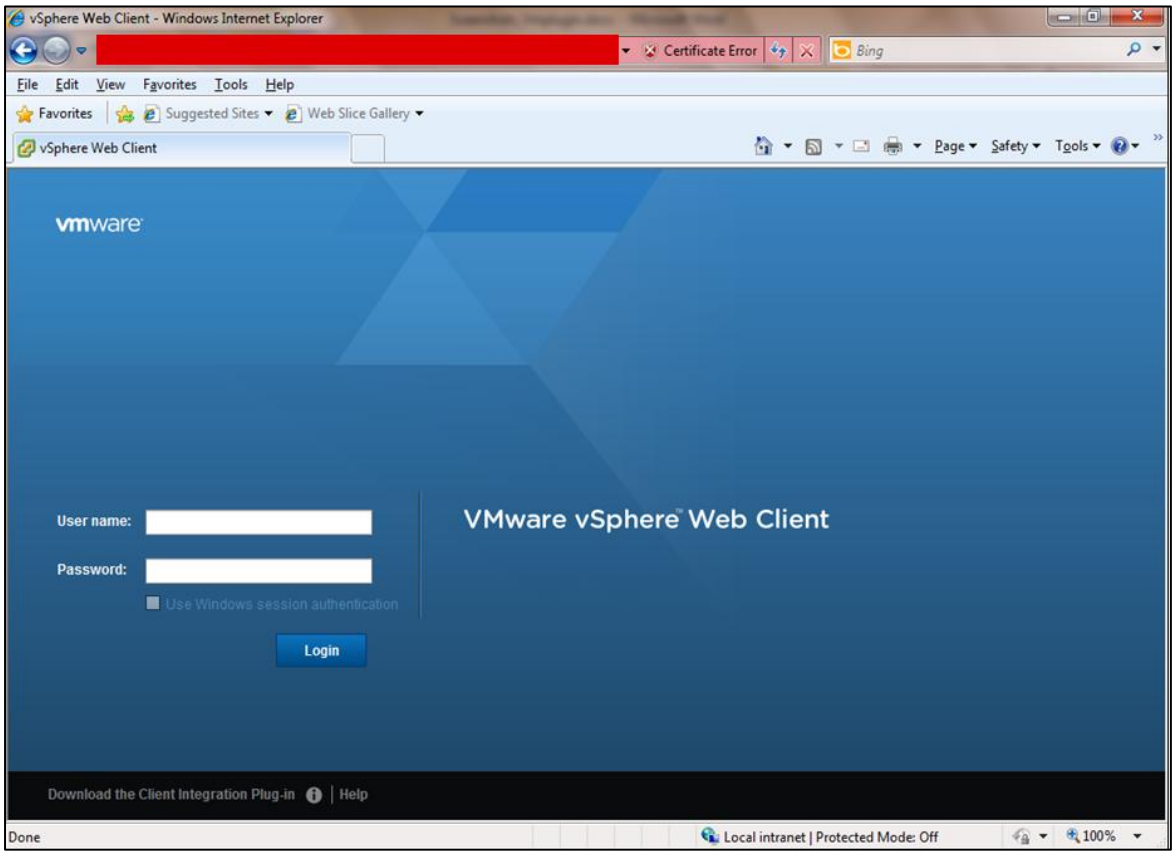

Figure 1: Web Client Login Screen

4. After the successful login, you will be directed to the home page.

3.1.1 Home Page Screen Elements

The Home page displays the following sections:

- Inventories
- Monitoring
- Administration

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The left navigation pane of the Web Client Home page displays the following tabs:

- Home
- vCenter
- Rules and Profiles
- vCenter Orchestrator
- Administration
- Tasks
- Log Browser
- Events
- Tags
- New Search
- Saved Searches

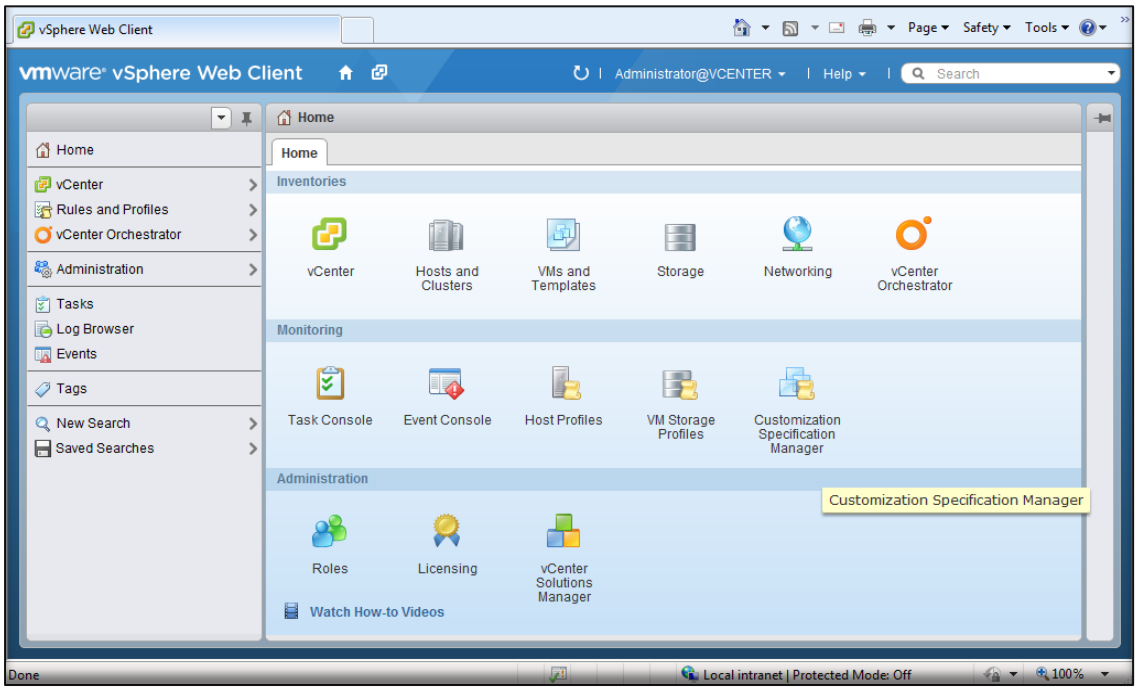

Figure 2: Web Client Home Page

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5. Once the Lenovo ThinkServer Partner Pack for VMware vCenter is installed and registered you can find the **Lenovo ThinkServer Partner Pack** icon in **Administration** section.

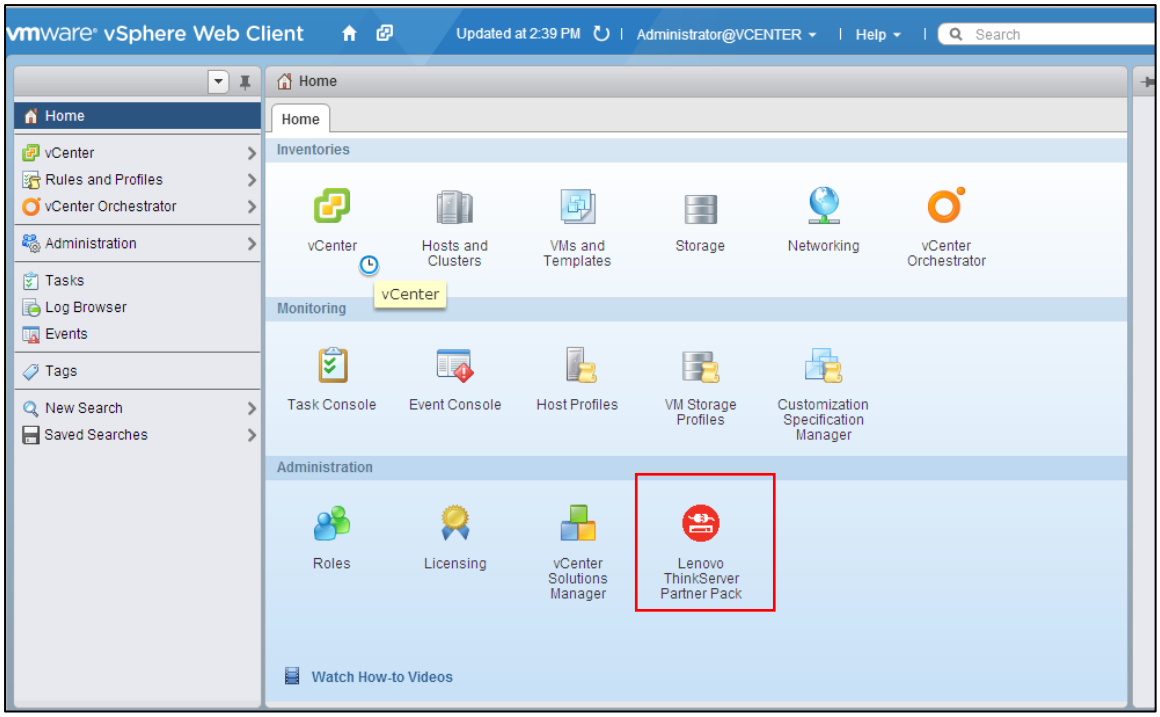

Figure 3: Web Client Screen with Lenovo ThinkServer Partner Pack for VMware vCenter icon

6. Click the **Lenovo ThinkServer Partner Pack** icon.

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3.2 Auto Discovering the Hosts

To use the Auto Discovery feature, perform the following steps:

1. On the **Web Client** home page, under **Administration** section, click the **Lenovo ThinkServer Partner Pack** icon.
2. The **Auto Discovery** page is displayed.

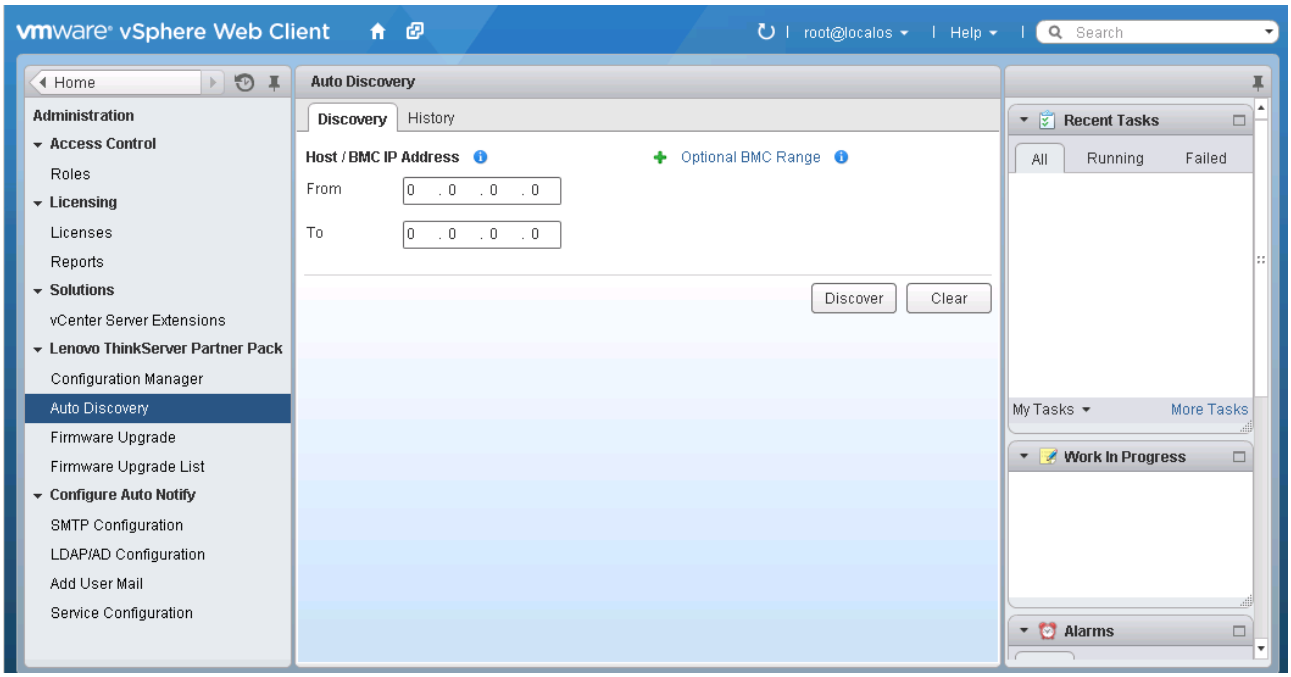

Figure 4: Lenovo Auto Discovery Screen

3. On the **Auto Discovery** page, in the **Host/BMC IP Address** section, at the **From** and **To** text box, type the start range and end range of the host's IP Address.
4. On using the **Auto Discovery** feature, you can perform several discoveries by submitting the tasks to vCenter. The **History** tab will capture each auto discovery task and show the results.

- The discovery is limited to only 2 subnets. You can search from X.X.0.0 to X.X.255.255 range. For instance, starting range from 10.90.0.0 to 10.90.255.255 is allowed.

- You can simultaneously discover both ESXi Host & BMC IP address if both are available in a single subnet by choosing the Host / BMC IP Address range. If the BMC is in other subnet, you can utilize the **Optional BMC Range** option to discover the BMC IPs in a Data center.

5. The Hosts with the given IP address range are listed.

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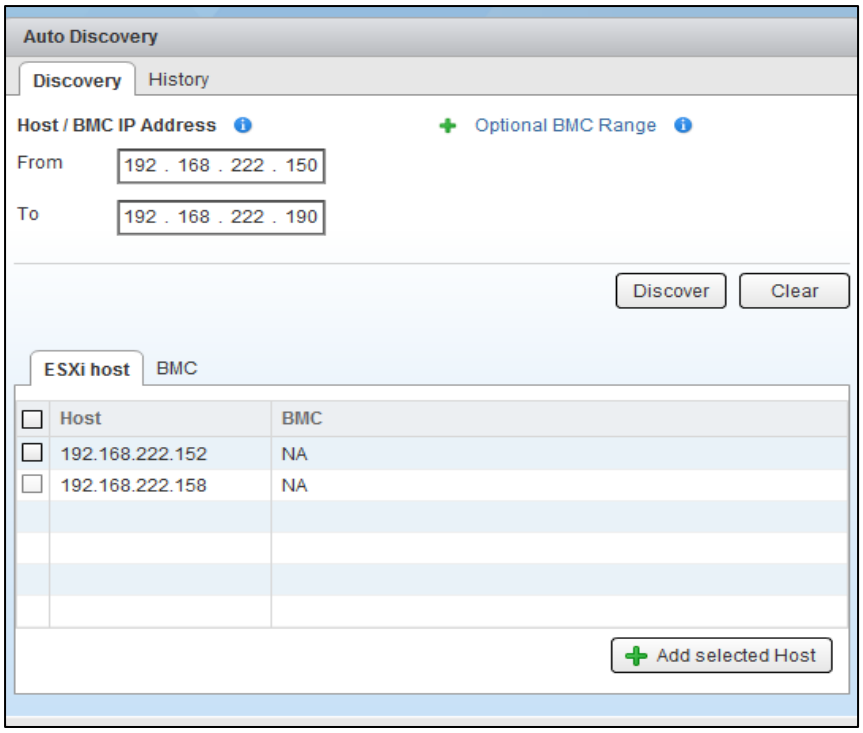

Figure 5: Auto Discovery Screen

6. Select the hosts to be added and click **Add Selected Host** to add the host to vCenter. However, if the host is already added then, the corresponding check box will be disabled to avoid adding the same host again.

7. The **History** tab will show the past 30 days of Auto discovery history. Using the history tab, you can also submit the Add host to vCenter.

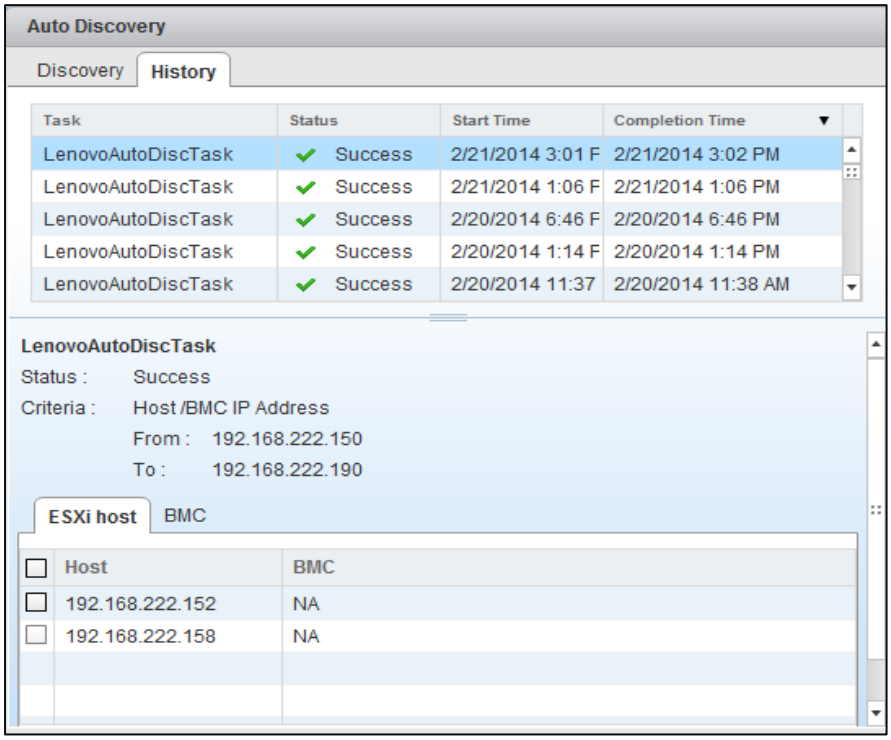

Figure 6: Auto Discovery History Screen

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3.2.1 Add Host Feature

- The Add Host feature
  - Enables you to add multiple hosts in a single click.
  - Collects each ESXi's username & password to discover the BMC IP address.
  - Enables you to select the location where the host needs to be added, such as Data center, Cluster or Folder.
- The License select/Add option provides the flexibility to either select the proper license or enter valid license.
- Once the necessary details are captured, the Partner Pack will submit the Add host tasks to the Native vCenter task manager, you can easily view the progress of add host in the Task manager.

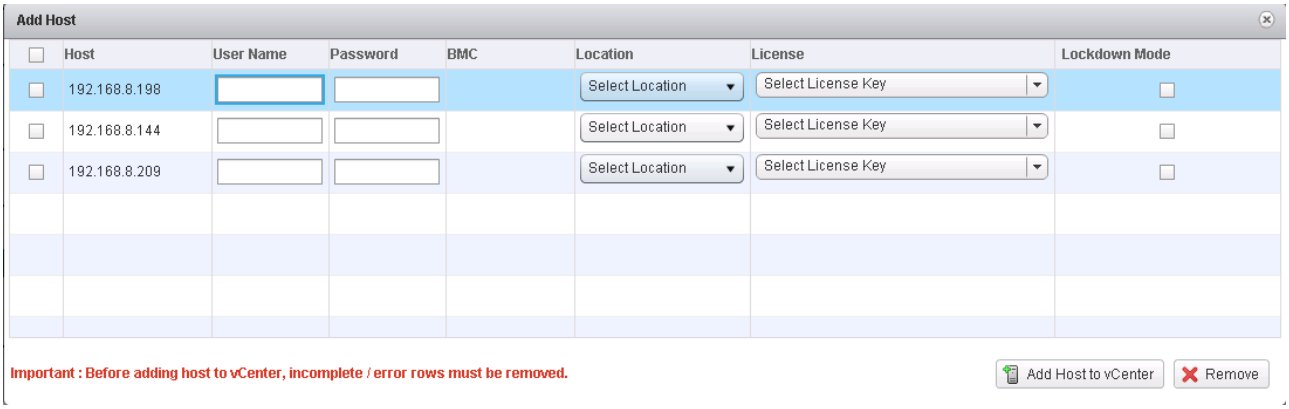

Figure 7: Add Host Screen

The following details should be noted to Add Hosts to vCenter.

- You have to enter a correct user name and password of ESXi host to fetch the BMC IP address.
- If there is no "Data center" or "Folder" created, you will receive a pop up to create **Data center** at the vCenter before proceeding with Add host option.
- If you do not have a valid license, then you can still use the evaluation version of ESXi host to add it to vCenter.
- If the evaluation license is expired, Add host feature's license field will be disabled; you cannot select the "expired licenses". Choose a "Valid License or key-in a new License to proceed with Add host.
- Add host feature verifies that the host is not already being managed. If the host is already being managed by another vCenter Server system, Add host feature displays a note at the bottom of the screen and a warning icon at the Host column.

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3.3 Configuring Polling interval

The Lenovo ThinkServer Partner Pack for VMware vCenter provides the flexibility to configure the polling interval for the Lenovo inventory pages. You can configure from 30 seconds to 3600 seconds in the Polling Configuration page. The configured polling interval will override the default polling interval of native vCenter, this helps you to obtain the quick notification of health status and alerts of Lenovo inventories.

To configure the polling interval perform the following steps:

1. Under Lenovo ThinkServer Partner Pack for VMware vCenter sections, in the left pane, click **Configuration Manager**.

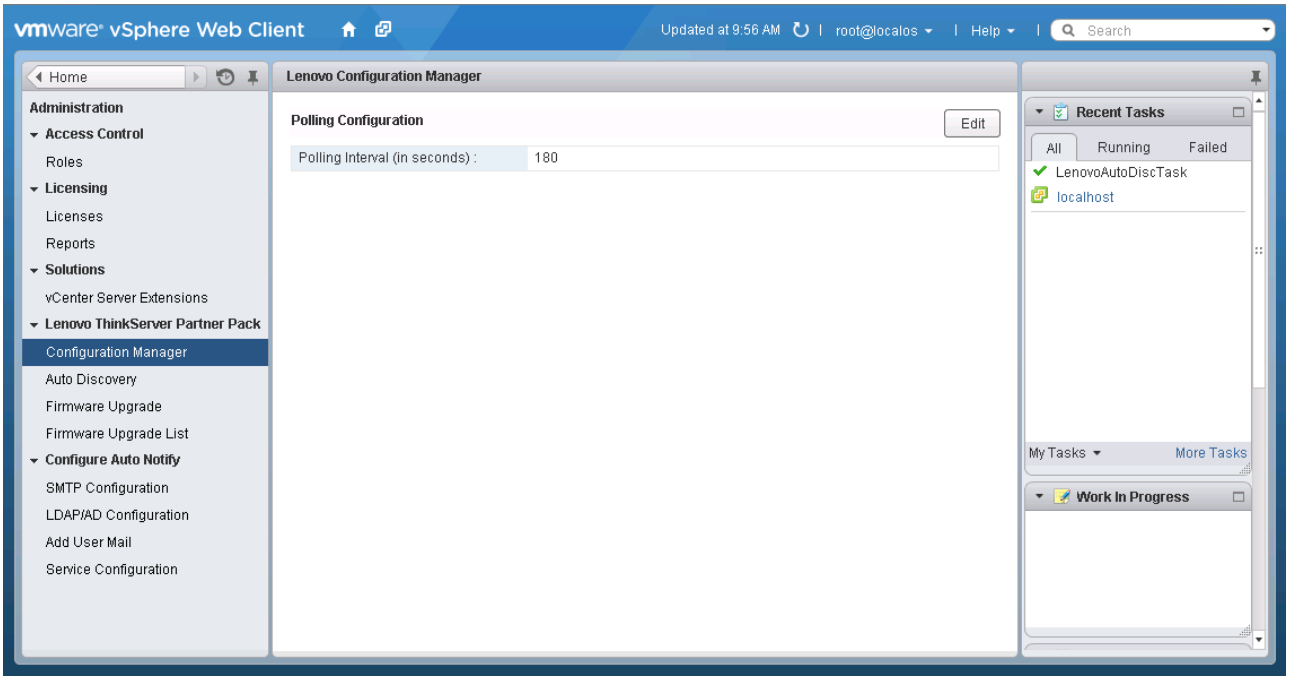

Figure 8: Configuration Manager Navigation Screen

Figure 9: Custom Polling Configuration Screen

2. On the Lenovo Configuration Manager page, in the Polling Configuration section, click **Edit**.
3. In the **Edit Polling Interval** dialog box, enter a valid time interval in seconds and click **Save**.

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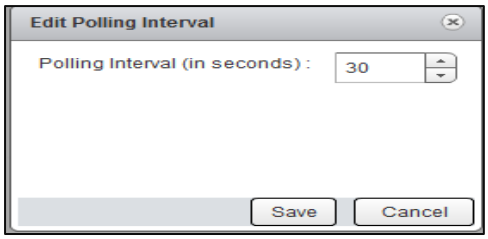

Figure 10: Edit Polling Interval Dialog Box

4. You can enter a value from 30 to 3600 seconds in polling interval. If you try to enter beyond this limit, a **Warning** message is displayed.

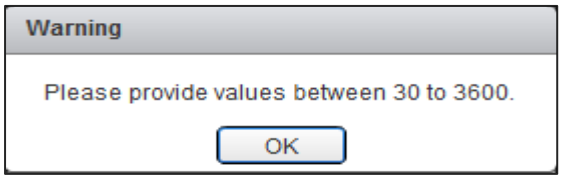

Figure 11: Warning Message

5. The Polling interval is configured successfully message is displayed once the correct value has been entered and saved.

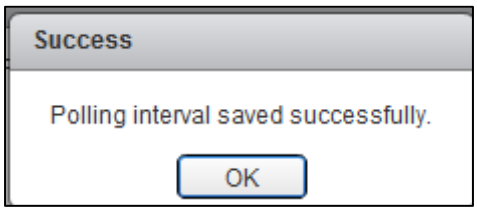

Figure 12: Success Message

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3.4 Firmware Upgrade

The Lenovo ThinkServer Partner Pack for VMware vCenter can upgrade the firmware of serves' components, including BIOS, BMC and LEPT..

1. On the left navigation pane, click on **Firmware Upgrade.**
2. Specify the location of firmware bundle file, a Samba, NFS or TFTP server can be used here. Input necessary information, user name, password etc., click **Next**. (RQ750 can support only TFTP)

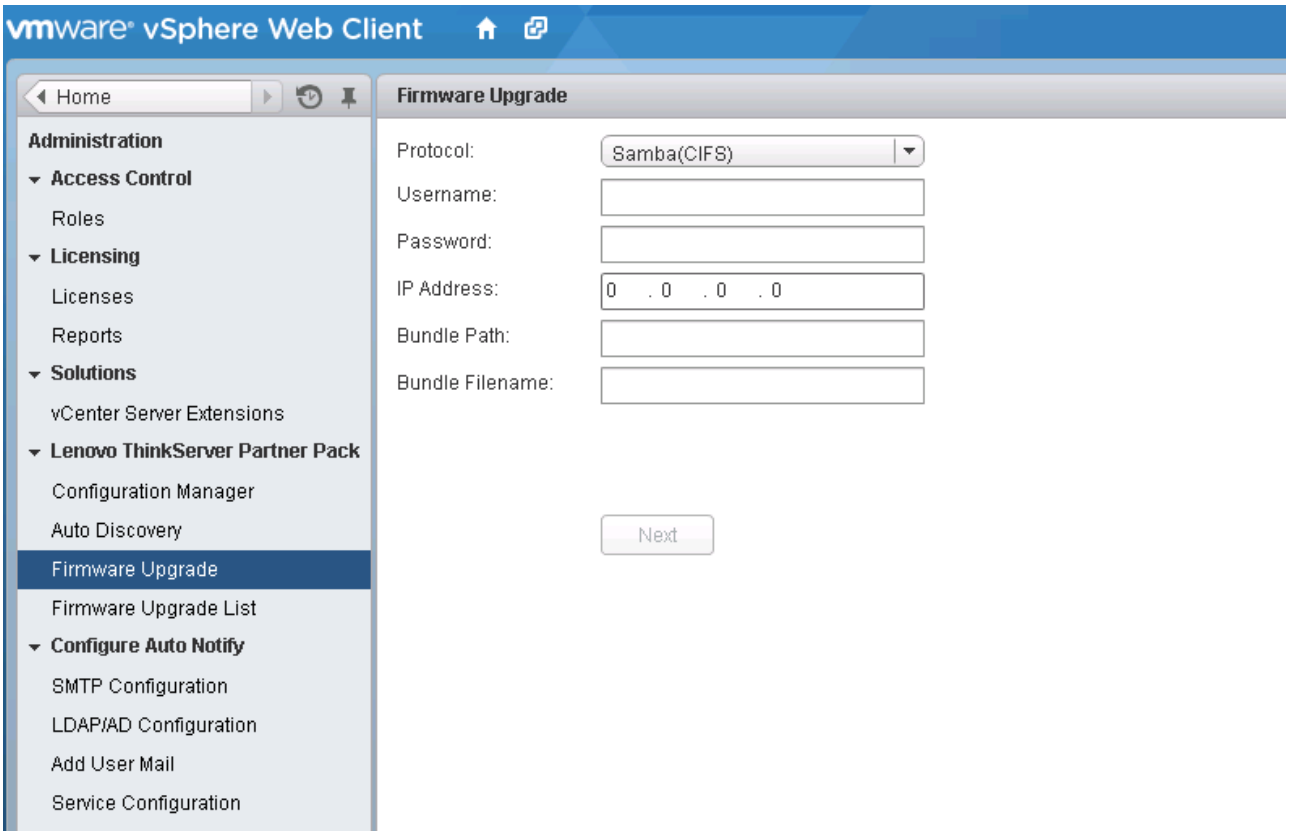

Figure 13: Firmware Upgrade for Samba

For Samba service Username, Password, IP Address, Bundle Path, Bundle Filename is necessary.

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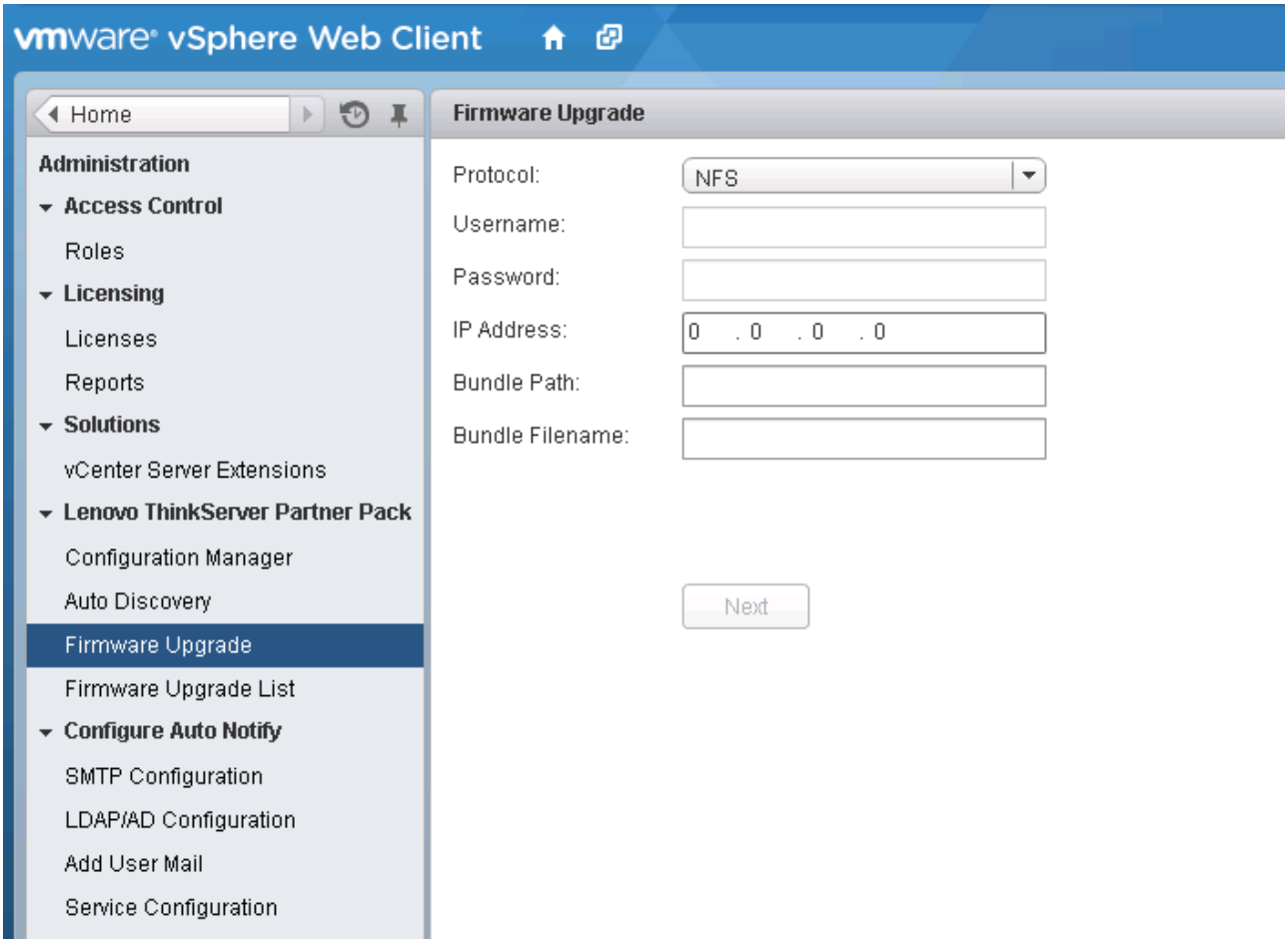

Figure 14: Firmware Upgrade for NFS

For NFS service IP Address, Bundle Path, Bundle Filename is necessary.

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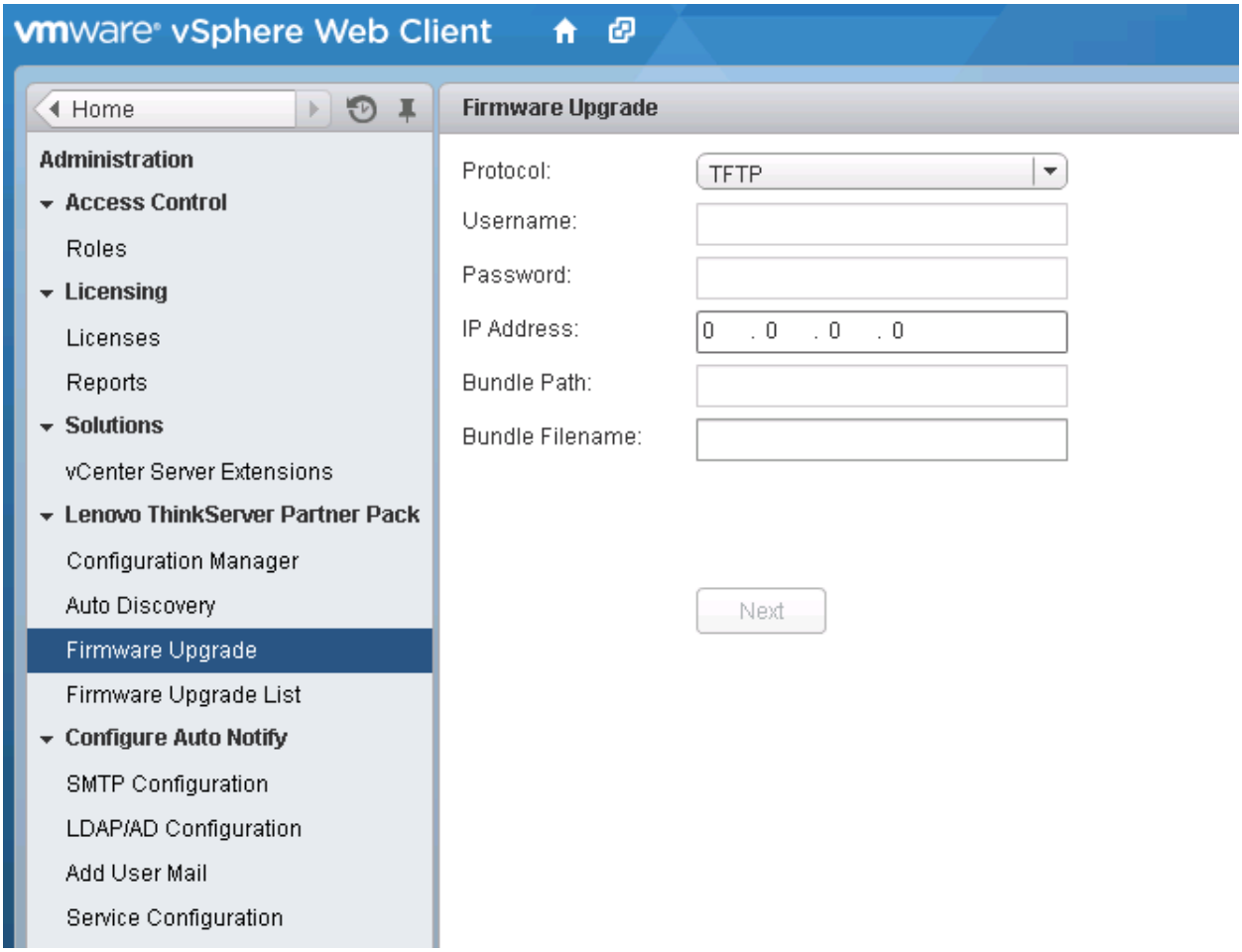

Figure 15: Firmware Upgrade for TFTP

For TFTP service IP Address, Bundle Filename is necessary.

3. Firmware information, type, version etc., will be displayed, click **Next**. (RQ750 only support Bios and BMC upgrade)

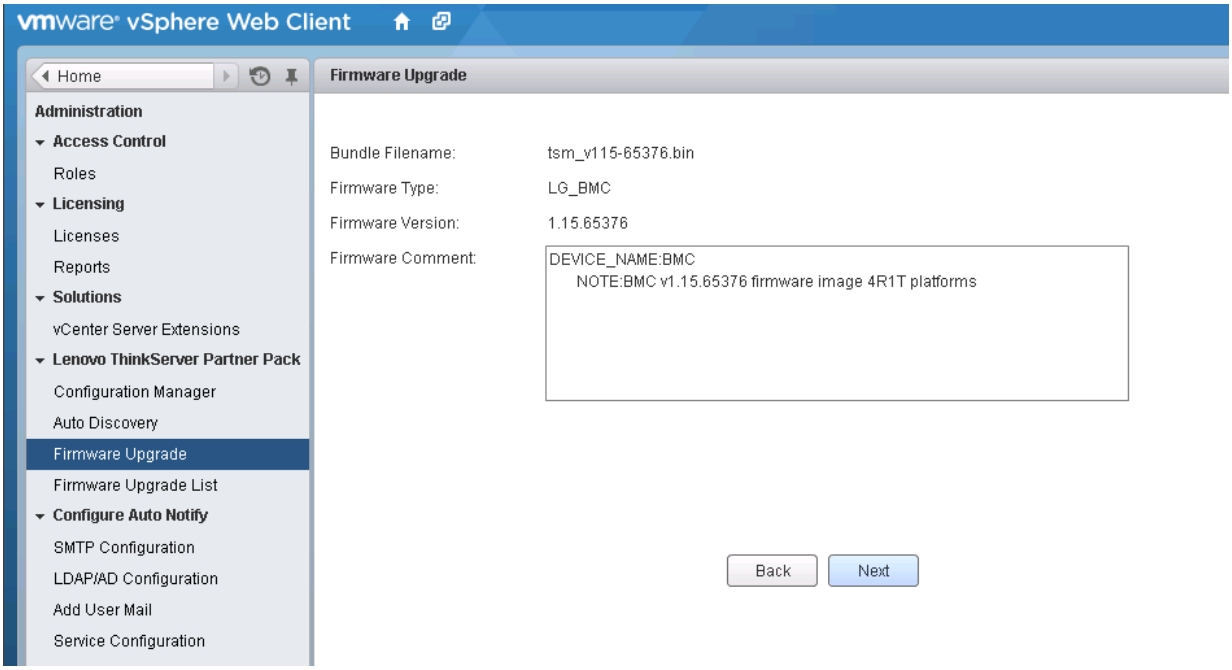

Figure 16: Firmware information confirm

4. All 5th generation host monitored will be listed, choose one or more hosts and click **Upgrade**.

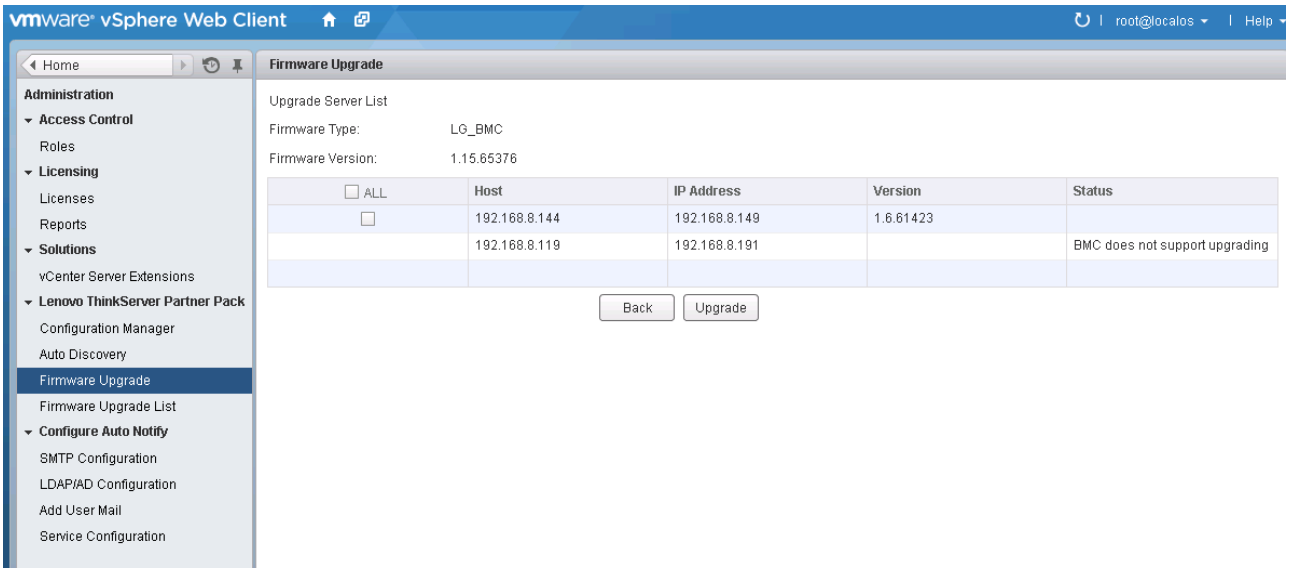

Figure 17: choose host to Firmware Upgrade

5. Information about current operation will be displayed.

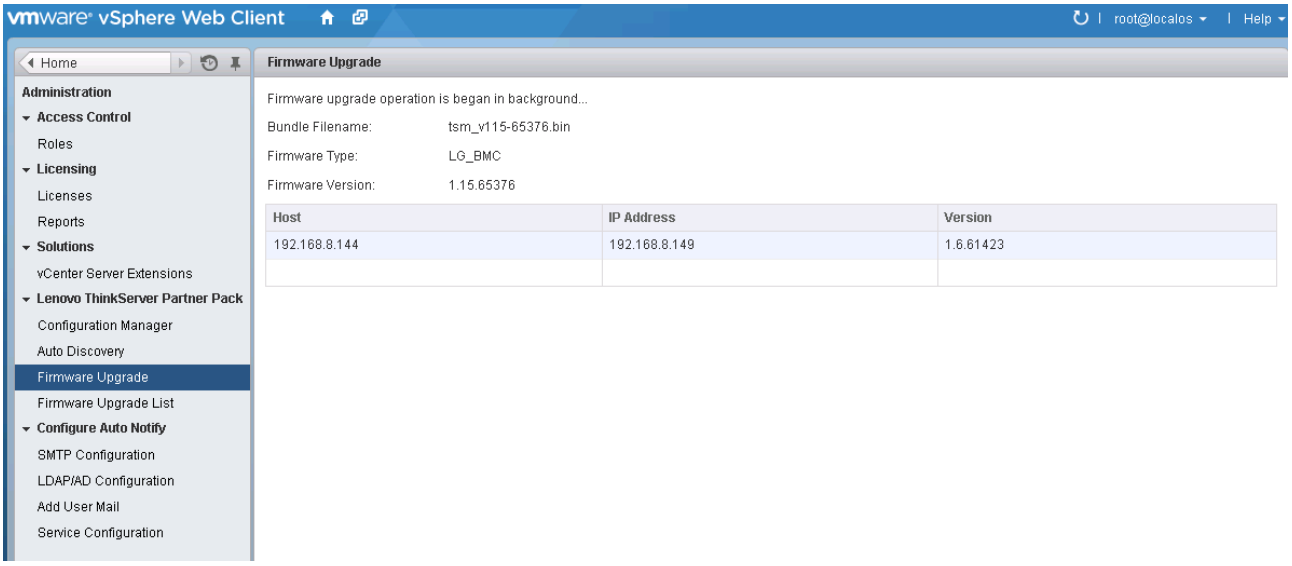

Figure 18: Firmware Upgrade operation is showed

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6. On the left navigation pane, click on **Firmware Upgrade History** to view all upgrade history including the status of current upgrade operation.

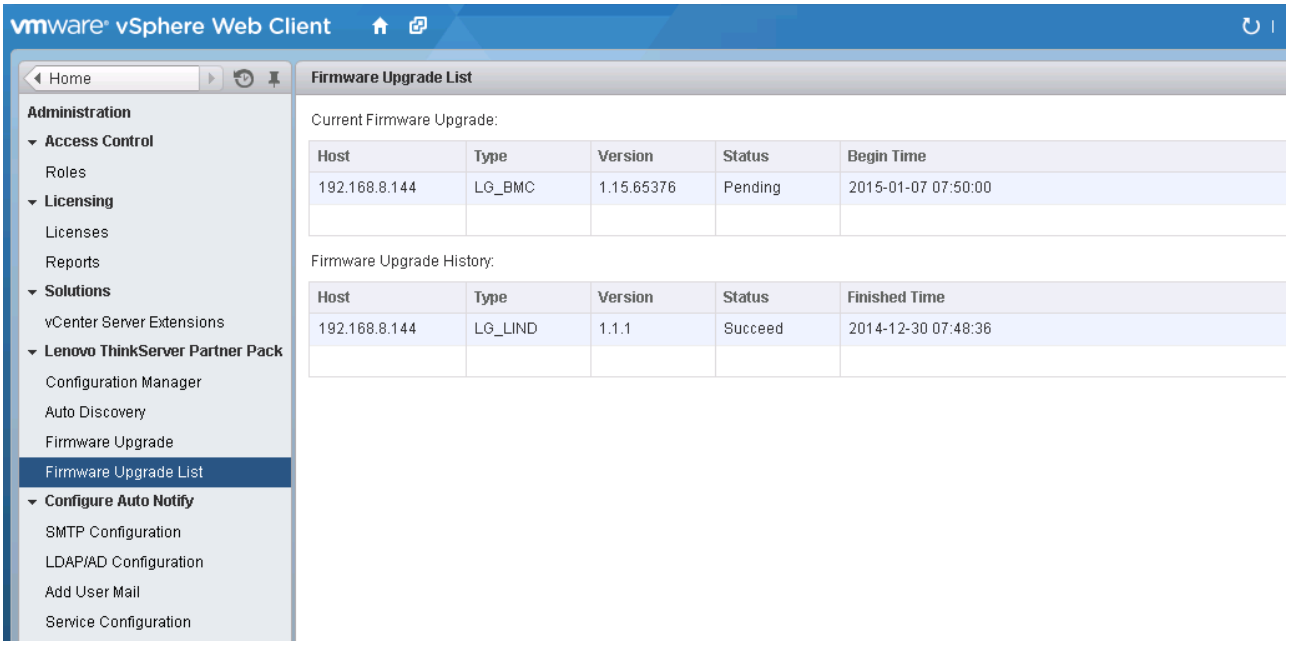

Figure 19: Firmware Upgrade History View

About RQ750 BIOS upgrade, Partner Pack will not check the version in the upgrade process,

So the BIOS bundle file which is lower than the current version of the BIOS can also be upgraded,

The reason is that Partner Pack is unable to get the bundle file's verison by RQ750's BMC.

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3.5 Auto Notify Configuration

Auto Notify feature will scan all the firmware version of 5th servers monitored by vCenter, and if it has detected that a firmware should be upgraded, users will be notified via mail.

1. On the left navigation pane, click on **SMTP Configuration** under **Auto Notify Configuration**. Specify the IP address and port of SMTP server used to send mails.

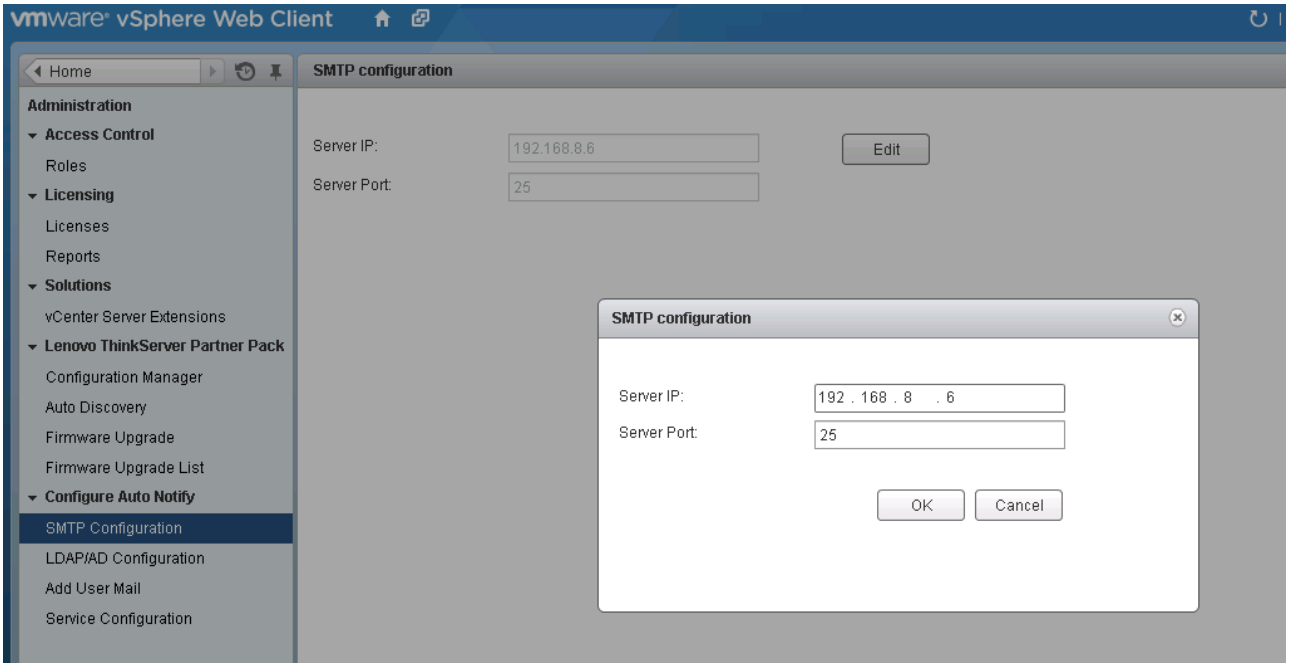

Figure 20: SMTP configuration

2. Click **LDAP/AD configuration** to specify IP address, port and domain of LDAP or AD server used for retrieving mail address of users.

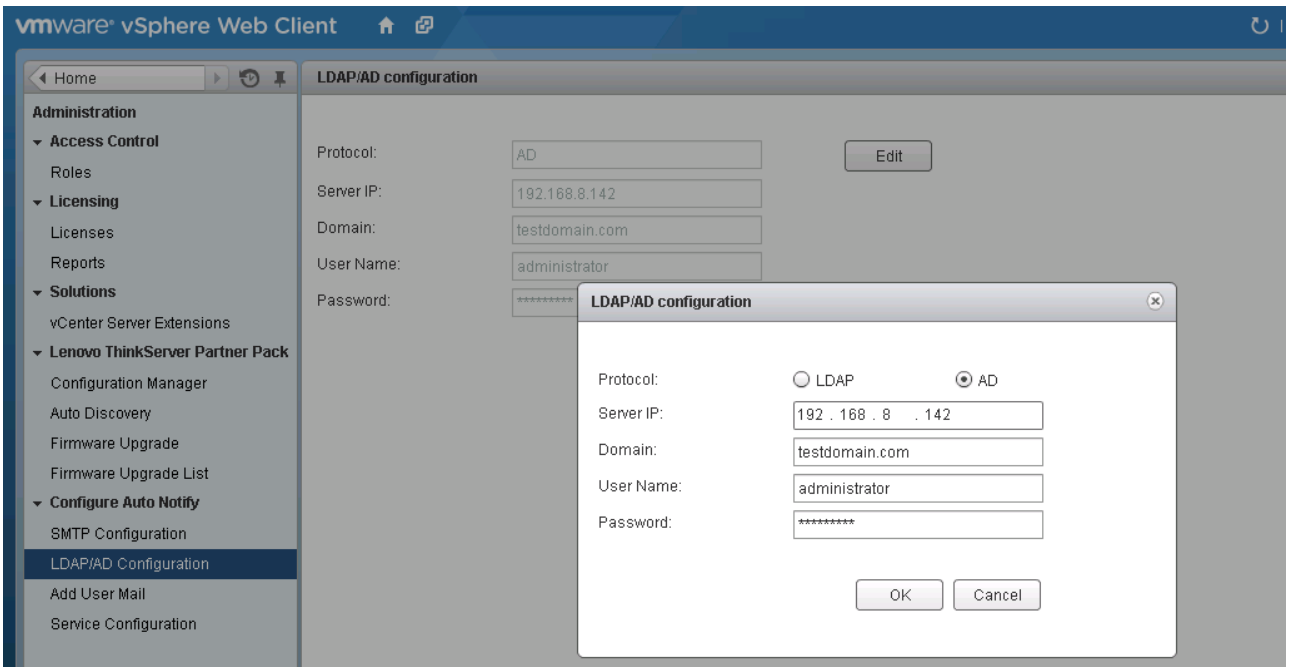

Figure 21: LDAP/AD configuration

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3. Click **Add User** to add user that should be notified, the corresponding mail address will be displayed. Check **Auto Notify** for auto notification, and check **Upgrade Complete** for notification after upgrade.

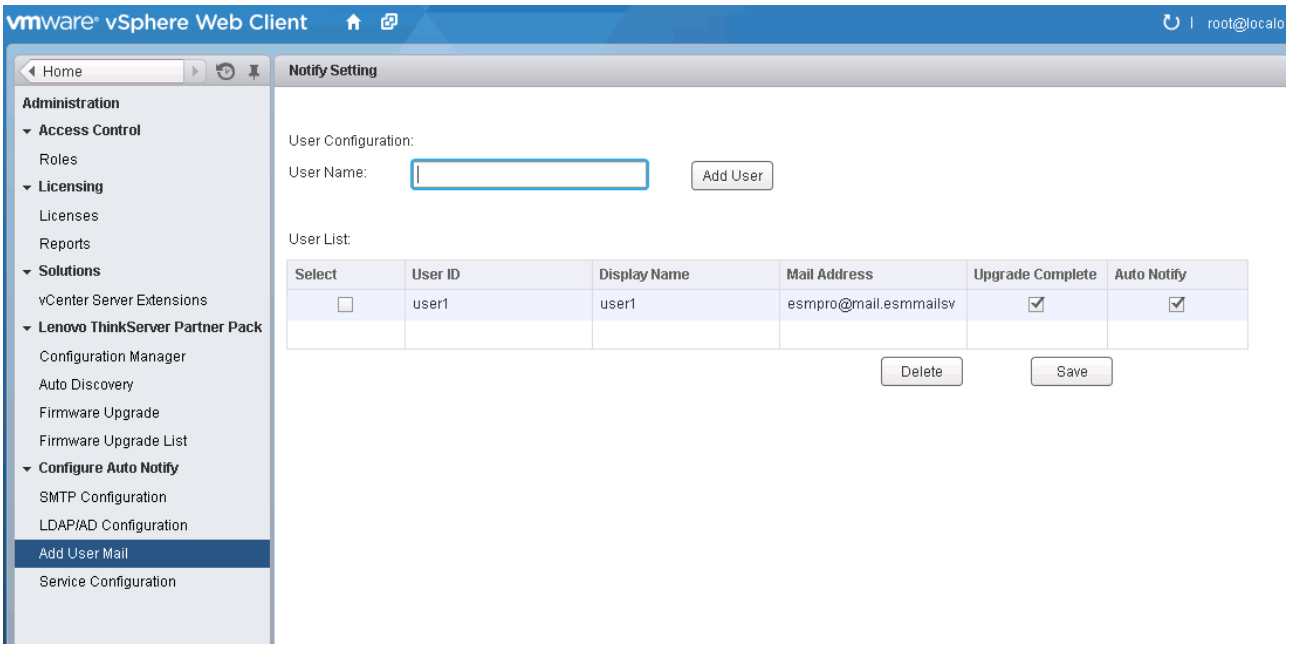

Figure 22: Notify setting

4. Click **Enable/Disable Auto Notify**, click **Enable** button to enable auto notify feature, click **Disable** button to disable auto notify feature.

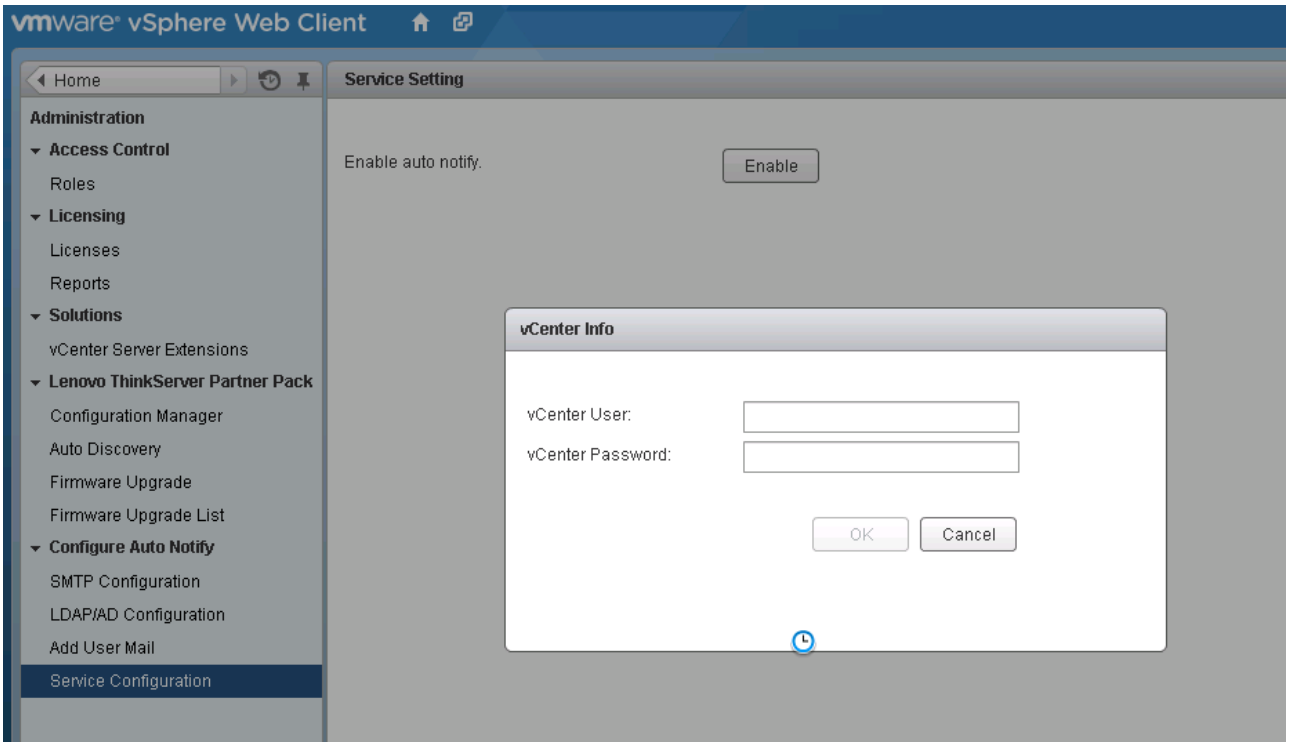

Figure 23: Enable auto notify feature

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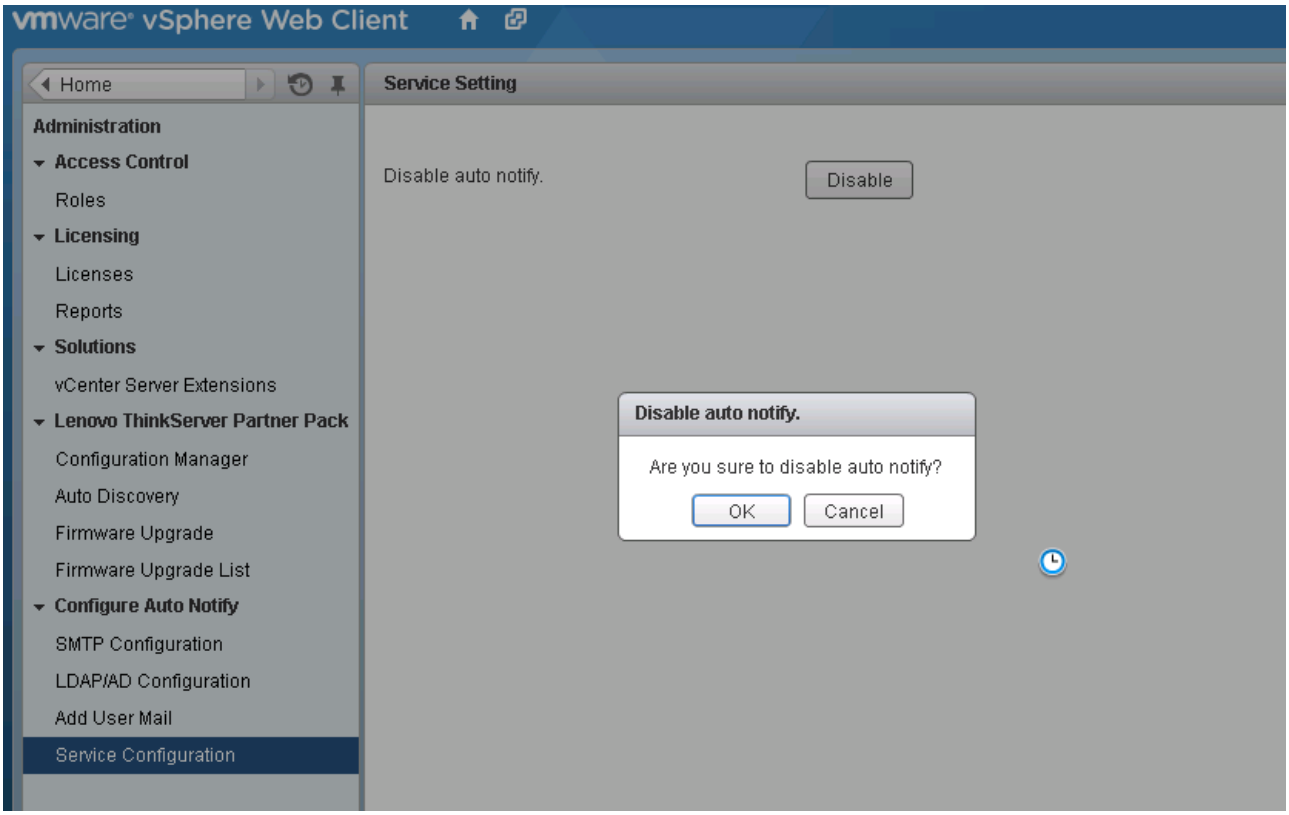

Figure 24: Disable auto notify feature

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3.6 Accessing the Host

The Lenovo ThinkServer Partner Pack for VMware vCenter works with each Host.

To access the Host:

6. On the left navigation pane, click on **vCenter.**
7. Select **Data Centers > Clusters/Hosts.**
8. Select the Host IP/Name to get the Partner Pack widgets/settings.
9. The Web Client Tab Screen is displayed.

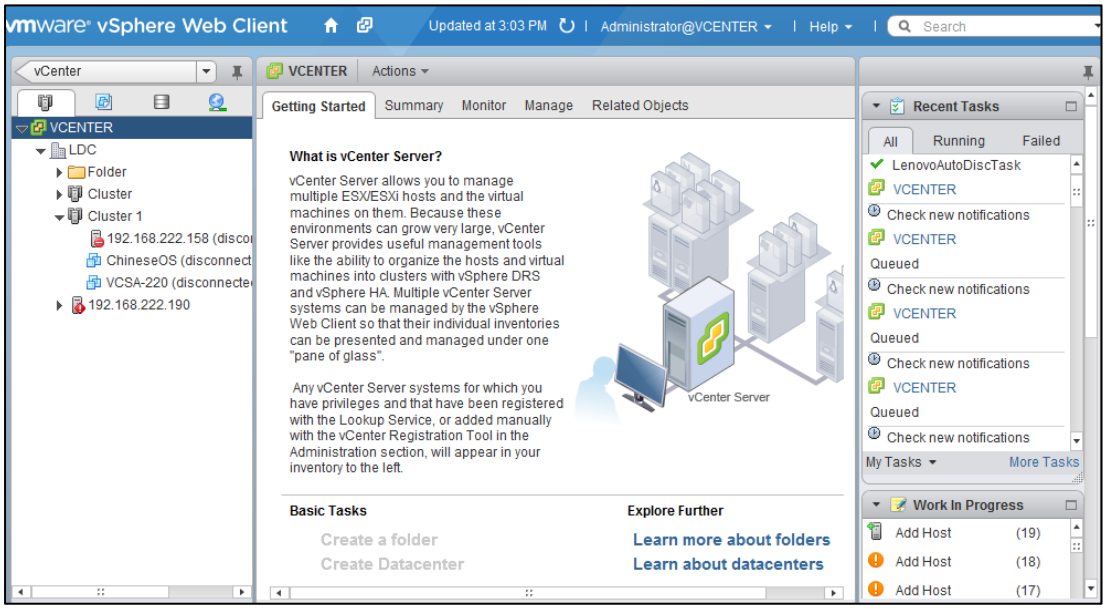

Figure 25: Web Client Tab Screen

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3.7 Essential Setup before Launching the Lenovo ThinkServer Partner Pack:

Ensure to update the Lenovo ThinkServer System Manager IP (BMC IP), user name, password for each host before launching the Partner Pack. To update them, perform the following steps.

This configuration is enable on VSCA 6.0 only,The Edit button will be disabled on VSCA 5.1/5.5 system.

1. Navigate to Web Client's **Manage > Settings > Hardware > Extended Power Management** screen.
2. Click **Edit** to enter the ILO / BMC / Lenovo ThinkServer System Manager details.
3. Click **Clear** to delete the extended power setting.

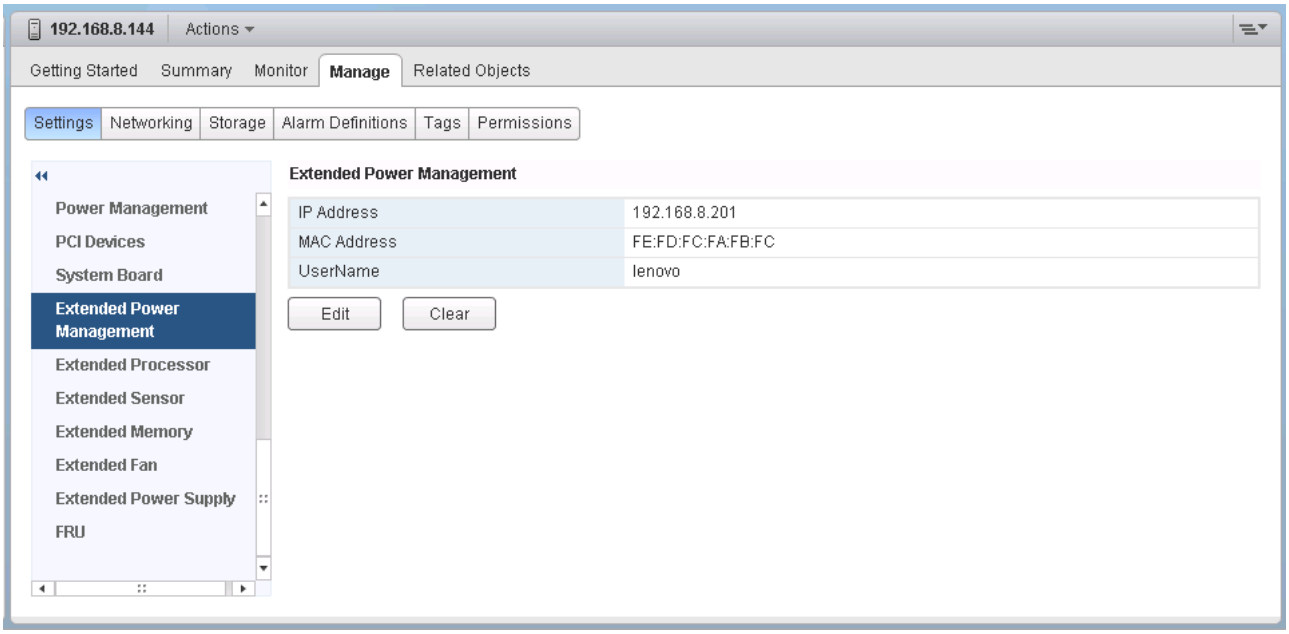

Figure 26: VMware IPMI/iLO Settings for Power Management Screen

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3.8 Monitoring Summary Details

The **Summary** page displays the entire system details, such as Server Model, Type, Number of Processors, Count of NICs, Number of Virtual Machines, State of the Server, CPU details, Memory details and Storage details, in the form of widgets.

Widgets such as Hardware, Fault Tolerance, Related Objects, Configuration, Tags, and Licenses are displayed by default.

After installation of Lenovo ThinkServer Partner Pack for VMware vCenter, Server Information related Widgets, Host Actions and Device Information details are displayed. These widgets provide the detailed data for each host respectively.

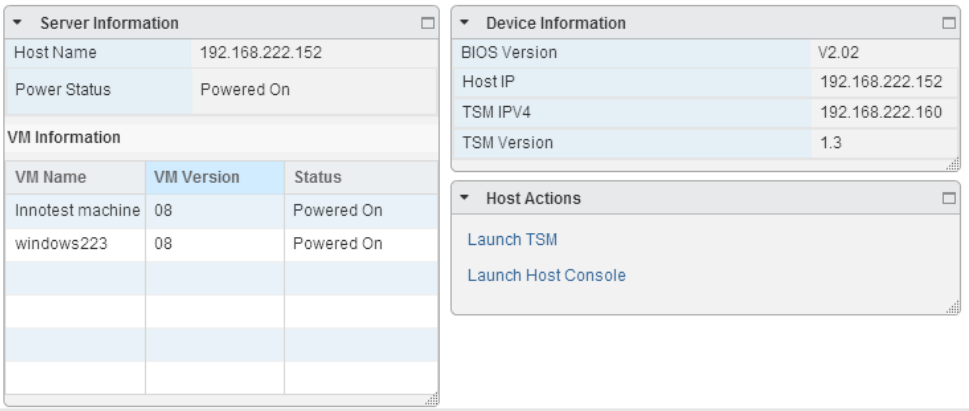

Figure 27: Lenovo ThinkServer Partner Pack for VMware vCenter Widgets on Summary Screen

3.8.1 Server Information Widget

The **Server Information** widget displays details related to Host Name, Power Status of Host, and VM information such as VM Name, VM Version and Status of each VM. This screen gives an overview of a Host where one or multiple VMs are running.

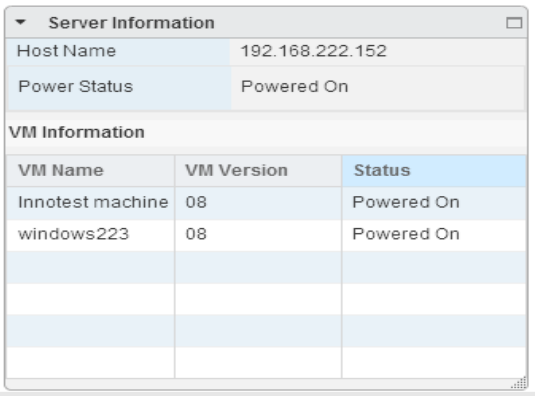

Figure 28: Server Information Widget

Power-On Feature:

- In the Power Status field, the Power on link is enabled if the server is powered off.
- Click on the Power On link and the server gets powered on by using BMC information.
- Once the server is powered on and registered with vCenter, the Power Status field is updated. The status updation may take several minutes.

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3.8.2 Device Information Widget

The **Device Information** widget displays details such as BIOS Version, Host IP, Lenovo ThinkServer System Manager IPV4, Lenovo ThinkServer System Manager Version and so on.

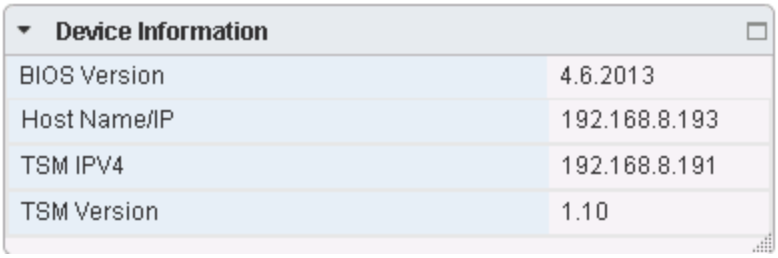

Figure 29: Device Information Widget

3.8.3 Host Actions Widget

The **Host Actions** widget displays the link to:

- **Launch Lenovo ThinkServer System Manager**- Clicking the link opens the Lenovo ThinkServer System Manager page. You can access the Lenovo ThinkServer System Manager web page by providing proper login id and password. If you do not have one, contact your Administrator to get the authentication details.

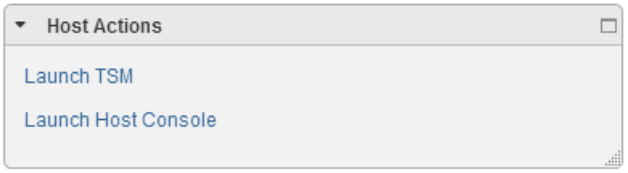

Figure 30: Host Actions Widget

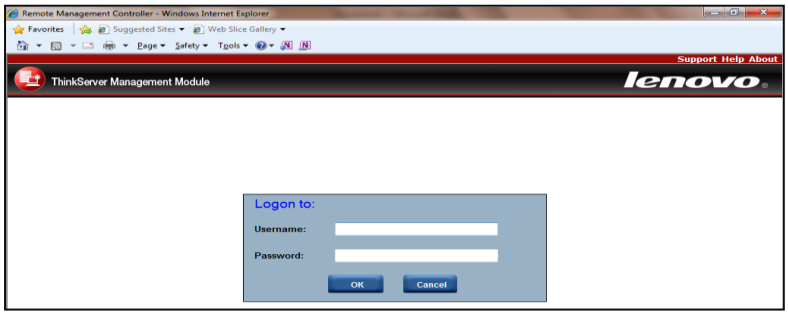

Figure 31: ThinkServer Web Page Screen

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- **Launch Host Console**: On clicking **Launch Host Console,** the viewer.jnlp file will be prompted; you can save it on the disk or click Open. Java webstart will launch the console.

  If you do not have Java Web Start, the file may not open with the associated application. Ensure that the system is updated with JRE 7.0 or above.

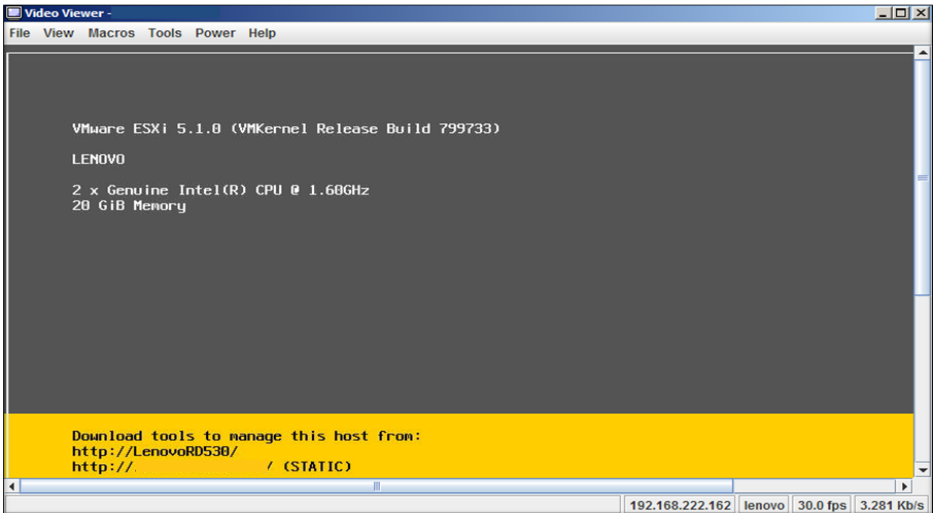

Figure 32: ThinkServer Console Screen

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3.9 Viewing the Monitor Page

The **Monitor** page will be updated with Extended SEL tab after the successful completion of Lenovo ThinkServer Partner Pack for VMware vCenter registration.

Figure 33: Monitor Tab Screen

3.9.1 Extended SEL

Once the Extended SEL is selected, the information related to Events, Sensor Type, Severity and Time is displayed. This helps you to identify and fix the critical issue which has occurred on the server. Since the extended SEL works through out of band functionality, the server alerts are sent even if the system is in panic situation.

Extended SEL provides additional information like severity. You can easily identify the critical or fatal incidents by using the filter. SEL filter shows the data based on the keyword entered in the filter screen.

There are three types of severities with extended SEL:

- **Info** – This gives the information of changes which has occurred on the server. It could be your event log cleared info, time stamp changed info, etc.
- **Warning** – This gives the alerts for some components which are going to fail. For instance, if the power supply threshold is exceeded, then the warning message will be displayed.
- **Failed** – This enables users to understand the fatal / critical events which have occurred on the server.

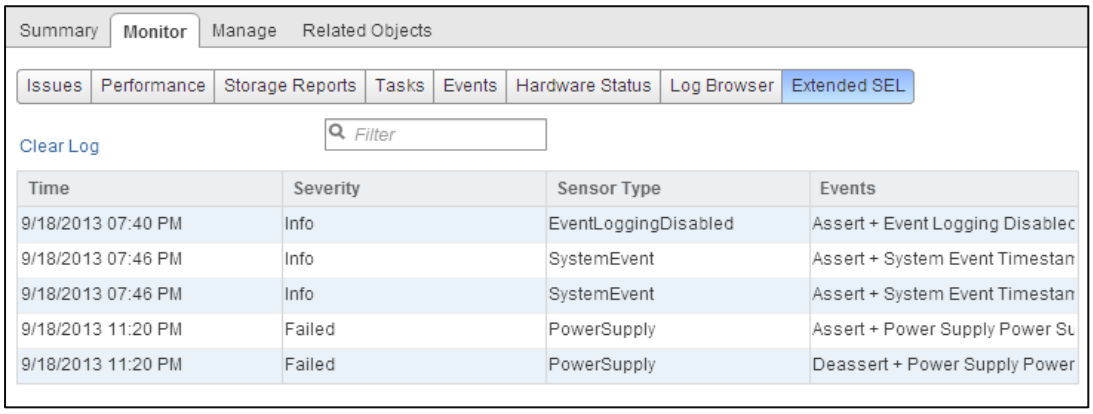

Figure 34: Extended SEL Screen

Extended SEL providing export feature, click Export Log to export all or specified time range of extended logs into a file.

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3.10 Accessing Inventory Information

All the inventory related information is available under the **Manage** page. Lenovo ThinkServer Partner Pack for VMware vCenter has added following pages under VMware Webclient's Manage Page.

Navigate through **Manage > Settings > Hardware** to find the Lenovo ThinkServer Partner Pack for VMware vCenter Inventory information.

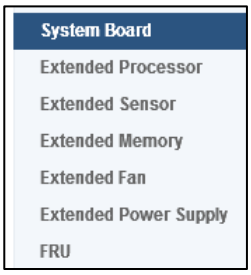

Figure 35: Lenovo ThinkServer Partner Pack for VMware vCenter Inventory Screen

The inventory information of the following components can be retrieved:

- System Board
- Extended Processor
- Extended Sensor
- Extended Memory
- Extended Fan
- Extended Power Supply
- Field Replaceable Unit

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3.10.1 System Board

The **System Board** displays the Host's Manufacturer, Model Number and UUID.

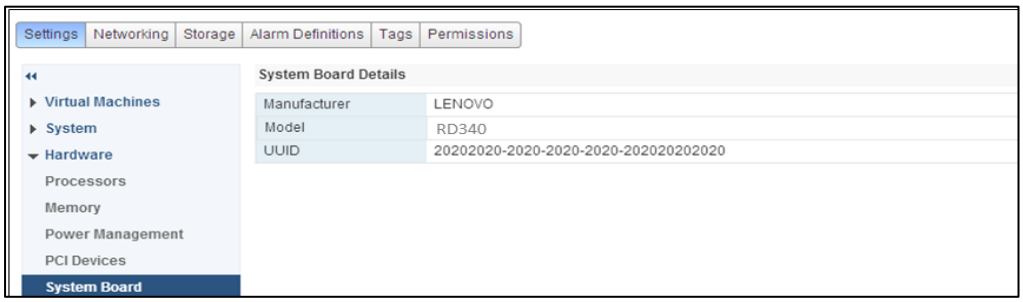

Figure 36: System Board Screen

3.10.2 Extended Power Management

The **Extended Power Management** screen setting the information of BMC from the VSCA version 6.0. This function will be disabled when the version of VSCA older than 6.0.

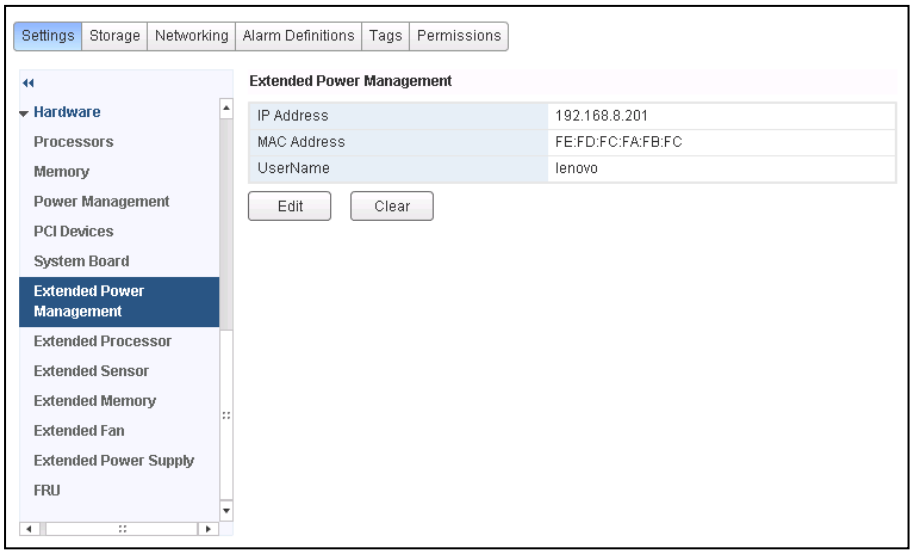

Figure 37: Extended Power Management

3.10.3 Extended Processor

The **Extended Processor** screen displays the data related to Processors Manufacturer Name, Model, Speed, Description, CPU Cores, CPU Threads, Number of Processors and Over All Status etc.

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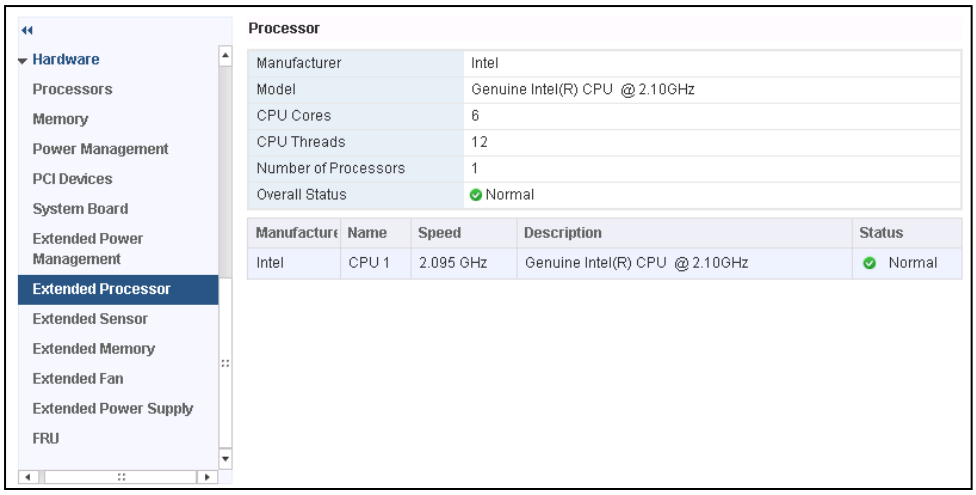

Figure 38: Extended Processor Screen

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3.10.4 Extended Sensor

The **Extended Sensor** screen displays the data related to Sensor Count, Overall Status, Name, Current Reading, Status and so on.

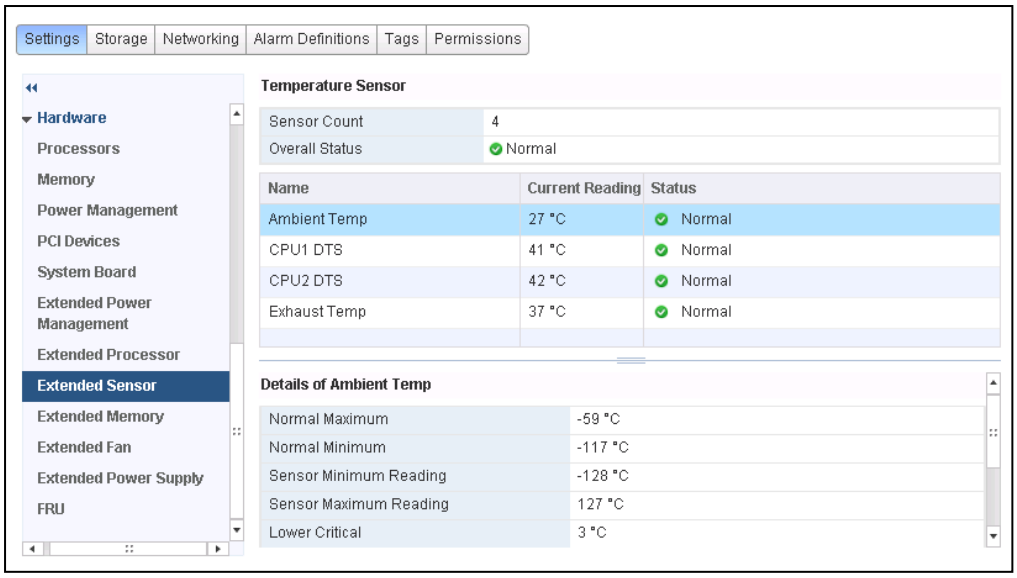

Figure 39: Extended Sensor Screen.

Each sensor also displays the details of threshold under the Detail section.

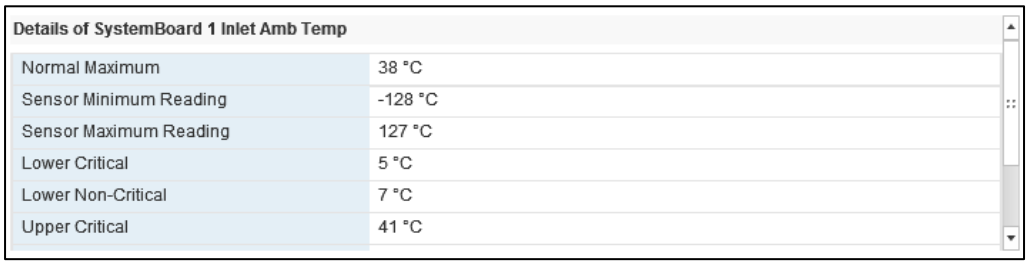

Figure 40: Sensor Description Screen

Note: The CPU DTS Margin reading is not an absolute temperature value in Celsius or Fahrenheit, but actually an offset from the maximum CPU junction temperature. In other words, CPU DTS Margin is the distance from the maximum operating temperature of the CPU.

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3.10.5 Extended Memory

The Extended Memory screen displays the details related to Memory Count, Over All Memory size in (GB), Overall Memory Status, Name, Description, Manufacture, Type, Capacity, Serial Number, Part Number, Bank Label and Max Memory Speed

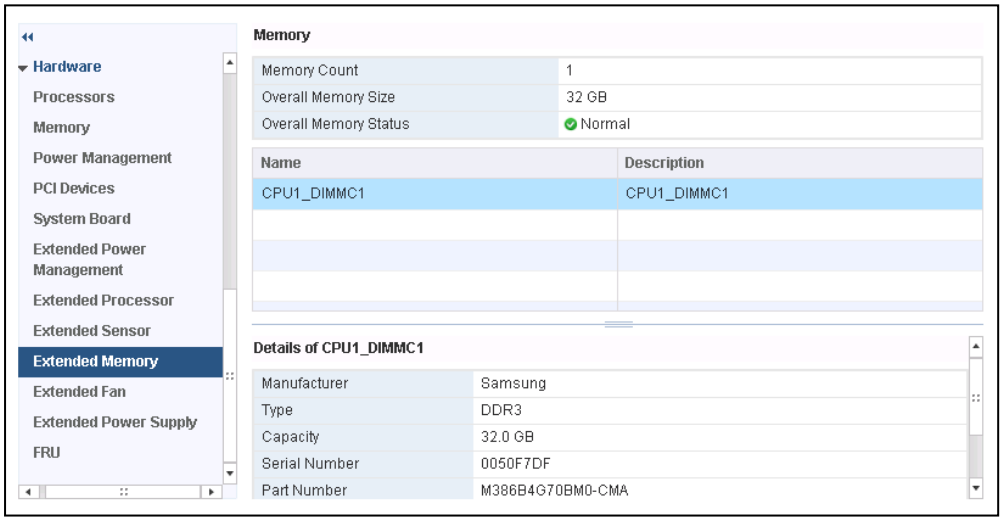

Figure 41: Extended Memory Screen

On selecting the Memory module, more details of memory like Manufacturer, Type of DIMM's, etc. is displayed in Detail section.

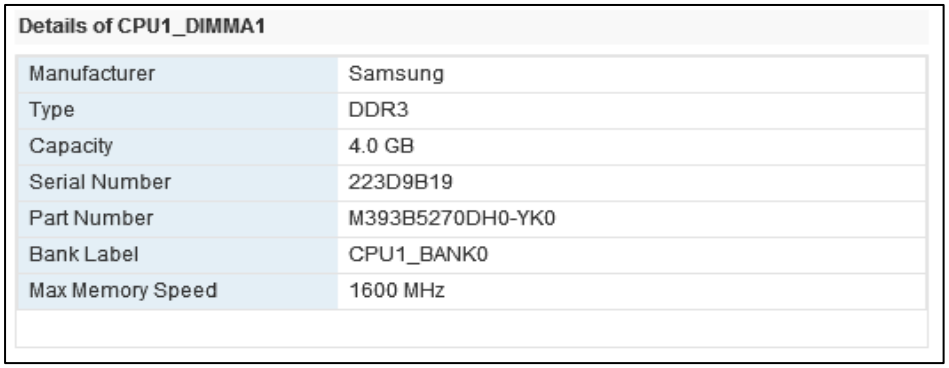

Figure 42: Memory Details Screen

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3.10.6 Extended Fan

The **Extended Fan** screen displays the data related to Fan Count, Overall Fan Status, Rotational Speed, Active Cooling, Control Mode, Status, Lower Critical, Lower Non Critical, Lower Non Recoverable and Normal Maximum and so on.

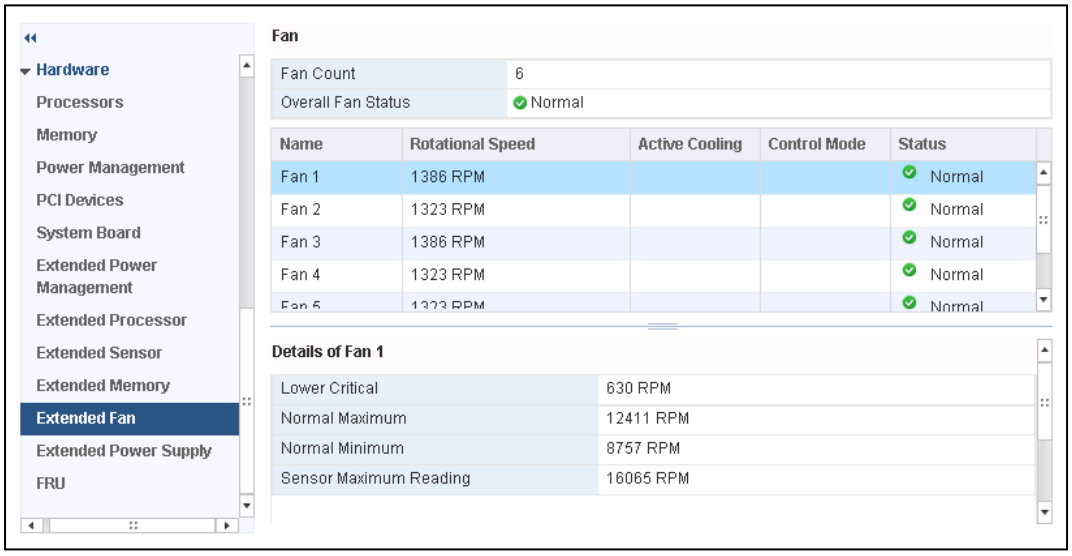

Figure 43: Extended Fan Screen

On selecting the particular fan, the details of thresholds are displayed on the detail section.

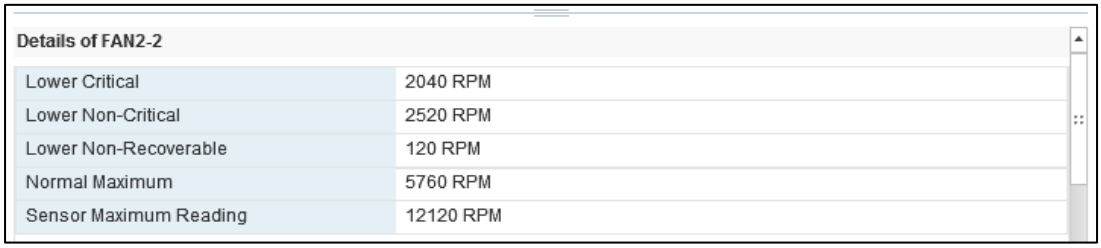

Figure 44: Fan Details Screen

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3.10.7 Extended Power Supply

The **Extended Power Supply** screen displays the details related to Power Supply Count, Overall Power Supply Status, Name, Status and Reading.

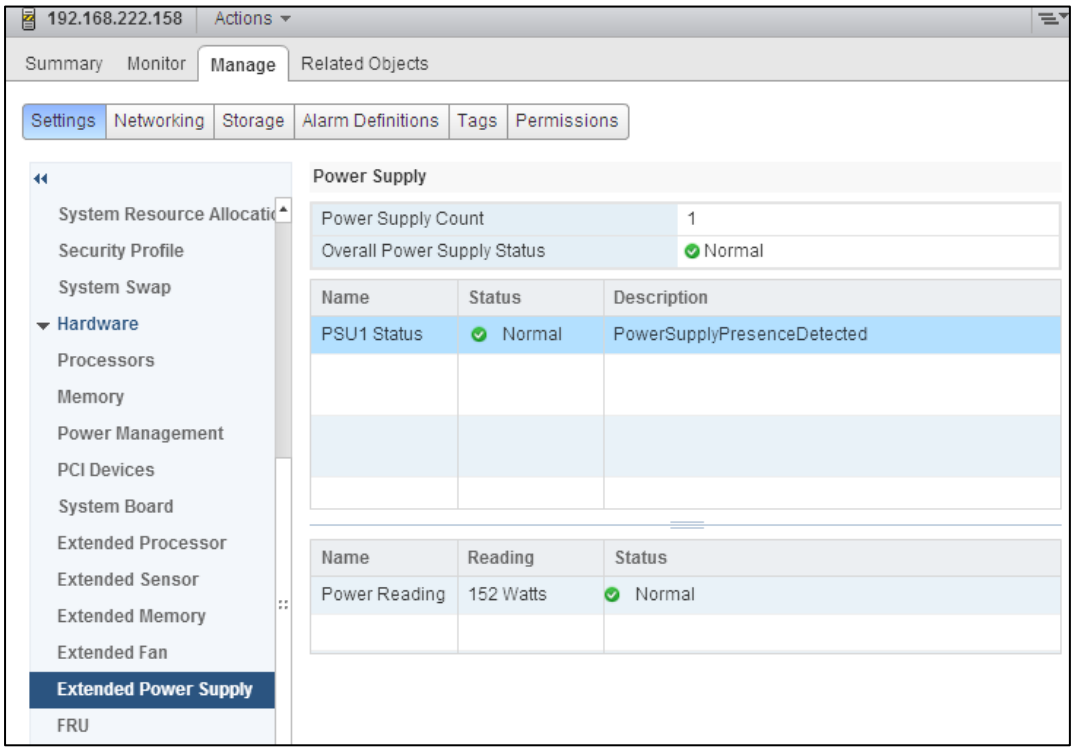

Figure 45: Extended Power Supply of IVB Model Hosts Screen

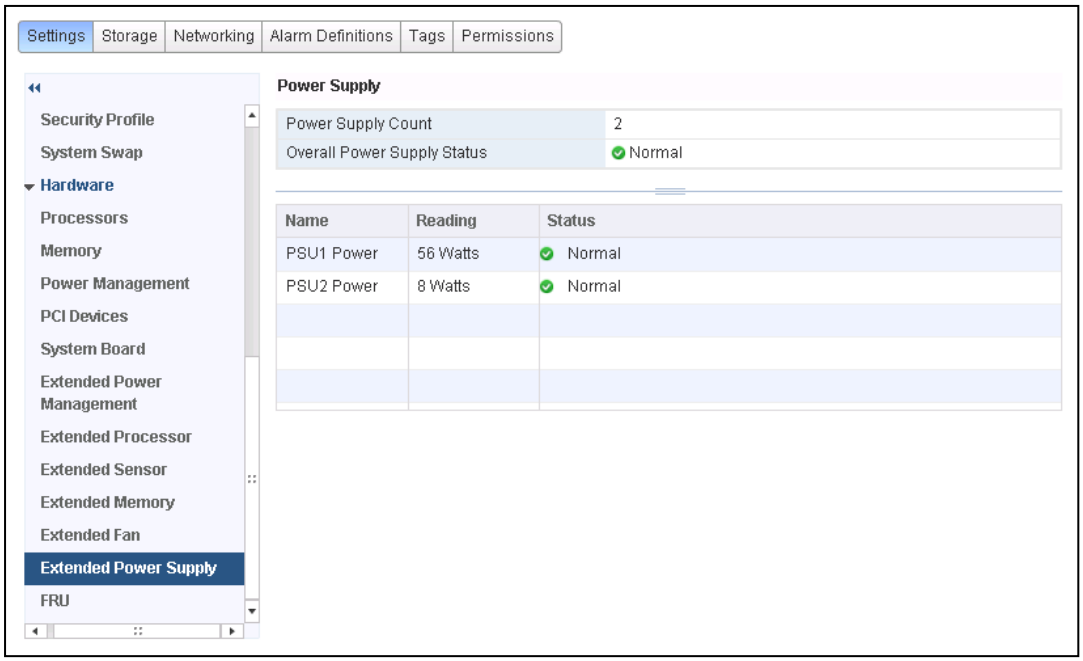

Figure 46: Extended Power Supply of Grantley Model Hosts Screen

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3.10.8 Field Replaceable Unit (FRU)

The Field Replaceable Unit (FRU) screen displays the data related to FRU. This data is displayed in tabs. On clicking Product tab, the product details are displayed. Likewise, Chassis and Board component also displays the respective information.

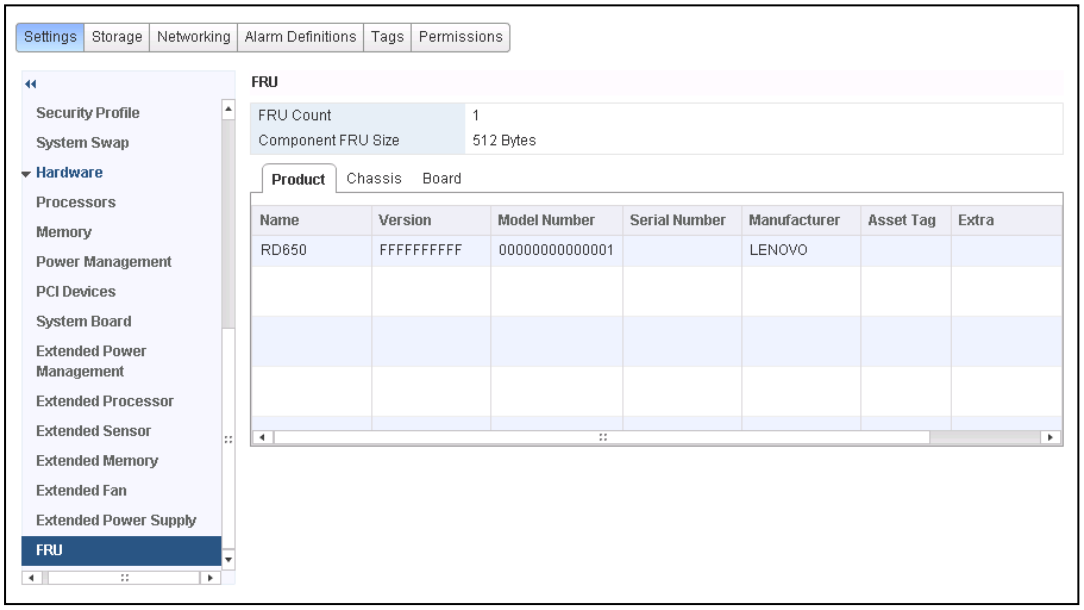

Figure 47: FRU Screen.

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4 Error Handling

The common error messages captured in Lenovo ThinkServer Partner Pack for VMware vCenter are:

- Host unreachable. Please verify vCenter host status.
- Unable to connect to the host. Please try again later.
- IPMI/ILO Settings for Extended Power Setting is not configured. Configuration should be done under section System, Power Management.
- Unable to retrieve the data. Refer to the server log.
- Unable to retrieve information from the server. Refer to the server log.
- Connection errors. Refer to the server log.
- Unable to retrieve data from the host. Refer to the server log.
- Matching content " - " Not Found.
- Host IP is not set. Refer to the server log.

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