Lenovo XClarity Integrator for VMware vCenter Installation and User's Guide

Version 4.0

Lenovo XClarity Integrator for VMware vCenter Installation and User's Guide

Version 4.0

Note

Before using this information and the product it supports, there is some important prerequisite information to read.

This information can be found in “Notices” on page 75.

Edition notice

This edition applies to version 4.0 of Lenovo XClarity Integrator for VMware vCenter and to all subsequent releases and modifications until otherwise indicated in new editions.

Contents

Figures

Tables

About this publication

This book provides instructions for installing Lenovo XClarity Integrator for VMware vCenter v4.0 .

These instructions include using the features to acquire system information, update firmware, monitor power usage, configure system settings, and create migration rules for the virtual machine in the VMware vCenter management environment.

Conventions and terminology

Paragraphs that start with a bold **Note**, **Important**, or **Attention** are notices with specific meanings that highlight key information.

Note: These notices provide important tips, guidance, or advice.

Important: These notices provide information or advice that might help you avoid inconvenient or difficult situations.

Attention: These notices indicate possible damage to programs, devices, or data. An attention notice appears before the instruction or situation in which damage can occur.

The following table describes some of the terms, acronyms, and abbreviations used in this document.

Table 1. Frequently used terms and acronyms

Term/Acronym	Definition
ASU	Lenovo Advanced Settings Utility
DSA	Lenovo Dynamic System Analysis
IMM	Integrated Management Module
PFA	predictive failure alert
UXSP	UpdateXpress System Packs
UXSPi	UpdateXpress System Pack Installer
LXCA	Lenovo XClarity Administrator
LXCI	Lenovo XClarity Integrator

Information resources

You can find additional information about Lenovo XClarity Integrator for VMware vCenter, Version 4.0 in the product documentation and on the World Wide Web.

PDF files

View or print documentation that is available in Portable Document Format (PDF).

Downloading Adobe Acrobat Reader

You need Adobe Acrobat Reader to view or print PDF files. You can download a copy from the Adobe website.

Viewing and printing PDF files

You can view or print PDF files that can be found on the web pages listed in "World Wide Web resources."

Saving PDF files

To save a PDF file, complete the following steps:

1. Right-click the link to the PDF in your browser.
2. Perform one of the following tasks.

Web browser	Command
For Internet Explorer	Click **Save Target As**.
For Netscape Navigator or Mozilla	Click **Save Link As**.

3. Navigate to the directory into which you want to save the PDF file.
4. Click **Save**.

World Wide Web resources

The following web pages provide resources for understanding, using, and troubleshooting IBM® System x, Flex System, BladeCenter® servers, and systems-management tools.

Lenovo XClarity Integrator for VMware vCenter site

Lenovo XClarity Integrator for VMware vCenter site

Locate the latest downloads for the Lenovo XClarity Integrator for VMware vCenter.

IBM Systems Technical support site

IBM Systems Technical support site

Locate support for IBM hardware and systems-management software.

System Management with Lenovo XClarity Solution

System Management with Lenovo XClarity Solution site

This website provides an overview of Lenovo XClarity solution which integrates into System x M5 and M6, as well as Flex System to provide system management capability.

IBM System x® ServerProven®, Flex System ServerProven, and BladeCenter ServerProven sites

System x ServerProven site

BladeCenter ServerProven site

Flex System ServerProven site

Obtain information about hardware compatibility with IBM System x, Flex system, IBM BladeCenter, and IBM IntelliStation® hardware.

VMware vCenter Product Family site

VMware vCenter Product Family site

Lenovo Custom Image for EXSi site

https://my.vmware.com/web/vmware/info/slug/datacenter_cloud_infrastructure/vmware_vsphere/5_1#custom_iso

Chapter 1. Lenovo XClarity Integrator for VMware vCenter

The topics in this section provide information about Lenovo XClarity Integrator for VMware vCenter.

The Lenovo XClarity Integrator for VMware vCenter is an extension to the VMware vCenter and provides system administrators with enhanced management capabilities on IBM System x servers, BladeCenter servers and Flex Systems. Lenovo XClarity Integrator for VMware vCenter expands the management capabilities of VMware vCenter by integrating Lenovo hardware management functionality and provides the following features:

- Dashboard
- Dynamic System Analysis
- Firmware Update
- Power Metric
- Advanced System Settings
- Predictive Failure Management

Dashboard

The Dashboard provides an overview of the selected host or cluster. It displays summary information including overall resource utilization, hosts health messages and connection status. It also displays the IMM information for each host and allows you to launch the IMM console directly.

Dynamic System Analysis

Dynamic System Analysis is a tool that collects and analyzes system information to aid in diagnosing system problems.

Firmware update

The firmware update function acquires and applies Lenovo UpdateXpress System Packs (UXSPs)and individual updates to the EXSi system. The Rolling System Update function provides non-disruptive system updates with zero downtime, automates the update process of the hosts in a cluster environment without any workload interruption, and supports updating multiple hosts concurrently to save time.

Power Metric

To aid in balancing workloads on hosts, the Power® Metric feature monitors power usage, thermal, and fan speed values of the EXSi host and graphically displays this information.

Power Metric provides power capping and power throttling features. Power capping allows you to allocate less power and cooling to a system. Power throttling allows you to receive an alert after power consumption exceeds the value you set.

Advanced Settings Utility

Advanced Settings Utility provides a system settings management interface through which you can view and configure frequently changed settings, such as those for IMM, uEFI, and boot order, on the managed endpoint. To change unsupported settings in Lenovo XClarity Integrator for VMware vCenter, use the IMM and uEFI interfaces.

Predictive failure management

The Predictive Failure Management feature monitors the server hardware status and automatically evacuates virtual machines in response to predictive failure alerts to protect your workloads.

Predictive Failure Analysis refers to computer mechanisms that analyze trends in corrected errors to predict future failures of hardware components and proactively enabling mechanisms to avoid them.

Chapter 2. Installing Lenovo XClarity Integrator for VMware vCenter

The topics in this section provide information about installing Lenovo XClarity Integrator for VMware vCenter.

System requirements for Lenovo XClarity Integrator for VMware vCenter

This section describes system requirements for Lenovo XClarity Integrator for VMware vCenter.

Supported VMware vCenter Server

The Lenovo XClarity Integrator for VMware vCenter plug-in is an extension to the VMware vCenter Server. It supports VMware vCenter Server 4.1, 5.0, 5.1, 5.5, and 6.0. Note that for VMware vCenter Server Appliance, only 5.1 and newer versions are supported.

Supported operating systems

The Lenovo XClarity Integrator for VMware vCenter plug-in supports the same operating systems as does VMware vCenter.

The following operating systems are supported:

- Windows Server 2003 SP2/R2 x64 (Enterprise Edition, DataCenter)
- Windows Server 2008 SP1/SP2 x64 (Enterprise Edition, Standard Edition)
- Windows Server 2008 R2 SP1
- Windows Server 2012

Supported ESXi version

Lenovo XClarity Integrator for VMware vCenter supports Lenovo customized EXSi 4.1, 5.0, 5.1, 5.5 and 6.0 images. You can download Lenovo customized EXSi images from Lenovo x86 solutions for VMware: `https://my.vmware.com/web/vmware/info/slug/datacenter_cloud_infrastructure/vmware_vsphere/5_1#custom_iso`.

For generic VMware EXSi, you need to download and install IBM Customization for EXSi offline bundles on Fix Central to enable all management functions. Without the offline bundles being installed, Lenovo XClarity Integrator for VMware vCenter provides limited management functionality. It is recommended that you update to the latest patch version on each managed EXSi host at your earliest convenience. You can find VMware vCenter EXSi with Lenovo Customization offline bundles and patches at Fix Central.

Supported hardware

This topic provides information about the supported hardware for Lenovo XClarity Integrator for VMware vCenter.

The plug-in does not have hardware limitations. However, the hardware that the plug-in manages is limited to the Lenovo and IBM hardware listed in the following tables.

Table 2. Supported Lenovo hardware

System	Server number
System x server	NeXtScale nx360 M5 (5465)
	NeXtScale nx360 M5 DWC (5467, 5468, 5469)
	x3500 M5 (5464)
	x3550 M4 (7914)
	x3550 M5 (5463)
	x3630 M4 (7158)
	x3650 M4 (7915)
	x3650 M5 (5462)
	x3750 M4 (8753)
	x3850 X6 / x3950 X6 (6241)
Flex Compute Node	Flex System x240 Compute Node (7162, 2588)
	Flex System x240 M5 Compute Node (2591, 9532)
	Flex System x440 Compute Node (7167, 2590)
	Flex System x280,x480,x880 X6 Compute Node (7196, 4258)

Table 3. Supported IBM hardware

System	Server number
System x server	dx360 M2 (7321, 7323)
	dx360 M3 (6391)
	dx360 M4 (7912, 7913, 7918, 7919)
	nx360 M4 (5455)
	Smart Analytics System (7949)
	x3100 M4 (2582)
	x3100 M5 (5457)
	x3200 M2 (4367, 4368)
	x3200 M3 (7327, 7328)
	x3250 M2 (7657, 4190, 4191, 4194)
	x3250 M3 (4251,4252,4261)
	x3250 M4 (2583)*
	x3250 M5 (5458)
	x3300 M4 (7382)
	x3400 M2 (7836, 7837)
	x3400 M3 (7378, 7379)
	x3500 M2 (7839)
	x3500 M3 (7380)
	x3500 M4 (7383)
	x3530 M4 (7160)

Table 3. Supported IBM hardware (continued)

System	Server number
	x3550 M2 (7946, 4198)
	x3550 M3 (7944, 4254)
	x3550 M4 (7914)
	x3620 M3 (7376)
	x3630 M3 (7377)
	x3630 M4 (7158, 7518, 7519)
	x3650 M2 (7947, 4199)
	x3650 M3 (7944, 7945, 4254, 4255, 5454)
	x3650 M4 (7915)
	x3650 M4 HD (5460)
	x3650 M4 BD (5466)
	x3750 M4 (8722, 8733)
	x3755 M4 (7164)
	x3690 X5 (7148, 7149, 7147, 7192)
	x3850 X5/X3950 X5 (7145, 7146, 7143, 7191)
	x3850 X6/x3950 X6 (3837, 3839)
Flex Compute Node	Flex System x220 Compute Node (7906, 2585)
	Flex System x222 Compute Node (7916)
	Flex System x240 Compute Node (8737, 8738, 7863)
	Flex System x280 X6 Compute Node / x480 X6 Compute Node / x880 Compute Node X6 (4259, 7903)
	Flex System x440 Compute Node (7917)
Blade server	HS22 (7870, 7809, 1911, 1936)
	HS22V (7871, 1949)
	HS23 (7875, 1882, 1929)
	HS23E (8038, 8039)
	HX5 (7872, 7873, 1909, 1910)

* x3250M4 2583 supports only partial functions in the Dashboard and Lenovo Dynamic System Analysis; update, power, and system configuration functions are not supported.

Installing Lenovo XClarity Integrator for VMware vCenter

Lenovo XClarity Integrator for VMware vCenter must be installed on a stand-alone physical server set up exclusively for Lenovo XClarity Integrator for VMware vCenter, a virtual machine, or the same server as VMware vCenter Server. Note that for VMware vCenter Virtual Appliance, Lenovo XClarity Integrator for VMware vCenter must be installed outside the vCenter server.

Before you begin

Administrator privileges are required to install Lenovo XClarity Integrator for VMware vCenter.

About this task

Lenovo XClarity Integrator for VMware vCenter can be accessed with either vSphere Client or vSphere Web Client, depending on the VMware vCenter version.

For VMware vCenter 5.0 and the previous version, you can only access the plug-in with vSphere Client. For more information, see Chapter 4, "Using Lenovo XClarity Integrator for VMware vCenter with vSphere Client," on page 55.

For VMware vCenter 5.1 and later versions, you can only access the plug-in with vSphere Web client. For more information, see Chapter 3, "Using Lenovo XClarity Integrator for VMware vCenter with vSphere Web Client," on page 11.

Procedure

1. Extract the files from the downloaded Lenovo XClarity Integrator for VMware vCenter installation package.
2. Double-click **lnvgy_sw_vmuim_x.x_windows_64.exe** to launch the installer. Where *x.x* represents the version of the Lenovo XClarity Integrator for VMware vCenter package you are installing.
3. Click **Next** on the startup page of the installer.
4. Read and agree to the Lenovo XClarity Integrator for VMware vCenter license.
5. Select the destination folder for installing Lenovo XClarity Integrator for VMware vCenter, then click **Next**.
6. Input your **user** and **company** information.
7. Click **Confirm** to install. The installation process begins.

   During the installation process, Lenovo XClarity Integrator Unified Service will be launched and installed, for details refer to the *Lenovo XClarity Integrator Unified Service User's Guide*.

   After the installation is complete, the configuration starts.
8. Enter the VMware vCenter server information and connection information for the product.

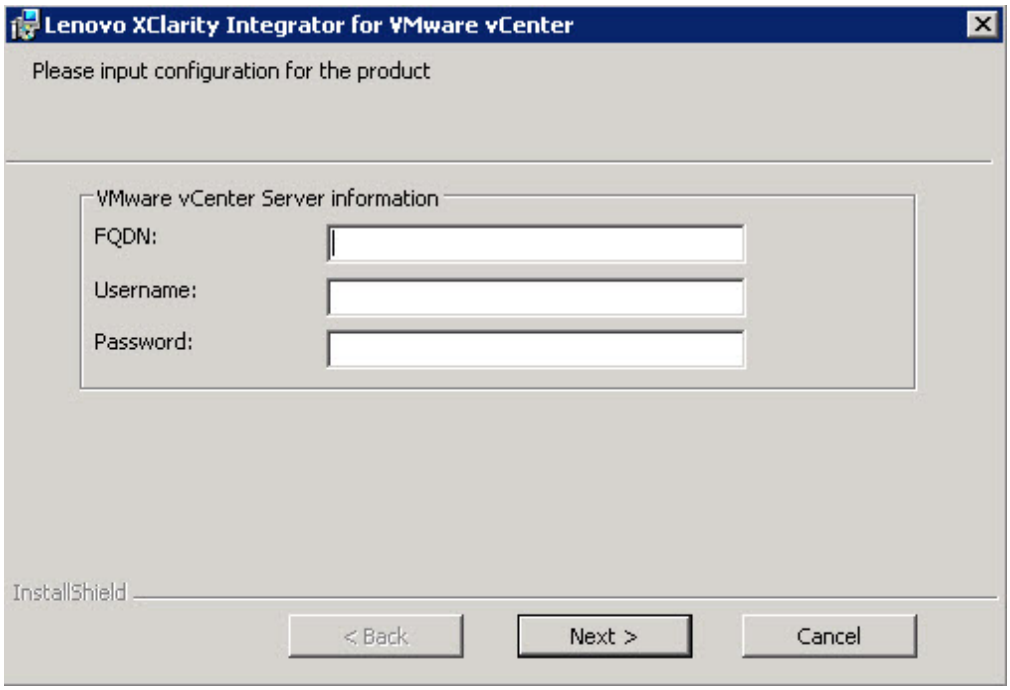


Figure 1. VMware vCenter server configuration

- In the **FQDN** field, enter the FQDN or IP address of the management network (used to connect to the vCenter Server).
- In the **Username** and **Password** fields, provide a user name and password that has administrative credentials to manage the vCenter Server.

9. Click **Next** to start the configuration. A window opens while Lenovo XClarity Integrator for VMware vCenter is being configured. Wait for the configuration to complete.
10. Click **Finish**. Lenovo XClarity Integrator for VMware vCenter is successfully installed.

    Note:

    a. For VMware vCenters in a Linked Mode group, you can only install Lenovo XClarity Integrator for VMware vCenter on one of the vCenters, and manage hosts in that vCenter only, other vCenters in the Linked Mode group are not supported.

    b. When you launch the installation package, if an earlier version of Lenovo XClarity Integrator for VMware vCenter is detected, an upgrade dialog box is displayed. Click **Upgrade** to upgrade the product. The installer will remove the old version and install the new version.

    c. If you want to fully uninstall the product from the control panel, you must remove Lenovo XClarity Integrator for VMware vCenter first, then remove Lenovo XClarity Integrator Unified Service. If you choose to uninstall the product with the installer, both of items are automatically removed.

Installing the Lenovo License Tool and activating the premium features

Lenovo XClarity Integrator for VMware vCenter provides a 90-day trial license by default. When the license expires after 90 days, all of the premium features are disabled. It is suggested that you install the Lenovo XClarity Integrator for VMware vCenter License Tool to activate the product license. Activation licenses can be purchased by contacting either your Lenovo representative or a Lenovo Business Partner.

After you purchase the Lenovo XClarity Integrator for VMware vCenter product license, you are only required to activate the license on the vCenter Server that is running Lenovo XClarity Integrator for VMware vCenter. It is not necessary to activate the license on each managed EXSi host. The license token will automatically be delivered to the EXSi host when it is managed by the vCenter Server. For more information about activating the premium features, refer to the *Lenovo XClarity Integrator for VMware vCenter License Installer Guide*.

Configuring Lenovo XClarity Integrator

The topics in this section provide information for configuring the Lenovo XClarity Integrator on your server.

Configuring access control

Lenovo XClarity Integrator can be fully accessed by a role of administrator automatically.

Lenovo XClarity Integrator is controlled by two privileges:

LenovoXClarityIntegrator.AccessLenovoESXiHost
This privilege allows access to all features under the Lenovo XClarity Integrator tabs below the Manage Tab of Datacent, Cluster, and Host items. Such as monitoring, inventory, firmware updates, system configuration, and predictive failure management. It also allows you to use Lenovo XClarity Integrator Administration for registering, editing, and unregisteingr a Lenovo XClarity Administrator.

LenovoXClarityIntegrator.AccessLenovoInfrastructure
This privilege allows access all the features of the vCenter Lenovo Infrastructure and view all the infrastructures of Lenovo XClarity Administrator domains.

The System Administrator should assign one or all privileges to a role as appropriate for working with Lenovo XClarity Integrator for VMware vCenter with the vSphere Web Client.

Configuring Lenovo XClarity Administrator

The Lenovo XClarity Integrator provides an integrated way to manage your servers with Lenovo XClarity Administrator in vSphere Web Client. You can integrate Lenovo XClarity Administrator using the register function. Once registered, you can manage servers in the vSphere Web Client and use some of th Lenovo XClarity Administrator features.

Before you begin

Before you can work with the Lenovo XClarify Administrator, ensure the following:

- You have Lenovo XClarity Administrator working in your environment.
- You have LenovoXClarityIntegrator.AccessLenovoESXiHost privileges.

About this task

This task is performed from the **vSphere Web Client Home** page.

Procedure

1. Click Lenovo XClarity Integrator **Administration**. The Lenovo XClarity Integrator Administration page is displayed.

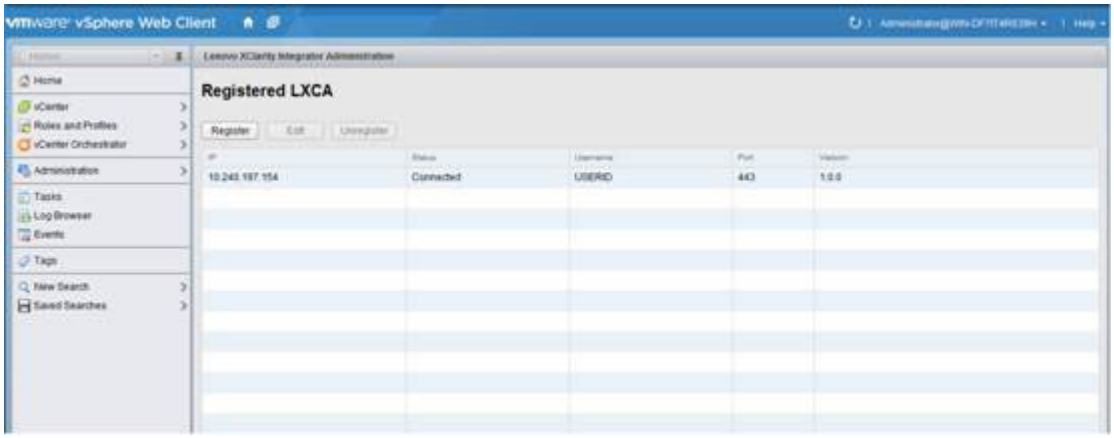


Figure 2. Lenovo XClarity Inegrator Administration window

2. Click **Register** and enter the information required by Lenovo XClarity **Administrator**.
3. Click **OK** and wait for the registration. To edit or unregister Lenovo XClarity Administrator, click **Edit** or **Unregister**.

Chapter 3. Using Lenovo XClarity Integrator for VMware vCenter with vSphere Web Client

The topics in this section describe how to access and use the software with vSphere Web Client.

After installation, the **Lenovo XClarity Integrator** tabs are added to the vSphere Web Client providing both host level and cluster level management like monitoring, inventory, firmware updates, system configuration, and predictive failure management. To give you a single, heterogeneous view of all host system events within your managed environment, Lenovo hardware events are integrated into vCenter.

- Managing clusters
- Managing servers
- Managing hardware events
- Managing Lenovo XClarity Administrator

You can navigate to each of these functions from the navigation pane located at the top.

Managing clusters

When a cluster is selected in the inventory tree, the **Lenovo XClarity Integrator** tab displays below the **Manage** tab and provides the following cluster management functions:

- Cluster Overview
- IMM Discovery
- Rolling System Update
- Rolling System Reboot
- Predictive Failure Management

You can navigate to each of these functions from the navigation tool bar located below the **Lenovo XClarity Integrator** tab.

Working with the Cluster Overview function

The Cluster Overview function collects and analyzes cluster inventory information and health status to assist with the operation and management of the hosts and the cluster.

The Cluster Health section provides a snapshot view of the following aspects of a system:

- The total number of Lenovo hosts and non-Lenovo hosts.
- The overall health status of the Lenovo host, indicating current alerts.
- A summary of usage information indicating the space used for the cluster disk, memory, and CPU.

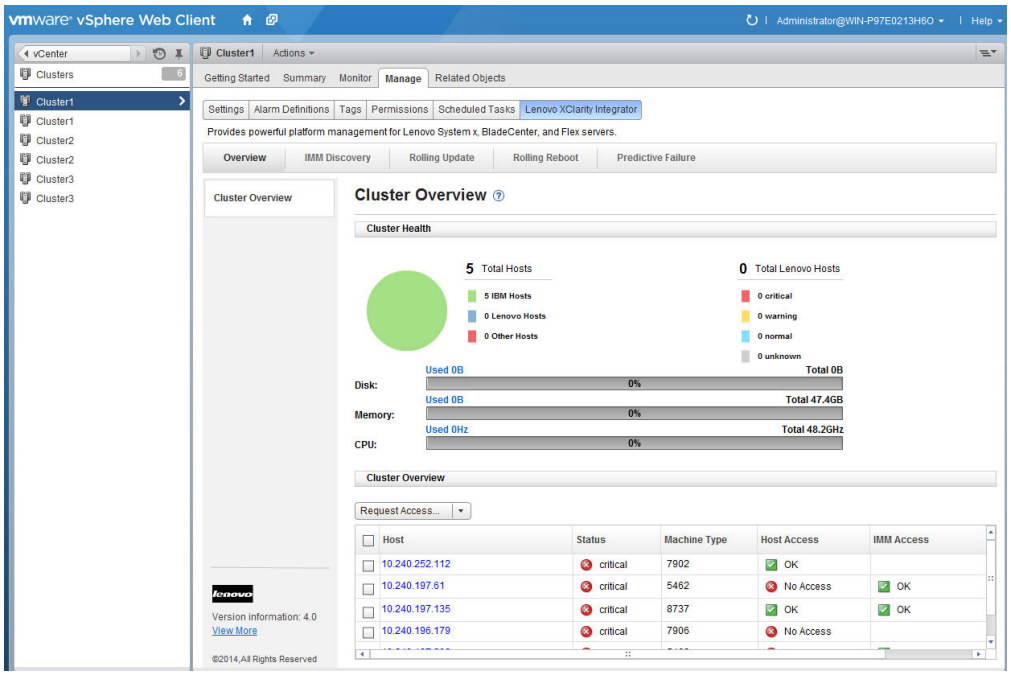


Figure 3. Cluster Overview

The Cluster Overview section provides the following host information:

- Host IP address
- Host status
- Host machine type
- Host access level
- Host IMM access and IMM console

The **Request Access** list has the following options:

- Request host access
- Request IMM access

Requesting host access

This topic explains how to request host access.

Before you begin

Add hosts into the cluster in vSphere Web Client.

About this task

This task is performed on the Cluster Overview page.

Procedure

1. Select **Lenovo XClarity Integrator** > **Overview**.
2. In the Cluster Overview section, select the hosts for which you want to request host access.
3. From the **Request Access** list, select **Request Host Access**.

4. In the Request Host Access dialog box, enter the following information for the host(s) you selected, then click **Ok**. If any of the hosts selected have the same account information, they are also enabled.
   - User Name
   - Password

Requesting IMM access using the Cluster Overview function

This topic explains how to request IMM access from the Cluster Overview page.

Before you begin

To request IMM access, the selected hosts must have been previously discovered using the IMM Discovery page. For more information, see "Working with the IMM Discovery function"

About this task

This task is performed on the Cluster Overview page.

Procedure

1. Select **Lenovo XClarity Integrator** > **Overview**.
2. In the Cluster Overview section, select the hosts for which you want to request IMM access.
3. From the **Request Access** list, select **Request IMM Access**. In the Request IMM Access dialog box, enter the following information for the IMM(s) you selected, then click **Ok**.
   - User Name
   - Password
4. Select the IP address link to launch the IMM web console.
   - User Name
   - Password

Results

The IMM web console is displayed.

Working with the IMM Discovery function

The IMM Discovery function provides out-of-band (OOB) management of your Lenovo servers using IMM2 or IMM on the vSphere Web Client. This functionality can assist you with managing your IBM host and lower the risk cluster hardware problems by monitoring hardware events using IMM or setting predictive failure policies. The IMM Discovery function discovers the IMMs for your host in the cluster.

About this task

This task is performed on the IMM Discovery page.

Procedure

1. Select **Lenov XClarity Integrator** > **IMM Discovery**.
2. From the **select a discovery option** dual-list, select a discovery option.
3. Enter a range of IP addresses or a single IP address.

4. Click **Add** to add the discovery items to the Discovery Item dual-list. If there are any discovery items added, that you do not want to discover, you can select **Delete** to remove them from the Discovery Item list.
5. After adding all of the discovery items, click **Discover Now** to start the discovery process.

   Note: You cannot stop the discovery operation after it has started.
   When the discovery operation has finished, the discovered IMMs are listed in the Discovered IMM table.

Requesting IMM access using the IMM Discovery function

This topic explains how to request IMM access from the IMM Discovery page.

About this task

This task is performed on **IBM XClarity Integrator** > **IMM Discovery** page.

Procedure

1. From the Discovery IMM table, select one or multiple IMM IP addresses that will use the same credentials for IMM access.

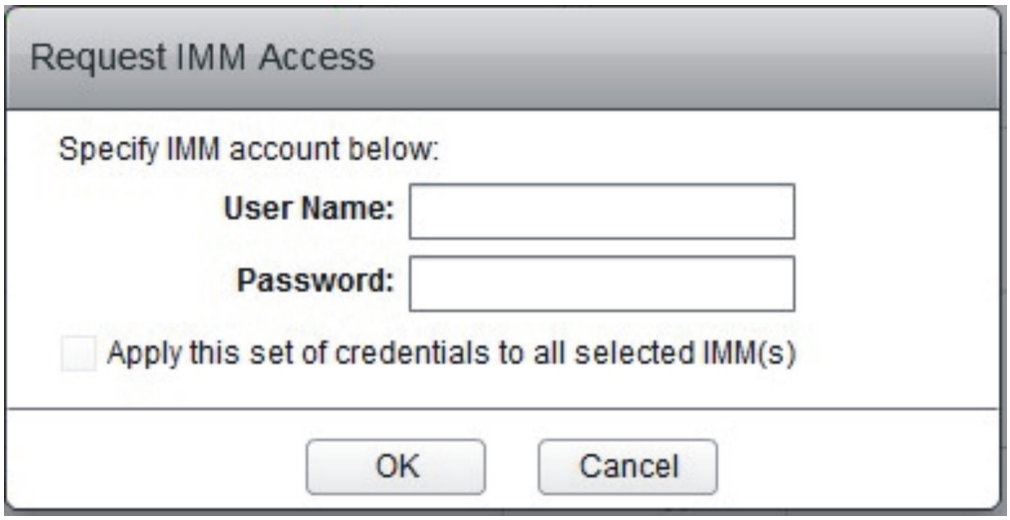


Figure 4. Requesting IMM access on the IMM Discovery page

2. In the Request IMM Access dialog box, enter the **User Name** and **Password** information and then click **OK**. if the user name and password are correct, the IMM Access displays with a status of OK. If any of the IMM failed to request the access, the following warning message is displayed: `One or more IMMs fail the authentication with the given user name and password; close this window to see the result.`

Working with the Rolling System Update function

The Rolling System Update (RSU) function updates the firmware in a single batch while the system continues running without interruption to application services on a server host. The Rolling System Update (RSU) provides an approach of non-disruptive firmware updates. It fully manages firmware by orchestrating "rolling" updates leveraging dynamic virtual machine movement within a defined VMware cluster, and completing the whole update process including host reboot automatically without any workload interruption.

Before you begin

The following prerequisites are necessary for using the Rolling System UpdateLenovo function:

- Lenovo Customization Patch 8 or newer patch must be installed on all the EXSi 5.0.x and 5.1.x hosts before performing rolling firmware update, You can download this from Fix Central.
- An Lenovo customized EXSi image, version 5.0 and later. For a generic VMware EXSi image, Lenovo offline bundle for EXSi must be installed. You can download this from Fix Central.
- VMware vCenter Enterprise or Enterprise Plus Edition with DRS enabled and running in fully automated mode.
- Host access has been granted. For more information, see the "Working with the Cluster Overview function" on page 11.

Configuring the Rolling System Update preferences

The Preferences page allows you to configure the update repository for rolling update.

Specify the update repository location:

Specify the update repository location where the Rolling System Update function should look for updates.

Procedure

1. Select **Lenovo XClarity Integrator** > **Rolling System Update**.
2. From the left navigation pane, select **Preferences**.
3. On the Preferences page, specify the update location by selecting one of the following options:

   Check the IBM website
   Download the appropriate updates automatically from the IBM website during the rolling update.

   You can configure a proxy if the vCenter Server cannot access the website directly, but completing these steps:

   a. Select **Check the IBM website** and click **Require a proxy server for Internet connection**.
   b. Enter proxy configuration and click **Save**. please provide specifics for the proxy configuration.

   Look in a directory on vCenter Server
   OnvCenter, locate updates in a local directory: `InstallFolder\webroot\bin\data\repository`

   The directory cannot be changed for Rolling System Update.

Checking for updates automatically:

If you selected the **Check the IBM website** option, you can have XClarity Integrator automatically download the latest firmware for all managed servers from the Lenovo website.

Procedure

1. Click **Check available updates periodically**.

2. Configure check cycle based on how frequently you want to check and download updates.
3. Click **Save**.

Checking for updates manually:

Complete the following steps to manually check for updates:

Procedure

1. Click **Check Now**. A dialog box displays.
2. In the dialog box, click **OK** to begin checking for updates. The results are listed on the vCenter event monitor.
3. In the left pane of the vSphere Web Client, click **vCenter node** and select **monitor** and then **Events**. When the checking operation has finished, the checking updates results display an update event.

What to do next

Downloading the latest updates on a regular basis is recommended.

Managing the Rolling System Update tasks

Rolling System Update (RSU) provides a task manager that helps you manage rolling update tasks. A task contains all of the information and options for a rolling update.

About this task

The Task Manager provides the following task options:

- Create a RSU task
- Edit a RSU task that has not been started
- Delete a RSU task
- Cancel a running RSU task
- Rerun a failed RSU task
- Clone a completed RSU task
- View reports of RSU/RSR tasks

Procedure

1. Select **Lenovo XClarity Integrator** > **Rolling System Update**.
2. From the left navigation pane, select **Task Manager**. The Task Manager page displays.

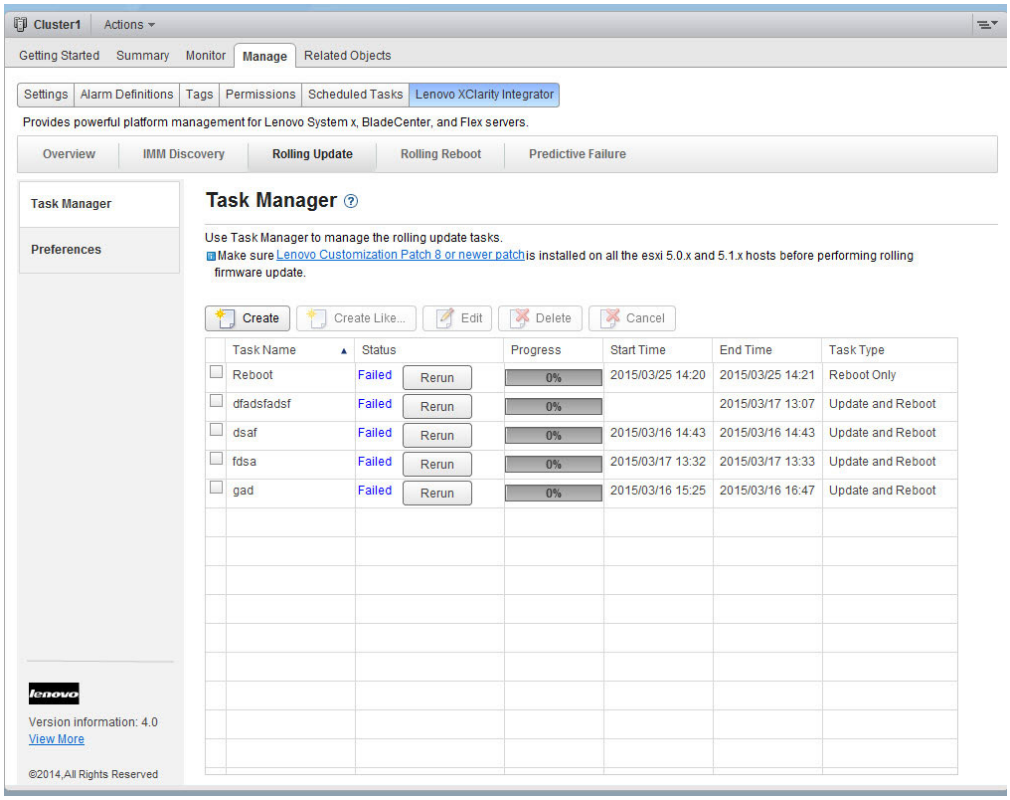


Figure 5. Task Manager page

Creating a task:

Each cluster can have only one active task when the task type is Update Only, Update and Reboot, and Reboot Only.

About this task

This task is performed from the **Lenovo XClarity Integrator** > **Rolling System Update** > **Task Manager** page.

Procedure

1. Click **Create** to open the Rolling System Update Wizard. The **Create** button is enabled only when a task displays as Finished, as Canceled, or as a Failed task in the list. The Name and Type page displays.
2. Enter a name for the task you are creating in the **Task Name** field.
3. Select a **Task Type**:

   Update and Reboot
   The server is placed in maintenance mode for updating, and the hosts are rebooted after the update is completed successfully.

   Update Only
   The server is placed in maintenance mode for updating, and the hosts are not rebooted following update completion.
4. Click **Next**. The Select hosts and firmware page displays.

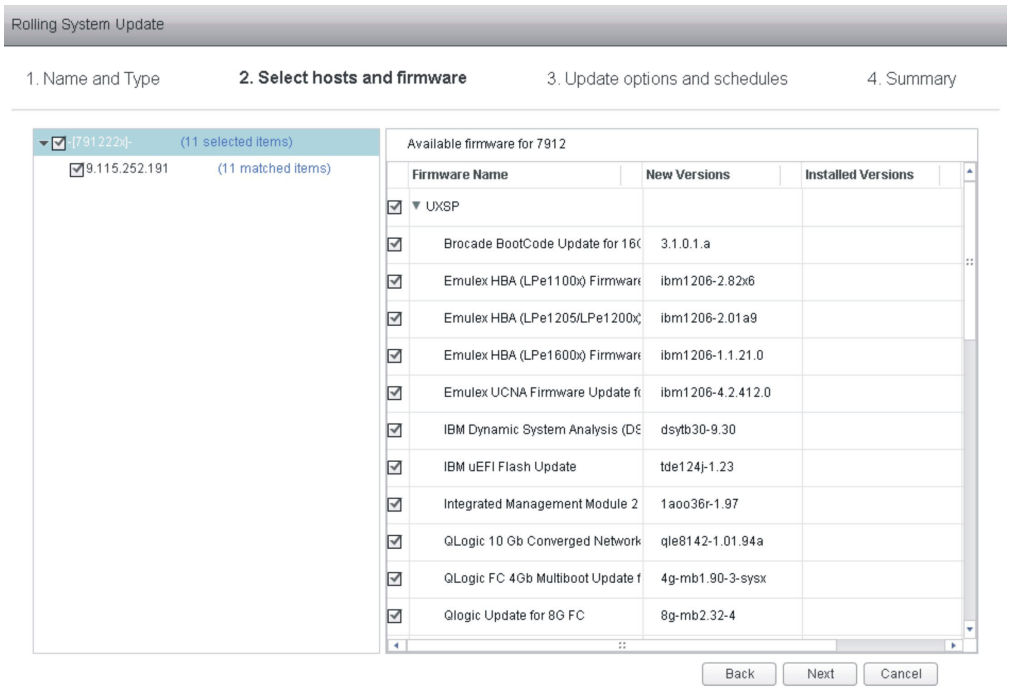


Figure 6. Select hosts and firmware page

All the hosts in current cluster display on the left and are organized by machine type. Available and installed firmware versions for each machine type and host are listed on the right.

5. Select a host to view available firmware from the right and choose the updates you want to apply.

   If a machine type is selected, the selection of firmware is applied to all the hosts that have this machine type. If a host check box is greyed out, there are no available updates in the repository.

   If inventory information has not been collected for a host, RSU displays firmware of its machine type for this host. In this case, you can still select firmware for this host to update. RSU will try to collect host inventory information when updating and install the selected firmware. If a selected firmware is not available for the host, it is skipped.

6. Click **Next**. The update options and schedules screen displays.

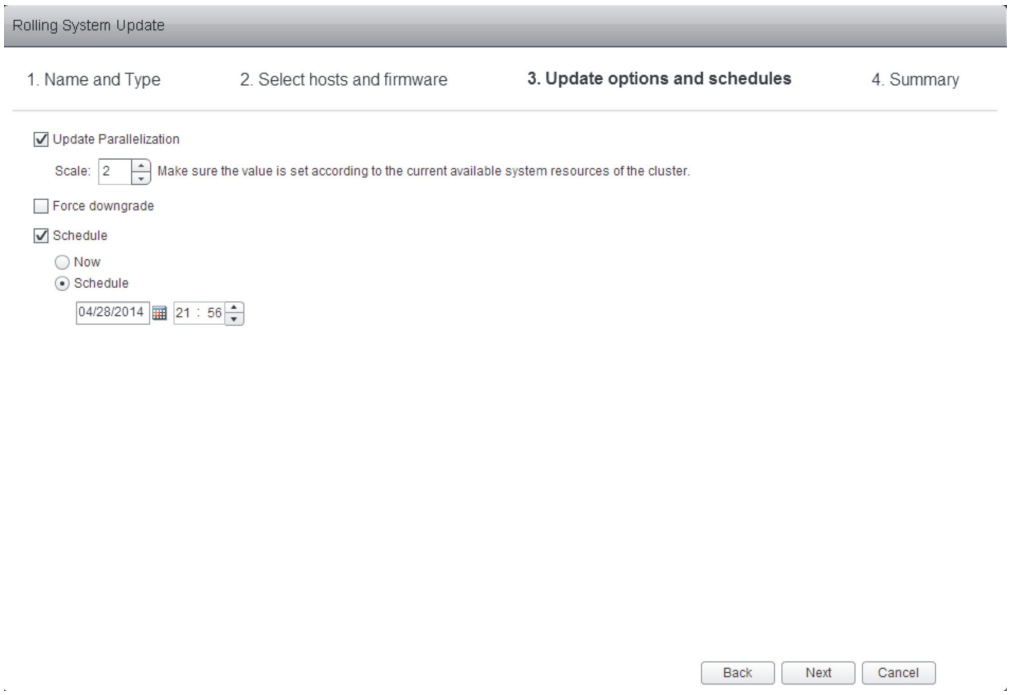


Figure 7. Select options and schedules page

Update Parallelization
Specifies the number of hosts that can be updated concurrently. Note that updating multiple hosts concurrently requires more system resources, and you should carefully set the value according to the current available system resources; such as CPU and memory on the vCenter Server. The default is 1.

Force downgrade
Specifies whether to update firmware if the installed version is newer than the one you selected.

Schedule
Specifies when to initiate the task.

7. Click **Next**. The Summary page is displayed.

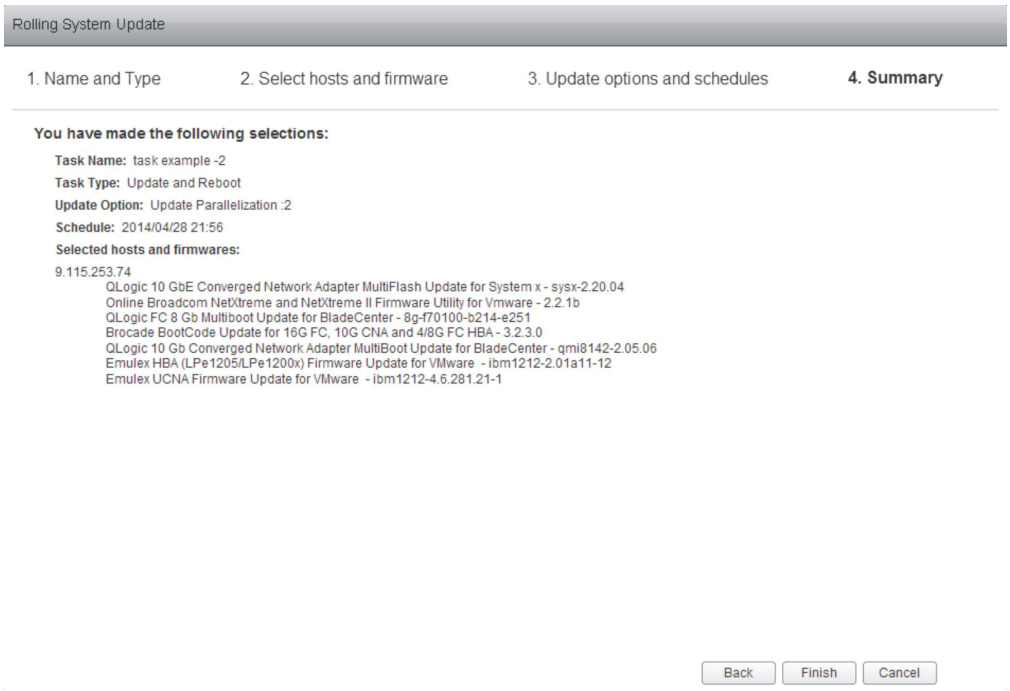


Figure 8. Summary page

8. Click **Finish** to save the task. RSU initiates the task according to the schedule.

Editing a not-started RSU task:

You can edit Update Only, and Update and Reboot RSU tasks from the Task Manager. Only editing a not-started task is supported.

About this task

This task is performed from the **Lenovo XClarity Integrator** > **Rolling System Update** > **Task Manager** page.

Procedure

1. Select a not-started RSU task in the list and click **Edit**. The Rolling System Update Wizard opens. The machine type and hosts are listed on the left and the available firmware are on the right. Both are up-to-date.
2. Edit the task and then click **Finish** to save changes.

Deleting a RSU task:

All RSU tasks except a running task can be deleted.

About this task

This task is performed from the **Lenovo XClarity Integrator** > **Rolling System Update** > **Task Manager** page.

Procedure

1. Select one or more RSU tasks in the list that are not currently running.
2. Click **Delete**. The selected tasks are removed from the task list.

Canceling a running RSU task:

A Rolling System Update (RSU) task can be canceled while it is running. If a task is canceled, the task status changes to `Canceling`.

About this task

This task is performed from the **Lenovo XClarity Integrator** > **Rolling System Update** > **Task Manager** page.

Procedure

1. Select a running RSU task in the list.
2. Click **Cancel**. RSU completes updating the host that is started and only cancels the others. This task may take several minutes to complete.

Rerunning a failed RSU task:

You can rerun a RSU task if it has failed or has been canceled. The **Rerun** button is only available in these two situations.

About this task

This task is performed from the **Lenovo XClarity Integrator** > **Rolling System Update** > **Task Manager** page.

Procedure

Click **Rerun** in the status column. RSU restarts this task and shows its current status.

Cloning a completed RSU task:

You can clone a finished, failed, or canceled Rolling System Update task as a new task.

About this task

This task is performed from the **Lenovo XClarity Integrator** > **Rolling System Update** > **Task Manager** page.

Procedure

1. Select a finished, failed or canceled RSU task from the list.
2. Click **Create Like...** to open the Rolling System Update Wizard.
3. Edit the original selection and click **Finish** to save the new task.

Viewing reports of RSU and RSR tasks:

The report of RSU and RSR tasks provides detailed information.

About this task

This task is performed from the **Lenovo XClarity Integrator** > **Rolling System Update** > **Task Manager** page.

Procedure

In the Status column, click a status link to open Rolling System Update Report view. The table below lists the status for tasks, hosts, and firmware. For detailed information about the Rolling System Reboot tasks, please refer to “Working with the Rolling System Reboot function”

Table 4. Rolling System Update task status

Target	Status	Description
Rolling Update Task	Not Started	The task has not started.
	Running	The task is running.
	Canceled	The task is canceled.
	Failed	Causes of task failure: • Downloading firmware package failed. • Rebooting EXSi host failed. • VM migration failed. • Firmware update failed
	Finished	The task has completed. If firmware is failing to update, the task is also marked as `Finished`.
Host	Not Started	The update for the host has not started.
	Migrating	The host is entering maintenance mode.
	Maintenance	The host is in maintenance mode.
	Updating	The firmware of the host is updating.
	Reboot	The host is rebooting after updating completes.
	Exit Maintenance	The host is exiting maintenance mode.
	Success	The firmware update succeeded.
	Failed	The causes of host failure: • Cannot enter maintenance mode. • Cannot get the update package. • Cannot update the firmware. • Cannot reboot the host. • Cannot exit maintenance mode.
Firmware	Not Started	The firmware update has not started.
	Running	The firmware update is running.
	Success	The firmware update succeeded.
	Failed	The firmware update failed.

Working with the Rolling System Reboot function

The Rolling System Reboot (RSR) function reboots the servers while the system continues running without interruption to application services on server hosts.

Before you begin

The following prerequisites are necessary for using the Rolling System Reboot function:

- Lenovo Customization Patch 8 or newer patch must be installed on all the EXSi 5.0.x and 5.1.x hosts, You can download this from Fix Central.

- A Lenovo customized EXSi image, version 5.0 and later. For a generic VMware EXSi image, Lenovo offline bundle for EXSi must be installed. You can download this from Fix Central.
- VMware vCenter Enterprise or Enterprise Plus Edition with DRS enabled and running in fully automated mode.
- Host access has been granted. For more information, see the "Working with the Cluster Overview function" on page 11.

Managing the Rolling System Reboot tasks

Rolling System Reboot (RSR) provides a task manager that helps you manage rolling reboot tasks. A task contains all of the information and options for a rolling reboot.

About this task

The Task Manager provides the following task options:

- Create a RSR task
- Edit a RSR task that has not been started
- Delete a RSR task
- Cancel a running RSR task
- Rerun a failed RSR task
- Clone a completed RSR task
- View reports of RSR/RSU tasks

Procedure

1. Select **Lenovo XClarity Integrator** > **Rolling System Reboot**.
2. From the left navigation pane, select **Task Manager**. The Task Manager page displays.

Creating a RSR task:

Each cluster can have only one active task when the task type is Update Only, Update and Reboot, and Reboot Only.

About this task

This task is performed from the **Lenovo XClarity Integrator** > **Rolling System Reboot** > **Task Manager** page.

Procedure

1. Click **Create** to open the Rolling System Reboot Wizard. The **Create** button is enabled only when a task displays as Finished, as Canceled, or as a Failed task in the list. The Name and Type page displays.
2. Enter a name for the task you are creating in the **Task Name** field and select the hosts you want to reboot.
3. Click **Next**. The reboot options and schedules screen displays.

   Reboot Parallelization
   Specifies the number of hosts that can be rebooted concurrently. Note that rebooting multiple hosts concurrently requires more system resources, and you should carefully set the value according to the current available system resources; such as CPU and memory on the vCenter Server. The default is 1.

Schedule
Specifies when to initiate the task.

4. Click **Next**. The Summary page displays.
5. Click **Finish** to save the task. RSR initiates the task according to the schedule.

Editing a not-started RSR task:

You can edit a RSR task that the type is Reboot Only from the Task Manager. Only editing a not-started task is supported.

About this task

This task is performed from the **Lenovo XClarity Integrator** > **Rolling System Reboot** > **Task Manager** page.

Procedure

1. Select a not-started RSR task in the list and click **Edit**. The Rolling System Reboot Wizard opens. The machine type and hosts are listed.
2. Edit the task and then click **Finish** to save changes.

Deleting a RSR task:

All RSR tasks except a running task can be deleted.

About this task

This task is performed from the **Lenovo XClarity Integrator** > **Rolling System Reboot** > **Task Manager** page.

Procedure

1. Select one or more RSR tasks in the list that are not currently running.
2. Click **Delete**. The selected tasks are removed from the task list.

Canceling a running RSR task:

A Rolling System Reboot (RSR) task can be canceled while it is running. If a task is canceled, the task status changes to `Canceling`.

About this task

This task is performed from the **Lenovo XClarity Integrator** > **Rolling System Reboot** > **Task Manager** page.

Procedure

1. Select a running RSR task in the list.
2. Click **Cancel**. RSR completes updating the host that is started and only cancels the others. This task may take several minutes to complete.

Rerunning a failed RSR task:

You can rerun a RSR task if it has failed or has been canceled. The **Rerun** button is only available in these two situations.

About this task

This task is performed from the **Lenovo XClarity Integrator** > **Rolling System Reboot** > **Task Manager** page.

Procedure

Click **Rerun** in the status column. RSR restarts this task and shows its current status.

Cloning a completed RSR task:

You can clone a finished, failed, or canceled Rolling System Reboot task as a new task.

About this task

This task is performed from the **Lenovo XClarity Integrator** > **Rolling System Reboot** > **Task Manager** page.

Procedure

1. Select a finished, failed or canceled RSU task from the list.
2. Click **Create Like...** to open the Rolling System Reboot Wizard.
3. Edit the original selection and click **Finish** to save the new task.

Viewing reports of RSR and RSU tasks:

The report of RSR and RSU tasks provides detailed information.

About this task

This task is performed from the **Lenovo XClarity Integrator** > **Rolling System Reboot** > **Task Manager** page.

Procedure

In the Status column, click a status link to open Rolling System Reboot Report view. The table below lists the status for tasks and hosts.

Table 5. Rolling System Reboot task status

Target	Status	Description
Rolling Reboot Task	Not Started	The task has not started.
	Running	The task is running.
	Canceled	The task is canceled.
	Failed	Causes of task failure: • Downloading firmware package failed. • Rebooting EXSi host failed. • VM migration failed. • Firmware update failed
	Finished	The task has completed.

Table 5. Rolling System Reboot task status (continued)

Target	Status	Description
Host	Not Started	The update for the host has not started.
	Migrating	The host is entering maintenance mode.
	Maintenance	The host is in maintenance mode.
	Reboot	The host is rebooting after updating completes.
	Exit Maintenance	The host is exiting maintenance mode.
	Success	The firmware update succeeded.
	Failed	The causes of host failure: • Cannot enter maintenance mode. • Cannot reboot the host. • Cannot exit maintenance mode.

Working with Predictive Failure Management

The topics in this section describe how to use Predictive Failure Management on the vSphere Web Client to protect your running workload. The Policy and Rules page allows you to set management policies for a server based on a hardware predictive failure alert. Based on a defined policy, the Lenovo XClarity Integrator for VMware vCenter evacuates VM from the server to other hosts in the cluster in response to occurred (PFAs). You can view (PFAs) from the server and the triggered policy history on the Predictive Failures page.

Before you begin

Before using Predictive Failure Management, verify the following prerequisites are met:

- Predictive failure management policy can be set until you discover the IMMs and request the IMMs access.
- Predictive failure management relies on the hardware PFA capability. The IMM of the server should have the ability to send out predictive failure alerts when a failure is detected, for example, x3850 X6 (3837).
- Proper configuration of the network management policy on the vCenter Server server is required to enable TCP on the https port that you selected when installing IVP, the default port is 9500. Lenovo XClarity Integrator for VMware vCenter listens on this port for incoming indications.
- The host must be put in a properly configured cluster. There must be a host available with vMotion enabled in this cluster. Lenovo XClarity Integrator for VMware vCenter evacuates VM to other hosts in the cluster, and puts the host in maintenance mode.

Setting a new policy

You can set RAS policy on each supported server in the cluster. A policy defines the hardware event categories you want to monitor and the corresponding action when the event occurs.

About this task

This task is performed from the **Lenovo XClarity Integrator** > **Predictive Failure** > **Policy and rules** page.

Procedure

1. Click **Set policy**. The Set Policy dialog is displayed.

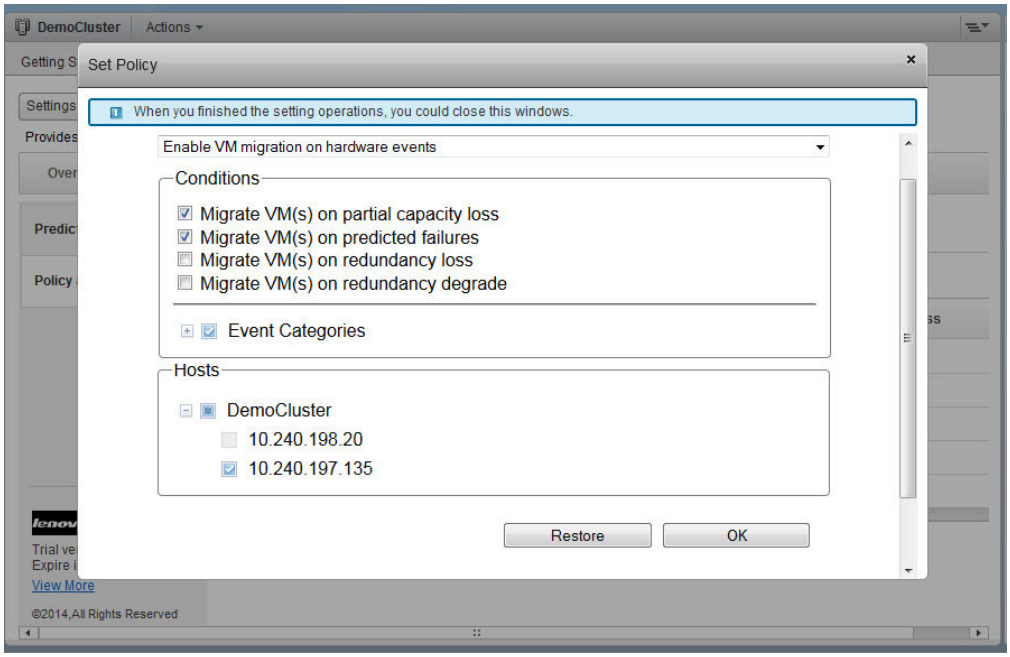


Figure 9. Set Policy

Note: The Conditions and event Categories might be different for each server, depending on the servers firmware version.

2. To create a new policy, select **Enable VM migration on hardware events** from the drop-down list.
3. Select your preferred Conditions, and Hosts and click **OK**.
4. To disable a policy, select **Disable VM migration on hardware events** from the drop-down list.
5. Select the hosts, and click **OK**.
6. Close the Set Policy dialog by clicking the close button at the top right.

   The Conditions will show as one or all the following:

   - Migrate VM(s) on partial capacity loss
   - Migrate VM(s) on predicted failures
   - Migrate VM(s) on redundancy loss
   - Migrate VM(s) on redundancy degrade

   You can select one or more of the supported condition actions.

Event categories:

This topic lists and describes predictive failure alert event categories as shown on the Set Policy page.

The following table contains the predictive failure alert event categories used on the Set Policy page.

Table 6. Predictive Failure Alert Event categories

PFA Event	Description
Processor subsystem	Processor subsystem includes the CPU, its internal circuits like cache, the bus controller, and external interface.
Memory subsystem	Memory subsystem includes the memory controller, memory buffer, memory bus interface, memory card, and DIMM.
I/O subsystem	I/O subsystem includes: I/O Hub, I/O bridge, I/O bus, I/O processor, I/O adapters for various I/O protocols, such as PCI and InfiniBand.
Power	Power includes the power supply and power control hardware.
Cooling	All thermal-related events.
Fans	Includes the fan and blower.
Storage	Includes the storage enclosure, storage controller, raid controller, and media (disk, flash).
Platform firmware	Platform firmware includes IMM and uEFI.
Software	Operating system software and application software.
External environment	All events of an external-related environment including: AC power source, room ambient temperature, and user error.

Condition Action

The Virtual Machine Migration action evacuates all of the VMs from the server and put the server in maintenance mode.

Viewing predictive failure alert events and the Action History table

Lenovo XClarity Integrator for VMware vCenter with vSphere Client monitors predictive failure alerts (PFAs) from IMM. All predictive failure events are listed in the Event Log table. When the conditions of a rule are met, the defined action of the rule is launched on the managed endpoint. All of the triggered rules and action results are listed in the Action History table.

About this task

This task is performed on the Predictive Failure page.

Procedure

Select **Lenovo XClarity Integrator** > **Predictive Failure**.

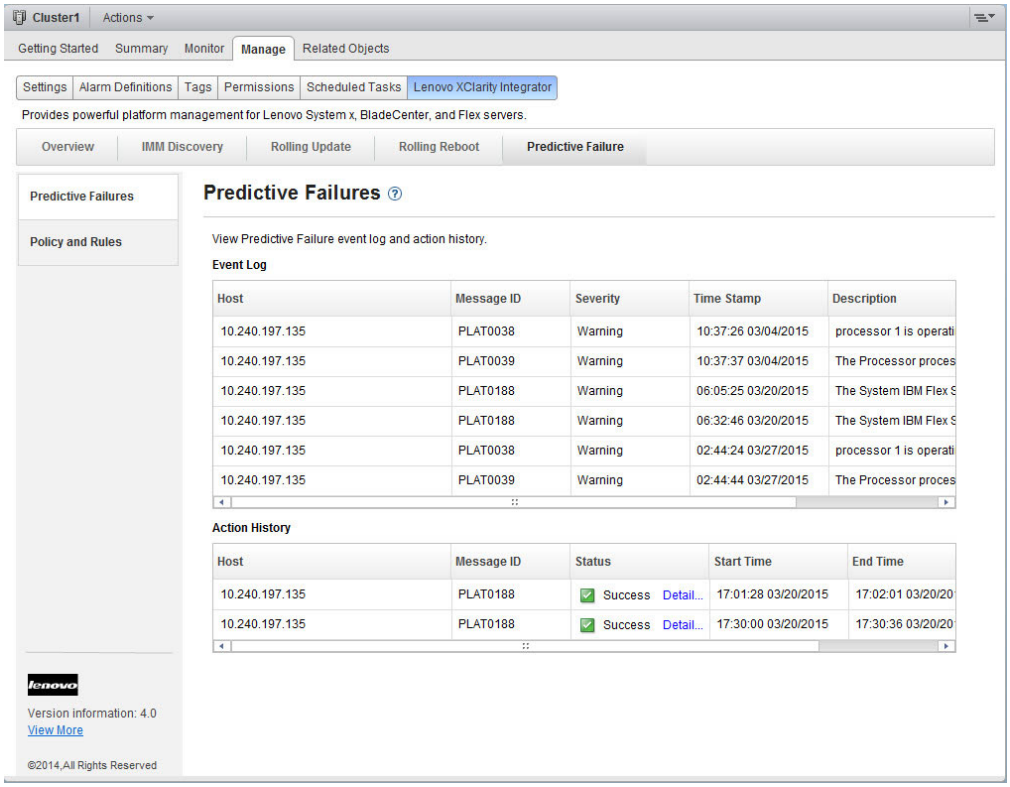


Figure 10. Viewing Predictive Failures

Managing servers

When a host is selected in the inventory tree, the Lenovo XClarity Integrator tab displays under the Manage tab providing the following management for a single Lenovo server:

- System Analysis
- Alerts and Events
- Firmware updates
- Power and cooling
- Advanced system settings

You can navigate to each of these functions from the navigation bar located above the tab.

Before you begin:

Make sure the vCenter Server server has out-of-band (OOB) network connection with IMM of managed ESXi servers. You can locate the IMM and request the IMMs access on the cluster overview page.

Working with the System analysis

The System function collects and analyzes system inventory information and health status to aid in diagnosing system problems.

System collects information about the following aspects of a system:

- Basic system information

- System event logs
- Installed applications and hot fixes
- Network interfaces and settings
- Hardware inventory
- Vital product data and firmware information

System provides an organized view that you can use to perform the following functions:

- View the system information
- Launch system diagnostic collection
- View the categorized system inventory results

Working with the Chassis Map function

If your server is also managed by Lenovo XClarity Administrator, and you have already registered your Lenovo XClarity Administrator to this vCenter, you can use the Chassis Map function.

For information on using the chassis map function, refer to the “Working with the Chassis Map function” on page 47 topic in the “Working with the Lenovo infrastructure” on page 45 section.

Viewing System Overview

The System Overview page provides you with a snapshot view of the current system. You can view basic system information such as the machine type, operating system, version, IMM firmware version, and uEFI firmware version. You can also view the system hardware event summary and system inventory collection history.

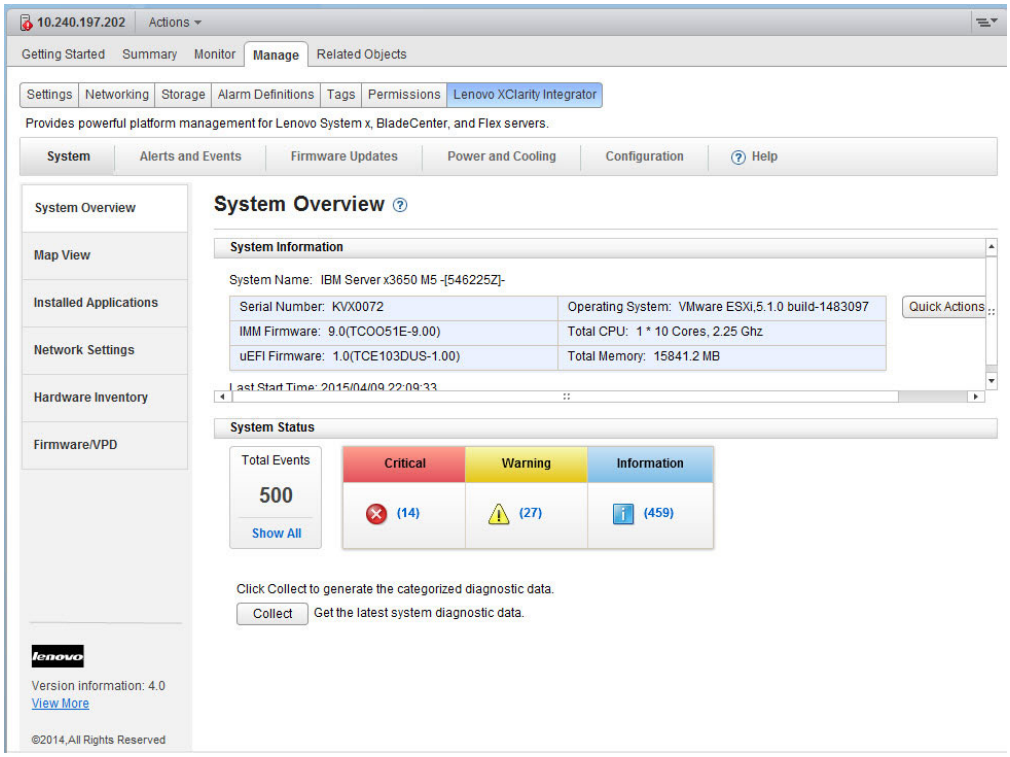


Figure 11. System Overview page

Launching the system diagnostic collection

This topic describes how to the launch system diagnostic collection function to get the latest system inventory information.

Procedure

Click **Collect** located in the bottom section of the System Overview page to launch a full analysis of the system. This operation can take up to five minutes to complete.

Important: During the collecting process, the Installed Applications page, Network Settings page, Hardware Inventory page, and Firmware/VPD page are blocked. To avoid possibly disrupting the process, do not navigate to any other host.
When the collection process finishes, the last collection time is displayed on the System Overview page. The hyperlink **Download log** is displayed after the collection time. Click this link to download the latest system diagnostic data. The latest system diagnostic data can be viewed from each of the categorized pages.

Viewing categorized analysis results for the vSphere Web Client

After you launch a full system diagnostic collection, you can view the following analysis categories: Installed Applications, Network Settings, Hardware Inventory, and Firmware/VPD. Each page contains detailed information for each category.

On the left side of the System Overview page, click to select and view each of the analysis category pages.

Results are displayed in tables with the applicable analysis category title.

Working with Alerts and Events

The Alerts and Events function collects system health information and displays hardware events and power throttling alerts.

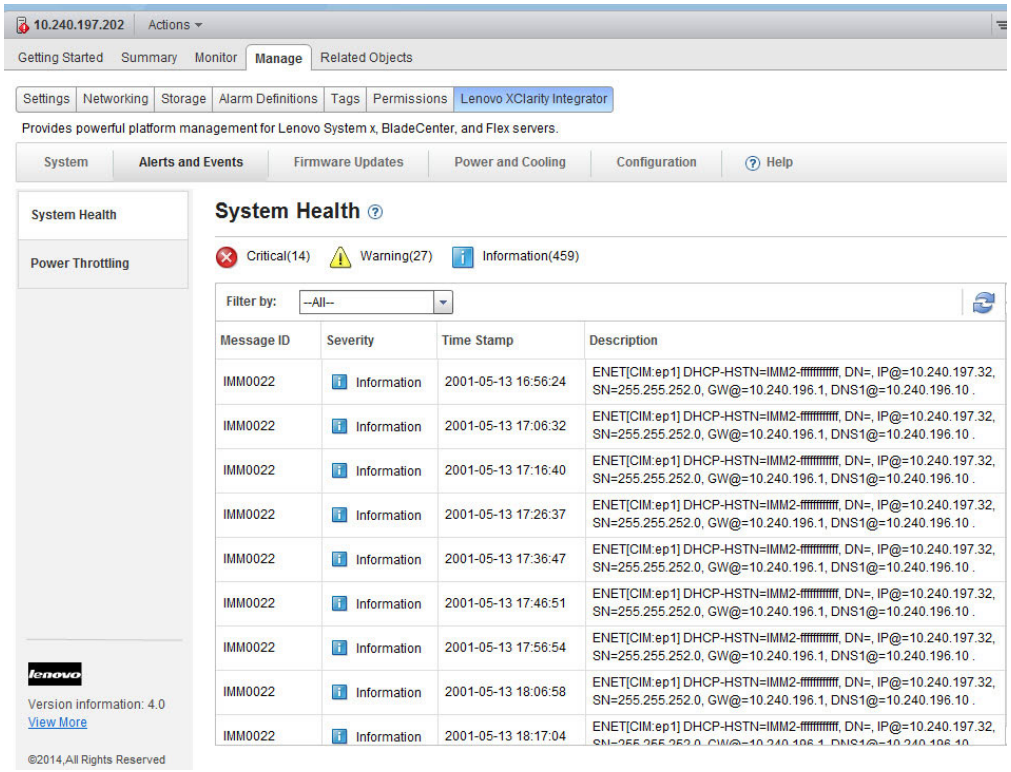


Figure 12. Viewing Alerts and Events

The System Health table contains alerts and events that can be sorted by clicking the table columns. It can also be filtered by choosing the severity from the **Filter by** menu. To collect the latest alerts and events from the host, click **Refresh**.

Working with Firmware Updates

The Firmware Updates function applies recommended updates (UXSP) and individual updates to your EXSi system. You can use this function to obtain and deploy UpdateXpress System Pack (UXSP) firmware updates and individual firmware updates.

The main functions of the Firmware Updates function include:

Acquire Updates

The Acquire Updates function downloads the UpdateXpress System Pack and individual updates for supported server types from a remote location, such as IBM Fix Center.

Compare and Update

- Inventories the system on which the update is being performed.
- Queries the update directory for a list of applicable update packages.
- Compares the inventory to the applicable update list.
- Recommends a set of updates to apply.
- Deploys the updates to the system

Prerequisites for updating firmware

This topic provides information for completing the necessary prerequisites for updating firmware.

Before you begin

Complete the following prerequisite steps before updating the firmware.

1. Enable **Commands** on the USB interface in uEFI by changing the uEFI settings.
2. Reboot the host.

Selecting update preferences

The Firmware Updates function can update a remote EXSi host by using either recommended (UXSP) or individual updates acquired from the Lenovo website or a specific location. On the Updates Preferences page, you can select the method for acquiring the updates package.

Procedure

1. Select **Firmware Updates** on the Manage Lenovo XClarity Integrator page. The Updates Preferences page is displayed.

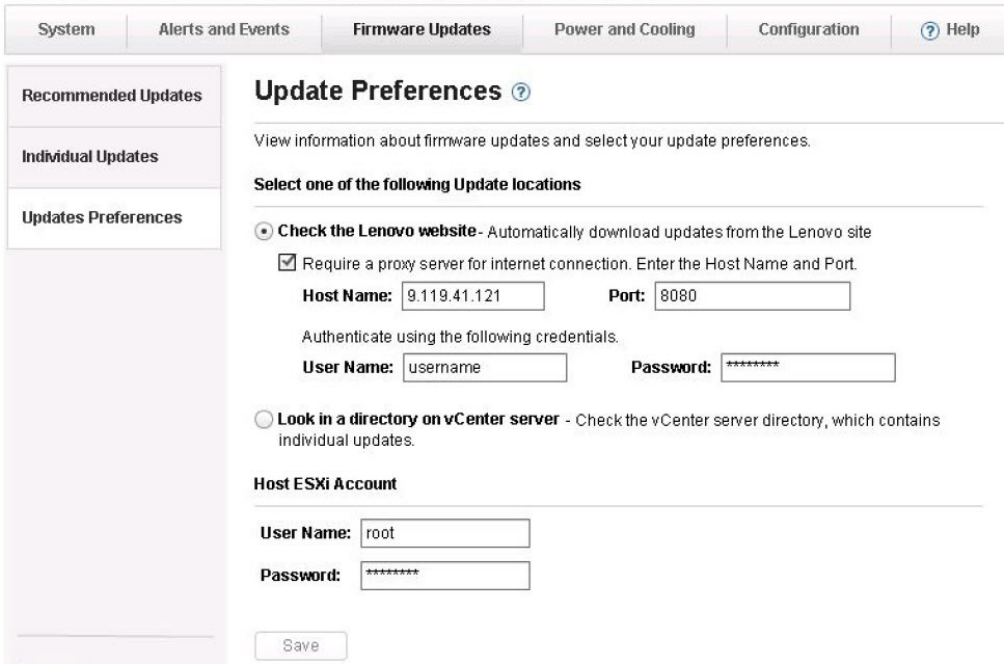


Figure 13. Update Preferences page

2. On the Update Preferences page, click to select one of the following update options.

   Check the Lenovo website:
   Download the appropriate updates automatically from the Lenovo site.

   Look in a directory on vCenter Server
   Locate the appropriate updates from a local repository.

   If the vCenter Server cannot access the website directly, then you can enter the proxy server and port.

   When you select the **Look in a directory on vCenter server** option, the firmware updates acquire updates from a specified directory on vCenter Server:

`Installation folder\webroot\bin\data\uxspi\repository\`. However, you are not allowed to change the directory and you can put updates under this directory.

Note: When you select the Lenovo website option to update firmware, the updates package is saved in the `Installation folder\IVP\bin\data\uxspi\repository\` directory on the vCenter Server after download. Select the location method to update the other host servers that have the same machine type. Before updating the host firmware, you must input the root account of the host for updates.

Firmware update scenarios

The topics in this section describe two scenarios for firmware updates: Recommended Updates (UXSP) and Individual Updates.

An UpdateXpress System Pack (UXSP) is an integration-tested bundle of online firmware and driver updates for Lenovo System x and Lenovo BladeCenter servers. UpdateXpress System Packs simplify the downloading and installation of all online driver and firmware updates for a given system, ensuring that you are always working with a complete, current set of updates that have been tested together and bundled byUpdateXpress System Pack.

Recommended Updates (UXSP):

If you select **Check the IBM website** on the Update Preferences page, the Recommended Updates option downloads and installs firmware and driver updates from the latest UXSP for IBM System x and Lenovo BladeCenter servers. If you select **Look in a directory on vCenter server**, Recommended Updates will install firmware and driver updates from a local vCenter directory.

Procedure

1. Verify that either the vCenter Server has Internet access to connect with the Lenovo website, or that the UXSP in the specified vCenter Server directory is applicable for the target machine type.
2. Click **Start Update Wizard** on the Recommended Updates page. The Recommended Updates wizard opens and displays the Check Compliance dialog box.

Figure 14. Recommended Updates wizard - Check Compliance dialog box

3. Click **Check Compliance**. If you do not have this type of account for the target host or if the account is wrong, a dialog box opens and prompts you for the host account information.
4. When the Check Compliance action has completed, make any necessary changes, and click **Next**.

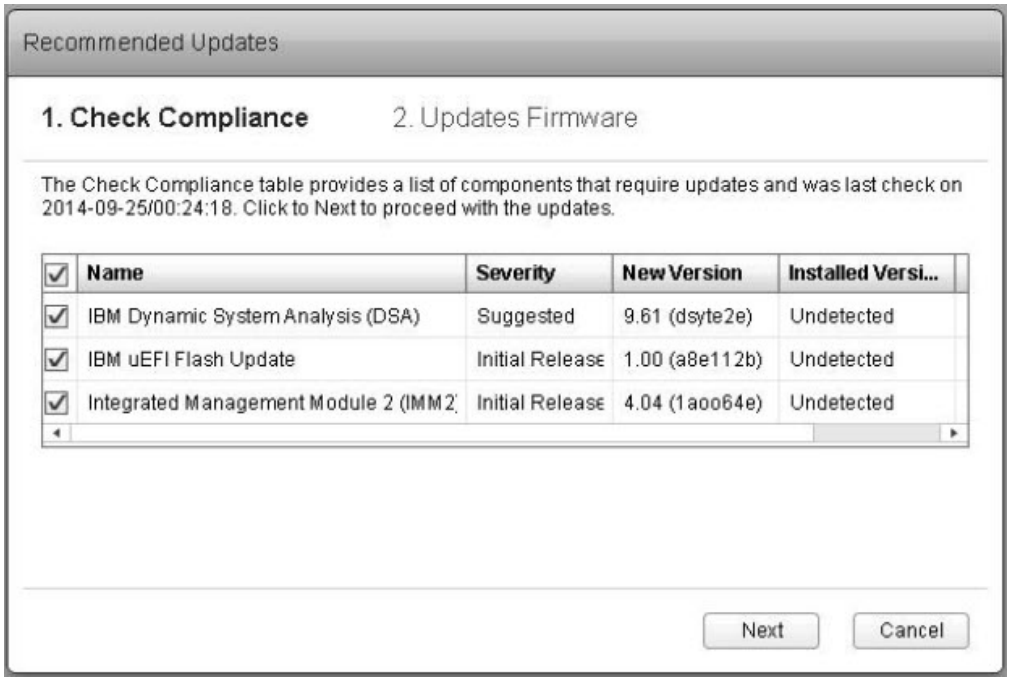


Figure 15. Check Compliance complete

After all the selected downloads are complete, the selected updates will update the target host.

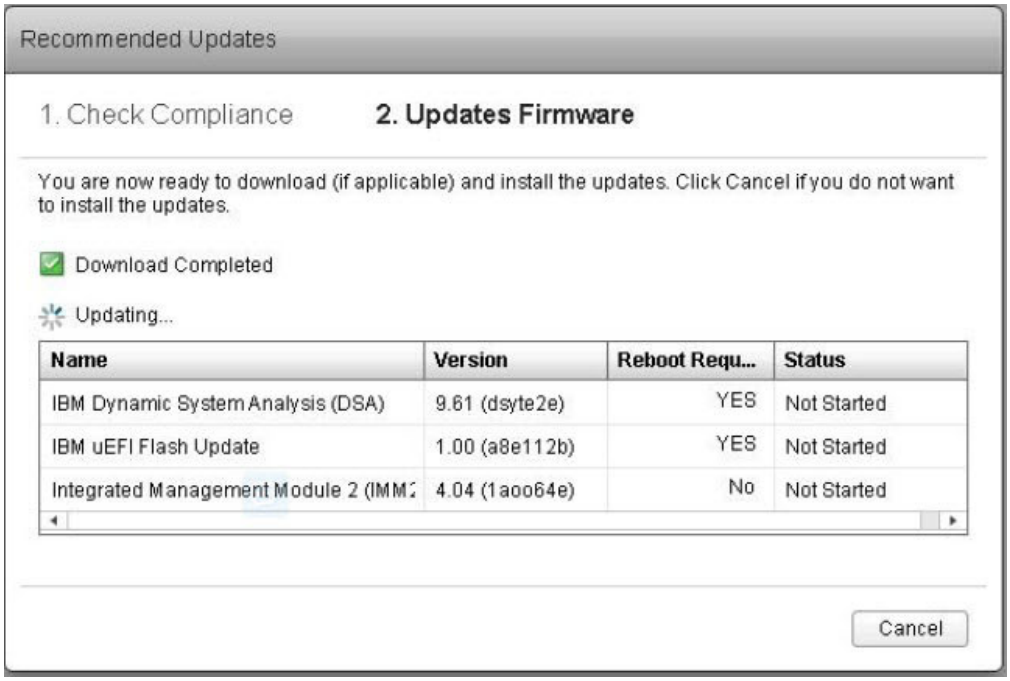


Figure 16. Recommended Updates wizard - updating firmware

5. After all of the updates have been applied, click **Close** to exit the wizard.

Individual Updates:

This topic provides information for updating the remove server using the Individual Updates options.

About this task

To update a remote server by using the Individual Updates option, perform the following steps.

Procedure

1. Verify that the vCenter Server has Internet access to connect with the Lenovo website, or make sure the directory of vCenter Server has a UXSP that can apply to the target machine type when you selected location mode in Update Preferences.
2. Click **Start Update Wizard** on the Individual Updates page. The Individual Updates Wizard opens.
3. Click **Check Firmware Compliance**. If you do not have this type of account for the target host or if the account is wrong, a dialog box opens and prompts you for the host account information.
4. When the Check Compliance action has completed, make any necessary changes, and click **Next**. After all the selected downloads are complete, the selected updates are applied to the target host.
5. After all of the updates have been applied, click **Close** to exit the wizard.

Working with Power and Cooling

The topics in this section describe Power Metric options and provide you with the ability to manage power usage through power capping and power throttling.

Power Metric page

The Power Metric page has options for viewing the power usage history, thermal history, and fan summary. If the host is being monitored, the current power usage, thermal history, fan history, and the time of the monitor reading are displayed. This information is automatically refreshed every five minutes. This information is helpful for determining whether to reassign the workload.

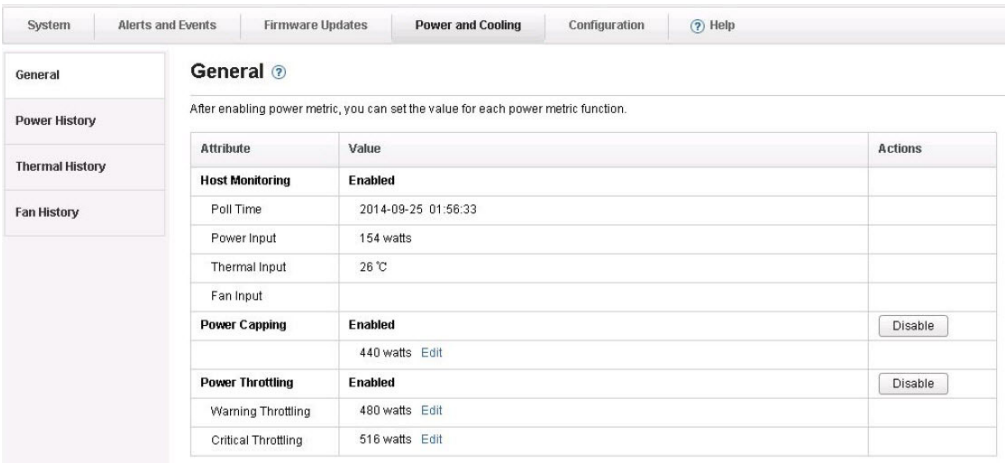


Figure 17. Power Metric page

Setting Power Capping

Through the Power Capping feature, you can allocate less power and cooling to a system if the firmware supports capping and it is enabled. This feature can help lower datacenter infrastructure costs and potentially allow more servers to be put into an existing infrastructure. By setting a power capping value, you can ensure that system power consumption stays at or below the value defined by the setting. The power cap value is the value you set for a rack or Blade server that will be capped by the firmware. The power cap value is persistent across power cycles for both rack and blade servers.

If the server supports power capping, XClarity Integrator retrieves the minimum and maximum power capping values from the server and shows it as a range. In the following screen capture, 473 is the minimum value, and 567 is the maximum value.

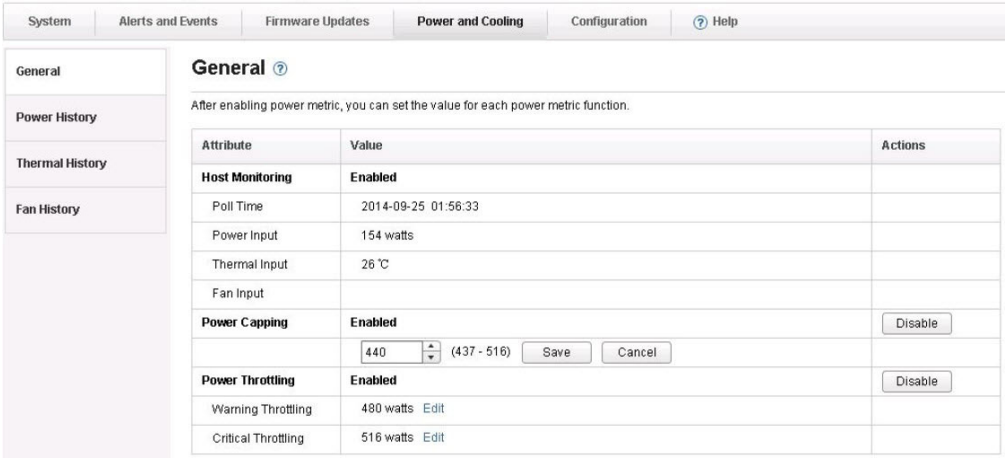


Figure 18. Setting Power Capping on the vSphere Web Client

Setting Power Throttling

Through the Power Throttling feature, you can receive alerts when power consumption exceeds a value you have set. You can set two power throttling values: one for a warning and one for a critical alert. When the power consumption exceeds a defined power throttling value, IVP receives a throttling event, which is then displayed in the Power Throttling Indications table.

Click **Enable** to enable Power Throttling feature before attempting to set a value. The value you specify is for Watts.

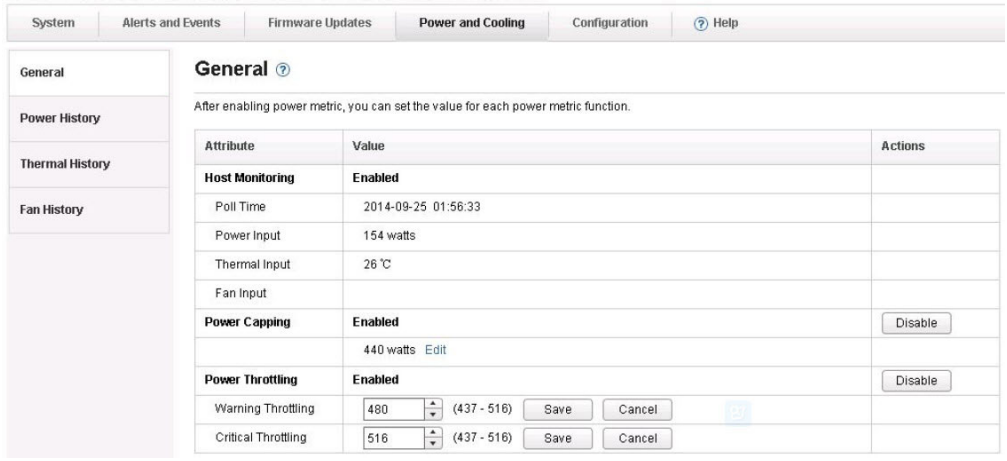


Figure 19. Setting Power Throttling on vSphere Web Client

Viewing Power Usage History, Thermal Usage History, and Fan Usage History on the vSphere Web Client

The Power Usage History, Thermal History, and Fan History charts are displayed on the right pane of the page. You can customize the duration and intervals for each of these charts.

Procedure

1. Click the **Power and Cooling** tab. For each of the history charts, you can:

- Use the mouse wheel to zoom in and out of the charts, and use the drag and drop feature to move charts.
- Click **Set Duration** to change the collection of history data to a different time interval.

2. Select one of the following options from the left pane.

General

On this page, you can set the value of each power metric attribute after enabling power monitoring on a host.

Power History

The Power Usage History chart provides power consumption readings for a 24-hour period.

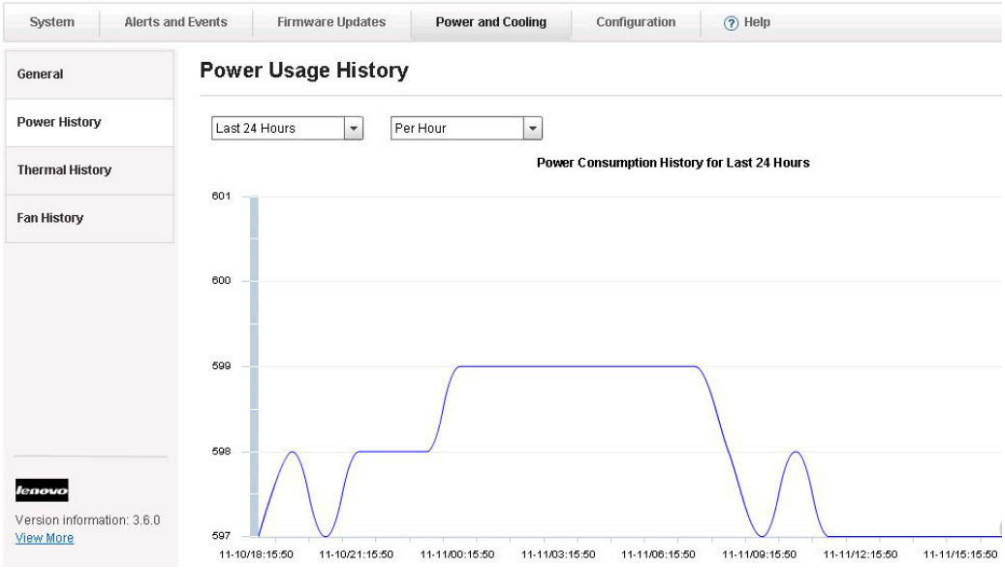


Figure 20. Power Usage History for vSphere Web Client

Thermal History

The Thermal Usage History chart provides temperature readings for a 24-hour period.

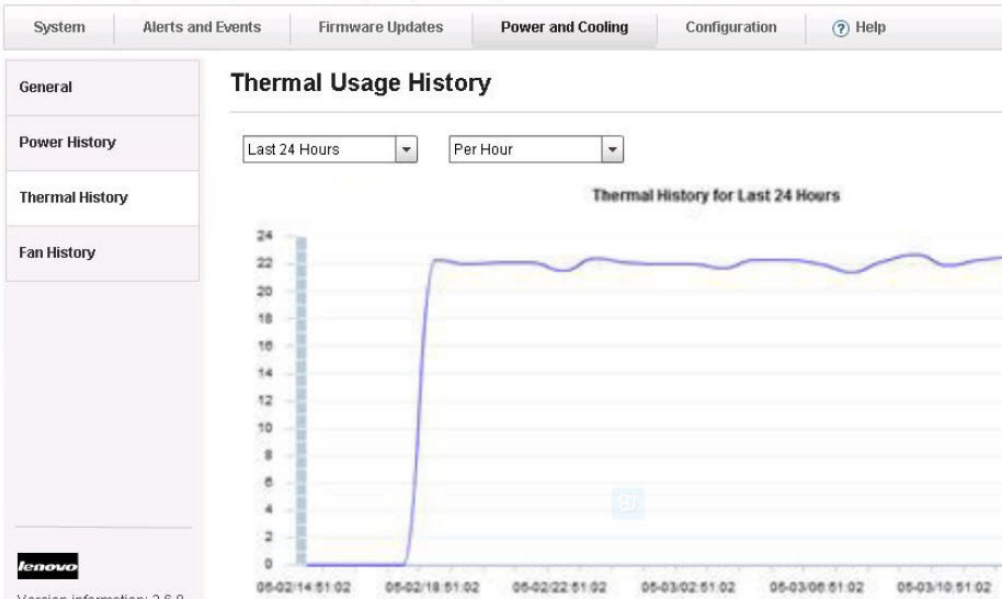


Figure 21. Thermal Usage History for vSphere Web Client

Fan History

The Fan Usage History chart provides fan usage readings for a 24-hour period.

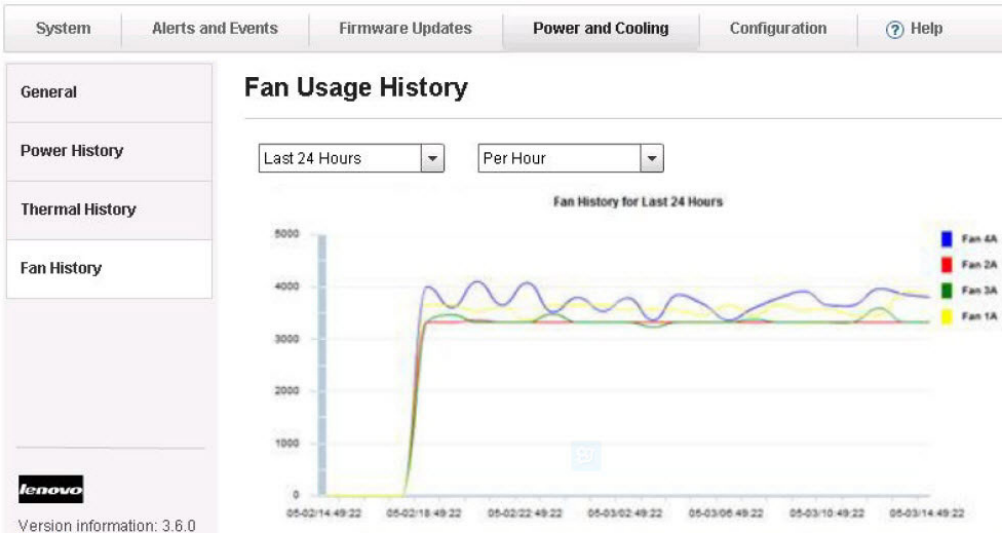


Figure 22. Fan Usage History for vSphere Web Client

Working with Configuration

The Configuration page manages the system settings on the host. This includes deploying a configuration pattern or settings for IMM, uEFI, and the boot order of the host.

Deploying a configuration pattern on a server

Once you have registered the Lenovo XClarity Administrator in Lenovo XClarity Integrator, you can deploy or deactivate a configuration pattern on each supported server managed by a Lenovo XClarity Administrator. A server pattern represents a pre-OS server configuration, including local storage configuration, I/O adapter

configuration, boot settings, and other IMM and UEFI firmware settings. A server pattern is used as an overall pattern to quickly configure multiple servers simultaneously.

About this task

This task is performed on the Configuration Pattern page.

Procedure

1. If the Lenovo XClarity Administrator do not have any predefined patterns, you can click the link to open Lenovo XClarity Administrator and create your server patterns.
2. Select **Lenovo XClarity Integrator** > **Configuration** > **Configuration Pattern**. Configuration Pattern page is displayed.

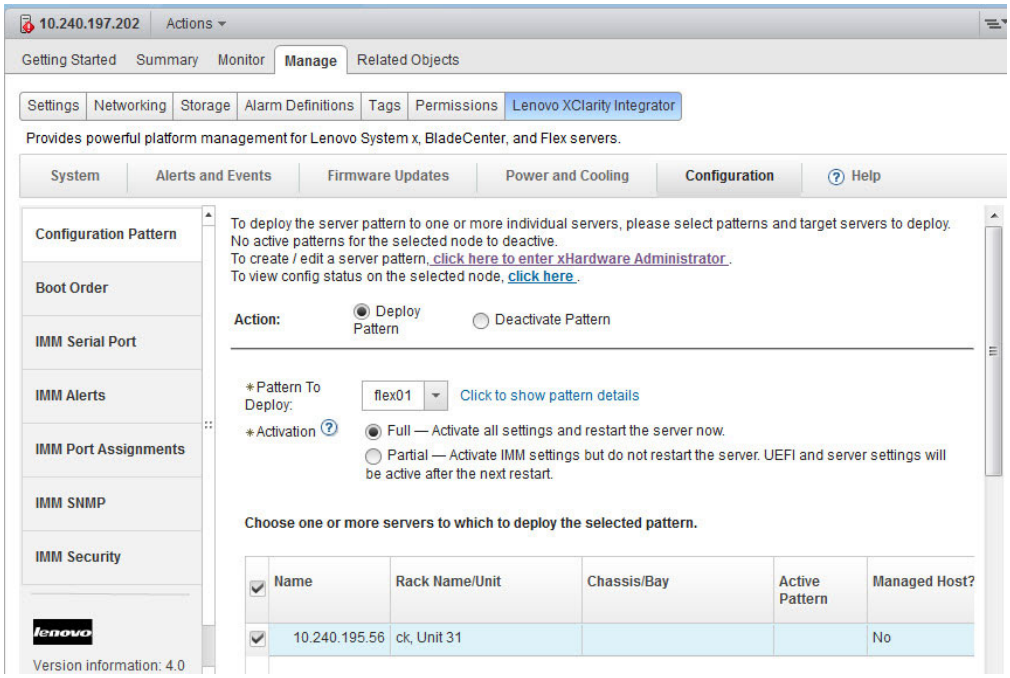


Figure 23. Deploy Pattern

3. Select one of the following actions:

Option	Description
Deploy pattern	Deploys the selected pattern to your servers.
Deactivate pattern	Deactivates the pattern from your servers.

4. Select a predefined pattern and apply it to your server.

   Note:

   a. This page is not visible if your server is not managed by LXCA or if LCXA is not registered to this Lenovo XClarity Integrator.

   b. You can select to configure your server from the Configuration Pattern page or through other setting pages, such as Boot Order or IMM Serial Port, if your sever does not offer deployment patterns.

c. If your server has deployed a pattern, other setting pages are not available. It is recommended that you use a pattern to configure your server. You can deactivate a pattern from your server, and then other setting pages will be available.

Viewing Advanced System Settings

Configuration settings are listed in the left pane. The last update date and time is displayed to the right of **Refresh** button.

About this task

The following steps illustrate how to view two advanced system settings: IMM Port Assignments and Boot Order.

Procedure

1. Select **IMM Port Assignments**.
2. Click **Refresh** to get the latest advanced system settings values for IMM Port Assignments.

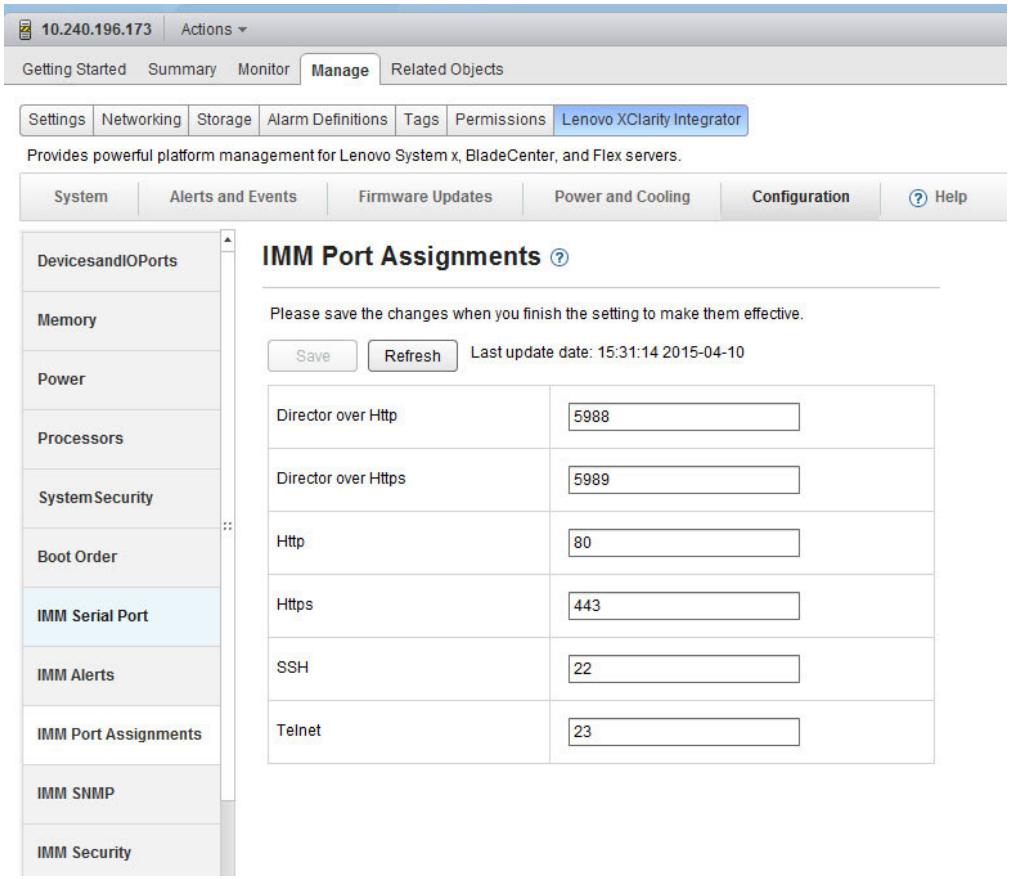


Figure 24. Viewing IMM Port Assignments

Some settings, such as uEFI settings, are only supported on a certain machine type or firmware version. If your host does not support a setting, it is disabled to indicate that it is not supported on your host.

3. Select **Boot Order**.

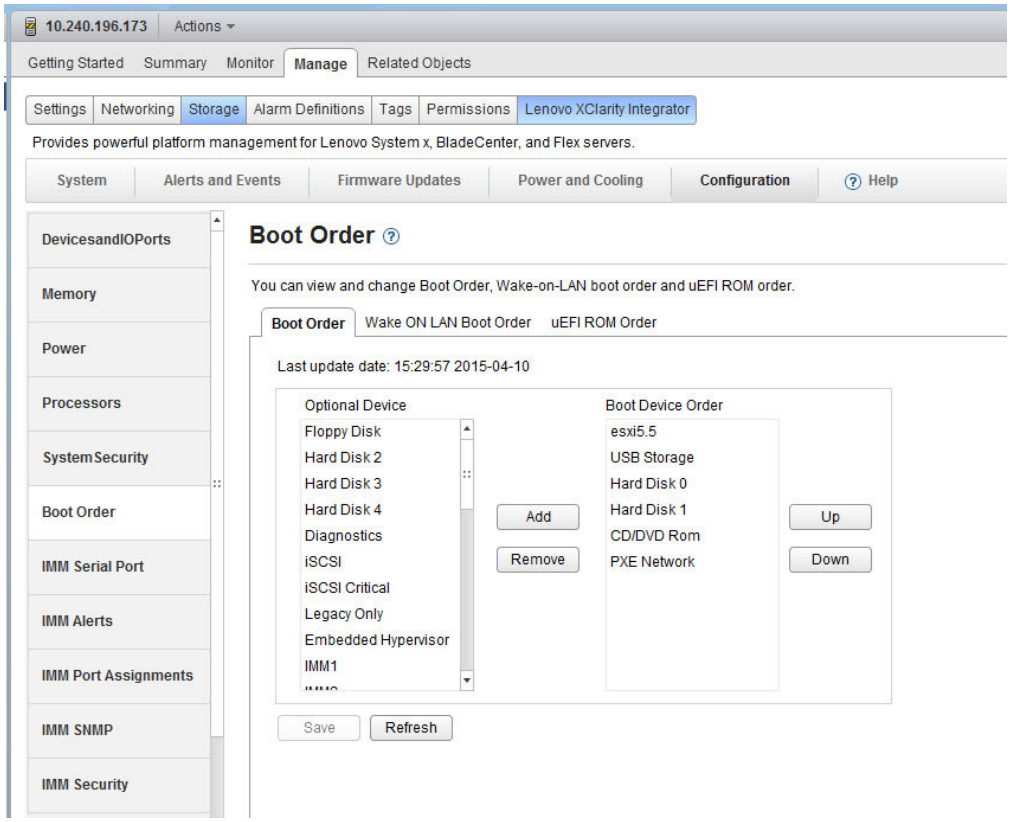


Figure 25. Viewing Boot Order

Changing Advanced System Settings

This topic describes how to change advanced system settings on the host.

Procedure

1. To change an advanced system setting, enter the new value, and click **Save**. The change is executed on the endpoint.
   - If the change is successfully executed, the following symbol is displayed.

Figure 26. Setting change success symbol

   - If the change is not successfully executed, the following symbol is displayed.

Figure 27. Setting change not success symbol

     To view detailed information about why the setting change failed, place the cursor over the symbol.
2. Click **IMM Alerts** to view the Alerts section of IMM Settings.

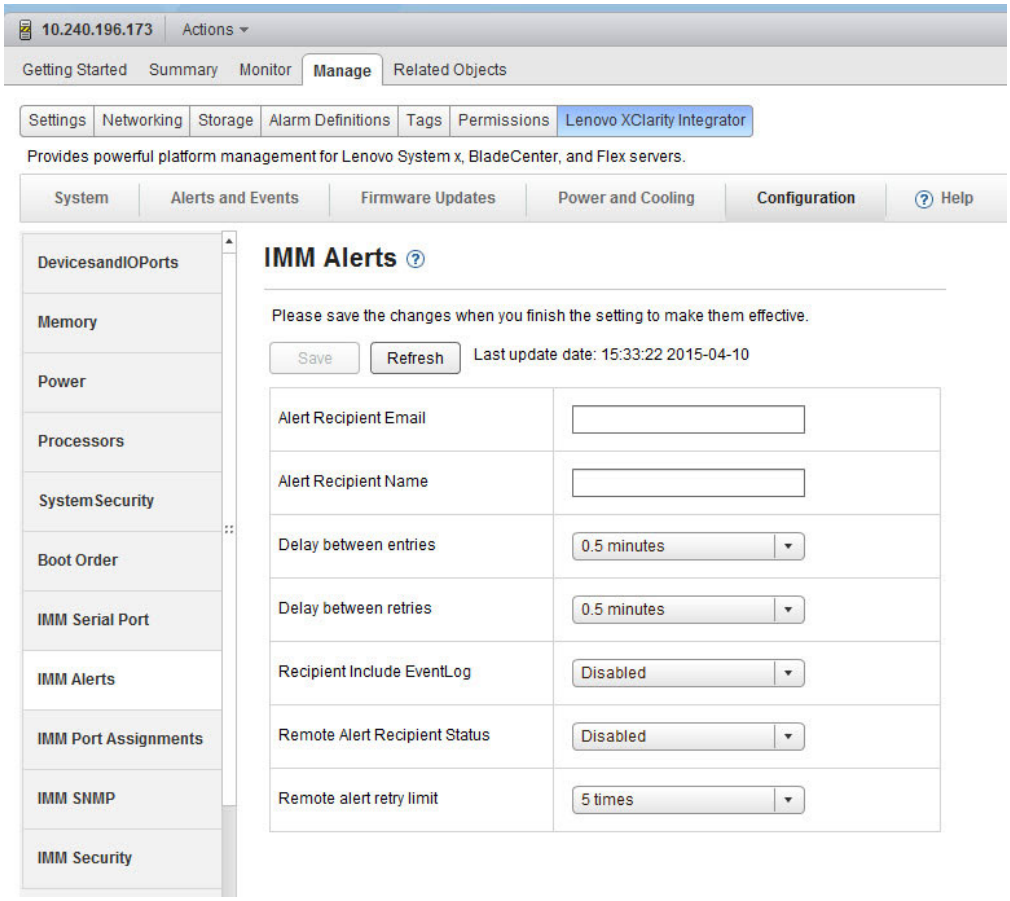


Figure 28. Viewing IMM Alerts

Example

The following list provides an example for some of the different types of settings and how to change these settings. The manner in which each setting is changed varies.

text string
Before you enter any information, a prompt showing the requirements is displayed. If the information you entered does not match the requirements, place the cursor over the text string to view the description.

selection type
Select the value from the drop-down menu.

boot order
The left column displays the current boot order, and the right column displays the optional device. To change the order, you can move a boot order option up or down and between the two columns, by clicking the corresponding button.

Managing Lenovo Infrastructure

Before you begin

Before you can work with the Lenovo XClarify Administrator, ensure the following:

1. Make sure you have Lenovo XClarity Administrator is working in your environment.
2. You have the LenovoXClarityIntegrator.AccessLenovoESXiHost privilege.

About this task

Procedure

1. From the vSphere Web Client Home page, click **Lenovo XClarity Integrator Administration**. The Lenovo XClarity Integrator Administration page is displayed.

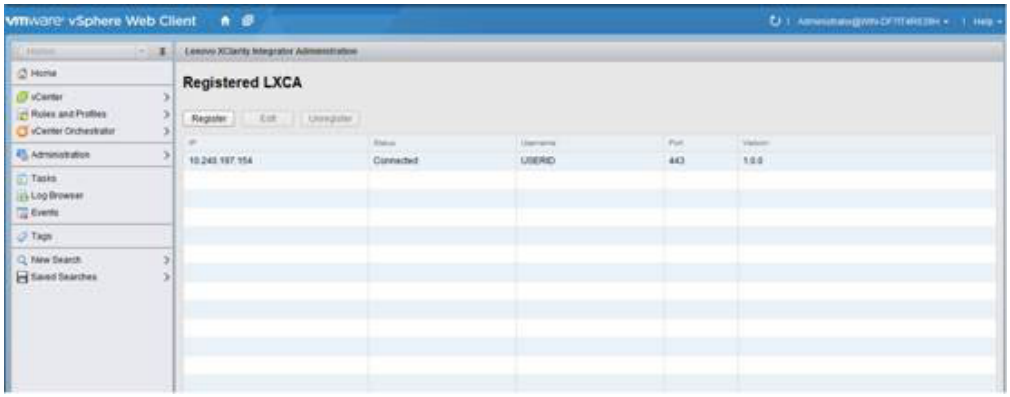


Figure 29. Lenovo XClarity Inegrator Administration window

2. Click **Register** and enter the information required by Lenovo XClarity Administrator.
3. Click **OK** and wait for the registration. To edit or unregister Lenovo XClarity Administrator, click **Edit** or **Unregister**.

Working with the Lenovo infrastructure

The Lenovo Infrastructure view is used to show the managed Lenovo XClarity Administrator, Chassis, Rack, and node in the vSphere Web Client. It allows you to use the features of Lenovo XClarity Administrator, such as the deployment configuration pattern, and the graphic view of Chassis Map.

Before you begin

1. You have registered your Lenovo XClarity Administrator in the vSphere web client.
2. You have LenovoXClarityIntegrator.AccessLenovoInfrastructure privileges.

About this task

Procedure

1. Select **Home** > **Center** > **Lenovo Infrastructure**. The managed Lenovo XClarity Administrator list is displayed.

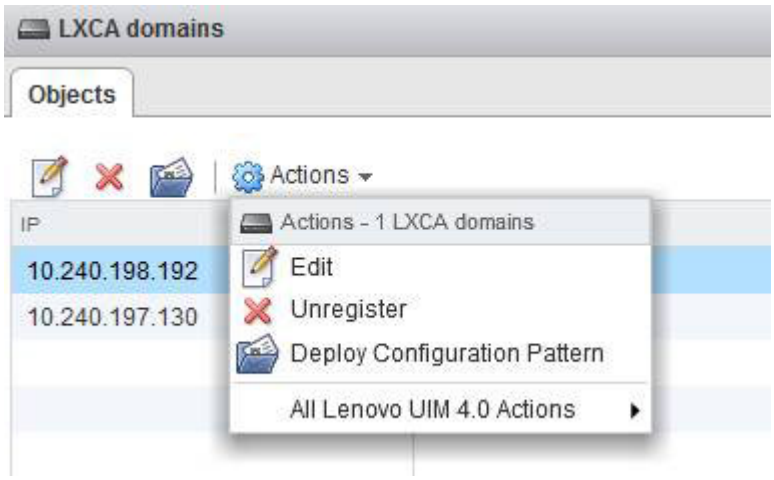


Figure 30. Lenovo XClarity Inegrator Administration window

2. Select one of the following options:

Option	Description
Edit	Allows you to edit your Lenovo XClarity Administrator registered information.
Unregister	Allows you to unregister your Lenovo XClarity Administrator.
Deploy Configuration Pattern	Allows you to deploy a pattern for all the nodes managed by this Lenovo XClarity Administrator.

3. Select one of the managed Lenovo XClairty Administrator. The managed Chassis and Racks table is displayed where you can run Deploy Configuration Pattern action to deploy a pattern for all the nodes managed by this Chassis.

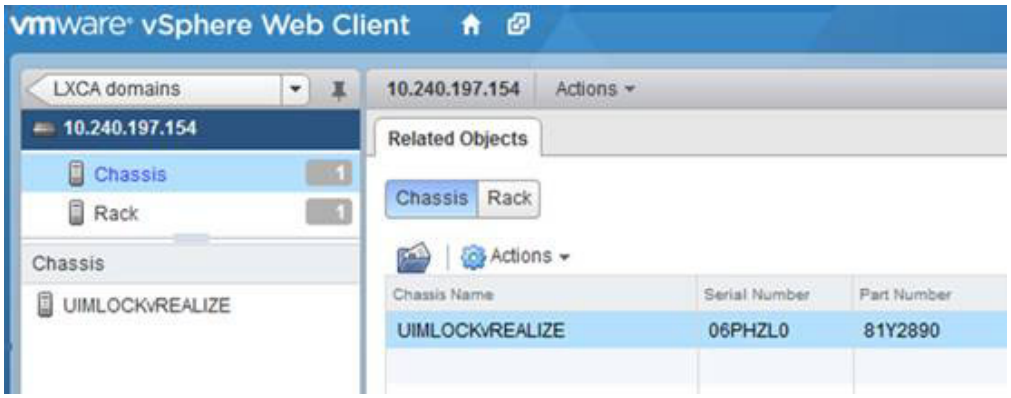


Figure 31. Managed Chassis and Racks table

4. Click **Chassis** or **Rack**, the Chassis or Rack view is displayed.

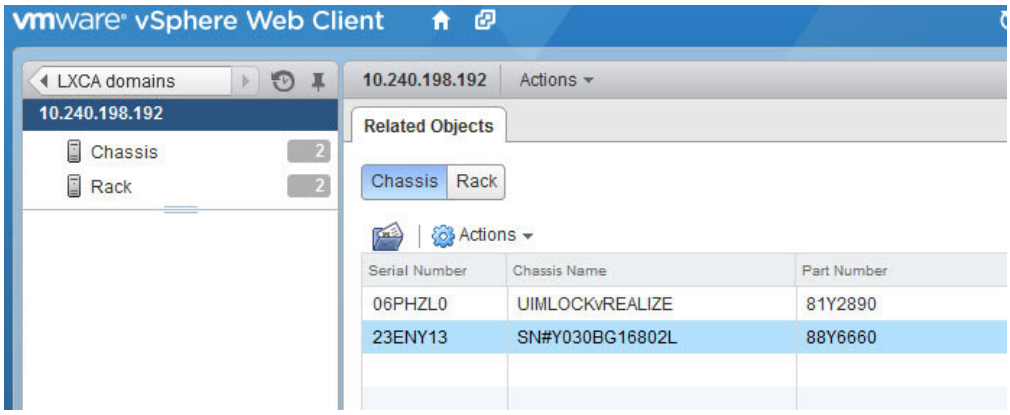


Figure 32. Chassis or Rack view

5. Do one of the following:
   a. Select **Deploy Configuration Pattern** to deploy a pattern for all the servers managed by this chassis or rack.
   b. Click the **Monitor** tab to view the Chassis Map.
   c. Click the **Related Objects** tab to view the nodes list managed by this chassis or rack.

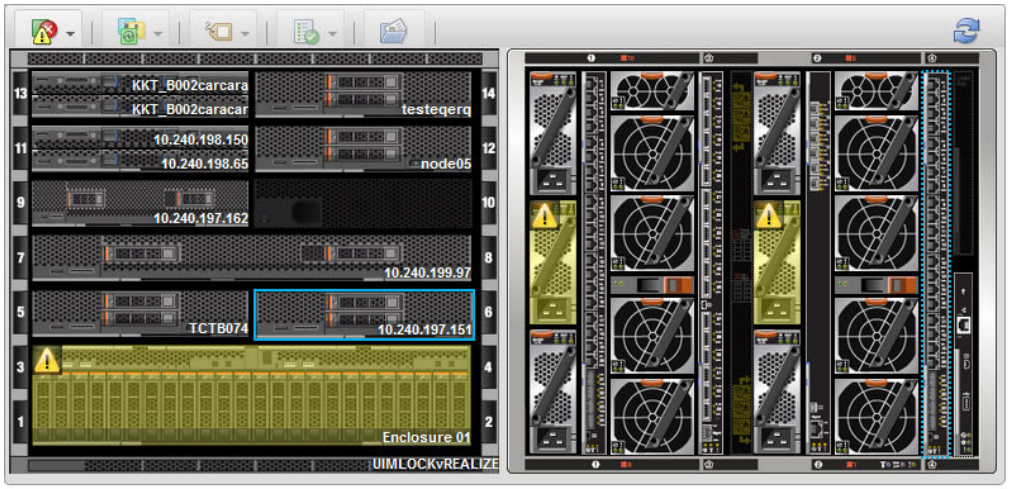
Working with the Chassis Map function

The chassis map provides a graphical view of the chassis. From this interface, you can also display the component status in a tabular list.

About this task

Procedure

1. From the Chassis page, click the link for the chassis in the **Chassis** column. The Chassis View page for that chassis is displayed.



Summary **Open xHMC for Details**

Name:	10.240.197.151
Status:	Offline
Chassis/Bay:	UIMLOCKvREALIZE / 6
Host names (IMM):	IMM2-40f2e990dcd1
Architecture:	x86_64
Type-Model:	9532-AC1
System FRU:	
System Board UUID:	DUMMY-73CBE41AFA1D4FEF-010103060000

Figure 33. Chassis view

2. You can also display the component status in a tabular list by clicking **Table view**.

   The graphical view shows components in the front of the chassis, such as compute nodes and components in the rear of the chassis such as fans, power supplies, and Flex switches. You can choose among several overlays to help you quickly determine the status of all components in the chassis:

Table 7. Hardware map overlays

Overlay	Icon	Description
Hardware status		Use the hardware status overlay to show the status of each of the components. You can choose one or more of the following status criteria to show: **Critical** Components have one or more critical alerts and immediate user action is required. **Warning** Components have one or more warning alerts. User investigation is needed to determine the cause of the warnings, but there is no immediate risk of an outage. **Synchronizing** The LXCA is waiting for the components to provide updated status. **Offline** Components are not online. **Unknown** The LXCA is not able to retrieve the status from one or more components in a chassis. User investigation might be needed. **Normal** Components are operating normally. Hover over a specific component to get more information about the current status.

Table 7. Hardware map overlays (continued)

Overlay	Icon	Description
Highlight front panel LEDs		Use the highlight front panel LEDs overlay to see the LEDs that are available for each of the components. You can choose one or more of the following LEDs to show: **Power LED** Display the current power LED for each component. **Event Log LED** Display the event log LED, which is lit when there are events specific to a component in the LXCA event log. **Location LED** Display the location LED, which can be turned on from the CMM to help you identify where a component is physically located. **Fault LED** Displays the status of the Fault LED for each component. **Other LED** Display all other LEDs that are available for each component. **Only Active LEDs** Display only the LEDs that are currently lit. Hover over a specific component to get more information about all LEDs for a component. For detailed information about each of the LEDs that can be displayed for a component, see the product documentation that is available for that component.

Table 7. Hardware map overlays (continued)

Overlay	Icon	Description
Component names and properties		Use the component names and properties overlay to display the name for each component in the chassis. When you hover over a component, additional properties about that component, such as IP address and UUID are displayed.
Compliance		Use the compliance overlay to determine whether the firmware that is currently installed on a component complies with the compliance policy that has been defined for that component.
Configuration patterns		Use the configuration pattern overlay to determine which server patterns are assigned to each compute node.

Viewing the details of a managed chassis

You can view the detailed information about the managed chassis from the Lenovo XClarity Administrator.

About this task

To view the information about the managed chassis, do the following

Procedure

1. Open the Lenovo XClarity Administrator.
2. Select the **Open Lenovo XClarity Administrator for Details** link.

Launch Management Module Interface

If you select a chassis or host in the chassis map page, you can open an IMM web page in a new window. This topic explains how to request host access.

About this task

This task is performed on the Chassis Map page.

Procedure

1. Select **vCenter** > **Lenovo Infrastructure** > **LXCA Domains**.
2. In the Lenovo XClarity Administrator domains section, select the Lenovo XClarity Administrator IP node and double click the chassis node on the right panel.
3. Select a chassis or host in the chassis map page, and click **All Actions**.
4. Click **Launch Management Module Interface**.

Launch remote control

You can open a Remote Control by selecting a host in the Chassis Map view.

About this task

This task is performed on the Chassis Map page.

Procedure

1. Select **vCenter** > **Lenovo Infrastructure** > **LXCA Domains**.
2. In the Lenovo XClarity Administrator domains section, select the Lenovo XClarity Administrator IP node and double click the chassis node on the right panel.
3. Select a chassis or host in the chassis map page, and click **All Actions**.
4. Click **Launch Remote Control**.

Working with configuration pattern

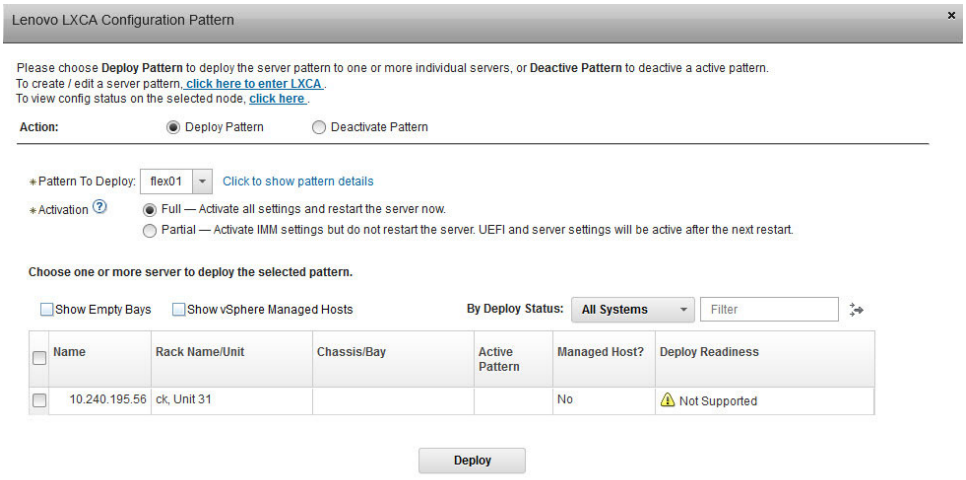
You could convenient use the Deploy Configuration Pattern action in the Lenovo XClarity Administrator domains list view or Chassis list view to deploy or deactivate a server pattern to one or more individual servers or to groups of servers. For example, you can deploy a server pattern to a chassis so all the servers in that chassis are configured the same.

About this task

This task is performed from the LXCA domains page.

Procedure

1. Click **vCenter** > **Lenovo Infrastructure** > **LXCA Domains**. The LXCA domains page is displayed.
2. Select a Lenovo XClarity Administrator domain or Chassis, then click **Action** > **Deploy Configuration Pattern**. The Lenovo LXCA Configuration Pattern dialog is displayed.



3. Select one of the following actions:

Option	Description
Deploy pattern	Deploys the selected pattern to your servers.

Option	Description
Deactivate pattern	Deactivates the pattern from your servers.

4. Select a pattern from the **Pattern to Deploy** drop-down list.
5. Select one or more servers and click **Deploy**.

Managing hardware events

The topics in this section describe Lenovo hardware events and alarms that are integrated into vCenter.

Prerequisites

This topic provides information about prerequisites for managing hardware events.

Before you begin

Complete the following prerequisite steps before updating the firmware.

Procedure

1. vCenter server has out-of-band (OOB) network connection with the IMM managed EXSi servers, you can find the IMMs and request the IMMs access on cluster overview page.
2. Enable TCP on the https port that you selected for Lenovo XClarity Integrator for VMware vCenter. The default is 9500 when you install Lenovo XClarity Integrator for VMware. Lenovo XClarity Integrator for VMware vCenter listens on this port for incoming indications.

Events

Lenovo XClarity Integrator for VMware vCenter loads events from IMM nodes out-of-band (OOB) into vCenter Server, enabling administrators to view and manage them from the vSphere Web Client. This provides administrators with a single, heterogeneous view of all host system events within the managed environment. To view Lenovo hardware events, navigate to the Events tab in the vSphere Web Client.

Alarms

When an Lenovo event is delivered to vCenter Server, the overall host status changes based on the corresponding event severity. An alarm is triggered when the changes to the host status meet the criteria assigned by the administrator.

When an alarm occurs, an icon appears to the right of the vSphere Web Client window along the bar above the vSphere Web Client tabs or on the host icon in the inventory tree.

Click the alarms icon to view alarms contained in the **Alarms** tab. The Alarms tab displays a list of all alarms.

Chapter 4. Using Lenovo XClarity Integrator for VMware vCenter with vSphere Client

The topics in this section describe how to use Lenovo XClarity Integrator for VMware vCenter with vSphere Client.

Lenovo XClarity Integrator for VMware vCenter with vSphere Client provides the following functions:

- Dashboard
- Dynamic System Analysis
- Firmware Update
- Power Metric
- Advanced System Settings

You can navigate to each of these functions from the navigation pane on the left side.

Working with the Dashboard

The Dashboard displays an overview of the host status.

It provides summaries of:

- System Information
- System Health
- Power Throttling
- Predictive Failure Alerts

System Information Summary

System Information Summary contains information about the managed host.

The System Information Summary provides the following information:

- Manufacturer
- Model
- Serial number
- Operating system
- Operating system version
- Last boot

The system health, power throttling, and predictive failure alert summaries

These summaries contain an overview of the system running status (health messages from the host), the power throttling status, and PFA status.

All the messages are grouped into three categories by severity.

- *Critical events* are events that can or already have caused a host failure that requires your immediate attention.

- *Attention events* are events that indicate that there is something abnormal on the host but the abnormality will not cause immediate failure of the host.
- *Information Events* are events that indicate that something happened on the host that will not inhibit the host running.

Each of the Summary categories is grouped in an accordion box. The title indicates how many events are in the category. Because the events are effective for a limited period, a maximum of 20 events are shown in each category; however, you can check all power throttling events on the Power Metric page and all PFA indication events on the Predictive Failure Management page.

If you click on the title, the box extends and lists the following information:

- Message
- Event time
- MessageID

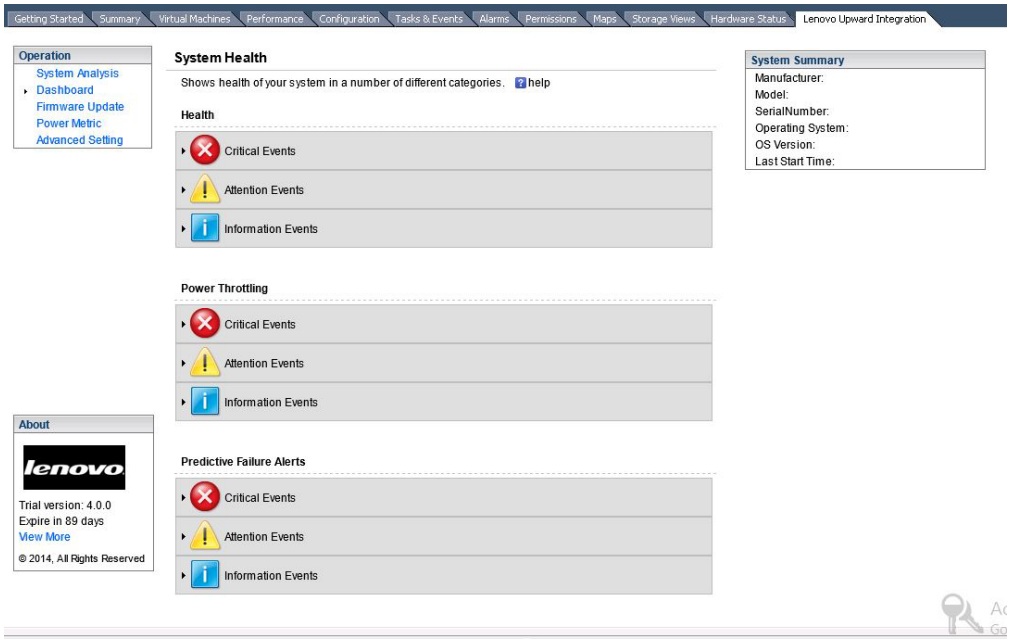


Figure 34. System Health Summary Dashboard view

Working with Dynamic System Analysis

Dynamic System Analysis collects and analyzes system information to aid in diagnosing system problems.

Dynamic System Analysis collects information about the following aspects of a system:

- System configuration
- Installed applications and hot fixes
- Device drivers and system services
- Network interfaces and settings
- Performance data and running process details
- Hardware inventory, including PCI information

- Vital product data and firmware information
- SCSI device sense data
- ServeRAID configuration
- Application, system, security, ServeRAID, and service processor system event logs

The plug-in provides functions inherited from the standalone Dynamic System Analysis and provides an organized view that you can use to do the following functions:

- Launch system inventory collection
- View and manage system inventory history
- View the categorized system inventory results

Working with firmware updates

The firmware update function applies the latest UpdateXpress System Packs (UXSPs) and individual updates to your EXSi system. The UpdateXpress System Packs contain updates for Windows and Linux firmware.

Use this function to obtain and deploy UpdateXpress System Packs firmware updates and individual firmware updates.

The main functions of firmware updates are:

- *Acquire Updates*

  The Acquire Updates function downloads the UpdateXpress System Pack and individual updates for supported server types from a remote location such as Lenovo support.
- *Compare and Update*

  Compare and Update performs the following functions:
  - Inventories the system on which the update is being performed
  - Queries the update directory for a list of applicable update packages
  - Compares the inventory to the applicable update list
  - Recommends a set of updates to apply
  - Deploys the updates to the system

Prerequisites

This topic provides information for completing the necessary prerequisites for updating firmware.

Before you begin

Complete the following prerequisite steps before updating the firmware.

Procedure

1. Enable **Commands** on the USB interface in uEFI by changing the uEFI settings.
2. Reboot the host.

Firmware update scenarios

The topics in this section describe two scenarios for firmware updates: updating a remote server from the IBM Fix Central website and updating a remote server from a local directory.

Updating a remote server from the IBM website

The firmware update function can update a remote EXSi host with either UXSPs or individual updates that are acquired from the IBM website.

About this task

Perform the following steps to update a remote server from the IBM website.

Procedure

1. Click **Update Link** in the navigation pane on the left.
2. On the Updates page, select **IBM website**.

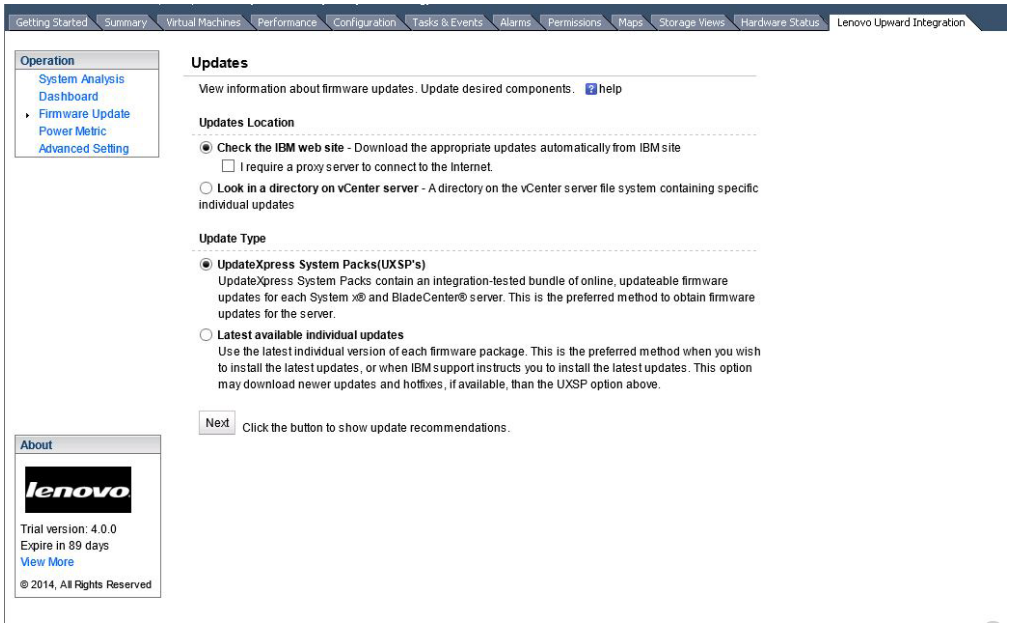


Figure 35. Updates page

3. On the HTTP Proxy Setting page, specify the proxy information if required.
4. On the Update Type page, select the type of updates you want to acquire. Possible updates are:
   - **UpdateXpress System Packs (UXSPs)** contain an integration-tested bundle of online, updatable firmware and device driver updates for each system. This is the preferred method for obtaining firmware updates for the server.
   - **Individual updates** use the latest individual version of each firmware and device driver package. This is the preferred method when you want to install the latest updates, or when Lenovo support instructs you to install the latest updates. This option can download newer updates and hotfixes, if available, than the UXSP option.
5. Click **Next**. The Update Recommendation page is displayed.

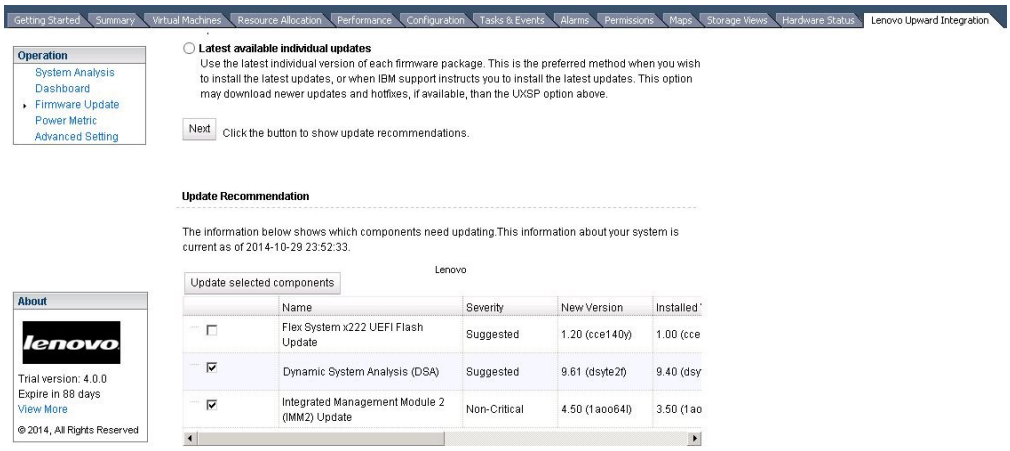


Figure 36. Update Recommendation example

6. On the Update Recommendation page, make the required changes and then click **Update**.

   The plug-in acquires the updates from Lenovo website. The progress bar indicates that the installer is processing, and shows the percentage of progress completed. If necessary, click **Cancel** to stop the download. Once you click **Cancel**, the **Cancel** button is replaced with the **Begin** button. Use the **Begin** button to resume the download.

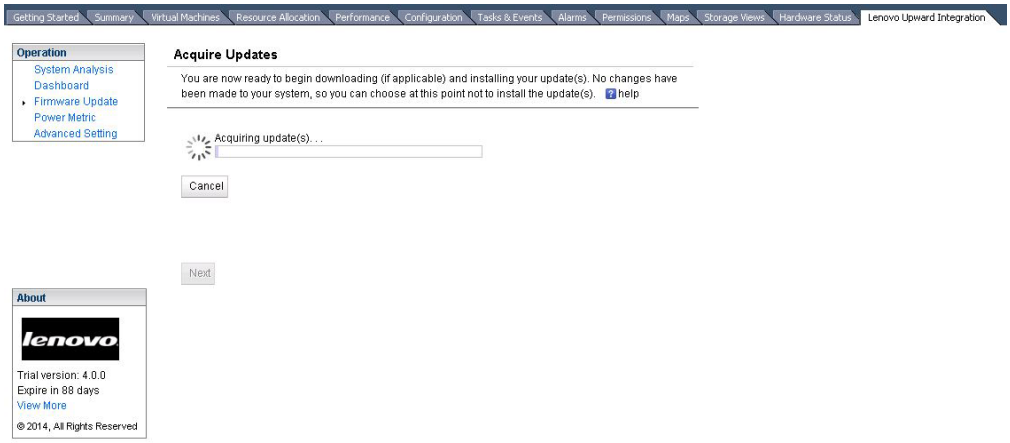


Figure 37. Acquire Updates

7. After all the selected downloads are complete, click **Next**.

   On the EXSi credentials page, enter the administrative account information of the target EXSi, and click **Next**.

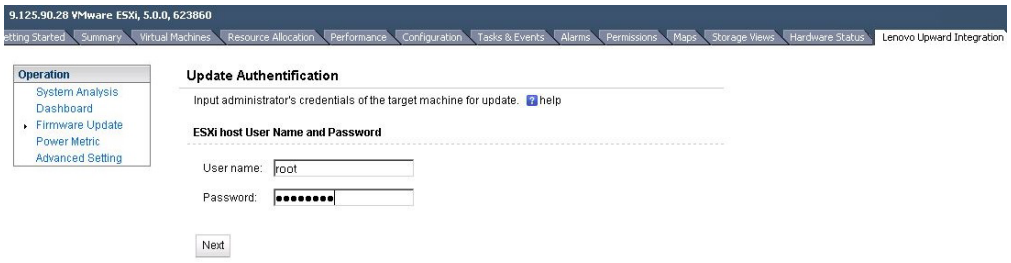


Figure 38. Update Authentication page

The Update Execution page is displayed while the updates are installing to the target host. The progress bar indicates that the installer is processing, and shows the percentage of progress completed.

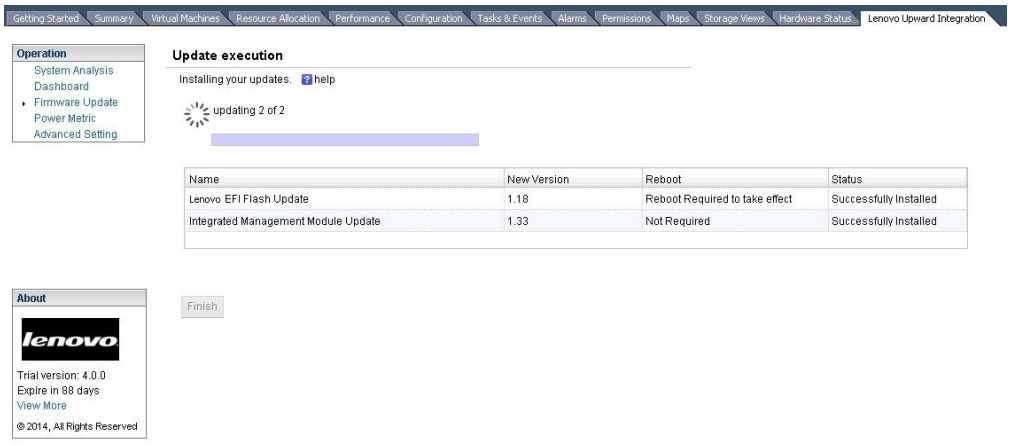


Figure 39. Update execution page

8. After the updates are applied, click **Finish** to complete the update.

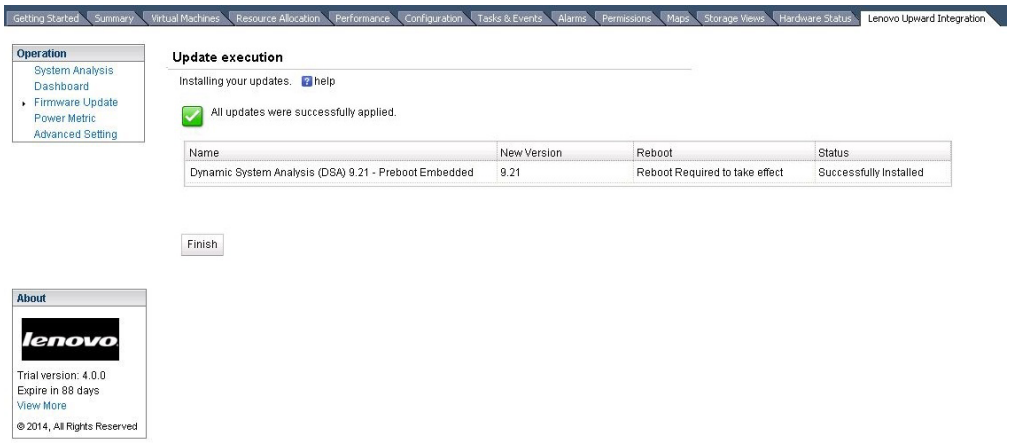


Figure 40. All updates successfully applied

Updating a remote server from a local directory

The firmware update function can update a remote EXSi host with either UXSPs or individual updates that are stored in a directory (repository) on the vCenter Server.

Procedure

1. Click **Update** in the navigation pane on the left.
2. On the Updates page, select **Look in a directory on vCenter server**. A gray text box displays the absolute path of the directory. Once the plug-in is installed, it is a fixed directory. You must save all updates there manually, before the update.
3. On the Update Type page, select the type of updates you want to acquire.
4. Click **Next**. The Update Recommendation page is displayed.
5. On the Update Recommendation page, make the required changes, and then click **Update**.
6. On the EXSi credential page, enter the administrative account information of the target EXSi host, and then click **Next**.

   The Update Execution page is displayed while updates are installed on the target host. The progress bar indicates the installer is processing, and shows the percentage of progress completed.
7. After the updates are applied, click **Finish** to complete the updates.

Working with Power Metric

Power Metric shows the power usage, thermal, and fan speed values and the trend for a managed host. This information is helpful for determining whether to reassign the workload. Power capping sets the upper limit of power work. Power throttling allows you to receive warning or critical alerts when power consumption exceeds the values you set.

Enabling and disabling Power Metric

To use the Power Metric features, enable Power Metric on a host.

The **Enable** button is visible when Power Metric is not enabled on a host. When you click **Enable**, a dialog box requiring credentials for the host is displayed. After you enter the correct credentials for the host, the monitoring of power usage begins.

You can disable the monitoring by clicking **Disable**.

Enable **Commands** on the USB Interface in uEFI by changing the uEFI settings before booting the OS.

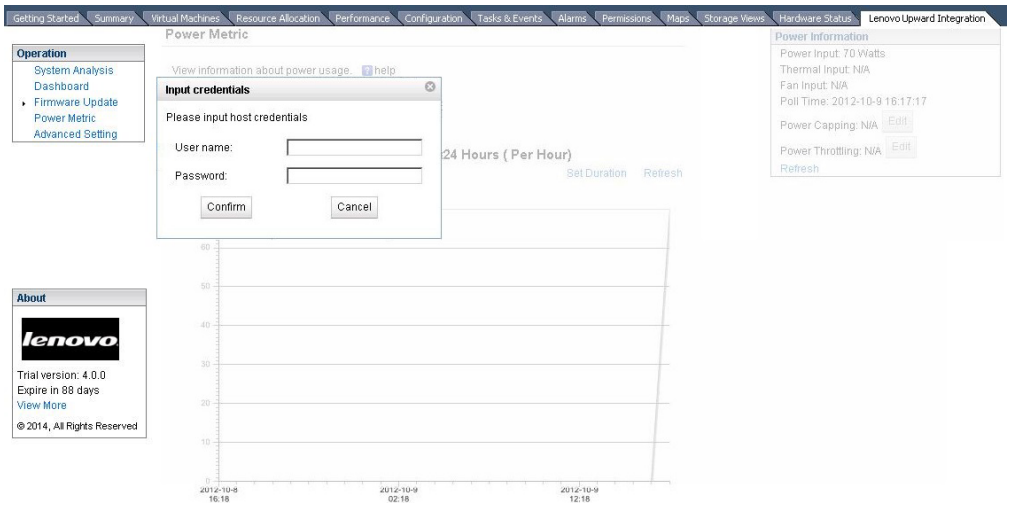


Figure 41. Enabling Power Metric

Viewing the power usage, thermal history, and fan summary

The power usage, thermal history, and fan summaries are displayed on the right pane of the page. If the host is being monitored, the current power usage, thermal history, fan summary, and time of the monitor reading are shown. Click **Refresh** to see the latest reading for the power usage, thermal history, and fan summary.

Viewing the Power Usage, Thermal History, and Fan Summary charts

The default Power Usage, Thermal History, and Fan Summary charts provide power usage information for the past 24 hours in 1-hour intervals.

You can customize the duration and intervals of the Power Usage chart. Click **Set Duration** to view the power usage history data for a different period. Select the required duration and interval.

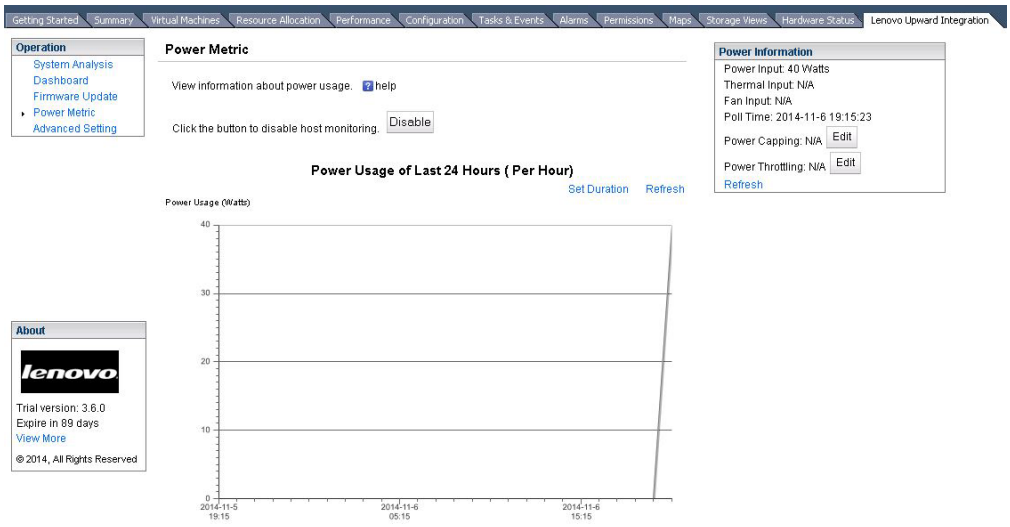


Figure 42. Power Usage Chart

The following figure provides an example of the Thermal History Chart.

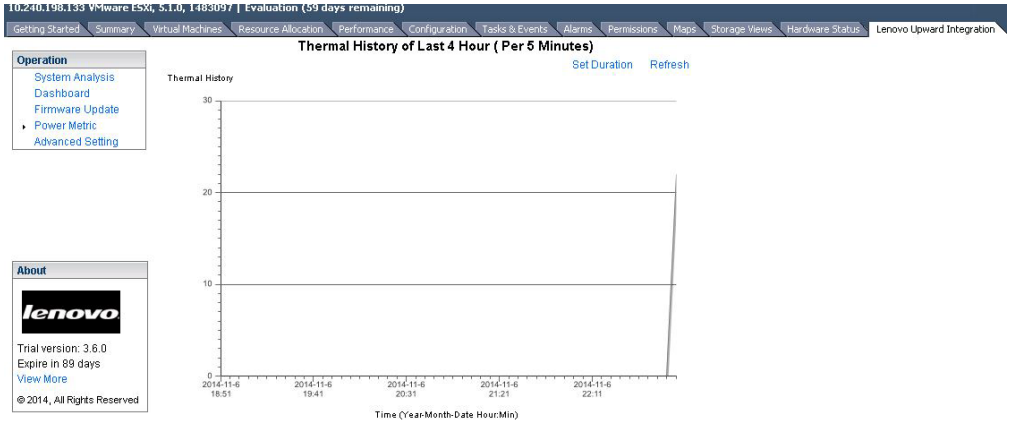


Figure 43. Thermal History Chart

The following figure provides an example of the Fan Chart.

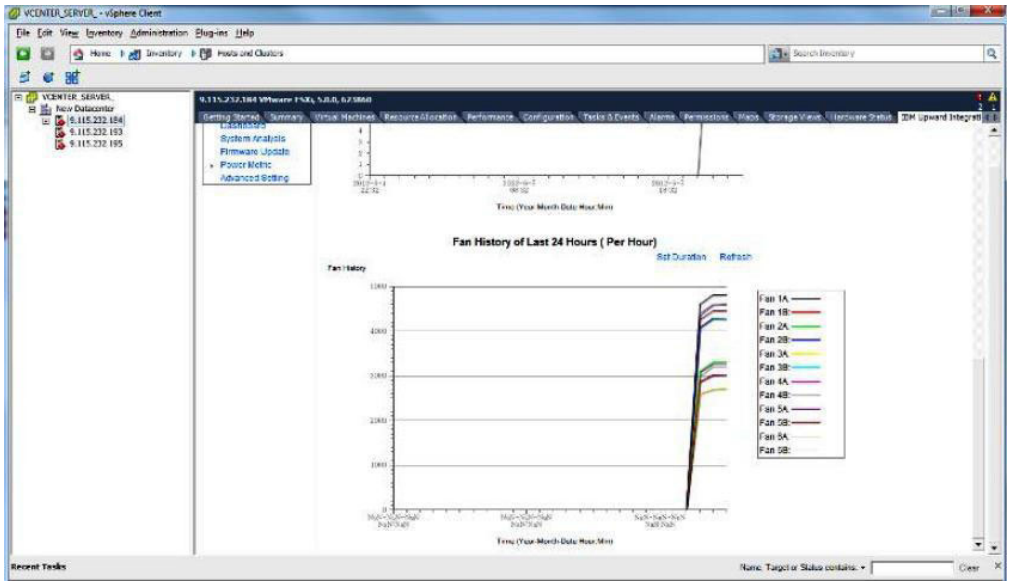


Figure 44. Fan Chart

Setting Power Capping

The Power Capping feature allows you to allocate less power and cooling to a system. This feature can help lower datacenter infrastructure costs and potentially allow more servers to be put into an existing infrastructure. By setting a power capping value, you can ensure that system power consumption stays at or below the value defined by the setting. The power capping value is the value you set for a rack or blade server that will be capped by the firmware, if the firmware supports capping. The power capping value is persistent across power cycles for both rack and blade servers.

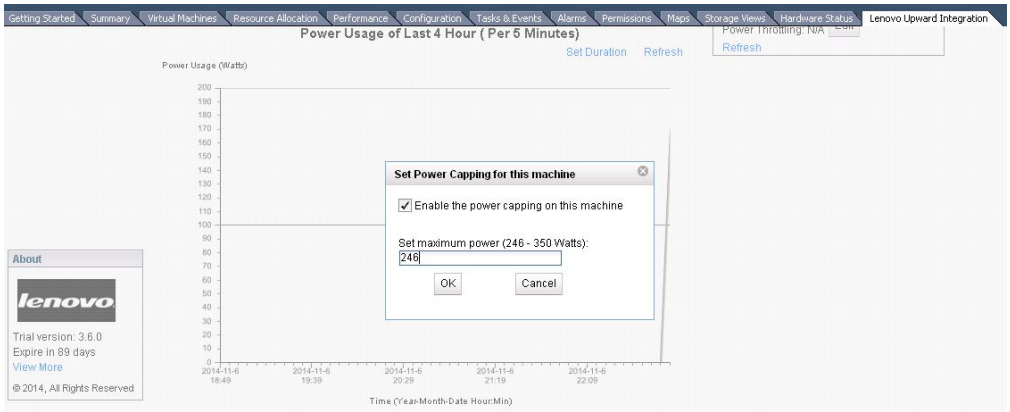


Figure 45. Setting Power Capping

Setting Power Throttling

By setting a value for Power Throttling, you can receive alerts when power consumption exceeds the value you set. You can set two Power Throttling values individually: one for a warning and one for a critical alert. When the power consumption exceeds a defined Power Throttling value, Lenovo XClarity Integrator

for VMware vCenter with vSphere Client receives a throttling event, which is then displayed in the Power Throttling Indications table.

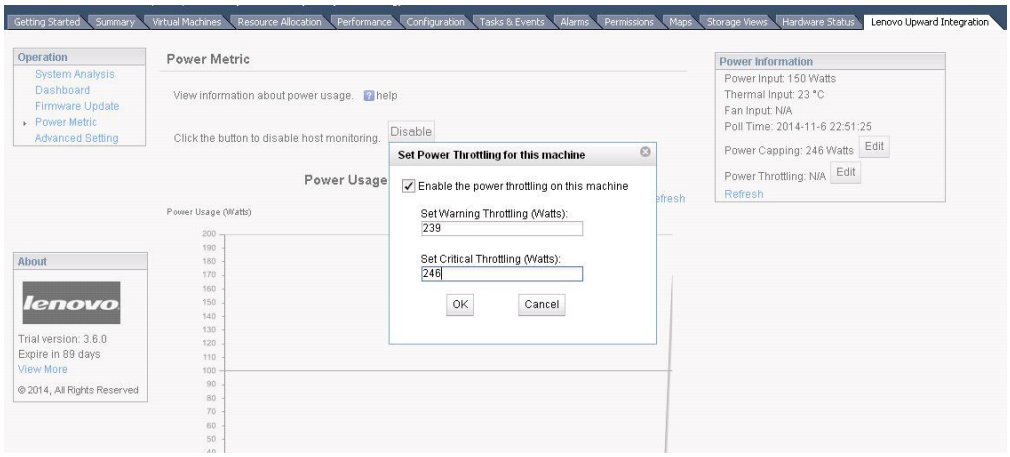


Figure 46. Set Power Throttling

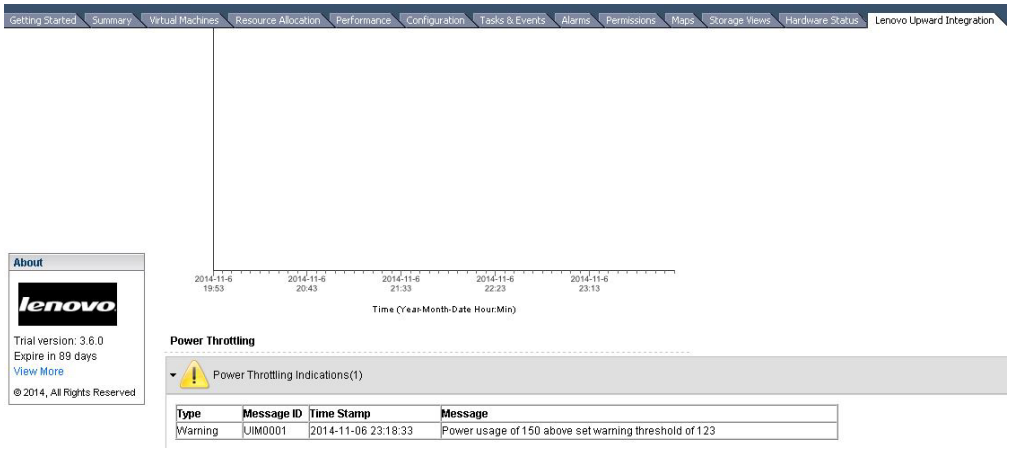


Figure 47. Power Throttling Indications

Working with Advanced System Settings

The Advanced System Settings page shows the current system settings on the host. This includes settings for IMM, uEFI, and the boot order of the host.

Viewing Advanced System Settings

This topic describes how to view Advanced System Settings on the host.

Settings are grouped into three categories represented by the following three tabs:

- IMM Settings
- uEFI Settings
- Boot Order Settings

Settings in each tab are further categorized into expandable subsections. You can easily find a setting by expanding the subsection. On the initial view, each subsection provides a description of the field functions. Scroll down to view all of the fields.

To view a setting, click to expand and display all of the settings with a subsection.

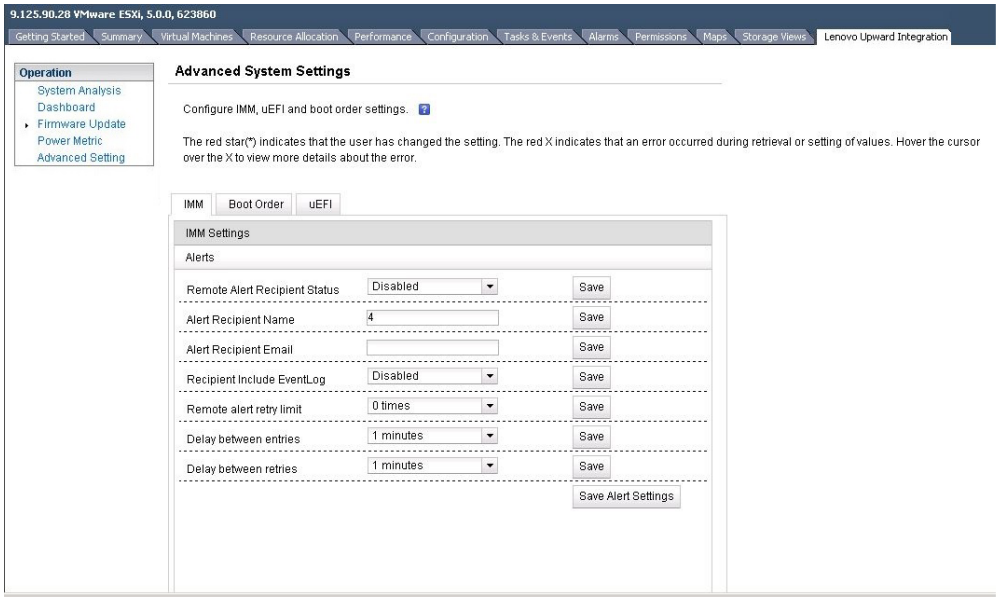


Figure 48. Viewing Advanced System Settings

Some settings, such as uEFI settings, are only supported on a certain machine type or firmware version. If your host does not support a setting, the following symbol is displayed to indicate this setting is currently not supported on your host:

Figure 49. Setting not supported symbol

Changing Advanced System Settings

This topic describes how to change Advanced System Settings on the host.

To change an Advanced System Setting, change the value to the required value, and then click **Save**. The change is executed on the endpoint, and the following symbol is displayed when complete.

Figure 50. Setting change is successful symbol

If there is a problem with the setting change, the following symbol is displayed:

Figure 51. Setting change is not successful symbol

To view detailed information about why the setting change failed, place the cursor over the symbol.

You can also click **Save xxx Settings** in each section, to save all the settings contained within that section. This will not impact settings in other sections. The setting result for each setting will show up as a single setting result. The following image provides an example of the Alert section in IMM Settings. To save all settings in the IMM section, click **Save Alert Settings**.

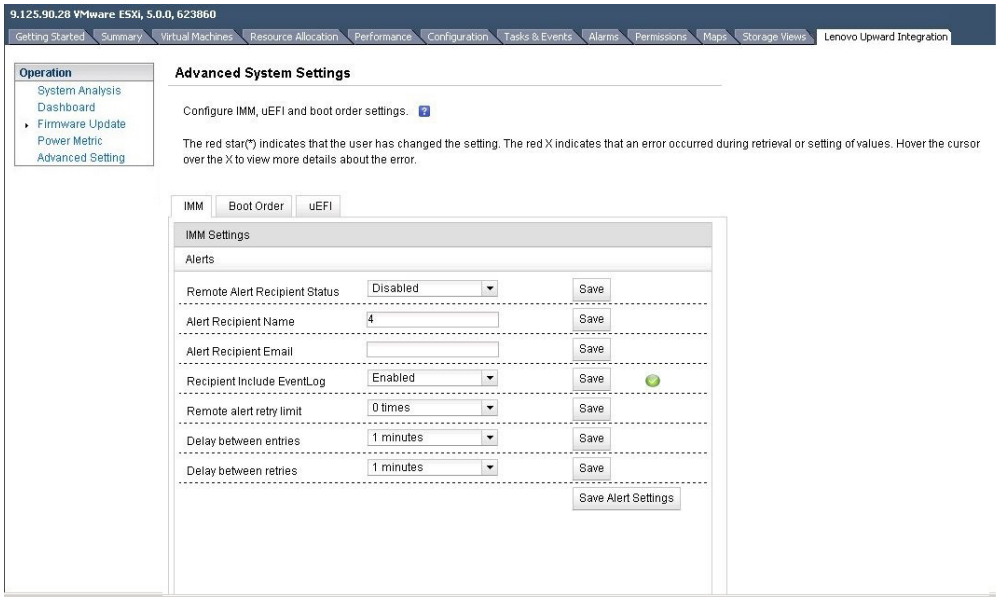


Figure 52. Changing Advanced System Settings

The following list provides an example for some of the different types of settings and how to change these settings. The manner in which each setting is changed varies.

- *text string*: Place the cursor on the text string to view the type of required input.
- *selection type*: Select the value from the list.
- *password*: Enter the password and then re-enter the password to confirm the new password. Click **Clear the password** to clear the password field.

  Note: Save and **Clear the password** are executed immediately on the managed endpoint.
- *boot order*: The left column shows the current boot order, and the right column shows the optional device. To change the order, you can move a boot order option up or down and between the two columns, by clicking the corresponding button.

Appendix A. Troubleshooting

The topics in this section will assist you with troubleshooting.

Help information

Online help is available from each page through one or more links. When you click on one of these links, online help is displayed.

Finding the version of the plug-in

This topic describes how to find the plug-in version.

1. In the vCenter interface, select **Plug-in** > **Manage Plug-in**.
2. Locate **Lenovo XClarity Integrator for VMware vCenter**. The version column displays the version of the installed plug-in.

Site certification

Each time you activate the plug-in on a host, you are asked to trust the certification of the site. Click **Yes** to trust the certification.

This also occurs the first time you access a help link. Click **Yes** to trust the certification.

First time loading page

Each time you switch to a different host and activate the plug-in, a loading page is displayed. Loading typically lasts about 1 or 2 minutes. During that time, the plug-in gathers the required host information for the managed host.

Poll Status displays N/A on Power Metric

The Poll Status represents the status of the latest poll.

About this task

If the Poll Status displays `N/A`, perform the following steps:

Procedure

1. Verify that Power Monitoring is enabled for a host. You must wait for a few minutes after Power Monitoring is enabled. The Power Monitoring windows service is started.
2. Click **Refresh** to view the latest power information.

Poll Status displays Failed on Power Metric

This topic can assist you with resolving a Poll Status that displays `Failed`.

About this task

If the Poll Status displays `Failed`, verify the following:

Procedure

1. The host is Alive.
2. The network connection betweenvCenter and the host is OK.
3. The CIM Object Manager (CIMOM) is running on the host.
4. The credentials for the host have not changed since you enabled the Power Monitoring on the host.

   If you changed the credentials for the host, you must disable and enable the Power Monitoring again to input new credentials for polling.

Acquire Ticket Failure

If an Acquire Ticket Failure is displayed on the Dashboard during a Dynamic System Analysis or during firmware update, either the vSphere Server status is incorrect or the vSphere connection to the managed EXSi endpoint is temporarily inaccessible.

Procedure

1. Wait and retry.
2. Restart the vSphere Client.
3. Restart the vCenter Server.

   Note: You must have administrator privileges to restart this server.
4. Check the network connectivity from the vCenter Server to the EXSi endpoint.

Installed version field shows Undetected in firmware updates

The **Installed version** field in the firmware update recommendation table indicates `Undetected`.

About this task

If the **Installed version** field displays `Undetected`, try restarting the IMM and EXSi host.

Connection to the plug-in

After loading the plug-in, an error message is displayed indicating `Fail to connect server` or `Unable to find the server`.

About this task

The vSphere Client uses the Internet Explorer proxy to connect to the plug-in server.

Procedure

1. Check your Internet Explorer configuration.
2. Verify that it can connect to the server where the plug-in is installed.

IMM Discovery failure

If the IMM Discovery list is not displaying correctly, the IMM discovery process has failed.

About this task

If the discovery list fails to display after clicking **Discovery**, do the following:

Procedure

1. Verify that the network connection betweenvCenter and the host is okay.
2. Try the discovery process again by clicking **Discovery**.

Cannot display the chassis map or configuration pattern because of certificate issue

This topic will assist you in fixing certification errors when displaying chassis map or configuration patterns in a registered instance of Lenovo XClarity Administrator.

About this task

If the page content is blocked by a certification error when opening the chassis map on the chassis monitor tab page, do the following:

Procedure

1. If you are using Internet Explorer, do the following:
   a. Navigate to the Lenovo XClarity Integrator Tab below the Host Manage Tab, and select the Help tab.
   b. Click the **Download Certification** link to download the certificate.
   c. Double-click the `ca.cer` file in **General** tab and click **Install Certificate..**
   d. Click **Next**.
   e. From the **Certificate Store** page, select **Place all certificates in the following store**, and click **Browse...**
   f. Select **Trusted Root Certificate Authorities**, and click **OK**.
   g. Click **Finish**.
2. Open the Chassis Monitor tab page. The chassis map or configuration pattern information should display without error.
3. If you are using FireFox, do the following:
   a. From an open browser, select **FireFox** > **Options** > **Advanced** > **Certificates** > **View Certificates** > **Servers** > **Add Exeption**
   b. Add your Lenovo XClarity Integrator Unified Service Server FQDN or IP in the **Location** field.
   c. Click **Get Certificate**.
   d. Click **Confirm Security Exception** and then refresh your browser.
4. Open the Chassis Monitor tab page. The chassis map or configuration pattern information should display without error.

Appendix B. Accessibility features

Accessibility features help users who have a physical disabilities, such as restricted mobility or limited vision, to use information technology products successfully.

Lenovo strives to provide products with usable access for everyone, regardless of age or ability.

Lenovo XClarity Integrator for VMware vCenter, Version 4.0 Installation and User's Guide supports the accessibility features of the system-management software in which they are integrated. Refer to your system management software documentation for specific information about accessibility features and keyboard navigation.

Tip: The VMware vCenter topic collection and its related publications are accessibility-enabled for the IBM Home Page Reader. You can operate all features by using the keyboard instead of the mouse.

You can view the publications for Lenovo XClarity Integrator for VMware vCenter, Version 4.0 in Adobe Portable Document Format (PDF) by using the Adobe Acrobat Reader. You can access these PDFs from the Lenovo XClarity Integrator for VMware vCenter, Version 4.0 Installation and User's Guide product site.

Lenovo and accessibility

See the Human Ability and Accessibility Center website for more information about the commitment that Lenovo has to accessibility.

Notices

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

Any reference to a Lenovo product, program, or service is not intended to state or imply that only that Lenovo product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any Lenovo intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any other product, program, or service.

Lenovo may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:

Lenovo (United States), Inc.
1009 Think Place - Building One
Morrisville, NC 27560
U.S.A.
Attention: Lenovo Director of Licensing

LENOVO PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some jurisdictions do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. Lenovo may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

The products described in this document are not intended for use in implantation or other life support applications where malfunction may result in injury or death to persons. The information contained in this document does not affect or change Lenovo product specifications or warranties. Nothing in this document shall operate as an express or implied license or indemnity under the intellectual property rights of Lenovo or third parties. All information contained in this document was obtained in specific environments and is presented as an illustration. The result obtained in other operating environments may vary.

Lenovo may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Any references in this publication to non-Lenovo Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this Lenovo product, and use of those Web sites is at your own risk.

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

Trademarks

Lenovo, the Lenovo logo, Flex System, System x, and NeXtScale System are trademarks of Lenovo in the United States, other countries, or both.

Intel and Intel Xeon are trademarks of Intel Corporation in the United States, other countries, or both.

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

Linux is a registered trademark of Linus Torvalds.

Other company, product, or service names may be trademarks or service marks of others.

Important notes

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

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

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

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

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

Index

W

Printed in USA