



Lenovo XClarity Integrator for VMware vCenter Installation and User Guide



Version 7.5.0

Note

Before using this information and the product it supports, read the information in Appendix C “Notices” on page 71.

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Contents

Figuresiii	Importing the Lenovo XClarity Integrator certificate in your Web browser	18
Tables	v	Chapter 4. Viewing a summary of your environment	21
About this publication	vii	Chapter 5. Managing servers	23
Conventions and terminologyvii	Viewing system information	23
Web resourcesvii	Launching the System Diagnostic Collection function	24
Chapter 1. Lenovo XClarity Integrator for VMware vCenter	1	Viewing server events	24
Chapter 2. Planning and installing LXCI for VMware vCenter	3	Viewing the server inventory	24
System requirements	3	Viewing the server utilization	25
Supported versions of VMware vCenter Server	3	Viewing the chassis map	26
Supported versions of Lenovo XClarity Administrator	3	Launching an Integrated Management Module Interface	29
Supported ESXi version	4	Launching Remote Control	29
Supported server models	4	Working with the hardware topology	29
Hardware requirements	6	Host hardware topology	29
Network requirements	6	Cluster hardware topology	34
Installing Lenovo XClarity Integrator for VMware vCenter	7	Launching the BMC Web interface	34
Enabling/disabling vSphere Lifecycle Manager	9	Launching the remote console	35
Implementing the high availability for Lenovo XClarity Integrator	9	Working with the Firmware Updates function	35
Upgrading Lenovo XClarity Integrator for VMware vCenter	9	Working with the Power Policy function	35
Upgrading Lenovo XClarity Integrator for VMware vCenter in VMware ESXi-based environments	10	Working with the System Settings function	36
Uninstalling Lenovo XClarity Integrator for VMware vCenter	11	Deploying a configuration pattern on a server	36
Chapter 3. Configuring Lenovo XClarity Integrator	13	Working with the Boot Options function	37
Configuring Lenovo XClarity Integrator server connection	13	Viewing and exporting system settings	38
Discovering and managing the BMC	13	Chapter 6. Managing clusters.	41
Discovering and managing the BMC directly	14	Working with the vSphere Lifecycle Manager function	41
Discovering and managing the BMC through LXCA	15	Importing base ESXi and Lenovo addons	41
Configuring Lenovo XClarity Administrator	15	Managing firmware packages	41
Downloading the Lenovo XClarity Administrator server certificate	17	Managing the cluster through an image	42
Managing trusted certificates	17	Working with the Rolling System Update function	43
Configuring access control	18	Configuring the Rolling System Update preferences	43
		Creating a Rolling System Update task	44
		Managing Rolling System Update tasks	46
		Working with the Rolling System Reboot function	47
		Managing Rolling System Reboot tasks	47
		Working with Proactive HA	50
		Enabling VMware vCenter Proactive HA with Lenovo Proactive HA Provider for a cluster	50

Adding a host to a Proactive HA enabled (with Lenovo Provider) cluster	51
Re-using Lenovo Proactive HA Provider	51
Proactive HA Heartbeat	51
Managing hardware events	51
Alarms	52

Chapter 7. Administering Lenovo XClarity Integrator 53

Configuring vCenter connections	53
Registering Lenovo XClarity Integrator to vCenter server	53
Unregistering Lenovo XClarity Integrator from vCenter server	55
Updating management server software	56
Configuring network access	56
Configuring the hostname, domain name, and DNS	57
Configuring Eth0 IP settings	57
Configuring Eth1 IP settings	58
Setting the date and time	58
Backing up, restoring, and migrating data	59
Backing up data	59
Restoring data	59
Migrating data from a Windows-based LXCI	60
Collecting service data	60
Working with security certificates	61

Generating a customized externally-signed server certificate.	61
Restoring the Lenovo XClarity Integrator-generated server certificate	62
Regenerating Certificate Authority (CA) Root	62
Downloading and installing Certificate Authority (CA) Root.	63
Downloading Server Certificate	63
Shutting down or restarting Lenovo XClarity Integrator	63

Appendix A. Troubleshooting 65

BMC Discovery failure	65
The chassis map, firmware update, or configuration pattern page is not displayed	65
Lenovo XClarity Integrator is not displayed on the vSphere Web Client after installation	65
Data displayed on Lenovo XClarity Integrator is not up to date when Lenovo XClarity Integrator is opened on Internet Explorer 11 or later versions	66
Hardware events of a host are lost when this host is managed by two vCenter clients	67

Appendix B. Accessibility features 69

Appendix C. Notices. 71

Trademarks	72
Important notes.	72

Figures

1.	Lenovo XClarity Integrator administration page	13	7.	Chassis view.	27
2.	Discovering and managing the BMC	14	8.	Hardware topology	30
3.	Registered Lenovo XClarity Administrator page	16	9.	Controller details	31
4.	System Overview page.	24	10.	Health status of PSU	32
5.	Inventory page	25	11.	Power Policy configuration page	36
6.	Utilization page.	25	12.	Configuration Pattern page	37
			13.	Boot Options pane	38
			14.	System Settings pane	39
			15.	Internet Explorer settings	67

Tables

1.	Frequently used terms and acronyms	vii	8.	Internet connection requirements	7
2.	VMware vCenter version support matrix	3	9.	Hardware map overlays	28
3.	Lenovo XClarity Administrator version support matrix	3	10.	vSAN Data Migration options	33
4.	Supported Lenovo servers	5	11.	vSAN Data Migration options	33
5.	Supported IBM servers	6	12.	Rolling System Update task status	46
6.	Hardware requirements	6	13.	Rolling System Reboot task functions	47
7.	Port requirements.	7	14.	Rolling System Reboot task status	49

About this publication

This book provides instructions for installing and using Lenovo XClarity Integrator for VMware vCenter, Version 7.5.0.

These instructions include information about how to use 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
BMC	baseboard management controller
LXCA	Lenovo XClarity Administrator
LXCI	Lenovo XClarity Integrator
PFA	predictive failure alert
UXSP	UpdateXpress System Packs

Web resources

The following Web sites provide resources for understanding, using, and troubleshooting System x, Flex System, BladeCenter servers, and systems-management tools.

Lenovo XClarity Integrator for VMware vCenter site

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

- [Lenovo XClarity Integrator for VMware Web site](#)

System Management with Lenovo XClarity Solutions

This Web site provides an overview of the Lenovo XClarity solutions that integrate System x and Flex System hardware to provide system management capability:

- [System Management with Lenovo XClarity Solution Web site](#)

Lenovo technical support portal

This Web site can assist you in locating support for hardware and software:

- [Lenovo Support Portal Web site](#)

ServerProven Web sites

The following Web sites provide an overview of hardware compatibility for BladeCenter, Flex System, System x, and xSeries[®] hardware:

- [Lenovo ServerProven: Compatibility for BladeCenter products](#)
- [Lenovo ServerProven: Compatibility for Flex System Chassis](#)
- [Lenovo ServerProven: Compatibility for System x hardware, applications, and middleware](#)

VMware Web site

This Web site can assist you in locating VMware products:

- [VMware Web site](#)

Chapter 1. Lenovo XClarity Integrator for VMware vCenter

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

Lenovo XClarity Integrator for VMware vCenter provides the following features.

Dashboard

The Dashboard provides:

- Overview of a selected host and cluster status, including a system information summary and system health messages.
- Summary information, including overall resource usage, host health messages, and connection status.
- BMC information for each host and allows you to launch the BMC console directly.

Firmware Updates

The Firmware Updates function acquires and applies Lenovo UpdateXpress System Packs (UXSPs) and individual updates to an ESXi system. The Rolling System Update function provides nondisruptive 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

Power Metric monitors and provides a summary of power usage, thermal history, and fan speed, in addition to a trend chart for the managed host. You can also set the power capping for a power-capping capable host to limit the server power usage.

Advanced Settings Utility

ASU manages the current system settings on the host, including the BMC, Unified Extensible Firmware Interface (UEFI), and boot order settings.

Predictive failure management

Predictive failure management monitors the server hardware status and receives predictive failure alerts. You can set a management policy for a server based on a predictive failure alert to either automatically evacuate virtual machines in response to predictive failure alerts to protect your workloads or notify you. Predictive failure management is manually enabled or disabled on a host.

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 RSU function provides an approach of non-disruptive firmware updates. It enables full management of firmware by leveraging dynamic virtual machine movement and automatic host restart within a defined VMware cluster without any workload interruption.

Rolling System Reboot

The Rolling System Reboot (RSR) function provides an automatic rolling restart mechanism by leveraging dynamic virtual machine movement and automatic host restart within a defined VMware cluster without any workload interruption.

Hardware topology view for ThinkAgile VX appliance servers

The hardware topology function provides an embedded graphical view for ThinkAgile VX appliance servers. It displays server layout, detailed hardware inventory, and health information, and provides guided wizard to manage the vSAN disks.

Lenovo XClarity Administrator Integration

Lenovo XClarity Integrator integrates with Lenovo XClarity Administrator to provide a convenient method of automating Lenovo server discovery, visualizing inventory map view of managed servers, configuring servers with configuration patterns, and orchestrating rolling firmware policy deployment.

vSphere Lifecycle Manager (vLCM) integration

Lenovo XClarity Integrator integrates with vSphere Lifecycle Manager (vLCM), which is introduced in vSphere 7.0, to provide a convenient method of orchestrating firmware updates through a defined cluster-wide image.

Chapter 2. Planning and installing LXCI for VMware vCenter

Use this procedure to plan for and install Lenovo XClarity Integrator for VMware vCenter.

System requirements

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

Supported versions of VMware vCenter Server

Lenovo XClarity Integrator for VMware vCenter is an extension to VMware vCenter Server.

Starting from version 6.0.0, Lenovo XClarity Integrator supports only VMware vCenter 6.5 (U2) and later versions, and can only be accessed through the vSphere HTML client. The vSphere Flex client is no longer supported.

Depending on the VMware vCenter version and the vSphere client you are using, choose the right Lenovo XClarity Integrator version according to the following matrix:

Table 2. VMware vCenter version support matrix

VMware vCenter version	Lenovo XClarity Integrator version	
	5.5.0 (Support Flex client only)	7.5.0 (Support HTML client only)
7.0 (U1, U2, U3)	X	√
6.7 (U1, U2, U3)	√	√
6.5 (U2, U3)	√	√
6.5 (U1)	√	X
6.5	√	X
6.0 and earlier versions	√	X

Notes:

- To ensure the compatibility between LXCI 7.0.0 and vCenter 6.5, you need to install LXCI 7.0.0 Fix Patch 1.
- If the version of your VMware vCenter is earlier than 6.5 (U2) or if you want to use LXCI with the vSphere Flex client, do not upgrade LXCI to version 6.0.0.

Supported versions of Lenovo XClarity Administrator

Table 3. Lenovo XClarity Administrator version support matrix

Lenovo XClarity Administrator	Lenovo XClarity Integrator version							
	5.5.0	6.2.0	7.0.0	7.1.0	7.2.0	7.3.0	7.4.0	7.5.0
3.5	X	X	X	X	X	X	X	√
3.4	X	X	X	X	X	X	√	√

Table 3. Lenovo XClarity Administrator version support matrix (continued)

Lenovo XClarity Administrator	Lenovo XClarity Integrator version							
	5.5.0	6.2.0	7.0.0	7.1.0	7.2.0	7.3.0	7.4.0	7.5.0
3.3	X	X	X	X	X	√	√	√
3.2	X	X	X	X	√	√	√	√
3.1	X	X	X	√	√	√	X	X
3.0	X	X	√	√	√	X	X	X

Supported ESXi version

Lenovo XClarity Integrator for VMware vCenter supports both Lenovo VMware vSphere Hypervisor (ESXi) custom image and VMware ESXi standard image. The following versions are supported.

- 7.0
- 6.7
- 6.5
- 6.0

You can download Lenovo customized ESXi images from the VMware product download Web site: <https://my.vmware.com/web/vmware/downloads>. Locate VMware vSphere and click the **Download Product** link. Then click the **Custom ISOs** tab to locate the Lenovo custom image for ESXi.

Supported server models

This topic provides information about supported server models for Lenovo XClarity Integrator for VMware vCenter.

The XClarity Integrator plug-in has no server model limitations. However, the hardware that the plug-in manages is limited to the Lenovo server models listed in the following table.

Table 4. Supported Lenovo servers

Series	Server models	
ThinkSystem	<ul style="list-style-type: none"> • SD530 (7X20, 7X21, 7X22) • SD630 V2 (7D1K) • SE350 (7Z46, 7D1X) • SN550 (7X16) • SN550 V2 (7Z69) • SN850 (7X15) • SR150 (7Y54) (China only) • SR158 (7Y55) • SR250 (7Y51, 7Y52) (worldwide except India) • SR250 (7Y72, 7Y73) (India only) • SR258 (7Y53) • SR530 (7X07, 7X08) • SR550 (7X03, 7X04) • SR570 (7Y02, 7X03) • SR590 (7X98, 7X99) • SR630 (7X01, 7X02) • SR630 V2 (7Z70, 7Z71) • SR635 (7Y98, 7Y99) 	<ul style="list-style-type: none"> • SR645 (7D2X, 7D2Y) • SR650 (7X05, 7X06) • SR650 V2 (7Z72, 7Z73) • SR655 (7Y00, 7Z01) • SR665 (7D2V, 7D2W) • SR670 V2 (7Z22, 7Z23) • SR850 (7X18, 7X19) • SR850 V2 (7D31, 7D32, 7D33) • SR850P (7D2F, 7D2G, 7D2H) • SR860 (7X69, 7X70) • SR860 V2 (7Z59, 7Z60, 7D42) • SR950 (7X12) • ST250 (7Y45, 7Y46) • ST258(7Y27) • ST550 (7X09, 7X10) • ST558 (7Y15, 7Y16) (China only) • ST650 V2 (7Z74, 7Z75, 7Z76)
Solutions	<ul style="list-style-type: none"> • ThinkAgile HX Series Appliance (7D20, 7D2T, 7D1Z, 7X82, 7X83, 7X84, 7Y95, 7Z08, 7Z29, 7Z44, 8689, 8693, 8695, 5462) • ThinkAgile HX Series Certified Node (7D20, 7D29, 7Y88, 7Y89, 7Y90, 7Y96, 7Z03, 7Z04, 7Z05, 7Z09, 7Z45) 	<ul style="list-style-type: none"> • ThinkAgile VX Integrated System (7D43, 7D82) • ThinkAgile VX Series Appliance (7Y11, 7Y12, 7Y13, 7Y14, 7Y91, 7Y92, 7Y93, 7Y94, 7Z13, 7Z58, 7Z62, 7Z63) • ThinkAgile VX Series Certified Node (7Y92, 7Y93, 7Y94, 7Z12, 7Z58)
System x	<ul style="list-style-type: none"> • nx360 M5 (5465) • nx360 M5 DWC (5467, 5468, 5469) • x240 Compute Node (7162, 2588) • x240 M5 Compute Node (2591, 9532) • x280, x480, x880 X6 Compute Node (7196, 4258) • x440 Compute Node (7167, 2590) • x3250 M6 (3633) 	<ul style="list-style-type: none"> • x3500 M5 (5464) • x3550 M4 (7914) • x3550 M5 (5463) • x3630 M4 (7158) • x3650 M4 (7915) • x3650 M5 (5462, 8871) • x3750 M4 (8753) • x3850 X6/x3950 X6 (6241)
Legacy ThinkServer	<ul style="list-style-type: none"> • RD350 • RD450 • RD550 • RD650 	<ul style="list-style-type: none"> • RS160 • SD350 (5493) • TD350 • TS460
<p>Notes:</p> <ul style="list-style-type: none"> • Only the following servers are supported by vSphere Lifecycle Manager: <ul style="list-style-type: none"> – Lenovo ThinkAgile VX Series Appliance – Lenovo ThinkAgile VX Series Certified Node – Lenovo ThinkAgile VX Integrated System – Lenovo ThinkSystem SE350, SR630, SR630 V2, SR650, SR650 V2, SR850P, SR950 • Only the following servers are supported for Hardware Topology: <ul style="list-style-type: none"> – ThinkAgile VX Series Appliance (7Y93, 7Y94) – Lenovo ThinkAgile VX Integrated System (7D43) • The ThinkServer servers support only inventory, monitoring, and rolling restart. 		

Table 5. Supported IBM servers

Series	Server models	
System x	<ul style="list-style-type: none"> • dx360 M2 (7321, 7323) • dx360 M3 (6391) • dx360 M4 (7912, 7913, 7918, 7919) • HS22 (7870, 7809, 1911, 1936) • HS22V (7871, 1949) • HS23 (7875, 1882, 1929) • HS23E (8038, 8039) • HX5 (7872, 7873, 1909, 1910) • nx360 M4 (5455) • Smart Analytics System (7949) • x220 Compute Node (7906, 2585) • x222 Compute Node (7916) • x240 Compute Node (8956, 8737, 8738, 7863) • x280 X6 Compute Node/x480 X6 Compute Node/x880 Compute Node X6 (4259, 7903) • x440 Compute Node (7917) • x3100 M4 (2582, 2586) • 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) 	<ul style="list-style-type: none"> • 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) • 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)
<p>Notes:</p> <ul style="list-style-type: none"> • Firmware updates are not supported on IBM servers. • Lenovo customized ESXi 6.5 or later is not supported on IBM servers. • System x3250 M4 (2583) supports only partial functions in the Dashboard and Lenovo Dynamic System Analysis. Update, power, and system configuration functions are not supported. 		

Hardware requirements

The following table lists minimum and recommended hardware requirements for Lenovo XClarity Integrator for VMware vCenter.

Table 6. Hardware requirements

Component	Minimum	Recommended
Memory	4 GB RAM	8 GB RAM
Disk space	64GB of free hard disk space	128 GB of free hard disk space
Processor	1 processor	2 processors

Note: The Lenovo XClarity Integrator for VMware vCenter virtual appliance is pre-configured with minimum hardware configuration by default.

Network requirements

This section provides the network requirements, including the port and firewall requirements.

Port availability

The following ports are required in LXCI for VMware vCenter.

Table 7. Port requirements

Port number	Protocol	Purpose
443	HTTPS	<p>Lenovo XClarity Integrator service port;</p> <p>Lenovo XClarity Integrator communicates with VMware vCenter over this port;</p> <p>Lenovo XClarity Integrator downloads firmware from the Lenovo Web site over this port;</p> <p>Lenovo XClarity Integrator communicates with Lenovo XClarity Administrator over this port.</p> <p>Lenovo XClarity Integrator communicates with BMC over this port for inventory and configuration.</p>
5989	HTTPS	Lenovo XClarity Integrator communicates with the remote ESXi CIMOM and with the BMC over this port.
5988	HTTP	Lenovo XClarity Integrator communicates with the BMC over this port.
427	UDP	Lenovo XClarity Integrator discovers the BMC over this port.
6990	TCP	The BMC downloads the firmware package from Lenovo XClarity Integrator over this port.

Firewall

Downloading management server updates and firmware updates requires Internet access. Configure the firewall (if any) in your network to enable LXCI management server to perform these operations. If the management server does not have direct access to the Internet, configure LXCI to use a proxy server.

Ensure that the following DNS and ports are available on the firewall.

Table 8. Internet connection requirements

DNS name	Ports	Protocols
datacentersupport.lenovo.com	443 and 80	https
download.lenovo.com	443 and 80	https
filedownload.lenovo.com	443 and 80	https
support.lenovo.com	443 and 80	https and http
supportapi.lenovo.com	443 and 80	https

Installing Lenovo XClarity Integrator for VMware vCenter

This section describes how to install the Lenovo XClarity Integrator for VMware vCenter virtual appliance.

Note: The Lenovo XClarity Integrator for VMware vCenter virtual appliance can only be installed in VMware ESXi-based environment.

Before you begin

Before installing, ensure that:

- The ESXi host has enough free disk space and memory for the Lenovo XClarity Integrator for VMware vCenter virtual appliance.

- The network is set up to use DHCP or a static IP address.

Procedure

Complete the following steps to install the Lenovo XClarity Integrator for VMware vCenter virtual appliance on an ESXi host from the vSphere Web Client.

- Step 1. Log in to the vSphere Web client.
- Step 2. Right click the target ESXi host and select **Deploy OVF Template**. The Deploy OVF Template wizard is displayed.
- Step 3. On the **Select an OVF template** page, select **URL** or **Local file** as the source location. For the local file, click **Choose Files**, input the OVF file location, and click **Next**.
- Step 4. On the **Select a name and folder** page, input a unique name and a target location for the virtual machine and click **Next**.
- Step 5. On the **Select a computer resource** page, select the destination computer resource and click **Next**.
- Step 6. On the **Review details** page, confirm the details and click **Next**.
- Step 7. On the **Select storage** page, select storage for the configuration and disk files and click **Next**.
- Step 8. On the **Select networks** page, select the network for your virtual server and click **Next**.

Note: Skip the settings displayed in the **IP Allocation Settings** section. You will configure the IP allocation settings in the next step.

- Step 9. On the **Customize template** page, configure the network configurations and click **Next**.
- Step 10. On the **Ready to Complete** page, check the details and click **Finish**.
- Step 11. Turn on the virtual machine. When the virtual machine is turned on, URL for accessing the Lenovo XClarity Integrator appliance administration page is displayed on the VM console.

For example, the following diagram prompts the URL for managing the appliance:

```
-----
Lenovo XClarity Integrator - Version x.x.x build xxx
-----
```

```
Manage the appliance from: https://192.0.2.10/admin
```

```
eth0    Link encap:Ethernet  HWaddr 2001:db8:65:12:34:56
        inet addr: 192.0.2.10  Bcast 192.0.2.55  Mask 255.255.255.0
        inet6 addr: 2001:db8:ffff:ffff:ffff:ffff:ffff:ffff/64 Scope:Global
        inet6 addr: 2001:db8:56ff:fe80:bea3/64 Scope:Link
```

- Step 12. Go to the Lenovo XClarity Integrator appliance administration page. For example: <https://192.0.2.10/admin>
- Step 13. Do the following after a wizard is displayed:
 - a. Read and accept the license agreement, and click **Next**.
 - b. On the **Network Setting** page, configure the network settings based on your needs by following the steps in “Configuring network access” on page 56, and click **Next**.
 - c. On the **Account Configuration** page, set an administrator account for logging in to the Lenovo XClarity Integrator appliance administration page, and click **Submit**.
- Step 14. On the **Lenovo XClarity Integrator appliance administration** login page, input the administrator account created in the wizard, and click **Login**. The **vCenter Connection** page is displayed.
- Step 15. On the **vCenter Connection** page, click **Register** to register Lenovo XClarity Integrator to the vCenter servers. For more information, refer to “Configuring vCenter connections” on page 53.
- Step 16. Restart the vSphere Client service.

Enabling/disabling vSphere Lifecycle Manager

LXCI acts as the hardware support manager for vSphere Lifecycle Manager (vLCM), and enables vLCM to manage Lenovo ESXi servers with a cluster-wide image consisting of base ESXi, Lenovo drivers add-on, and a firmware add-on.

Before you begin

Ensure that your server is supported. For more information about the supported machine types, refer to Table 4 “Supported Lenovo servers” on page 5.

Procedure

You can enable or disable LXCI as the hardware support manager for vLCM.

On the **vCenter Connection** page, click **Disable** or **Enable** on the **vSphere Lifecycle Manager** column to change the vLCM status for the required server.

For more information about managing firmware updates through vLCM, refer to “Working with the vSphere Lifecycle Manager function” on page 41.

What to do next

Log in and configure Lenovo XClarity Integrator for VMware vCenter (see Chapter 3 “Configuring Lenovo XClarity Integrator” on page 13).

Implementing the high availability for Lenovo XClarity Integrator

To implement the high availability for Lenovo XClarity Integrator, use the vSphere High Availability (HA) function in the ESXi environment. Lenovo XClarity Integrator will be restarted on the alternate host when failing to run on the ESXi host.

Before you begin

Ensure that the vSphere HA Cluster is available. For more information about creating the vSphere HA Cluster, see [Creating a vSphere HA Cluster](#).

Procedure

Complete the following steps to implement the high availability for Lenovo XClarity Integrator:

- Step 1. Deploy Lenovo XClarity Integrator in a vSphere HA cluster.
- Step 2. Select **Restart VMs**, and configure the host failure responses based on the steps in [Respond to Host Failure](#).
- Step 3. Enable VM monitoring based on the steps in [Enable VM Monitoring](#).

Upgrading Lenovo XClarity Integrator for VMware vCenter

You can upgrade Lenovo XClarity Integrator for VMware vCenter when it is already installed in VMware ESXi-based environments.

Upgrading Lenovo XClarity Integrator for VMware vCenter in VMware ESXi-based environments

This section describes how to update Lenovo XClarity Integrator virtual appliance when it is already installed in an ESXi-based environment.

Before you begin

To perform update, first you need to get the update package. Typically, the update package contains four files:

- **.chg file.** Change history file
- **.tgz file.** Update payload
- **.txt file.** Readme file of the specific update package
- **.xml file.** Metadata about the update

Note: If you are using Lenovo XClarity Integrator v5.0.2 or v5.1.0, you must apply the fix patch `lnvgy_sw_lxci_upload_fixpatch_1.0.0_anyos_noarch` before applying the update package. Perform steps 2 - 7 in the following procedure to apply the fix patch. Two messages are displayed with information about plug-in registration; ignore this message. You can download the patch from the [Lenovo XClarity Integrator for VMware Web site](#).

Procedure

- Step 1. De-register Lenovo XClarity Integrator from VMware vCenter.
- Step 2. From the Lenovo XClarity Integrator Web interface, click **Version and upgrade** on the left panel of the page.
- Step 3. Click **Import**. The Import dialog is displayed.
- Step 4. Click **Browse**, and select the files that you want to import. Ensure that you select all four files (.txt, .chg, .xml and .tgz). and then click **Open**. The selected files are listed in the Import dialog.
- Step 5. Click **Import** to import the selected files.

Notes:

- The import process might take several minutes or hours depending on the size of the update package and underlying network. Ensure that the network is connected and wait until the progress bar finishes and the dialog closes.
- If an Invalid session error is displayed, the session expired. Log out of the Lenovo XClarity Integrator Web interface, log in again, and then try the import operation again. Consider placing the update package in a faster network.

- Step 6. After the update package is imported, choose the update package in the table and click **Perform Update**. A prompt dialog is displayed. Read the information carefully

Notes:

- Lenovo XClarity Integrator might be restarted to complete the update process. If it is restarted, this configuration connection and all other active jobs are stopped.
- You can monitor the update progress from the virtual appliance's console in vSphere client or vCenter Web client.

- Step 7. When the appliance's console is opened, click **OK** and the update request will be sent to the server. The update progress message is shown on the console. If you see update finished and there are no errors on console, the update is successful.

Manage the appliance from: <https://10.240.197.36/admin>

eth0 Link encap:Ethernet HWaddr 00:0c:29:4a:d4:5e

```
inet addr:10.240.197.36 Bcast:10.240.199.25 Mask:255.255.255.0
inet6 addr: 2002:96b:c2bb:830:20c:29ff:fe34:d34e/64 Scope:Global
inet6 addr: fe80:20c:39ff:fe3a:d9/64 Scope:Link
```

```
lxc login: starting to extract update package
extract update package finished
=====Fri Feb 10 17:32:33 CST 2017=====
start to update...
Preparing... #####
uus      warning: /etc/lighttpd.conf saved as /etc/lighttpd.conf.rpmsave
#####
Stopping uusservd
Starting uusservd
Database record of identificationCode:lnvgv_sw_lxcu_upatch1.0.0_anyos_noarch
changed to applied successfully
update finished...
```

Step 8. Register Lenovo XClarity Integrator to VMware vCenter.

Step 9. From the vCenter server, remove the `com.lenovo.lxcu-*.*` directory under `/etc/vmware/vsphere-ui/vc-packages/vsphere-client-serenity/`.

Notes:

- If you are upgrading Lenovo XClarity Integrator from v5.5.0 or earlier to v6.0.0 or later, the directory is under `/etc/vmware/vsphere-client/vc-packages/vsphere-client-serenity/`.
- Depending on the vCenter server version, the `/etc/vmware` path might vary.

Step 10. Restart the vSphere Client service.

Uninstalling Lenovo XClarity Integrator for VMware vCenter

This section describes how to uninstall Lenovo XClarity Integrator for VMware vCenter.

Procedure

Complete these steps to uninstall Lenovo XClarity Integrator for VMware vCenter.

1. Log in to the **Lenovo XClarity Integrator appliance administration** page.
2. Create a backup of the appliance. For more information, see “Backing up data” on page 59.
3. Deregister the plug-in from the vCenter. For more information, see “Configuring vCenter connections” on page 53.
4. Turn off the appliance from the vSphere Web Client and delete it from the inventory.
5. Stop the vSphere Web Client service.
6. From the vCenter server, remove the `com.lenovo.lxcu-*.*` directory under `/etc/vmware/vsphere-ui/vc-packages/vsphere-client-serenity/`.

Note: Depending on the vCenter server version, the `/etc/vmware` path might vary.

7. Start the vSphere Web Client service.

Chapter 3. Configuring Lenovo XClarity Integrator

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

Configuring Lenovo XClarity Integrator server connection

Before you use Lenovo XClarity Integrator within the vSphere client, you must configure access to the Lenovo XClarity Integrator server.

Procedure

Step 1. From the vSphere Client Web page, click the **Menu** drop-down list box on the top, and select **Lenovo XClarity Integrator**. The Lenovo XClarity Integrator administration page is displayed.

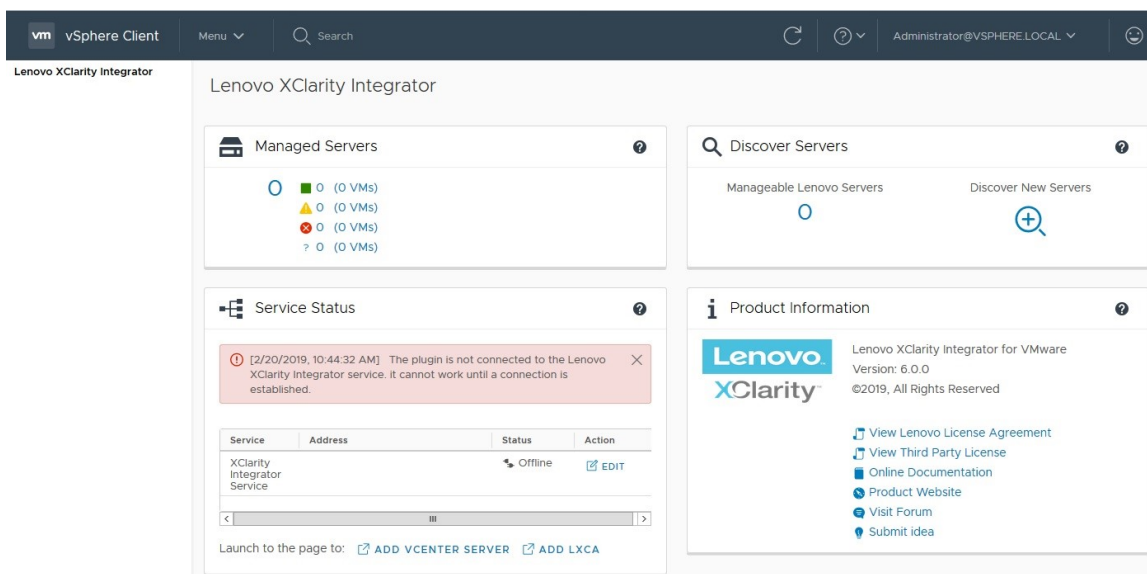


Figure 1. Lenovo XClarity Integrator administration page

Step 2. In the **Service Status** section, locate **XClarity Integrator Service**, and click **EDIT**.

Step 3. Input values for the following parameters.

- **Host:** IP address or hostname of Lenovo XClarity Integrator virtual appliance.
- **User name and password:** credentials that you created when you deployed Lenovo XClarity Integrator.

Step 4. Click **OK** to display the connection status.

Note: If you change the host address or credentials of the Lenovo XClarity Integrator server, the plug-in disconnects with the Lenovo XClarity Integrator server. To resolve this issue, click **Edit Connection** and input a new IP address or new credentials.

Discovering and managing the BMC

You can use Lenovo XClarity Integrator to discover the BMC and associate the BMC to the ESXi host, so as to enable out-of-band (OOB) management for your servers in the vSphere environment.

Lenovo XClarity Integrator supports two ways to discover and manage the BMC:

- Discover and manage the BMC directly

Notes: This is not applicable to the following servers:

- ThinkServer servers
- ThinkSystem SR635
- ThinkSystem SR655

- Discover and manage the BMC through Lenovo XClarity Administrator

Note: For the ThinkSystem servers, the CIM service is disabled by default. Depending on the firmware level, LXCI might enable the CIM service to manage the server.

Discovering and managing the BMC directly

You can discover and manage the BMC directly by providing the BMC address and credential.

Procedure

To discover and manage the BMC directly, complete the following steps:

- Step 1. From the vSphere Client Web page, click the **Menu** drop-down list box on the top, and select **Lenovo XClarity Integrator**. The Lenovo XClarity Integrator administration page is displayed.
- Step 2. In the **Discover servers** section, click **Discover New Servers**. The server discover page is displayed.

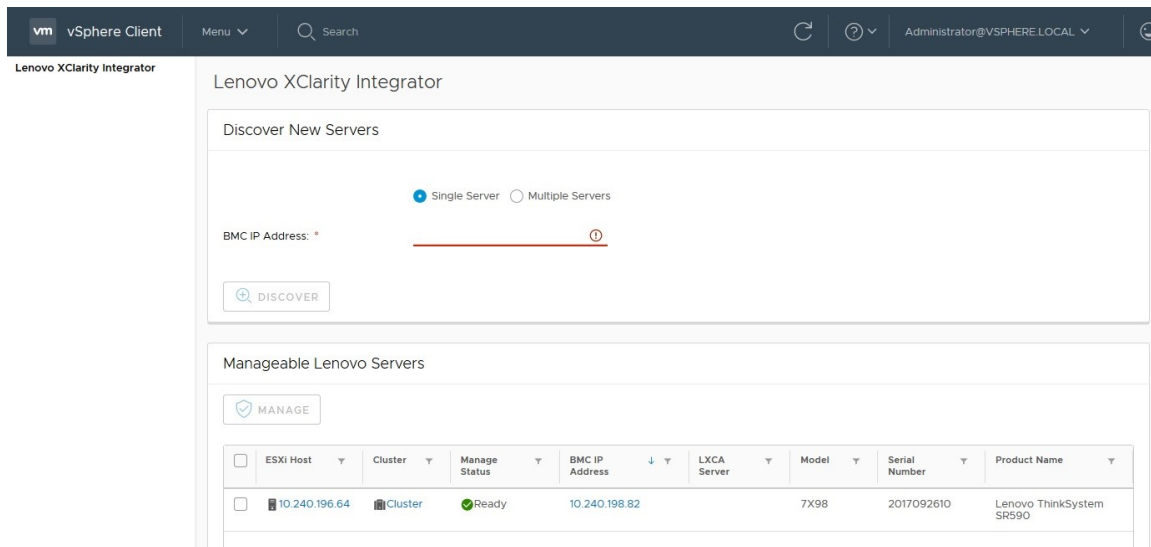


Figure 2. Discovering and managing the BMC

Note: All vCenter-managed ESXi hosts that can be managed but have not been managed by Lenovo XClarity Integrator are listed in the **Manageable Lenovo Servers** section. For the host whose BMC has not been discovered by Lenovo XClarity Integrator, the management status of this host is displayed as “Not Ready” in the **Manage Status** column.

- Step 3. In the **Discover New Servers** section, input a single BMC IP address or an IP address range for multiple servers.

Note: It is recommended that an IP address range contains less than 60 IP addresses.

Step 4. Click **Discover**.

If one BMC is discovered and can be associated with one ESXi host, the BMC IP address will be displayed in the **BMC IP Address** column in the **Manageable Lenovo Servers** table, and the management status of the ESXi host will be changed to “Ready” in the **Manage Status** column.

Step 5. Select the server that you want to manage.

Only the servers that the management status is “Ready” are selectable. You can select multiple servers if they use the same BMC credential.

Step 6. Click **Manage**. A dialog box is displayed, requesting the BMC credential.

Step 7. Input the BMC user name and password and then click **OK**.

If the server is managed successfully, a success message is displayed. The management status of the server is changed to “Managing” in the **Manage Status** column and the server is displayed in the **Managed Servers** section.

Discovering and managing the BMC through LXCA

If Lenovo XClarity Administrator is available in your environment, and ESXi servers have already been managed by Lenovo XClarity Administrator, you do not need to discover or manage the servers in Lenovo XClarity Integrator. You can just register the Lenovo XClarity Administrator to Lenovo XClarity Integrator, and Lenovo XClarity Integrator will discover and manage BMC automatically through Lenovo XClarity Administrator. See “Configuring Lenovo XClarity Administrator” on page 15 on how to register Lenovo XClarity Administrator.

Note: When registering Lenovo XClarity Administrator to Lenovo XClarity Integrator, ensure that the LXCA account has the privilege to manage all the servers that you want to manage with Lenovo XClarity Integrator.

Configuring Lenovo XClarity Administrator

Lenovo XClarity Integrator provides an integrated method for managing your servers together with Lenovo XClarity Administrator. After Lenovo XClarity Administrator is registered in Lenovo XClarity Integrator, Lenovo XClarity Integrator can discover and manage servers automatically, and you can manage servers in vSphere Web Client by using Lenovo XClarity Administrator functions, such as chassis map, configuration pattern, and firmware policy deployment.

Before you begin

Before you register Lenovo XClarity Administrator to Lenovo XClarity Integrator, ensure the following:

- Lenovo XClarity Administrator is working in your environment.
- You have the *LenovoXClarityIntegrator.Administration* privileges.

Procedure

Step 1. On the vSphere Client Web page, click the **Menu** drop-down list box on the top, and select **Lenovo XClarity Integrator**. The Lenovo XClarity Integrator administration page is displayed.

Step 2. In the **Service Status** section, click **ADD LXCA**. The **Registered Lenovo XClarity Administrator** page is displayed.

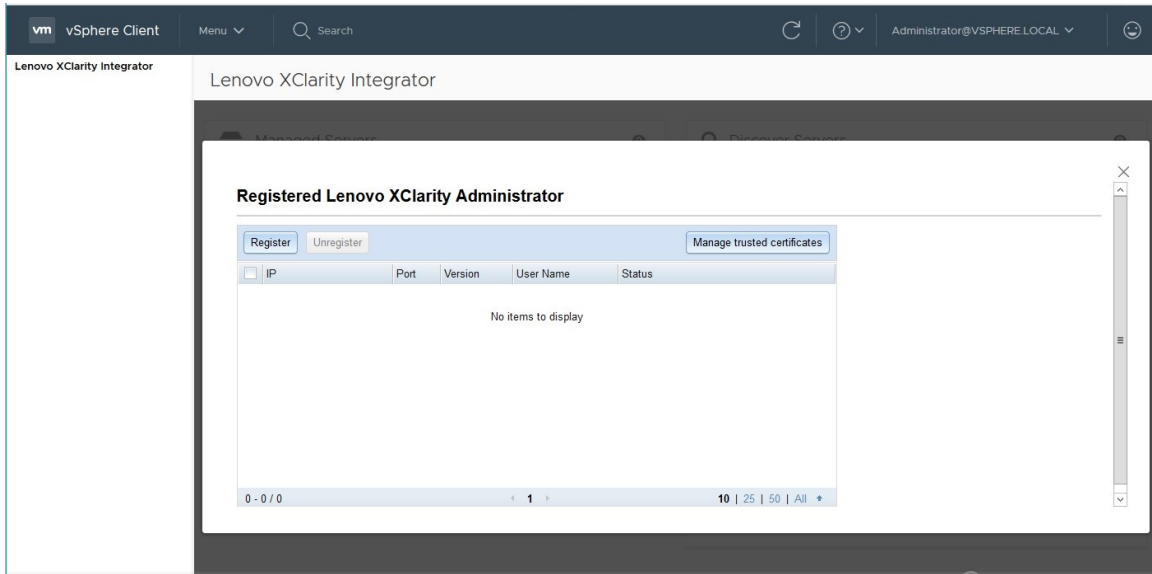


Figure 3. Registered Lenovo XClarity Administrator page

Step 3. Click **Register**. The Lenovo XClarity Administrator registration page is displayed.

Step 4. Input the hostname or the IP address of Lenovo XClarity Administrator, and do one of the following based on your needs:

- Select the **Use an existing account** check box, input the user name and the password, and click **OK**.

Notes: Ensure that:

- This account has the “lxc-supervisor” role group or the combined role groups “lxc-operator, lxc-fw-admin, lxc-hw-admin, and lxc-os-admin”.
- If Resource Access Control is enabled on XClarity Administrator, this account can access the servers .

- Select the **Create a new account by connecting with this administrative account** check box, input the user name and the password, and click **OK**.

Notes:

- Ensure that the new account has role groups “lxc-operator, lxc-fw-admin, lxc-hw-admin, and lxc-os-admin”.
- If Resource Access Control is enabled on XClarity Administrator, ensure that this account can access the servers.
- If LDAP is used in XClarity Administrator or the local account is disabled, do not choose this option.

Step 5. If the **View Certificate** page is displayed, click **Trust this certificate** to confirm that Lenovo XClarity Administrator is trusted.

After the registration is completed, Lenovo XClarity Administrator is displayed on the LXCA Management page.

Notes:

- If Lenovo XClarity Administrator runs in only an IPv6 environment, manually download the server certificate for the Lenovo XClarity Administrator instance, and import it in to Lenovo XClarity Integrator by

clicking **Manage trusted certificates** → **Add**; otherwise, Lenovo XClarity Administrator cannot be registered.

- If you have registered a Lenovo XClarity Administrator instance in Lenovo XClarity Integrator with the version v4.1.0 or earlier, manually download the server certificate for the Lenovo XClarity Administrator instance, and import it in to Lenovo XClarity Integrator by clicking **Manage trusted certificates** → **Add**. If the server certificate is not added to Lenovo XClarity Integrator, Lenovo XClarity Integrator cannot connect to Lenovo XClarity Administrator. You can also choose to un-register and then re-register the Lenovo XClarity Administrator to view and accept the server certificate instead.

What to do next

After completing the registration, you can perform these actions:

- Unregister Lenovo XClarity Administrator by clicking **Unregister**.
- Manage trusted certificates by clicking **Manage trusted certificates**.

Downloading the Lenovo XClarity Administrator server certificate

You can download a copy of the current Lenovo XClarity Administrator server certificate, in PEM format, to your local system.

Procedure

Complete the following steps to download the server certificate.

Step 1. Log in to Lenovo XClarity Administrator.

Step 2. From the Lenovo XClarity Administrator menu bar, click **Administration** → **Security** to display the Security page.

Step 3. Click **Server Certificate** under the **Certificate Management** section. The **Server Certificate** page is displayed.

Step 4. Click the **Download Certificate** tab.

Step 5. Click **Download Certificate**. The Server Certificate dialog is displayed.

Step 6. Click **Save to pem** to save the server certificate as a PEM file on your local system.

Note: DER format is not supported.

Managing trusted certificates

Lenovo XClarity Integrator provides an integrated method for managing the trusted Lenovo XClarity Administrator certificates.

Procedure

From the Lenovo XClarity Integrator Administration page, click **Manage trusted certificates** to display the **Trusted Certificates** page. From this page you can perform the following actions:

- Manually add a trusted Lenovo XClarity Administrator certificate by clicking **Add**.
- View detail information for of a trusted certificate by clicking **View**.
- Delete a trusted certificate by clicking **Delete**.
- Update the trusted certificates list by clicking **Refresh**.
- Return to the Lenovo XClarity Integrator Administration page. by clicking **LXCA Registration**.

Configuring access control

Lenovo XClarity Integrator supports role-based access.

The following four privileges are defined to control access for different functions:

Privilege	Authorized functions
Inventory	<ul style="list-style-type: none">• View the host inventory, events, and utilization information• Launch the BMC interface
Firmware update	Update the firmware
Configuration	Configure system settings and launch the KVM
Administration	Access the LXCI administration page: <ul style="list-style-type: none">• Edit the LXCI/vCenter connection• Add the LXCA connection• Discover and manage a server• Disable management over a server

By default, the vCenter administrator role has all privileges defined by Lenovo XClarity Integrator. The vCenter administrator can grant these privileges to other vCenter users if needed.

Importing the Lenovo XClarity Integrator certificate in your Web browser

If the certificate that Lenovo XClarity Integrator uses is not signed by a trusted third party, the display page will be blocked when you use some functions such as firmware update, chassis map, and system settings. In this case, you need to download Lenovo XClarity Integrator root certificate and import it into your Web browser's list of trusted certificates or add it into security exceptions depending on the browser you are using.

Procedure

- For Internet Explorer and Chrome:
 1. Log in to the Lenovo XClarity Integrator appliance administration page.
 2. Click **Security Settings**, and then click **Certificate Authority**.
 3. Click **Download Certification Authority Root Certificate** to download the certificate.
 4. Double-click the downloaded.ca.cer file.
 5. In the **General** tab, click **Install Certificate**.
 6. Choose **Local Machine** and click **Next**.
 7. From the **Certificate Store** page, select **Place all certificates in the following store**, and click **Browse**.
 8. Select **Trusted Root Certificate Authorities**, and click **OK**.
 9. Click **Finish**.
 10. For the Internet Explorer, close the browser and open it again to make the changes to take effect.
- For Firefox:
 1. In an open browser, click **Firefox** → **Options** → **Privacy&Security** → **Certificates** → **View Certificates** → **Servers** → **Add Exception**.

2. In the **Location** field, enter the fully qualified domain name or the IP address of the host on which you installed Lenovo XClarity Integrator.
3. Click **Get Certificate**.
4. Click **Confirm Security Exception**, and then refresh your browser.

Chapter 4. Viewing a summary of your environment

This section is an introduction of the Lenovo XClarity Integrator dashboard. The Lenovo XClarity Integrator dashboard provides an overview of managed servers, manageable servers, service status, and product information

Procedure

To enter the Lenovo XClarity Integrator dashboard, complete the following steps:

1. From the vSphere Client Web page, click the **Menu** drop-down list box on the top.
2. Select **Lenovo XClarity Integrator**. The Lenovo XClarity Integrator administration page is displayed.

You can select one of the following four sections on the dashboard based on your needs:

- **Discover Servers**. Refer to “Discover Servers section” on page 21.
- **Managed Servers**. Refer to “Managed Servers section” on page 21.
- **Service Status**. Refer to “Service Status section” on page 22.
- **Product Information**. Refer to “Product Information section” on page 22.

Discover Servers section

This section enables you to view the amount of manageable Lenovo servers. You can click **Manageable Lenovo Servers** or **Discover New Servers** to enter the detailed operation pane to perform operations, such as discovering and managing servers.

The **Manageable Lenovo Servers** section provides a table listing the following details of the manageable servers.

- ESXi host
- Cluster
- Manage Status
- BMC IP Address
- LXCA Server
- Model
- Serial Number
- Product Name
- vCenter

Managed Servers section

This section enables you to view the amount of managed Lenovo servers and the amount of virtual machines on these servers grouped by server status. You can click the amount information to enter the **Managed Servers** operation pane.

The **Managed Servers** operation pane provides a table listing the following details of the manageable servers.

- ESXi host
- Cluster
- Status
- Power
- BMC IP Address
- LXCA Server
- Model
- Serial Number

- vCenter

Do one of the followings based on your needs:

- To refresh the inventory information of a managed server, click the **REFRESH INVENTORY** button.
- To update the BMC user name and password of a managed server as required, click the **EDIT CREDENTIALS** button.
- To disable management over a managed server, click the **UNMANAGE** button.

Note: All Lenovo XClarity Integrator functions for this server will be disabled and this server will be displayed in the **Manageable Lenovo Servers** section.

Service Status section

This section displays the status of services that Lenovo XClarity Integrator provides.

Three types of services are available on this section:

- XClarity Integrator Service

It shows the IP address and status of the Lenovo XClarity Integrator back-end services. You can click **EDIT** to edit the IP address, user name, and password for connecting to the Lenovo XClarity Integrator services.

- vCenter Server

It shows the vCenter servers on which your XClarity Integrator have been registered. You can click **EDIT** to enter the Lenovo XClarity Integrator for VMware vCenter administrator Web page. For more information, see “Configuring vCenter connections” on page 53.

- XClarity Administrator

It shows the XClarity administrators that have been registered in XClarity Integrator. You can click **EDIT** or **LAUNCH** to edit or launch the XClarity administrators.

Product Information section

This section enables you to view the product information of Lenovo XClarity Integrator.

You can click the following links to further learn about our products or send feedback to help us do better.

- [View Lenovo License Agreement](#)
- [View Third Party License](#)
- [View Third Party License](#)
- [Online Documentation](#)
- [Product Web site](#)
- [Visit Forum](#)
- [Submit idea](#)

Chapter 5. Managing servers

Lenovo XClarity Integrator provides platform management for System x, BladeCenter, and Flex servers. The topics in this section describe how to use Lenovo XClarity Integrator for managing servers.

Verify that these prerequisites have been completed:

- VMware vCenter Server has an out-of-band (OOB) network connection with the BMC of the managed ESXi servers.
- You can locate the BMC and have requested access for the BMCs on the **Cluster Overview** page.
- The following servers must be managed by Lenovo XClarity Administrator, and Lenovo XClarity Administrator must be registered in Lenovo XClarity Integrator (see “Configuring Lenovo XClarity Administrator” on page 15).
 - ThinkServer servers
 - ThinkSystem SR635
 - ThinkSystem SR655

Procedure

Step 1. Select a host from the vCenter host inventory tree.

Step 2. Click the **Monitor** tab.

On the left navigation pane, select one of the following functions under **Lenovo XClarity** based on your needs:

- System Overview
- Events
- Inventory
- Utilization
- Chassis Map
- Hardware Topology

Step 3. Click the **Configure** tab.

On the left navigation pane, select one of the following functions under **Lenovo XClarity** based on your needs:

- Firmware Updates
- Power Policy
- Configuration

Step 4. Right-click the host from the vCenter host inventory tree. On the displayed **Actions** drop-down list box, move the cursor onto **Lenovo XClarity**.

Select one of the following functions based on your needs:

- Launch Remote Console
- Launch BMC Interface

Viewing system information

The System Overview page provides a snapshot view of the current system. You can view the basic system information such as the machine type, operating system, version, BMC firmware version, and UEFI firmware version. You can also view the System Hardware Event Summary and collect full diagnostic data.

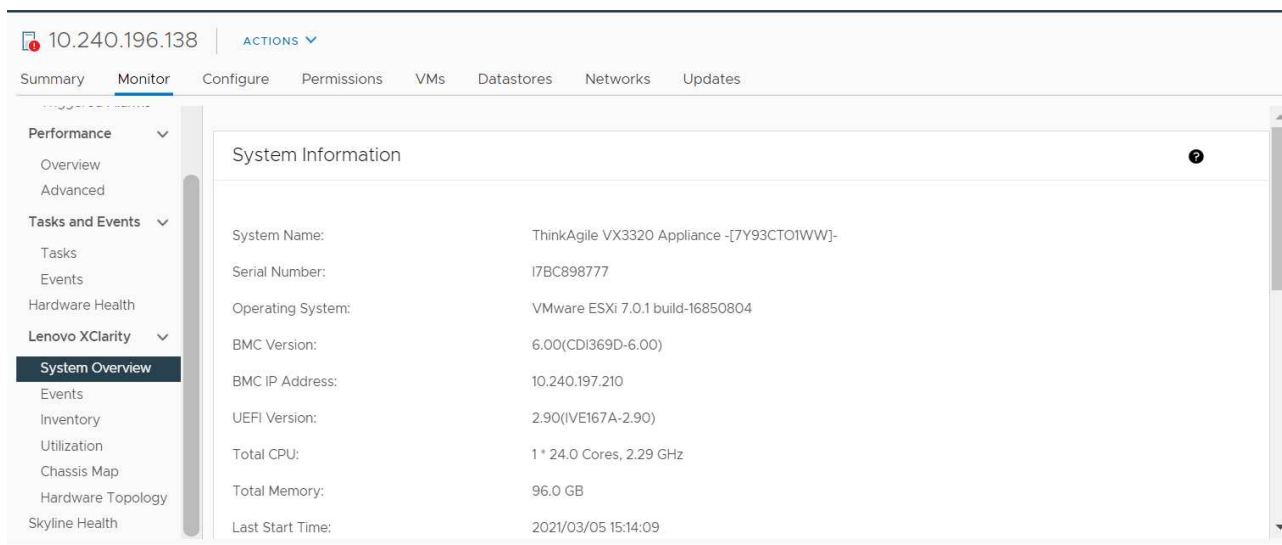


Figure 4. System Overview page

Launching the System Diagnostic Collection function

Procedure

Complete the following steps to collect the full system diagnostic data.

Step 1. Click **Collect** in the bottom section of the System Overview page.




Note: This collection process takes up to five minutes. When it completes, the last collection time is displayed on the **System Overview** page.

Step 2. Click **Download log** to download the latest system diagnostic data.

Viewing server events

You can view the hardware event details of the current server.

The following icons indicate the severity of each event.

-  : Critical
-  : Warning
-  : Informational

On this page, you can perform the following operations:

- Filtering events by clicking **Type**
- Refreshing events by clicking **Refresh**
- Sorting the system events by clicking the table headings

Viewing the server inventory

The **Inventory** page provides a snapshot view of the current server inventory. You can view the system board, microprocessor, memory, fan, sensor, NIC, PCI adapter, and firmware information on this page.

Use **Quick Link** on the right of the page to access the section you want to view. In a specific section, click the + sign to view the details.

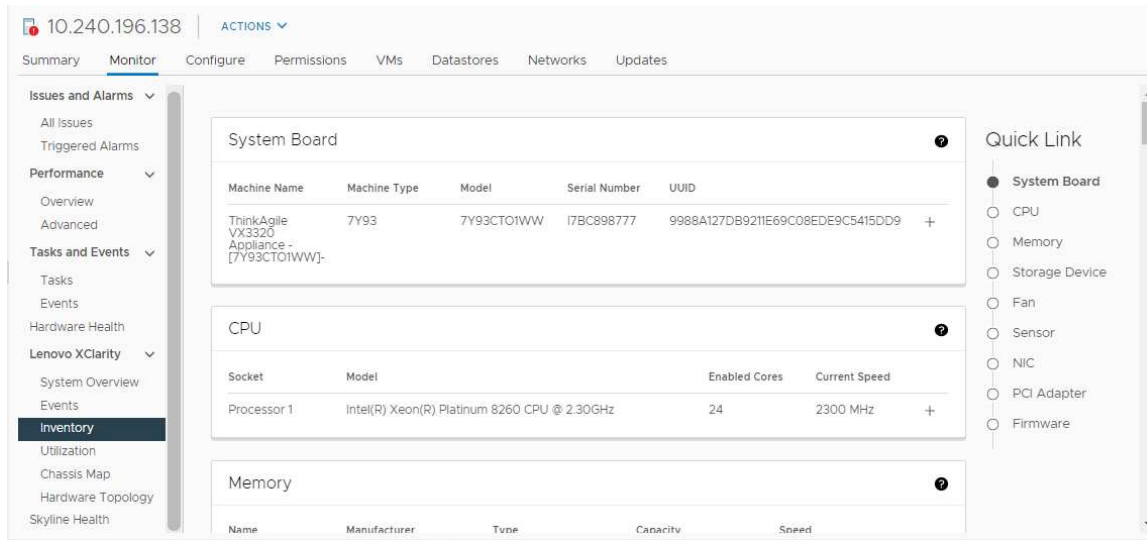


Figure 5. Inventory page

Viewing the server utilization

The **Utilization** page shows latest and history utilization information for ambient temperature, system power input, and fan speed.

To better display the information, this page provides two views for the information: graphic view and table view.

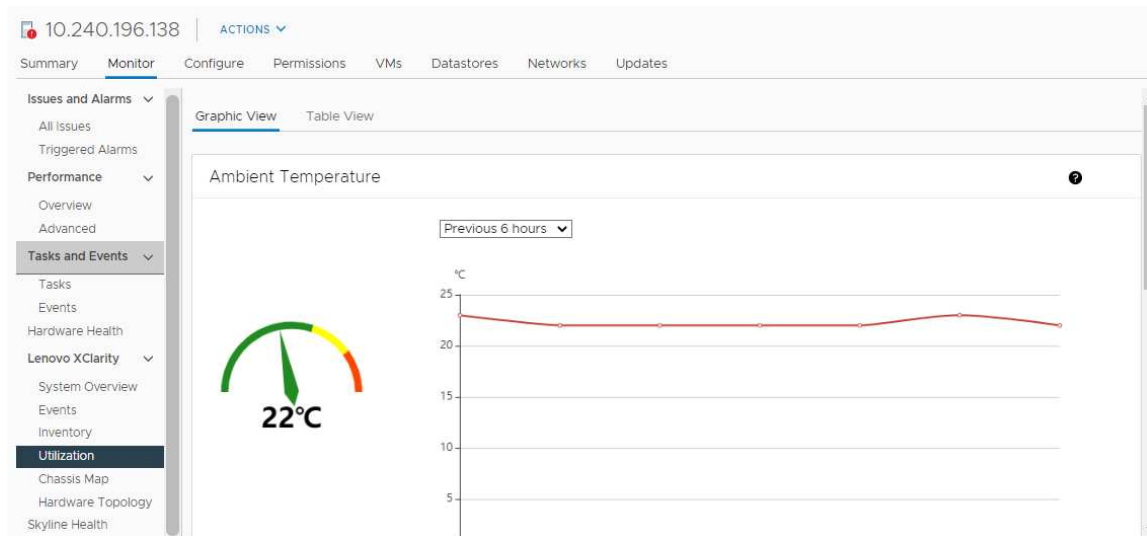


Figure 6. Utilization page

	Latest information	History information
Ambient Temperature	Thermometer graph	Line graph/List (Previous 6, 12 or 24 hours)

Power Utilization	Doughnut graph	Line graph/List (Previous 1, 6, 12 or 24 hours)
Fan Speed	List	N/A

Note: **Fan Speed** is only available in **Table View**.

Viewing the chassis map

The Chassis Map function provides a graphical view of a chassis where the server is placed. From this interface, you can also view the component status in a tabular list.

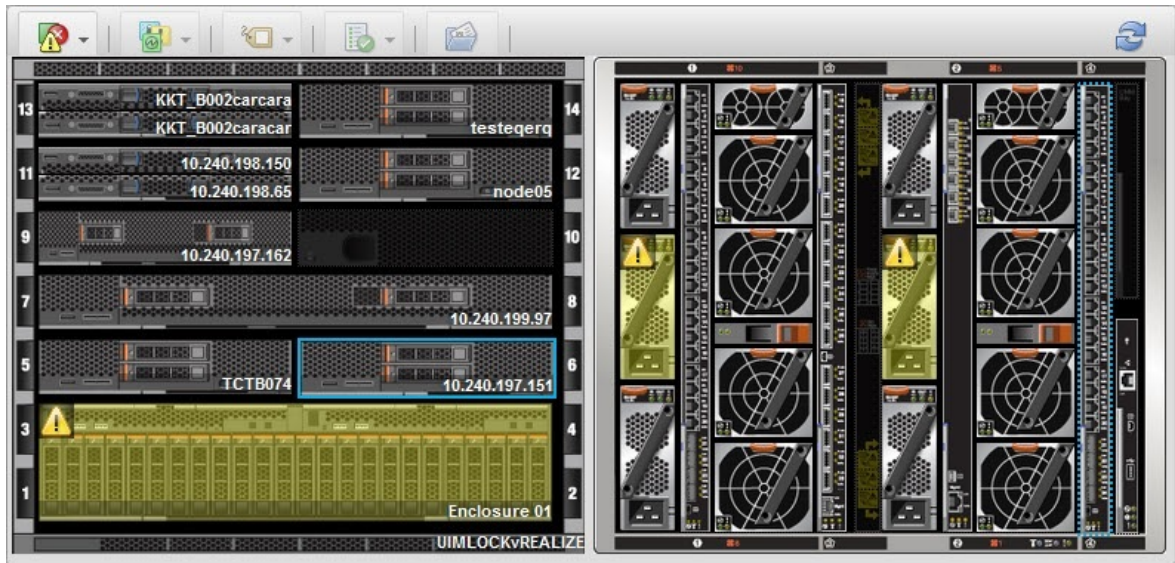
Before you begin

Ensure that:

- The chassis where the server is placed has been managed by Lenovo XClarity Administrator.
- Lenovo XClarity Administrator is registered in Lenovo XClarity Integrator.

Procedure

- Step 1. Select a host from the vCenter host inventory tree and click the **Monitor** tab.
- Step 2. Click **Chassis Map** under **Lenovo XClarity**. The map view of the chassis where the server is placed is displayed. The graphic view shows components in the front of the chassis (such as computer nodes) and components in the rear of the chassis (such as fans, power supplies, and Flex switches). The chassis map view page for the chassis is displayed.



Summary

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

All Actions ▾

Figure 7. Chassis 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).

Step 3. Click **Table view** to display the component status in a tabular list.

You can choose among several overlays to help you quickly determine the status for all of the components in the chassis.

Table 9. Hardware map overlays






Overlay	Icon	Description
Hardware status		<p>Use this overlay to display the status for each of the components. You can choose one or more of the following status criteria:</p> <p>Critical Components have one or more critical alerts. Immediate user action is required.</p> <p>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.</p> <p>Synchronizing Lenovo XClarity Administrator is waiting for the components to provide an updated status.</p> <p>Offline Components are not online.</p> <p>Unknown Lenovo XClarity Administrator is not able to retrieve the status from one or more of the components in a chassis. User investigation might be needed.</p> <p>Normal Components are operating normally. Hover over a specific component to view information about the current status.</p>
Highlight front panel LEDs		<p>Use this overlay to view the LEDs that are available for each of the components. You can choose one or more of the following LEDs to view:</p> <p>Power LED Displays the current power LED for each component.</p> <p>Event Log LED Displays the event log LED, which is lit when there are events specific to a component in the Lenovo XClarity Administrator event log.</p> <p>Location LED Displays the location LED, which can be turned on from the CMM to help you identify where a component is physically located.</p> <p>Fault LED Displays the status of the Fault LED for each component.</p> <p>Other LED Displays all of the other LEDs that are available for each component.</p> <p>Only Active LEDs Displays only the LEDs that are currently lit.</p> <p>Hover over a specific component to view more information about all of the LEDs for a component. For detailed information about each of the LEDs that can be displayed for a component, refer to the product documentation that is available for that component.</p>

Table 9. Hardware map overlays (continued)

Overlay	Icon	Description
Component names and properties		Use this overlay to display the name for each component in the chassis. When you hover over a component, additional properties about that component, such as the IP address and UUID, are displayed.
Compliance		Use this 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 this overlay to determine which server patterns are assigned to each compute node.

Launching an Integrated Management Module Interface

This topic explains how to launch management Web console for a selected chassis or server on the Chassis Map.

About this task

This task is performed on the **Chassis Map** page.

Procedure

- Step 1. On the **Chassis Map** page, select a chassis or host and click **All Actions**.
- Step 2. Click **Launch Management Module Interface**. The Web console is launched within Explorer.

Launching Remote Control

You can launch the Remote Control of a selected server on the Chassis Map.

About this task

This task is performed on the **Chassis Map** page.

Procedure

- Step 1. Select a chassis or a host on the **Chassis Map** page, and click **All Actions**.
- Step 2. Click **Launch Remote Control**. The remote console opens.

Working with the hardware topology

The hardware topology function provides an embedded graphical view for ThinkAgile VX appliance servers. From this interface, you can view server layout, detailed hardware inventory, and health information and manage the vSAN disks.

Host hardware topology

Host hardware topology provides overall information about hosts and enables users to perform the operations on the topology.

To access the **Hardware Topology** page, do the following:

1. Select a host from the vCenter host inventory tree and click the **Monitor** tab on the right pane.




2. Click **Hardware Topology** under **Lenovo XClarity**. The Hardware Topology page is displayed.
3. Do one of the following based on your needs:
 - To view the general host information, refer to “Viewing general host information” on page 30.
 - To view vSAN disk information, refer to “Viewing vSAN disk information” on page 30.
 - To view power supply information, refer to “Viewing health status of power supply units (PSU)” on page 32.
 - To remove a vSAN disk, refer to “Removing a vSAN disk” on page 32.
 - To replace a vSAN disk, refer to “Replacing a vSAN disk” on page 33.


Viewing general host information

The Hardware Topology page supports to view the general information about the host.

General information

On the upper pane of the **Hardware Topology** page, users can view the general information about the host:

- **Machine Name**
- **Machine Type**
- **Front Panel LED**
 - : Power state
 - : Location LED state
 - : Fault LED state.
- **Hardware Health**
 - Normal
 - Warning
 - Critical

Note: To view more information, you can click the expand icon  in the **Hardware Health** column.

Actions

On the right of this pane, you can also click **VIEW ACTIONS** and **HOST ACTIONS**:

- Under **VIEW ACTIONS**:
 - **View Detail Inventory**: Click it to access the **Inventory** page.
 - **View Reference Photo**: Click it to access the product reference page. This page displays the actual front and rear views of this machine and directs you to access the product guide on Lenovo Press.
 - **Refresh Hardware Topology**: Click it to update the hardware topology information.
- Under **HOST ACTIONS**:
 - **Host LED**: Click **Host LED: ON**, **Host LED: OFF**, or **Host LED: BLINK** to change the status of the LED.
 - **Launch BMC Interface**: Click it to access the Lenovo XClarity Controller Web site.
 - **Launch Remote Console**: Click it to access the remote console page of the Lenovo XClarity Controller Web site.

Viewing vSAN disk information

The Hardware Topology page provides a virtual view for the disks installed in actual server slots.

Figure 8. Hardware topology



Note: For the server that has rear backplanes, both the **Front** and **Rear** topologies would be displayed.

The hardware topology illustrates:

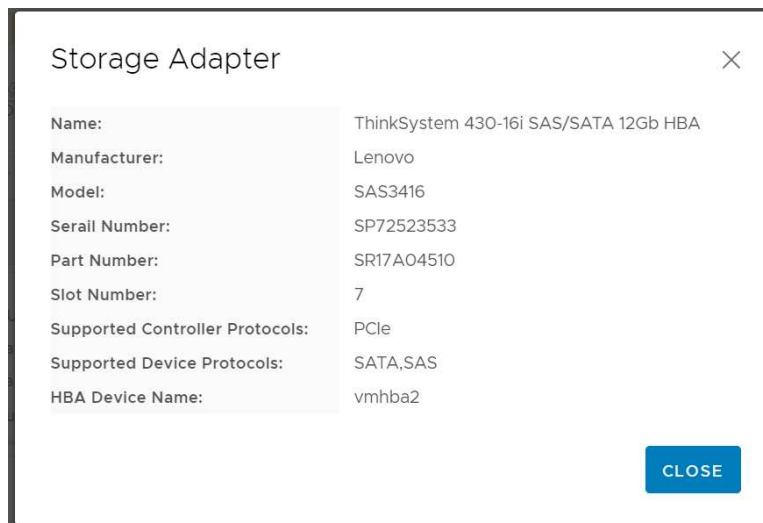
- Disk location: The slot without any disk installed is displayed with dotted lines.
- Disk status: Different colors indicate different disk status:
 - White: Normal state
 - Yellow: Warning state
 - Red: Critical state
- Disk type: The disk type icons of capacity disk, cache disk, ineligible disk, unclaimed disk, and vSAN direct disk are displayed on the right of each slot.

You can click one of the disks on the topology:

- If the selected disk belongs to a vSAN group, other disks in the same vSAN group will be highlighted with a solid black line.
- Under **VIEW ACTIONS**:
 - **Show Icons Legend:** This option displays the icons used to represent the disk type of the disks in a topology view, including Cache Disk, Capacity Disk, Ineligible Disk, Unclaimed Disk, vSAN Direct Disk, and Empty Bay. To hide the icon legends, click **Show Icon Legends** again.
 - **Show Disk Groups:** This option adds a new column **Disk Group** in the disk details table and show disk group on the disks in the topology view. To hide disk groups, click **Show Disk Groups** again.
- The selected disk will be highlighted in the below table that lists the detailed physical and logical disk information, including **Bay, Drive Type, Controller, Status, Capacity, and Media**.
- If you click the Disk Group link in the topology view, all the associated disks of the disk group will be highlighted in the disk table.

Note: You can click the controller name to view more details.

Figure 9. Controller details



Viewing health status of power supply units (PSU)

The Hardware Topology page provides a virtual view for the health status of power supply units (PSU) installed in the server.

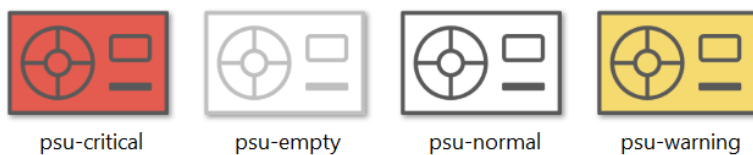


Figure 10. Health status of PSU

Different colors indicate different health status of PSU, including:

- Red: Critical state
- White with light grey line: Empty state
- White with dark grey line: Normal state
- Yellow: Warning state

Removing a vSAN disk

The disk removal option enables users to remove a vSAN disk from the disk group and physically remove it from the disk bay.

Notes:

- If deduplication and compression is enabled on vSAN host, and the cache disk or the last capacity disk is removed from the disk group, the entire disk group will be removed. When necessary, you should re-create the disk group manually.
- After the physical disk is removed from the bay, the disk will be indicated with the dotted lines and its status will be empty.

Procedure

- Step 1. On the hardware topology page, select the target disk from the topology view.
- Step 2. On the right pane, click **DISK ACTIONS** → **Remove Disk**. The Remove Disk Wizard is displayed.
- Step 3. On the Validation page, the selected disk is highlighted and the related information is displayed.
- Step 4. Click **NEXT**. The Migrate Data page is displayed.

- Step 5. On the Migrate Data page, from the **vSAN Data Migration** drop-down list, select one of the following desired mode to migrate the disk data:

Table 10. vSAN Data Migration options

Options	Supported features		
	Pre-check	Data migration to other vSAN disks in the same cluster	Disk/disk group removal
No data migration	√		√
Ensure accessibility	√	√	√
Full data migration	√	√	√

- Step 6. Click **DO IT NOW** to remove the disk from the disk group.
- Step 7. Click **NEXT** after the process is completed. You will be redirected to the Remove Disk page.
- Step 8. On the Remove Disk page, click **Disk LED** or **Host LED** to turn on/off the LEDs on a disk or the host, which enable the remote user to identify the correct disk or host.
- Step 9. Click **FINISH** to complete the disk removal process.

Replacing a vSAN disk

Replacing disk option enables users to physically replace the selected disk from the disk group with a new one.

Procedure

- Step 1. On the hardware topology page, select the target disk from the topology view.
- Step 2. On the right pane, click **DISK ACTIONS → Replace Disk**. The Replace Disk Wizard is displayed.
- Step 3. On the Validation page, the selected disk is highlighted and the related information is displayed.
- Step 4. Click **NEXT**. The Migrate Data page is displayed.
- Step 5. On the Migrate Data page, from the **vSAN Data Migration** drop-down list, select one of the following desired mode to migrate the disk data:

Table 11. vSAN Data Migration options

Options	Supported features		
	Pre-check	Data migration to other vSAN disks in the same cluster	Disk/disk group removal
No data migration	√		√
Ensure accessibility	√	√	√
Full data migration	√	√	√

- Step 6. Click **DO IT NOW** to remove the disk from the disk group.
- Step 7. Click **NEXT** after the process is completed. You will be redirected to the Remove Disk page.
- Step 8. On the Replace Disk page, click **DETECT NEW DISK** after inserting the new disk in the same bay. The page will display the new disk information.
- Step 9. Turn on **Auto Claim New Disk** to add the new disk to the disk group automatically.

Note: If the cache disk or the last capacity disk is removed from the disk group, the entire disk group will be removed, and **Auto Claim New Disk** will be disabled. When necessary, you should re-create the disk group manually.

Step 10. Click **FINISH** to complete the disk replacement process.

Cluster hardware topology




The cluster hardware topology allows you to view the topology of all the hosts of a cluster at one location.

To access the **Hardware Topology** page, do the following:

1. Select a cluster from the vCenter host inventory tree and click the **Monitor** tab on the right pane.
2. Click **Hardware Topology** under **Lenovo XClarity**. The hardware topology view page is displayed. Users can view general information about the cluster.

General information

On the **Hardware Topology** page, users can view the overall hardware health information about the hosts in table.

- **Total**: Displays the number of hosts, disks, or disk groups.
- **Normal** : Displays the number of hosts, disks, or disk groups in normal state.
- **Warning** : Displays the number of hosts, disks, or disk groups in warning state.
- **Critical** : Displays the number of hosts, disks, or disk groups in critical state.

Actions

The following operations are supported:

- To search a host, input the host name or the IP address in the search box on the top right corner and press **Enter**.
- To view the information of hosts under a cluster, click any number in the **Total/Normal/Warning/Critical** column to expand the topology of each host.
- To view the details of each host, click **HOST DETAILS** on the right of each host topology. You will be redirected to the respective Host Topology page.
- To view detail inventory, reference photo, or refresh hardware topology, click **VIEW ACTIONS**. For more information, refer to: “Actions” on page 30.
- To change LED status, launch BMC interface, or launch remote console, click **HOST ACTIONS**. For more information, refer to: “Actions” on page 30.

Launching the BMC Web interface

You can launch the baseboard management controller (BMC) Web interface for a specific server in Lenovo XClarity Integrator.

Procedure

Complete the following steps to launch the BMC interface for a server.

- Step 1. Right-click a host from the vCenter host inventory tree. The **Actions** drop-down list box is displayed.
- Step 2. Choose **Lenovo XClarity → Launch BMC Interface**. A confirmation dialog box is displayed.
- Step 3. Click **OK**. The BMC Web interface for the server is displayed.
- Step 4. Use the BMC credential to log in to the BMC interface.

Launching the remote console

You can launch a remote-control session for a managed server and perform operations on this server as if you were at a local console, such as powering on or off the server and logically mounting a local or remote drive.

Procedure

Complete the following steps to launch the remote console for a managed server.

- Step 1. Right-click a host from the vCenter host inventory tree. The **Actions** drop-down list box is displayed.
- Step 2. Choose **Lenovo XClarity → Launch Remote Console**. A confirmation dialog box is displayed.
- Step 3. Click **OK** and accept any security warnings displayed on your Web browser. The remote-control session for the server is launched.

Working with the Firmware Updates function

The Firmware Updates function enables you to obtain and deploy UpdateXpress System Pack (UXSP) or individual firmware updates to the current ESXi server that you are operating against.

Updating a single ESXi server is similar with updating servers by using the Rolling System Update function. The only difference is that when you create an update task, the current ESXi is shown and can be selected. For more information about how to update preferences and manage update tasks, see “Working with the Rolling System Update function” on page 43.

Working with the Power Policy function

The Power Policy function enables you to allocate less power and cooling to a system if the firmware supports and enables the Power Capping setting. This function helps to lower datacenter infrastructure costs and potentially allows more servers to be put into an existing infrastructure.

The Power Capping value is the value you set for a rack or Blade server that will be capped by the firmware. The Power Capping value is persistent across power cycles for both rack and blade servers. If a Power Capping value is set, the system power consumption will not exceed the defined value.

If the Power Capping is supported and enabled for a server, the minimum and maximum Power Capping values of the server can be retrieved by Lenovo XClarity Integrator and displayed as a power consumption range for the server. In the following example, the minimum value is 0 and the maximum value is 750.

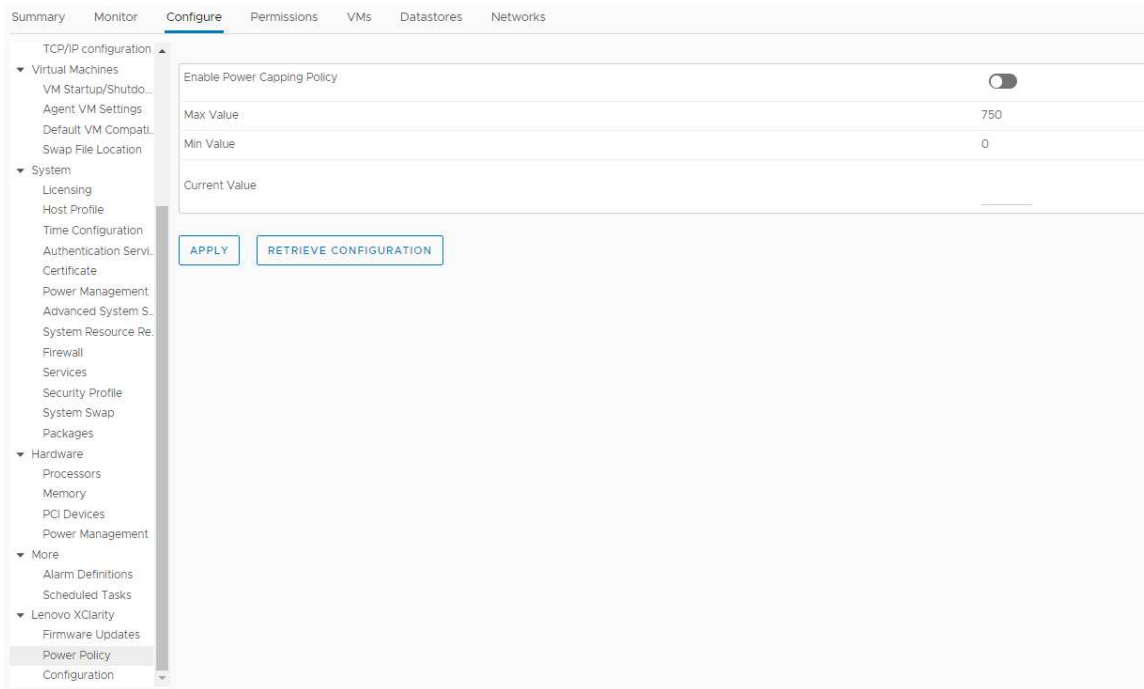


Figure 11. Power Policy configuration page

Working with the System Settings function

The System settings function enables you to manage the system settings of a host. If the server is managed by Lenovo XClarity Administrator, and Lenovo XClarity Administrator is registered in this Lenovo XClarity Integrator, you can deploy a configuration pattern to the host; otherwise you can only view the boot options and system settings for the host.

Deploying a configuration pattern on a server

After you have registered the Lenovo XClarity Administrator in Lenovo XClarity Integrator, you can deploy or deactivate a configuration pattern on each supported server that is 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 BMC and UEFI firmware settings. A server pattern is used as an overall pattern to quickly configure multiple servers simultaneously.

About this task

If Lenovo XClarity Administrator does not have any predefined patterns, you can create server patterns by clicking the link to open Lenovo XClarity Administrator. This task is performed on the **Configuration Pattern** page.

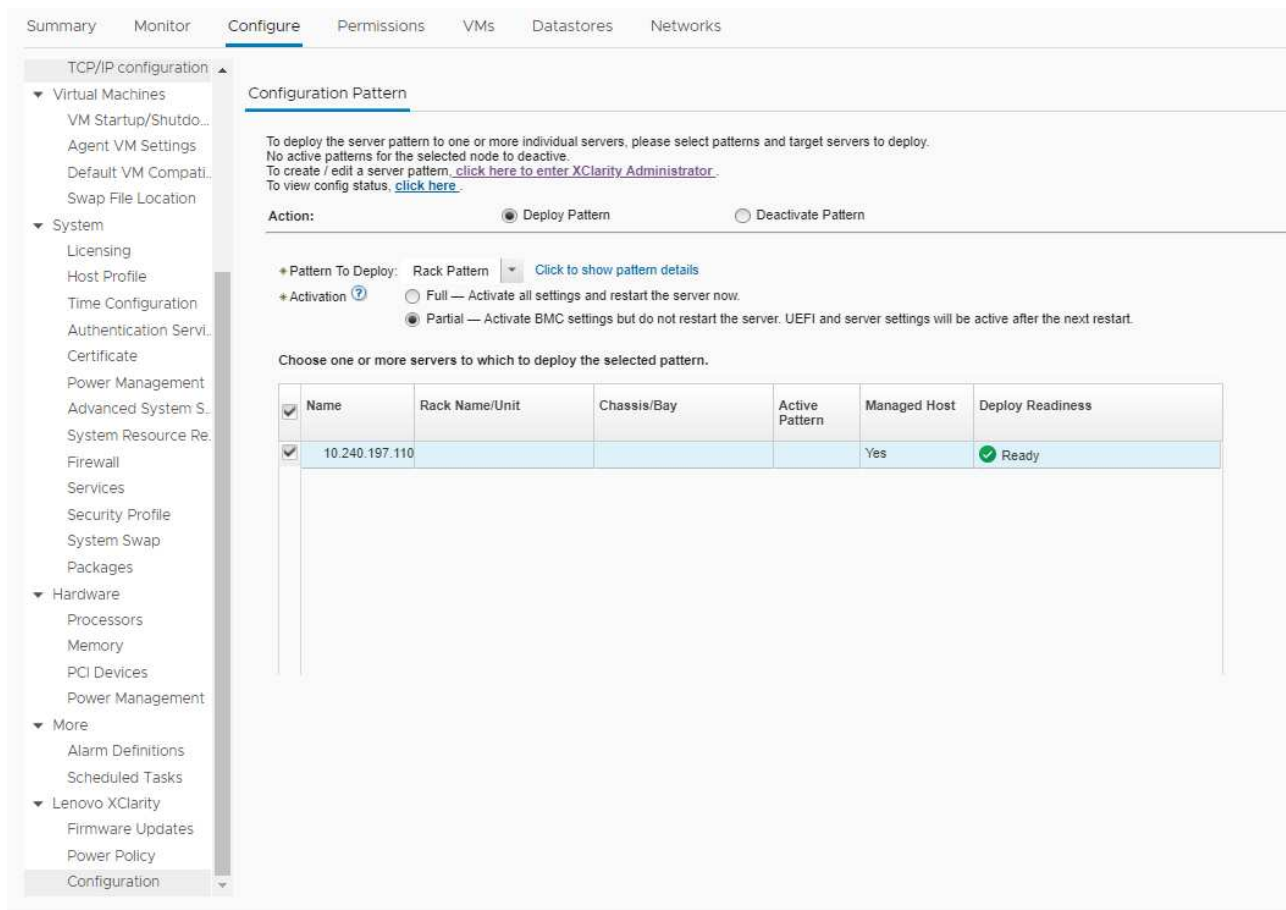


Figure 12. Configuration Pattern page

Procedure

- Step 1. Click **Configure** → **Lenovo XClarity** → **Configuration**. The **Configuration Pattern** page is displayed.
- Step 2. Select one of the following actions:
 - **Deploy pattern**. Deploys the selected pattern to your servers.
 - **Deactivate pattern**. Deactivates the pattern from your servers.
- Step 3. Select a predefined pattern and apply it to your server.

Working with the Boot Options function

On the **Boot Options** pane, the left column displays the optional devices and the right column displays the current boot order. To change the order, you can move a boot order option up, or down, or between the two columns, by clicking the corresponding arrow buttons.

A date stamp with the last update date and time is displayed on the right of the **RETRIEVE CONFIGURATION** button. Click **RETRIEVE CONFIGURATION** to get the latest boot option setting values. Click **SAVE** to save the new boot option settings if you have made any changes.

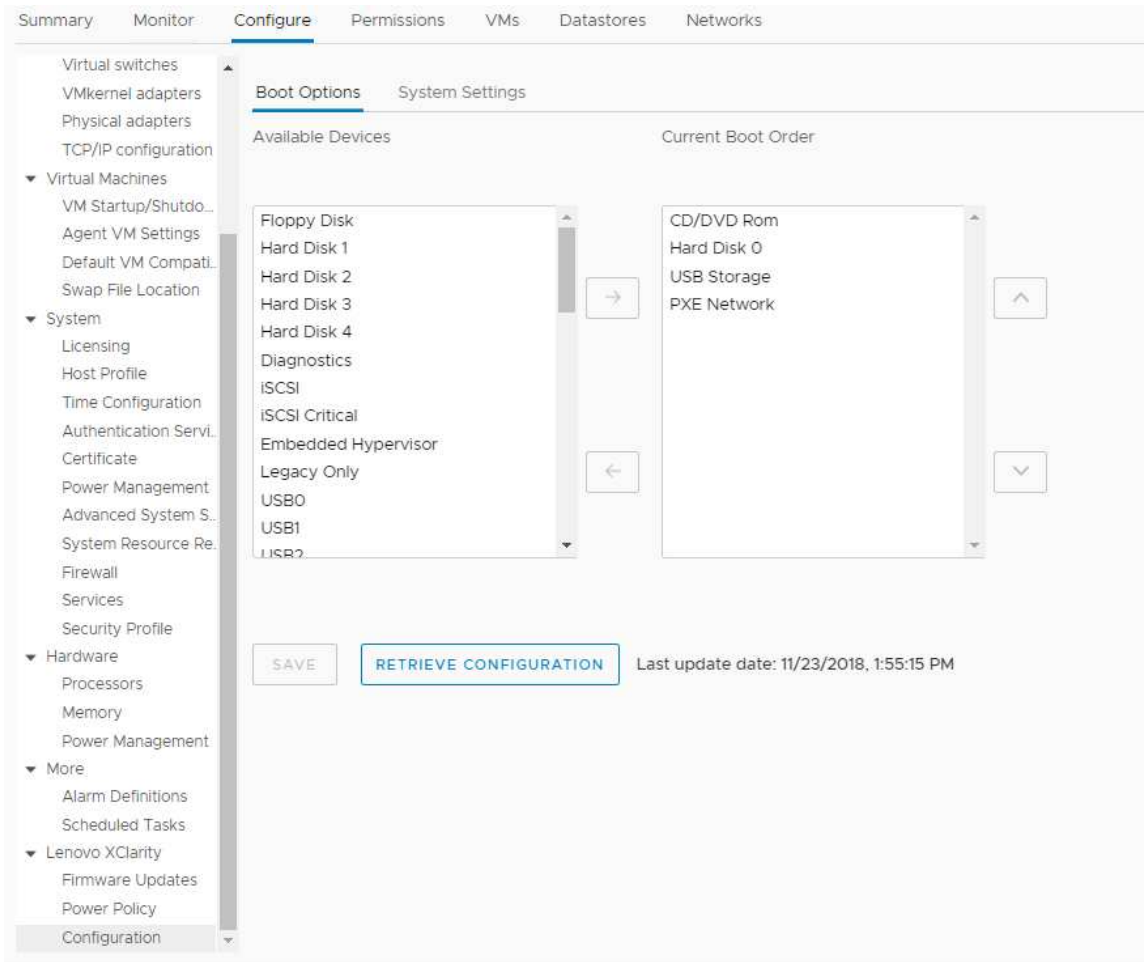


Figure 13. Boot Options pane

Viewing and exporting system settings

You can view and export the system settings of your ThinkSystem server, Lenovo System x, BladeCenter, or Flex server using the following procedure.

Procedure

Complete the following steps to view and export the system settings:

- Step 1. On the **Configure** pane, click **Configuration** under **Lenovo XClarity**, and then click the **System Settings** tab on the right pane.
On the **System Settings** pane, system settings are listed under the **EXPORT TO CSV** and **RETRIEVE CONFIGURATION** buttons. A date stamp with the last update date and time is displayed on the right of the **RETRIEVE CONFIGURATION** button.

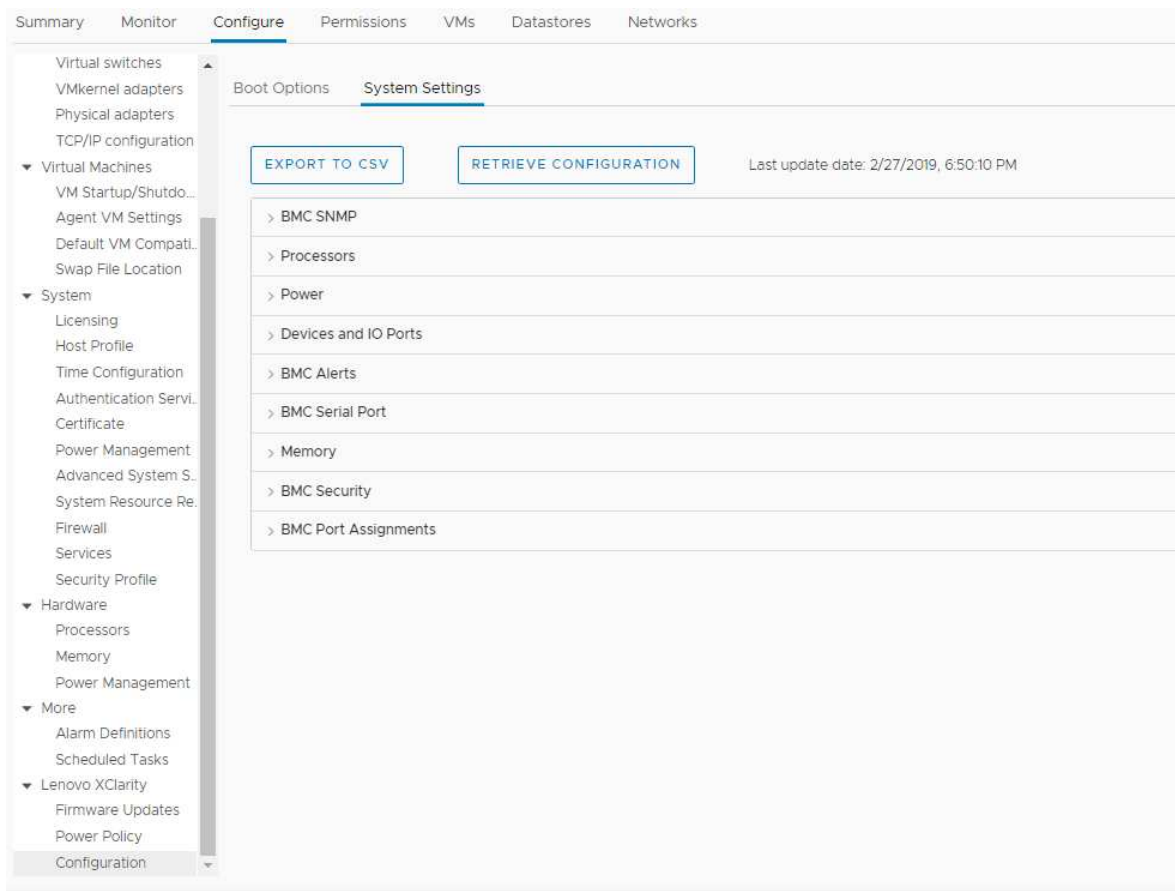


Figure 14. System Settings pane

Step 2. Do one of the followings based on your needs:

- To get the latest setting values, click **RETRIEVE CONFIGURATION**.
- To export system settings to a CSV file, click **EXPORT TO CSV**.

Chapter 6. Managing clusters

The topics in this section describe how to use Lenovo XClarity Integrator for managing clusters.

Procedure

Complete the following steps to view the Lenovo XClarity Integrator cluster management functions.

Step 1. Select a cluster from the vCenter inventory tree.

Step 2. Click the **Configure** tab.

On the left navigation pane, select one of the following functions under **Lenovo XClarity** based on your needs:

- **Rolling Update**
- **Rolling Reboot**

Working with the vSphere Lifecycle Manager function

Before you begin

Ensure that LXCI is enabled as the hardware support manager for vLCM. For more information about enabling vLCM, refer to “Enabling/disabling vSphere Lifecycle Manager” on page 9.

Importing base ESXi and Lenovo add-ons

You can import ESXi versions and Lenovo add-ons to vLCM.

Procedure

Step 1. Select **Lifecycle Manager** from the **Menu** drop-down list. The **Lifecycle Manager** page is displayed.

Step 2. On the **Lifecycle Manager** page, select one of the following from the **ACTIONS** drop-down list:

- Select **Sync Updates** to automatically download the standard ESXi and Lenovo customization add-ons from the online vSphere Lifecycle Manager depot.
- Select **Import Updates** to import Lenovo custom ESXi image into the depot manually. You can download Lenovo custom ESXi image from https://vmware.lenovo.com/content/custom_iso.

Note: In the **Image Depot** area, you can also select the ESXi version/vendor add-ons/component to view the detailed information on the right pane.

Managing firmware packages

You can manage firmware packages on vSphere Client.

Procedure

Step 1. Select **Lenovo XClarity Integrator** from the **Menu** drop-down list and click **Manage Firmware Packages** on the left pane.

Step 2. On the right pane, do one of the following based on your needs:

- To download the required firmware package, select the firmware package from the list, and click **DOWNLOAD**.

- To manually import the firmware packages, click **IMPORT**. The Import Firmware Package window is displayed.
 1. On the **Remote repository** page, input URL, user name, and password, and click **NEXT**.
 2. On the **Firmware package** page, select the firmware package, and click **FINISH**.
- To delete the firmware package, select the required firmware package and click **DELETE**.

Managing the cluster through an image

You can manage the cluster through an image.


Procedure

- Step 1. Select **Hosts and Clusters** from the **Menu** drop-down list.
- Step 2. Select the required cluster on the left pane, and click **Updates → Image** on the vLCM page.

Creating a cluster image

You can create a cluster image for the server.


Procedure

- Step 1. In the **Image** area, click **EDIT** and do one or more of the following:
 - In the **ESXi Version** field, select an ESXi version from the drop-down list.
 - In the **Vendor Addon** field, click **SELECT** to select Lenovo addons for ESXi.
 - In the **Firmware and Drivers Addon** field, click  to select **Lenovo XClarity Integrator** from the **Select the hardware support manager** drop-down list, and then select a firmware and driver addon in the **Select a firmware and driver addon** table.
 - In the **Components** field, click **Show details** to add components.
- Step 2. Do one of the following after editing the image:
 - Click **SAVE** to save the changes.
 - Click **VALIDATE** to check the compliance of Lenovo addons for ESXi and firmware addons.
 - Click **CANCEL** to discard the changes.

Checking hardware compatibility

Before firmware remediation, you can check hardware compatibility for a vSAN cluster. This function compares the firmware and drivers displayed in the image against the listed Lenovo hardware and supported drivers in the vSAN Hardware Compatibility List (HCL).

Procedure

- Step 1. In the **Image** area, click  and select **Check hardware compatibility** to compare the firmware and drivers in the cluster image with vSAN Hardware Compatibility List (HCL).
- Step 2. Click **See details** to view the comparison results in the **Compatibility check results** area and resolve the potential hardware compatibility issues.

Checking cluster compliance

You can check the compliance between the existing servers under a cluster and the configured image.

Procedure

- Step 1. In the **Image Compliance** area, click **CHECK COMPLIANCE** to check the compliance of ESXi versions, firmware, and drivers between the existing servers under a cluster and the configured image.
- Step 2. Check the compliance results on the **Software compliance** table and the **Firmware compliance** table.

Remediating non-compliant servers

You can remediate the ESXi versions, Lenovo addons for ESXi, firmware, and drivers of non-compliant servers under a cluster.

Procedure

- Step 1. Click **Run PRE-CHECK** to check the status of the existing servers.
- Step 2. View the results on the Pre-check completed window and resolve the issues.
- Step 3. Click **REMEDiate ALL** to remediate the ESXi versions, Lenovo addons for ESXi, firmware, and drivers of non-compliant servers under a cluster.

Working with the Rolling System Update function

Rolling System Update (RSU) provides a nondisruptive approach to firmware updates. RSU fully manages firmware by orchestrating "rolling" updates, leveraging dynamic virtual machine movement within a defined VMware cluster, completing the whole update process, including ESXi host restart automatically, without any interruption to application services running on the host.

Before you begin

- The following servers are not supported:
 - ThinkServer servers
 - ThinkAgile HX series server
- Ensure that VMware vCenter DRS is enabled and running in fully automated mode.
- Ensure that port 6990 is enabled.

Procedure

- Step 1. Select a cluster from the vCenter inventory tree and click the **Configure** tab.
- Step 2. On the left navigation pane, click **Rolling Update** under **Lenovo XClarity**.

Configuring the Rolling System Update preferences

You can configure the update repository and download settings for firmware updates on the Preferences pane.

Specify the update repository location

You can configure the update repository where the Rolling System Update function checks for firmware updates when you create a task of type **Update without Policy**.

Procedure

- Step 1. On the left navigation pane, click **Rolling Update** under **Lenovo XClarity**. Then, click **Preferences** on the right pane.
- Step 2. On the Preferences pane, select one of the following ways to specify the firmware repository location based on your needs.

- By default, an internal directory on the Lenovo XClarity Integrator appliance server is used as the firmware repository and **Download metadata from Lenovo website** is enabled. If you accept the default settings, leave it as it is.
- If you want to use an external folder as the firmware repository, click **EDIT** on the right in the **Repository folder** section. In the displayed **Repository Settings** page, select **Use Remote Repository**, enter the network address of the repository in the format of \\<IP_address> \<repository_path>, and enter the user name and password if required. Then, click **OK** to save the changes.

Notes:

- For repository setup on a host using IPv6 addresses, you must specify the network address using the fully qualified domain name (FQDN).
- The write permission of the shared folder must be granted.
- Lenovo XClarity Integrator supports the following types of external folders on the network:
 - Shared folder on a Windows server
 - Shared folder on a Linux Samba file server (with the NTLM security mode)

- Step 3. On the Preferences pane, click **EDIT** on the right of **Download metadata from the Lenovo website** to configure the update package download settings.
- a. If the Lenovo XClarity Integrator server cannot access the Internet directly, configure the Internet settings on the Lenovo XClarity Integrator appliance administration page. After logging into the Web page, click **Network Settings** on the left pane and click **Internet Settings** on the right pane. Then, configure the proxy settings.
 - b. Based on your needs, select **Download from website** and set the frequency for automatically and periodically downloading the update packages.

- Step 4. If needed, click **CHECK NOW** on the bottom right corner of the pane to download the latest update package from the Lenovo Web site.

Notes:

- **CHECK NOW** is only available when **Download from website** is selected in the previous step.
- You can cancel the package download process at anytime by clicking **CANCEL**.
- The time of the latest download is displayed on the bottom left corner of the pane.

Creating a Rolling System Update task

You can create an update task and schedule the host firmware update at a planned time period.

About this task

You can update the host firmware with or without a policy.

- **Update with a policy**

To ensure that the firmware on the server are compliant, you can create firmware-compliance policies, and apply the policies to the managed servers. Before the update, ensure that:

- Servers running ESXi is added to and managed by Lenovo XClarity Administrator.
- Firmware-compliance policies are created in Lenovo XClarity Administrator.
- Firmware are downloaded from Lenovo XClarity Administrator.
- Lenovo XClarity Administrator is registered in Lenovo XClarity Integrator.

- **Update without a policy**

If Lenovo XClarity Administrator is not available in your environment, select the individual firmware updates or UXSP for each server. Before the update, ensure that:

- Baseboard Management Controller (BMC) access is granted.
- The update repository is configured, and the firmware are downloaded (see “Configuring the Rolling System Update preferences” on page 43).

Procedure

Complete the following steps to create the Rolling System Update task:

Step 1. On the **Task Manager** page, click **Create** to launch the create task wizard.

Step 2. Input a task name, select one of the following task types based on your needs, and click **Next**.

- **Update with Policy**
- **Update without Policy**

Notes:

- Ensure that the task type you selected meet the corresponding requirements of **Update with Policy** or **Update without Policy** before update.
- Non-ascii characters cannot be used in task name.

Step 3. Do one of the following based on your needs, and click **Next**.

- If **Update with Policy** is selected, select an available firmware policy from the **Policy** drop-down list for each host. If necessary, check the firmware version defined in the policy and customize firmware selection.
- If **Update without Policy** is selected, select the firmware for each host that you want to update.

Step 4. Select one or more than one of the following update options based on your needs, and click **Next**.

- **Update Parallelization:** Specifies how many hosts to be updated at the same time.

Notes:

- If there is only one Rolling System Update task, ensure that the quantity of the specified host does not exceed eight.
- If there is more than one Rolling System Update task, ensure that the quantity of the specified host for all tasks does not exceed eight.
- **Perform VM Evacuation:** Specifies whether to migrate the virtual machines before updating the host. For the vSAN cluster, you can also select **Decommission Mode** from the drop-down list.
- **Reboot after Update:** Specifies whether to restart the after updating firmware. This option is only visible when creating an update without policy.

The operating system shall be restarted when updating some adapters. In this case, this option is selected automatically and cannot be canceled.

- **Stop On Error:** Specifies whether to stop the whole update task when the update for one host in the cluster fails.
- **Schedule:** Schedules the task to run at a planned time period.

Step 5. Check the task summary if necessary, and click **Save**.

Managing Rolling System Update tasks

You can use the Rolling System Update function to manage rolling update tasks.

About this task

The Rolling System Update function provides a task manager for managing rolling-update tasks. A task contains all of the information and options for a rolling update.

You can perform the following tasks using the task manager:

- Create a Rolling System Update task. Each cluster can have only one active task.
- Edit a Rolling System Update task that has not started.
- Copy a Rolling System Update task that has completed.
- Remove a Rolling System Update task from task list.
- Cancel a Rolling System Update task that is running.
- View Rolling System Update tasks status.

Procedure

Step 1. Click **Rolling Update** under **Lenovo XClarity** on the left pane . The **Task Manager** page is displayed on the right pane.

- Step 2. Perform one of the following steps:
- Create a task
 - Copy a task
 - Edit a task
 - Remove a task
 - Cancel a task
 - Refresh the task list from the page

If you click **Create** or **Edit**, you can use the Create/Edit Task wizard to create or edit a task.

Table 12. 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	Downloading firmware package failed.
	Finished	The task has completed.
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 restarting after updating completes.
	Exit Maintenance	The host is exiting maintenance mode.
	Success	The firmware update succeeded.

Table 12. Rolling System Update task status (continued)

Target	Status	Description
	Failed	The causes of host failure: <ul style="list-style-type: none"> • Cannot get the update package. • Cannot enter maintenance mode. • Cannot update the firmware. • Cannot restart 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 restarts a server while a system continues running without interrupting any running application services by dynamic VM migration.

Before you begin

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

- The following servers are not supported:
 - ThinkAgile HX series server
- VMware vCenter Enterprise or Enterprise Plus Edition with DRS is needed.
- DRS is enabled and running in fully automated mode.

Managing Rolling System Reboot tasks

The Rolling System Reboot (RSR) function enables you to create and manage rolling restart tasks. An RSR task contains all of the information and options required for a rolling restart.

Procedure

- Step 1. Select a cluster from the inventory tree and click the **Configure** tab.
- Step 2. On the left navigation pane, click **Rolling Reboot** under **Lenovo XClarity**.

The task table provides the following detailed information about an RSR task:

- Task Name
- Status
- Progress
- Start Time
- End Time

Table 13. Rolling System Reboot task functions

Task function	Description
Create	Creates a new RSR task.
Copy	Create a new RSR task from an existing RSR task.
Edit	Edit an RSR task that has not been started.

Table 13. Rolling System Reboot task functions (continued)

Task function	Description
Delete	Remove an RSR task from the task list.
Cancel	Stop a running RSR task.

Creating an RSR task

Use the **Create** option to create a new Rolling System Reboot (RSR) task. Each cluster can have only one active RSR task.

Procedure

Select **Configure → Lenovo XClarity → Rolling Reboot** and complete the following steps.

- Step 1. Click **Create** to open the Rolling System Reboot wizard. The **Create** button is enabled only if a task has a status of Finished, Canceled, or Failed in the task list. The **Name and Type** page is displayed.
- Step 2. Enter a name for the task you are creating in the **Task Name** field and select the hosts you want to restart.
- Step 3. Click **Next**. The restart options and screen is displayed.

Parallelization

The default is 1.

Specifies the number of hosts that can be restarted concurrently.

Rebooting multiple hosts concurrently requires more system resources.

You should carefully set the value according to the current available system resources; such as CPU and memory on the vCenter Server.

Perform VM Evacuation

This option is only visible in the vSAN cluster, you can specify decommission mode when migrating VMs.

Stop On Error

Specifies whether to stop the whole task when failing to restart the host.

Schedule

Specifies a time to initiate the task.

- Step 4. Click **Next**. The **Summary** page is displayed.
- Step 5. Click **Finish** to save the task. RSR initiates the task according to the schedule.

Editing a not-started RSR task

Use the **Edit** Rolling System Reboot (RSR) option to make changes to a task that has not started and has a task type of *Reboot Only*. Only editing a not-started task is supported.

Procedure

Select **Configure → Lenovo XClarity → Rolling Reboot** and complete the following steps.

- Step 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.
- Step 2. Edit the task and then click **Finish** to save changes.

Deleting an RSR task

Use the **Delete** option to remove a Rolling System Reboot (RSR) task from the task list if it is not currently running. All RSR tasks that are not currently running can be deleted.

Procedure

Select **Configure** → **Lenovo XClarity** → **Rolling Reboot** and complete the following steps.

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

Canceling a running RSR task

Use the **Cancel** option to cancel a Rolling System Reboot (RSR) task while it is running. When a task is canceled, the task status changes to **Canceling**.

Procedure

Select **Configure** → **Lenovo XClarity** → **Rolling Reboot** and complete the following steps.

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

Cloning a completed RSR task

Use the **Copy** option to clone a new Rolling System Reboot task using a task that has a status of finished, failed, or canceled.

Procedure

Select **Lenovo XClarity Integrator** → **Rolling System Reboot** → **Task Manager** and complete the following steps.

- Step 1. Select a finished, failed or canceled RSR task from the list.
- Step 2. Click **Copy** to open the Rolling System Reboot wizard.
- Step 3. Edit the original selection and click **Finish** to save the new task.

Viewing the RSR task report

The Rolling System Reboot Report view provides detailed task status information.

Procedure

Select **Configure** → **Lenovo XClarity** → **Rolling Reboot**, and click a status link in the **Status** column to open the Rolling System Reboot Report view. The table below lists the status for tasks and hosts. For detailed information about the Rolling System Reboot tasks, refer to “Working with the Rolling System Reboot function” on page 47.

Table 14. 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.

Table 14. Rolling System Reboot task status (continued)

Target	Status	Description
	Failed	Causes of task failure: <ul style="list-style-type: none"> • Downloading firmware package failed. • Restarting ESXi host failed. • VM migration failed. • Firmware update failed
	Finished	The task has completed.
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 restarting after updating completes.
	Exit Maintenance	The host is exiting maintenance mode.
	Success	The firmware update succeeded.
	Failed	The causes of host failure: <ul style="list-style-type: none"> • Cannot enter maintenance mode. • Cannot restart the host. • Cannot exit maintenance mode.

Working with Proactive HA

VMware vSphere v6.5 adds the new Proactive HA feature, which is an enhancement of the original High Availability (HA) feature. Lenovo XClarity Integrator for VMware vCenter supports the Proactive HA feature by registering a Lenovo Proactive HA provider to VMware vCenter.

Before you begin

- Ensure that VMware vSphere v6.5 or later is installed.
- Ensure that Lenovo XClarity Integrator is successfully registered in VMware vCenter.

Enabling VMware vCenter Proactive HA with Lenovo Proactive HA Provider for a cluster

Before you begin

If the cluster is not an empty cluster, ensure that you have requested BMC access for each host in the cluster; otherwise, Lenovo Proactive HA provider might not display correctly.

If the same host with BMC access was previously deleted and added back, you must request BMC access again even if the user interface indicates that the host can access the BMC. Otherwise Lenovo Proactive HA provider might not display correctly.

Procedure

- Step 1. In the vSphere Web client, click the cluster to be configured.
- Step 2. Select **Configure** → **vSphere Availability**, and then click **Edit** on the right hand side of the page. A configuration dialog displays.
- Step 3. Under **vSphere DRS**, select **Turn ON vSphere DRS**.
- Step 4. Under **vSphere Availability**, select **Turn ON Proactive HA**.

- Step 5. Under **Proactive HA Failures and Responses**, set the **Automation Level** to Automated and set **Remediation** to Mixed Mode or Maintenance Mode.
- Step 6. Under the Proactive HA provider list, select the **com.lenovo.HealthUpdateProvider_ver100** provider.
- Step 7. Optional: Choose to ignore certain failure conditions for specific hosts or the entire cluster by clicking **Edit** on the right side of the dialog. Another dialog displays in which you can select the events and hosts for ignoring failure conditions. For more information, see the VMware vSphere user guide.

Note: According to VMware you can use other automation level and remediation settings, but there are some limitations. For example, if you use “manual” and “quarantine” mode, the host must have at least 1 VM; otherwise, incoming health event are not received.

Adding a host to a Proactive HA enabled (with Lenovo Provider) cluster

Procedure

- Step 1. Add the host to a DataCenter or any other Proactive HA disabled cluster.
- Step 2. Request BMC access of the host (see “Discovering and managing the BMC” on page 13).
- Step 3. Move the host to the Proactive HA enabled cluster.

Note: If the same host with BMC access was previously deleted and added back, you must request BMC access again even if the user interface indicates that the host can access the BMC. Otherwise, you cannot move the host to the Proactive HA enabled cluster.

Re-using Lenovo Proactive HA Provider

The Lenovo Proactive HA provider is automatically registered in VMware vCenter when you register Lenovo XClarity Integrator in VMware vCenter, either in the wizard or administration page. When you deregister Lenovo XClarity Integrator from VMware vCenter, you are asked whether you want to also deregister Proactive HA provider. Normally you can keep the provider in VMware vCenter so that it can be reused the next time you register Lenovo XClarity Integrator to VMware vCenter and the provider setting in VMware vCenter is kept.

Proactive HA Heartbeat

Lenovo XClarity Integrator needs the heartbeat with VMware vCenter to ensure Proactive HA work correctly. If you see “Provider com.lenovo.HealthUpdateProvider_ver101 has not posted an update in 300 seconds” in the event list of Proactive HA enabled cluster, the heartbeat may be dead because of some corner reasons. Check the network to check whether Lenovo XClarity Integrator can correctly communicate with VMware vCenter, and whether the Lenovo XClarity Integrator appliance is available. If the problem still exists, restart Lenovo XClarity Integrator.

Managing hardware events

Hardware events and alarms are integrated into vCenter. Lenovo XClarity Integrator for VMware vCenter loads events from out-of-band (OOB) BMC nodes into the vCenter server, allowing administrators to view and manage them from vSphere Web Client. This provides administrators with a single, heterogeneous view of all host system events within the managed environment.

Procedure

Complete the following prerequisite steps to assist you with managing hardware events.

- Step 1. On the **Cluster overview** page, find the BMCs and request BMC access to ensure that the vCenter server has an out-of-band (OOB) network connection with the BMC managed ESXi servers.

Step 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.

What to do next

Select the **Events** tab in vSphere Web Client to view Lenovo hardware events.

Alarms

When a Lenovo event is delivered to VMware 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 is displayed to the right of the vSphere Web Client window along the toolbar above the vSphere Web Client tabs or on the host icon in the inventory tree.

To view a list of all alarms contained in the **Alarms** tab, click the alarms icon.

Chapter 7. Administering Lenovo XClarity Integrator

This chapter provides information about using the Lenovo XClarity Integrator for VMware vCenter administrator Web page to collect service data, register the plug-in, and backup and restore appliance configurations.

Configuring vCenter connections

When Lenovo XClarity Integrator for VMware vCenter is initially deployed, it is registered in a vCenter server. You can register Lenovo XClarity Integrator for VMware vCenter to additional vCenter servers. You also can unregister Lenovo XClarity Integrator for VMware vCenter from a vCenter server.

Registering Lenovo XClarity Integrator to vCenter server

You can register Lenovo XClarity Integrator to one vCenter server or multiple vCenter servers in linked mode.

Before you begin

Prepare a vCenter user name and password for registering Lenovo XClarity Integrator to the vCenter server. The vCenter user can be a vCenter administrator or a dedicated service user with low security privilege. If you use a dedicated service user, the following privileges are required:

- Alarms.Create
- Datacenter.Create
- Extension.Register
- Extension.Unregister
- Extension.Update
- Global.LogEvent
- HealthUpdateProvider.Register
- HealthUpdateProvider.Unregister
- HealthUpdateProvider.Update
- Host.Config.Maintenance
- Host.Inventory.ModifyCluster
- Resource.ColdMigrate
- Resource.HotMigrate
- Sessions.ValidateSession

Note: These privileges can be manually or automatically granted to the vCenter user in registration.

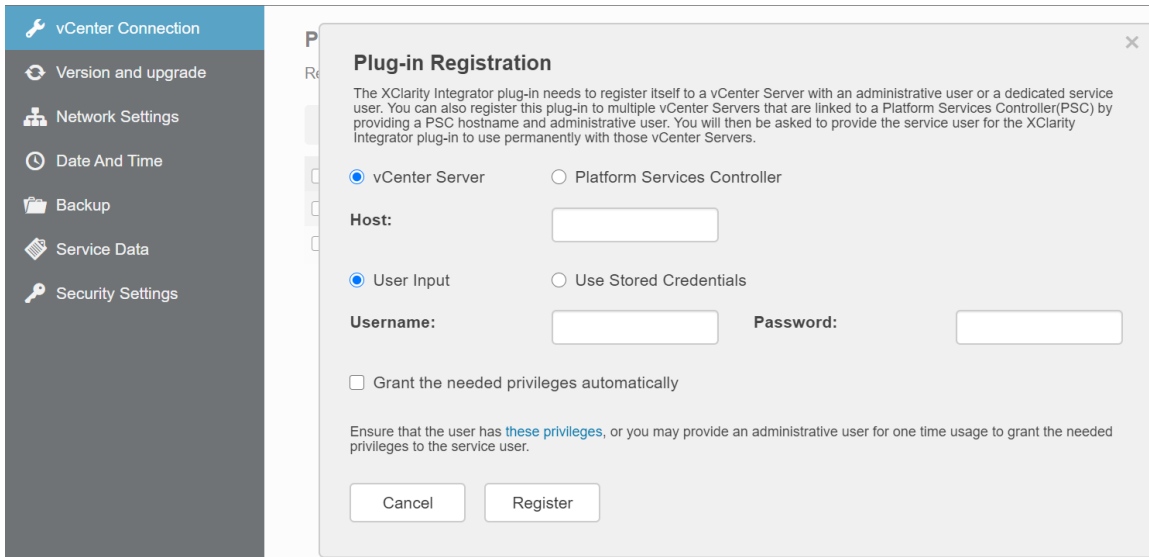
Registering LXCI to one vCenter server

You can register Lenovo XClarity Integrator to one vCenter server or multiple vCenter servers separately.

Procedure

Complete the following steps to register Lenovo XClarity Integrator to a vCenter server:

Step 1. On the **vCenter Connection** page, click **Register**. The **Plug-in Registration** page is displayed.



Step 2. Select **vCenter Server**. In the **Host** field, input the fully qualified domain name (FQDN) or IP address of the vCenter server.

Note: If the vCenter is configured with the FQDN, it is recommended to input the vCenter FQDN instead of the IP address. Meanwhile, ensure that the DNS is configured on the **Network Settings** pane.

Step 3. Do one of the following based on your needs:

- To manually register, select **User Input**, and input the vCenter user name in the **Username** field and the password in the **Password** field.
- To register through credentials, select **Use Stored Credentials** → **Manage** → **Create**. In the Create new stored credentials window, input the vCenter user name in the **User name** field and the password in the **Password** field and the **Confirm Password** field, click **Save** → **Close**, and select the credential from the drop-down list.

Note: If the vCenter user does not have the privileges required by Lenovo XClarity Integrator, select the **Grant the needed privileges automatically** check box, input an administrative user account in the **Administrative user** field, and input the password in the **Password** field. Lenovo XClarity Integrator will automatically grant the privileges to the vCenter user through the administrative user account. However, Lenovo XClarity Integrator will not save the administrative account information.

Step 4. Click **Register**.

Registering LXCI to multiple vCenter servers in linked mode

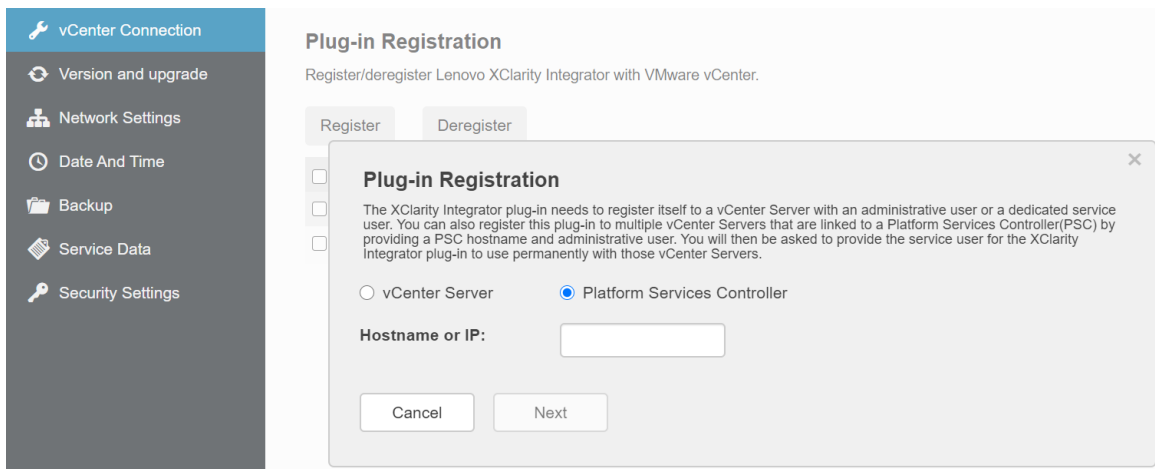
You can register Lenovo XClarity Integrator to multiple vCenter servers connected to Platform Services Controller (PSC) in linked mode by using a PSC hostname.

Procedure

Complete the following steps to register Lenovo XClarity Integrator to multiple vCenter servers in linked mode:

- Step 1. On the **vCenter Connection** page, click **Register**. The **Plug-in Registration** page is displayed.
- Step 2. Select **Platform Services Controller**, input the fully qualified domain name (FQDN) or IP address of PSC in the **Hostname or IP** field, and click **Next**.

Note: If you input the FQDN, ensure that the DNS is configured on the **Network Settings** page.



Step 3. From the **Host** list, select the vCenter servers that you want to register to, and click **Next**.

Step 4. Do one of the following based on your needs:

- To manually register, select **User Input**, and input the vCenter user name in the **Username** field and the password in the **Password** field.
- To register through credentials, select **Use Stored Credentials → Manage → Create**. In the **Create new stored credentials** window, input the vCenter user name in the **User name** field and the password in the **Password** field and the **Confirm Password** field, click **Save → Close**, and select the credential from the drop-down list.

Notes:

- The vCenter user should have access to all the vCenter servers you selected.
- If the vCenter user does not have the privileges required by Lenovo XClarity Integrator, select the **Grant the needed privileges automatically** check box, input an administrative user account in the **Administrative user** field, and input the password in the **Password** field. Lenovo XClarity Integrator will automatically grant the privileges to the vCenter user through the administrative user account. However, Lenovo XClarity Integrator will not save the administrative account information.

Step 5. Click **Register**.

Unregistering Lenovo XClarity Integrator from vCenter server

You can unregister Lenovo XClarity Integrator from vCenter server.

Procedure

- Step 1. Select one or more than one vCenter server, and then click **Deregister**. A confirmation dialog is displayed.
- Step 2. Click **Yes** to confirm that you want to unregister Lenovo XClarity Integrator.
- Step 3. Click **Yes** again to complete the unregistration process.

If successful, a dialog similar to the following figure is displayed.



Step 4. On the vCenter server, remove the `com.lenovo.lxci-*. *` directory.

Step 5. Restart the “vsphere-client” service.

Updating management server software

On this setting page, you can download the latest update packages from the LXCI web site, and update the management server software to the latest version.

Procedure

- Step 1. Click **Version and upgrade** on the left navigation pane. The **Update Management Server** page is displayed.
- Step 2. On the **Update Management Server** page, click **Check for Updates** to check new update packages applicable to the current LXCI server.
- Step 3. Select the required package from the list, and click **Download**.
- Step 4. Select the required package from the list, and click **Perform Update**.

Configuring network access

In this setting page, you can configure host-name, domain name, DNS, and IP settings for Eth0 and Eth1 interfaces.

Before you begin

When a Lenovo XClarity Integrator is initially deployed, the Eth0 interface is enabled for connecting both the VMWare vCenter and baseboard management controller (BMC) network. You can optionally enable the Eth1 interface for the BMC network connection. After the Eth1 interface is enabled, Eth0 interface is no longer available for BMC connections.

Unless you have strong reason, you should not change network settings after they are set in the wizard. If you must change the network settings, perform the following steps to reconfigure the virtual appliance.

Attention: If you change the settings incorrectly, you might lose connection to the virtual appliance.

1. Regenerate the server certificate (see “Working with security certificates” on page 61).
2. Unregister vCenter and re-register again (see “Configuring vCenter connections” on page 53).
3. Clean up Lenovo XClarity Integrator on the vCenter server (see “Uninstalling Lenovo XClarity Integrator for VMware vCenter” on page 11).
4. In the following cases, disable management over all hosts that are managed by Lenovo XClarity Integrator, and then manage the hosts again.

- Eth0 is changed and Eth1 is disabled.
- Eth1 is changed.

Configuring the hostname, domain name, and DNS

You can configure the hostname, domain name, and DNS from the Network Settings page.

Procedure

Complete the following steps from the **Network Settings** page under the **Host Name, Domain Name and DNS for virtual appliance** section.

Step 1. Change the hostname in the **Host Name** field.

Step 2. Change the domain name in the **Domain Name** field.

Note: The domain name is optional. If you configure both the hostname and domain name, a fully qualified domain name (FQDN) is defined. In this case, this FQDN is used for vCenter registration and server-certificate generation. Ensure that the DNS is correctly set in vCenter.

Step 3. Change the DNS in the **DNS** field.

Note: If you use the hostname to connect vCenter and vCenter managed ESXi hosts, you must configure a DNS for Lenovo XClarity Integrator so Lenovo XClarity Integrator can access vCenter and ESXi hosts through the hostname.

Step 4. Click **Save**.

Configuring Eth0 IP settings

You can change the Eth0 IP address and gateway settings from the Network Settings page.

About this task

When you change IP settings for the Eth0 interface, connection to Lenovo XClarity Integrator Web interface is lost. Check the VM console for the new Eth0 IP address, and reopen Lenovo XClarity Integrator Web interface to continue the setup.

Procedure

Complete the following steps from the **Network Settings** page.

Step 1. Specify the IPv4 address, IPv6 address or both for the Eth0 interface.

For IPv4, you can choose to use a statically assigned IP address, obtain an IP address from a DHCP server, or disable IPv4.

For IPv6, you can assign an IPv6 address to the interface using one of the following assignment methods:

- Use a statically assigned IP address
- Use a stateful address configuration (DHCPv6)
- Use a stateless address auto configuration

Step 2. Specify the default gateway.

Notes:

- Because Eth1 is intentionally used for connecting to the baseboard management controller (BMC) network, which is normally within the Eth1 subnet, you are allowed to configure the default gateway for only Eth0.

- If you specify a default gateway, it must be a valid IP address and must use the same network mask (the same subnet) as the IP address for Eth0.
- If Eth0 uses DHCP to obtain an IP address, the default gateway must also use DHCP and you cannot manually change this.

Step 3. Click **Save**.

Configuring Eth1 IP settings

You can enable the Eth1 interface for the baseboard management controller (BMC) network and change the Eth1 IP address and gateway settings from the **Network Settings** page.

About this task

By default, both Eth0 and Eth1 are connected to the same VM network with label “VM Network”. You can configure Eth1 to connect to a different network by completing the following steps:

1. Edit Lenovo XClarity Integrator VM settings
2. Select **Network adapter 2**, and choose the VM network to which you want Eth1 to connect.
3. Save the settings.

Procedure

Complete the following steps from the **Network Settings** page.

Step 1. Select the **Eth1** check box to enable Eth1. The IP setting fields are displayed.

Step 2. Specify the IPv4 address, IPv6 address or both for the Eth1 interface.

Note: The IP addresses that are assigned to the Eth1 interface must be in a different subnet from the IP addresses that are assigned to the Eth0 interface. If you choose to use DHCP to assign IP addresses for both interfaces (Eth0 and Eth1), the DHCP server must not assign the same subnet for the IP addresses of the two interfaces.

For IPv4, you can choose to use a statically assigned IP address, obtain an IP address from a DHCP server, or disable IPv4

For IPv6, you can assign an IPv6 address to the interface using one of the following assignment methods:

- Use a statically assigned IP address
- Use a stateful address configuration (DHCPv6)
- Use a stateless address auto configuration

Step 3. Click **Save**.

Setting the date and time

You can change the date and time from the **Date and Time** page.

Procedure

Perform the following steps from the **Date and Time** page.

Step 1. Specify your region and time zone.

Step 2. Specify the date and time. You can set the date or time manually or let Lenovo XClarity Integrator synchronize with an NTP server.

Note: Lenovo XClarity Integrator only supports NTP Version 4.

Step 3. Click **Save**.

Backing up, restoring, and migrating data

You can back up, restore and migrate data for Lenovo XClarity Integrator for VMware vCenter.

Backing up data

You can back up data for a Lenovo XClarity Integrator virtual appliance.

Procedure

- Step 1. From the Lenovo XClarity Integrator menu, click **Backup**.
- Step 2. Click the **Backup** tab, and then click the **Backup** button. A dialog is displayed asking for a password for protecting the backup file.
- Step 3. Specify a password in the **Password** and **Confirm Password** fields. The password must be at least nine ASCII characters.
- Step 4. Click **OK** to start the backup process.
- Step 5. When the backup completes, a download link **Click Here to Download** is displayed next to the **Backup** button. Click the link to download the backup file.

Note: Ensure that you record the password and store the back-up file in a safe location. When restoring data using the back-up file, you will be asked to specify the password.

Restoring data

You can restore previously backed up data to the same virtual appliance or migrate the data to a newly deployed virtual appliance.

Before you begin

To migrated to a newly deployed virtual appliance:

- Ensure that you are logged out of vSphere Web Client.
- If you are migrating backup data to a newly deployed virtual appliance, ensure the following conditions are met.
 - You must first uninstall the old Lenovo XClarity Integrator virtual appliance (see “Uninstalling Lenovo XClarity Integrator for VMware vCenter” on page 11).
 - You must use the exact same network settings as old Lenovo XClarity Integrator virtual appliance in the newly deployed appliance.
 - You must register the same vCenter as old Lenovo XClarity Integrator virtual appliance to the newly deployed appliance.

Procedure

- Step 1. From the Lenovo XClarity Integrator menu, click **Backup**.
- Step 2. Click the **Restore/Migrate** tab.
- Step 3. Click the **Choose File** button to select the data file to be restored.
- Step 4. Click the **Restore** button. A dialog is displayed asking for the password for the data file.
- Step 5. Click **OK**. The appliance starts to restore/migrate the data file.

The virtual appliance restarts after the restoration process completes. You are redirect to login page after 10 seconds.

Note: Because the Lenovo XClarity Administrator certificates are not migrated, you must re-register the Lenovo XClarity Administrator instances if you want to re-use them.

Migrating data from a Windows-based LXCI

You can migrate data from a Windows-based Lenovo XClarity Integrator to a Lenovo XClarity Integrator virtual appliance

Before you begin

The data being migrated must be backed up from a Windows-based Lenovo XClarity Integrator, not Lenovo XClarity Integrator virtual appliance.

The data being migrated does not include user information and passwords. You must update password for Lenovo XClarity Integrator, BMCs, and host passwords manually after migration.

Procedure

Step 1. Uninstall the old Windows-based Lenovo XClarity Integrator, not Lenovo XClarity Integrator (see “Uninstalling Lenovo XClarity Integrator for VMware vCenter” on page 11).

Step 2. Export data from Windows-based Lenovo XClarity Integrator using the following PostgreSQL command:

```
pg_dump -F c -p 9501 -U postgres uim_service > [target_data_file][target_data_file]
```

For example:

```
pg_dump -F c -p 9501 -U postgres uim_service > d:\db_backup
```

Step 3. Deploy a Lenovo XClarity Integrator virtual appliance

Note: You must register the same vCenter as the Windows-based Lenovo XClarity Integrator to the newly deployed virtual appliance.

Step 4. Import the data file into the newly deployed virtual appliance.

- a. From the Lenovo XClarity Integrator menu, click **Backup**.
- b. Click the **Migrate Data from Windows** tab.
- c. Click the **Choose File** button to select the data file to be migrated.
- d. Click **Migrate** button. The data file is uploaded to the virtual appliance and migration begins.

The virtual appliance will restart after the migration process completes. You are redirected to login page after 10 seconds

Collecting service data

You can collect Lenovo XClarity Integrator logs and send to Lenovo for support.

Procedure

Step 1. Optional: If required, click **Change level** to change log level to “Debug”. Ensure that you restore the log level to Information after problem resolved

Step 2. Click **Collect Log**. The **Download Log** link is displayed.

Step 3. Click the **Download Log** link to download the log.

Working with security certificates

Lenovo XClarity Integrator and the supporting software (Lenovo XClarity Administrator and VMWare vCenter) use SSL certificates to establish secure connections between each other. By default, Lenovo XClarity Integrator uses Lenovo XClarity Integrator-generated certificates that are self-signed and issued by an internal certificate authority (CA).

Generating a customized externally-signed server certificate

When you install a customized server certificate in Lenovo XClarity Integrator, you must provide the certificate bundle that contains the entire CA signing chain.

About this task

If the new server certificate is not signed by a trusted international third party (such as VeriSign), the next time you connect to Lenovo XClarity Integrator, your browser displays a security message prompting you to accept the new certificate as an exception into the browser. To avoid the security messages, you can import the CA signing chain of the server certificate into your Web browser's list of trusted certificates.

For more information about importing certificates, see “Importing the Lenovo XClarity Integrator certificate in your Web browser” on page 18.

Procedure

Complete the following steps to generate a customized server certificate.

Step 1. Generate a certificate signing request (CSR) for Lenovo XClarity Integrator.

- a. On the left navigation pane, click **Security Settings**.
- b. Click **Server Certificate** to display the **Server Certificate** page.
- c. Click the **Generate Certificate Signing Request (CSR)** tab.
- d. Fill in the fields in the Generate Certificate Signing Request (CSR) page:
 - Country
 - State or Province
 - City or Locality
 - Organization
 - Organization Unit (optional)
 - Common Name

Attention: Select a common name that matches the IP address or hostname of Lenovo XClarity Integrator virtual appliance. Failure to select the correct value might result in connections that are not trusted. You can allow Lenovo XClarity Integrator to generate the common name automatically by specifying “Generated by LXCI.”

- e. Click **Generate CSR File** to download the generated file.

Step 2. Submit all CSRs to your trusted CA for signing. The trusted CA returns a certificate bundle for each CSR. The certificate bundle contains the signed certificate and the complete certificate authority (CA) chain of trust.

Step 3. Upload the externally-signed server certificate to Lenovo XClarity Integrator.

Note: The certificate being uploaded must have been created from the Certificate Signing Request that was most recently created using the **Generate CSR File** button. The uploaded file must contain the complete certificate chain, including the root certificate and any intermediate certificates. The order of certificates in the file must be server certificate, intermediate certificates, and then root certificate.

1. On the left navigation pane, click **Security Settings**.
2. Click **Server Certificate** on the setting page.
3. Click the **Upload Certificate** tab.
4. Click the **Choose File** button to select the certificate file (.der, .pem or .cer).
5. Click the **Upload Certificate** button. The certificate file is uploaded.

After uploading the server certificate, Lenovo XClarity Integrator is restarted and your browser connection to the Lenovo XClarity Integrator Web interface is terminated. You need to log in to the Lenovo XClarity Integrator Web interface again to continue your work.

Note: Update VMware vCenter registration after the new server certificate is uploaded.

Restoring the Lenovo XClarity Integrator-generated server certificate

You can generate a new server certificate to reinstate a Lenovo XClarity Integrator-generated certificate if Lenovo XClarity Integrator currently uses a customized server certificate. The customized server certificate is then replaced and the new self-signed server certificate is used on the Lenovo XClarity Integrator.

Procedure

Complete these steps to generate a new server certificate and sign the certificate with the currently generated CA root certificate:

- Step 1. On the left navigation pane, click **Security Settings**.
- Step 2. Click **Server Certificate** on the setting page.
- Step 3. Click the **Regenerate Server Certificate** tab.
- Step 4. Fill in the fields in the **Regenerate Server Certificate** page:
 - Country
 - State or Province
 - City or Locality
 - Organization
 - Organization Unit
 - Common Name

Note: Select a common name that matches the IP address or hostname of the Lenovo XClarity Integrator virtual appliance. Failure to select the correct value might result in connections that are not trusted. You can allow Lenovo XClarity Integrator to generate the common name automatically by specifying “Generated by LXCI”.

- Step 5. Click **Regenerate Certificate**

When the new server certificate is regenerated, Lenovo XClarity Integrator is restarted and your browser connection to the Lenovo XClarity Integrator Web interface is terminated. You need to log in to the Lenovo XClarity Integrator Web interface again to continue your work.

Note: Update VMWare vCenter registration after the server certificate is regenerated.

Regenerating Certificate Authority (CA) Root

You can regenerate Certificate Authority (CA) Root.

Procedure

- Step 1. On the left navigation pane, click **Security Settings**.

- Step 2. Click **Certificate Authority** on the setting page.
- Step 3. Click **Regenerate Certificate Authority Root Certificate**.

Notes:

1. After regenerating CA root, you shall regenerate server certificate. Refer to “Restoring the Lenovo XClarity Integrator-generated server certificate” on page 62.
2. After regenerating CA root, you shall re-trust the CA in all client PCs. Refer to “Importing the Lenovo XClarity Integrator certificate in your Web browser” on page 18.

Downloading and installing Certificate Authority (CA) Root

You can download and install Certificate Authority (CA) Root.

Procedure

- Step 1. On the left navigation pane, click **Security Settings**.
- Step 2. Click **Certificate Authority** on the setting page.
- Step 3. Click **Download Certificate Authority Root Certificate**.
- Step 4. Double-click the ca.der file.
- Step 5. Click the **General** tab, and click **Install Certificate**.
- Step 6. Click **Next**.
- Step 7. In the Certificate Store page, select **Place all certificates in the following store**, and click **Browse**.
- Step 8. Select **Trusted Root Certificate Authorities**, and click **OK**.
- Step 9. Click **Finish**.

Note: If your browser is Firefox, a dialog will be displayed in step 3. This dialog asks whether you trust the certificate. Check **Trust this CA to identify websites**, click **OK** and skip Step 4 to Step 9.

Downloading Server Certificate

You can download Server Certificate.

Procedure

- Step 1. On the left navigation pane, click **Security Settings**.
- Step 2. Click **Server Certificate** on the setting page.
- Step 3. Click the **Download Certificate** tab.
- Step 4. Click **Download Certificate**.

Shutting down or restarting Lenovo XClarity Integrator

You can shut down or restart Lenovo XClarity Integrator. However, Lenovo XClarity Integrator will be disconnected after being shut down or restarted, so you should re-connect it after this process.

Before you begin

Ensure that no job is running. All running jobs will be canceled when shutting down or restarting Lenovo XClarity Integrator.

Procedure

Complete the following steps to shut down or restart Lenovo XClarity Integrator:

- Step 1. On the **Lenovo XClarity Integrator for VMware vCenter** page, click **Power Control** on the top right corner. A confirmation dialog with a list of jobs that are running will be prompt.
- Step 2. Click **Shut down** or **Restart**. Lenovo XClarity Integrator will be shut down or restarted, and all running jobs will be canceled.

Appendix A. Troubleshooting

Use this section to troubleshoot and resolve problems with Lenovo XClarity Integrator for VMware vCenter.

BMC Discovery failure

If the BMC Discovery list does not display correctly, the BMC discovery process has failed.

About this task

If the discovery list fails to display after clicking **Discovery**, complete these steps.

Procedure

- Step 1. Verify that the network connection between vCenter and the host is working.
- Step 2. Try the discovery process again by clicking **Discovery**.

The chassis map, firmware update, or configuration pattern page is not displayed

The chassis map, firmware update, or configuration pattern page might not be displayed.

Procedure

Complete the following steps to solve the problem.

- Step 1. Ensure that you have installed the Lenovo XClarity Integrator certificate by following the instructions in “Importing the Lenovo XClarity Integrator certificate in your Web browser” on page 18.
- Step 2. If you have used the vCenter FQDN to register Lenovo XClarity Integrator to the vCenter client, use the vCenter FQDN to open the vSphere client.

Lenovo XClarity Integrator is not displayed on the vSphere Web Client after installation

After you install Lenovo XClarity Integrator and register it with vCenter successfully, vSphere Web Client might fail to download and deploy the Lenovo XClarity Integrator plug-in. In this case, Lenovo XClarity Integrator is not displayed on the vSphere Web Client.

Procedure

Check the `vsphere_client_virgo.log` file for the following error message:

Error downloading `https://[*****LXCI IP*****]:443/IVPUI.zip`. Make sure that the URL is reachable; then logout/login to force another download. `java.net.ConnectionException: Network is unreachable`.

Note: The log file is located in the `C:\ProgramData\VMware\vCenterServer\logs\vsphere-client\logs` or `/storage/log/vmware/vsphere-client/logs` directory, depending on version of vCenter.

If the error message is present in the log file, perform one of the following steps:

- For windows vCenter, open a Web browser on the VMware vCenter Server and access the URL that is displayed in the error message (for example, `https://[*****LXCI IP*****]:443/IVPUI.zip`). If it doesn't work, verify that Lenovo XClarity Integrator server is running.

- For vCenter virtual appliance, run the command `curl <URL>` on the VMware vCenter Server, where `<URL>` is the URL that is displayed in the error message (for example, `https://[*]*LXCI IP[*]:443/IVPUI.zip`).

If an error message is displayed similar to "SSL certificate problem, verify that the CA cert is OK" or "Certificate verify failed", import the Lenovo XClarity Integrator certificate to the VMware vCenter Server appliance by performing the following steps:

1. Open Lenovo XClarity Integrator appliance management Web page, and then log in to the Web page.
2. Click **Security Settings** on the left pane, and then click **Certificate Authority**.
3. Click **Download Certificate Authority Root Certificate**.
4. Import Lenovo XClarity Integrator certificate to the VMware vCenter Server as Trusted Root Certificate.

Data displayed on Lenovo XClarity Integrator is not up to date when Lenovo XClarity Integrator is opened on Internet Explorer 11 or later versions

The cache mechanism of the Internet Explorer might impact the use of Lenovo XClarity Integrator. You need to set the Internet options every time you use Internet Explorer 11 or later versions to visit the Lenovo XClarity Integrator Web page.

Procedure

- Step 1. Open the Internet Explorer browser and click **Tools → Internet options**. The Internet Options window is displayed.
- Step 2. Click the **General** tab and click **Settings**. The Website Data Settings window is displayed.
- Step 3. Select **Every time I visit the webpage** and click **OK**.

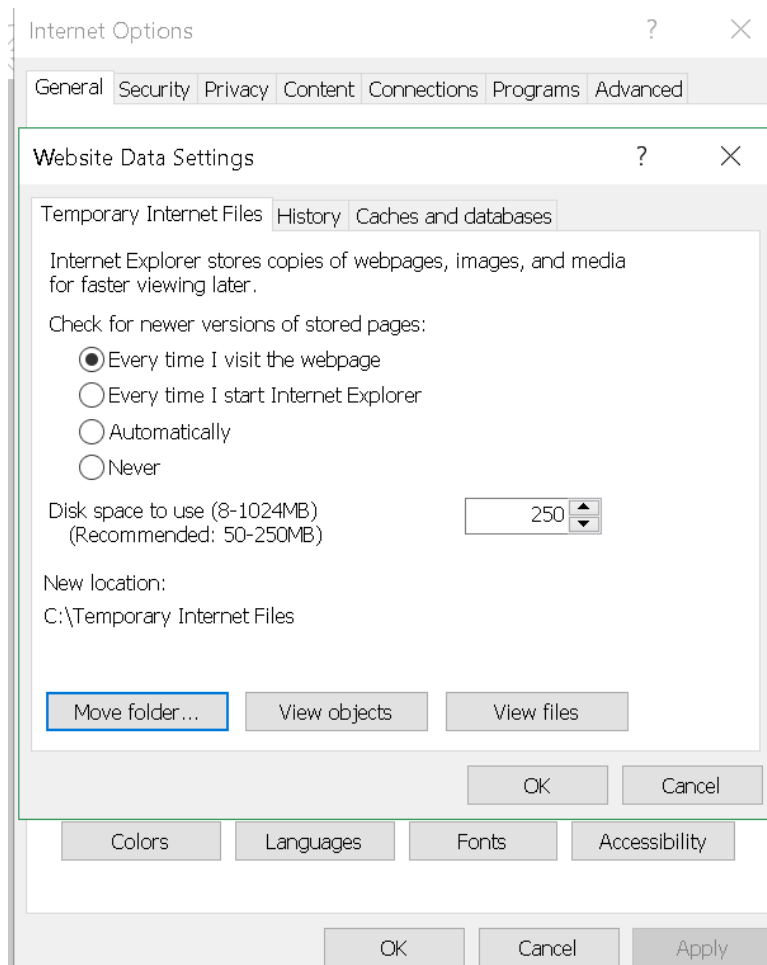


Figure 15. Internet Explorer settings

Step 4. Click **OK** in the Internet Options window.

Hardware events of a host are lost when this host is managed by two vCenter clients

One host can be managed by only one vCenter client. If a host is added to a new vCenter client without removing from the original vCenter, hardware events of this host will not be received by the LXCI on the original vCenter client.

You need to remove the host from the original vCenter.

Appendix B. Accessibility features

Accessibility features help users who have 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.

The *Lenovo XClarity Integrator for VMware vCenter Installation and User 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.

The VMware vCenter topic collection and its related publications are accessibility-enabled for screen-reader technology. 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 in Adobe Portable Document Format (PDF) using the Adobe Acrobat Reader. Publications are available for download from the [Lenovo XClarity Integrator for VMware Web site](#).

Lenovo and accessibility

See the [Lenovo Accessibility Web site](#) for more information about the commitment that Lenovo has to accessibility.

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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.

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