



# Lenovo XClarity Integrator Add-in for Microsoft System Center Virtual Machine Manager User's Guide

*Version 2.1.0*





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*Version 2.1.0*

**Note**

Before using this information and the product it supports, read the information in "Notices" on page 43.

**Edition notice**

This edition applies to version 2.1.0 of Lenovo XClarity Integrator Add-in for Microsoft System Center Virtual Machine Manager, v2.1.0 and to all subsequent releases and modifications until otherwise indicated in new editions.

This User's Guide provides the latest information for Lenovo XClarity Integrator Add-in for Microsoft System Center Virtual Machine Manager, v2.1.0. The Lenovo XClarity Integrator Add-in for Microsoft System Center Virtual Machine Manager, v2.1.0 is a plug-in application for Microsoft System Center Virtual Machine Manager that is designed to manage Lenovo x and Flex Servers and offer value-add features that connect the hardware infrastructure and the virtual infrastructure.

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# Contents

<b>Figures</b> . . . . .	<b>v</b>	<b>Chapter 5. Working with functions</b> . . . . .	<b>15</b>
<b>About this publication</b> . . . . .	<b>vii</b>	Collecting information. . . . .	15
Conventions and terminology . . . . .	vii	Viewing host information. . . . .	15
<b>Information resources</b> . . . . .	<b>ix</b>	Viewing general information about Lenovo XClarity Administrator . . . . .	15
<b>PDF files</b> . . . . .	<b>xi</b>	Viewing a chassis map . . . . .	16
<b>World Wide Web resources</b> . . . . .	<b>xiii</b>	Searching for assets. . . . .	19
<b>Chapter 1. About Lenovo XClarity Integrator Add-in for Microsoft System Center Virtual Machine Manager, v2.1.0</b> . . . . .	<b>1</b>	Monitoring . . . . .	20
<b>Chapter 2. System requirements</b> . . . . .	<b>3</b>	PFA management . . . . .	20
Hardware requirements. . . . .	3	Updating . . . . .	22
Software requirements . . . . .	5	Rolling System Update . . . . .	22
<b>Chapter 3. Installing Lenovo XClarity Integrator Add-in</b> . . . . .	<b>7</b>	Managing Firmware Compliance . . . . .	23
Upgrading Lenovo XClarity Integrator Add-in . . . . .	7	Rolling System Reboot. . . . .	25
Uninstalling Lenovo XClarity Integrator Add-in . . . . .	7	Configuring . . . . .	26
Removing the Lenovo XClarity Integrator Add-in from SCVMM . . . . .	8	Configuration Pattern . . . . .	26
<b>Chapter 4. Using the Lenovo XClarity Integrator Add-in</b> . . . . .	<b>9</b>	<b>Chapter 6. Troubleshooting</b> . . . . .	<b>33</b>
Importing the Lenovo XClarity Integrator Add-in . . . . .	9	Host is visible in SCVMM host list but not in Lenovo XClarity Integrator Add-in . . . . .	33
Starting the Lenovo XClarity Integrator Add-in . . . . .	10	Installer fails with error message . . . . .	34
Setting host authentication . . . . .	11	The Lenovo XClarity Integrator Unified Service session becomes invalid . . . . .	34
Setting Rolling System Update Preferences . . . . .	12	Installing Microsoft Internet Explorer update KB3087038. . . . .	34
Adding an Integrated Management Module (IMM) . . . . .	13	<b>Appendix A. System firewall settings</b> . . . . .	<b>37</b>
IMM discovery . . . . .	13	<b>Appendix B. Checking Lenovo XClarity Integrator Unified Service sessions</b> . . . . .	<b>39</b>
IMM authentication . . . . .	14	<b>Licensing</b> . . . . .	<b>41</b>
Adding Lenovo XClarity Administrator (LXCA) . . . . .	14	<b>Notices</b> . . . . .	<b>43</b>
		Trademarks . . . . .	44
		Important notes . . . . .	44
		<b>Index</b> . . . . .	<b>45</b>



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## Figures

1. Programs and Features window . . . . .	8	9. Deployment request confirmation window	28
2. Import Console Add-in selection . . . . .	9	10. Deployment request submitted confirmation window. . . . .	29
3. Starting Lenovo XClarity Integrator Add-in	11	11. Server pattern details . . . . .	29
4. Setting host authentication . . . . .	12	12. Deactivating a Configuration Pattern . . . . .	30
5. Lenovo XClarity Administrator general information . . . . .	16	13. Deactivate Server Pattern dialog . . . . .	30
6. Chassis map . . . . .	17	14. Deactivate status dialog . . . . .	31
7. Configuration Pattern page . . . . .	27	15. Pattern Deactivation Summary dialog. . . . .	31
8. Configuration Pattern deployment summary dialog . . . . .	28		



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## About this publication

This book provides instructions for installing and using Lenovo XClarity Integrator Add-in for Microsoft System Center Virtual Machine Manager, v2.1.0. For an overview of new functionality in version 2.1.0, as well as important information on known limitations and workarounds, see the *Lenovo XClarity Integrator Add-in for Microsoft System Center Virtual Machine Manager Release Notes*.

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## 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. Definitions for terms used in this guide*

Term, Acronym, or Abbreviation	Definition
Integrated Management Module (IMM)	A service processor that consolidates service processor functions and a video controller in a single chip.
Lenovo XClarity Administrator (LXCA)	Provides a single element manager for x86 nodes in both Flex Systems and stand-alone racks, as well as the chassis resource manager for PureFlex.
Lenovo XClarity Integrator (LXCI)	A tool suite that provides IT administrators with the ability to integrate the management features of the System x with Microsoft System Center. Lenovo expands Microsoft System Center server management capabilities by integrating Lenovo hardware management functionality, providing affordable, basic management of physical and virtual environments to reduce the time and effort required for routine system administration. It provides the discovery, configuration, monitoring, event management, and power monitoring needed to reduce cost and complexity through server consolidation and simplified management.

Table 1. Definitions for terms used in this guide (continued)

Term, Acronym, or Abbreviation	Definition
Management Node	A physical or virtual machine on which the SCVMM service, the Lenovo Unified Service and the Lenovo XClarity Integrator Add-in for Microsoft System Center Virtual Machine Manager, v2.1.0 are installed and running
Managed Node	A physical machine managed with SCVMM, on which the SCVMM Agent is installed and running
PFA	Predictive Failure Alert
SCVMM	Microsoft System Center Virtual Machine Manager
UXSP	UpdateXpress System Pack
UXSPI	Lenovo UpdateXpress System Pack Installer

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## Information resources

You can find additional information about Lenovo XClarity Integrator Add-in for Microsoft System Center Virtual Machine Manager, v2.1.0 on the World Wide Web.

You can find additional information about Lenovo XClarity Integrator Add-in for Microsoft System Center Virtual Machine Manager, v2.1.0 in the product documentation and on the World Wide Web.



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## PDF files

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

### Downloading Adobe Acrobat Reader

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

### Viewing and printing PDF files

You can view or print any of the PDF files located on the web. The most current version of each document is available on the product download page. Click the following link to locate the individual product pages for each publication: [Lenovo System x Integration Offerings for Microsoft Systems Management Solutions - Lenovo x86 servers](#).

- [Lenovo PureFlex and System x Lenovo XClarity Integrator Add-in for Microsoft System Center Virtual Machine Manager, v2.1.0](#)

### Saving PDF files

To save a PDF file, complete the following steps:

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

Web browser	Command
For Internet Explorer	Click <b>Save Target As</b> .
For Mozilla	Click <b>Save Link As</b> .

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



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## World Wide Web resources

The following web pages provide resources for understanding, using, and troubleshooting Lenovo PureFlex, System x, BladeCenter blade servers, and systems-management tools.

### **Lenovo website for Microsoft Systems Management Solutions for Lenovo servers**

The Lenovo website for Microsoft Systems Management Solutions for Lenovo Servers can be found at <http://www.ibm.com/support/entry/portal/docdisplay?Indocid=LNVO-MANAGE>.

Locate the latest downloads for Lenovo XClarity Integrator Add-in for Microsoft System Center Virtual Machine Manager, v2.1.0.

### **Lenovo Systems Technical support site**

Locate support for Lenovo hardware and systems-management software.  
<http://support.lenovo.com/>

### **Lenovo ServerProven page**

- System x Flex System Manager pages at: <http://www-03.ibm.com/servers/eserver/serverproven/compat/us/indexsp.html>
- BladeCenter ServerProven pages at: <http://www-03.ibm.com/servers/eserver/serverproven/compat/us/eserver.html>

Obtain information about hardware compatibility with Lenovo System x, Lenovo BladeCenter, and IBM IntelliStation hardware.

### **Lenovo PureFlex system and Flex System Manager**

Lenovo PureFlex system and Flex System Manager <http://pic.dhe.ibm.com/infocenter/flexsys/information/index.jsp>



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## **Chapter 1. About Lenovo XClarity Integrator Add-in for Microsoft System Center Virtual Machine Manager, v2.1.0**

The Lenovo XClarity Integrator Add-in for Microsoft System Center Virtual Machine Manager is a plug-in application for Microsoft System Center Virtual Machine Manager (SCVMM), which is provided as a Lenovo XClarity Integrator extension. It facilitates the management of Lenovo System x and Flex Servers and offers value-add features to connect the hardware infrastructure and the virtual infrastructure.

### **About Lenovo XClarity Integrator**

The Lenovo XClarity Integrator consists of extensions to Microsoft System Center and VMware vCenter. These extensions provide IT administrators with enhanced management capabilities for Lenovo System x servers, BladeCenter servers, and Flex systems. The Lenovo XClarity Integrator extensions include a set of plug-ins for Microsoft System Center and VMware vCenter, stand-alone applications and service applications.

With Lenovo XClarity Integrator, Lenovo expands the management capabilities of Microsoft System Center and VMware vCenter by integrating Lenovo hardware management functionality and providing affordable, basic management of physical and virtual environments to reduce the time and effort required for routine system administration. This functionality provides for the discovery, configuration, monitoring, event management, and power monitoring needed to reduce cost and complexity through server consolidation and simplified management.

### **Lenovo XClarity Integrator Add-in for Microsoft System Center Virtual Machine Manager, v2.1.0**

Through features such as Rolling System Update, which enables firmware to be updated without interrupting serviceability, Lenovo XClarity Integrator Add-in makes it easier to manage Lenovo servers. Through an integrated user interface on the SCVMM Admin panel, you can manage Lenovo hardware assets such as servers. Lenovo XClarity Integrator Add-in for Microsoft System Center Virtual Machine Manager, v2.1.0 requires the Lenovo XClarity Integrator Unified Service as its back end.



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## Chapter 2. System requirements

This section provides the hardware and software requirements for the Lenovo XClarity Integrator Add-in.

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### Hardware requirements

This section lists minimum and recommended hardware requirements for the Lenovo XClarity Integrator Add-in, as well as IBM and Lenovo hardware that the add-in can manage.

#### Hardware requirements for the Lenovo XClarity Integrator Add-in

*Table 2. Minimum and recommended hardware requirements for the Lenovo XClarity Integrator Add-in*

Minimum	Recommended
Single x86-64 processor/core	4 x86-64 processors/cores
2 GB RAM	8 GB RAM
20 GB of free hard drive space	40 GB of free hard drive space
100 MBPS network card	10,000 MBPS network card

#### IBM and Lenovo hardware

Although Lenovo XClarity Integrator Add-in for Microsoft System Center Virtual Machine Manager, v2.1.0 does not have hardware limitations, the hardware that it manages is limited to the IBM and Lenovo System x and Blade servers in the following tables.

Table 3. IBM supported hardware

System	Server number
System x server	<ul style="list-style-type: none"> <li>• dx360 M2 (7321, 7323)</li> <li>• dx360 M3 (6391)</li> <li>• dx360 M4 (7912, 7913, 7918, 7919)</li> <li>• nx360 M4 (5455)</li> <li>• Smart Analytics System (7949)</li> <li>• x3100 M4 (2582)</li> <li>• x3200 M2 (4367, 4368)</li> <li>• x3200 M3 (7327, 7328)</li> <li>• x3250 M2 (7657, 4190, 4191, 4194)</li> <li>• x3250 M3 (4251,4252,4261)</li> <li>• x3250 M4 (2583)</li> <li>• x3250 M5 (5458)</li> <li>• x3300 M4 (7382)</li> <li>• x3400 M2 (7836, 7837)</li> <li>• x3400 M3 (7378, 7379)</li> <li>• x3500 M2 (7839)</li> <li>• x3500 M3 (7380)</li> <li>• x3500 M4 (7383)</li> <li>• x3530 M4 (7160)</li> <li>• x3550 M2 (7946, 4198)</li> <li>• x3550 M3 (7944, 4254)</li> <li>• x3550 M4 (7914)</li> <li>• x3620 M3 (7376)</li> <li>• x3630 M3 (7377)</li> <li>• x3630 M4 (7158, 7518, 7519)</li> <li>• x3650 M2 (7947, 4199)</li> <li>• x3650 M3 (7944, 7945, 4254, 4255, 5454)</li> <li>• x3650 M4 (7915)</li> <li>• x3650 M4 HD (5460)</li> <li>• x3650 M4 BD (5466)</li> <li>• x3750 M4 (8722, 8733)</li> <li>• x3755 M4 (7164)</li> <li>• x3690 X5 (7148, 7149, 7147, 7192)</li> <li>• x3850 X5/X3950</li> <li>• X5 (7145, 7146, 7143, 7191)</li> <li>• x3850 X6 (3837)</li> </ul>
Flex Compute Node	<ul style="list-style-type: none"> <li>• Flex System x220 Compute Node (7906, 2585)</li> <li>• Flex System x222 Compute Node (7916)</li> <li>• Flex System x240 Compute Node (8737, 8738, 7863)</li> <li>• Flex System x440 Compute Node (7917)</li> </ul>

Table 3. IBM supported hardware (continued)

System	Server number
Blade System	<ul style="list-style-type: none"> <li>• HS22 (7870, 7809, 1911, 1936)</li> <li>• HS22V (7871, 1949)</li> <li>• HS23 (7875, 1882, 1929)</li> <li>• HS23E (8038, 8039)</li> <li>• HX5 (7872, 7873, 1909, 1910)</li> </ul>

Table 4. Lenovo supported hardware

Lenovo-supported hardware	Server number
System x server	<ul style="list-style-type: none"> <li>• NeXtScale nx360 M5 (5465)</li> <li>• NeXtScale nx360 M5 DWC (5467, 5468, 5469)</li> <li>• x3500 M5 (5464) x3550 M4 (7914)</li> <li>• x3550 M5 (5463)</li> <li>• x3630 M4 (7158)</li> <li>• x3650 M4 (7915)</li> <li>• x3650 M5 (5462)</li> <li>• x3750 M4 (8753)</li> <li>• x3850 X6 / x3950 X6 (6241)</li> </ul>
Flex Compute Node	<ul style="list-style-type: none"> <li>• Flex System x240 Compute Node (7162, 2588)</li> <li>• Flex System x240 M5 Compute Node (2591, 9532)</li> <li>• Flex System x440 Compute Node (7167, 2590)</li> <li>• Flex System x280,x480,x880 X6 Compute Node (7196, 4258)</li> </ul>

## Software requirements

The Lenovo XClarity Integrator Add-in requires the software listed in this section.

### Management nodes

- Windows Server 2012 SP1 (x64), 2012 R2 (x64)
- .NET Framework 4
- Microsoft System Center Virtual Machine Manager 2012 SP1, 2012 R2
- Microsoft Internet Explorer version 10.0.9200.17492 or later

### Managed nodes

- Windows Server 2008R2 (x64), 2012 SP1 (x64), 2012 R2 (x64)
- .NET Framework 3.5 and 4.0 on Windows Server 2008R2
- Microsoft System Center Virtual Machine Manager 2012 SP1 , 2012 R2 Agent
- Hyper-V Role



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## Chapter 3. Installing Lenovo XClarity Integrator Add-in

Information about installing Lenovo XClarity Integrator Add-in is provided.

### Before you begin

Download the Lenovo XClarity Integrator Add-in Installer from the Lenovo XClarity Integrator download page at <http://www.ibm.com/support/entry/portal/docdisplay?lnocid=LNVO-MANAGE>

### Procedure

1. Double-click the Lenovo XClarity Integrator Add-in installer file. The Welcome screen displays.
2. Install the package according to prompts on InstallShield wizard.
3. After the installation completes, follow the steps in “Importing the Lenovo XClarity Integrator Add-in” on page 9.

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## Upgrading Lenovo XClarity Integrator Add-in

If an earlier version is detected, the InstallShield Wizard automatically starts the upgrade process.

### Procedure

1. Upgrade the existing version by following the prompts on InstallShield Wizard.
2. The upgrade process also updates Lenovo XClarity Integrator Unified Service. For update details, refer to the Lenovo XClarity Integrator Offerings for Microsoft System Center Management Solutions - Lenovo x86 servers page.
3. After the InstallShield Wizard completes, import the Lenovo XClarity Integrator Add-in zip file into SCVMM. The file name is `lnvgy_sw_scvmmaddin_2.0.0-2.0_windows_32-64.zip`. For information on how to import the file, refer to “Importing the Lenovo XClarity Integrator Add-in” on page 9.

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## Uninstalling Lenovo XClarity Integrator Add-in

Use this procedure to uninstall Lenovo XClarity Integrator Add-in.

### Procedure

1. From within the Control Panel, open the Programs and Features window.

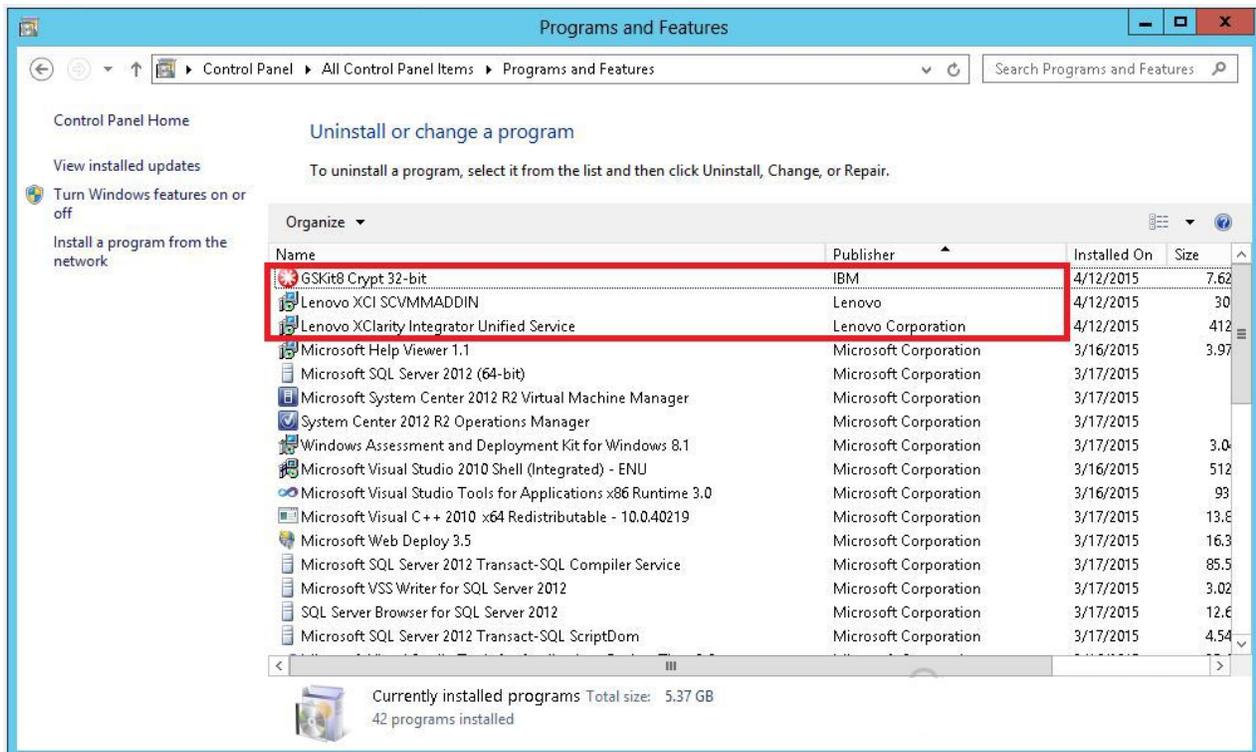


Figure 1. Programs and Features window

2. Uninstall GSKit8 Crypt 32-bit.
3. Uninstall Lenovo XCI SCVMMADDIN.
4. Uninstall Lenovo XClarity Integrator Unified Service.
5. Manually remove the Lenovo XClarity Integrator Add-in from SCVMM. For detailed removal instructions, see “Removing the Lenovo XClarity Integrator Add-in from SCVMM.”

## Removing the Lenovo XClarity Integrator Add-in from SCVMM

You must manually remove the Lenovo XClarity Integrator Add-in from SCVMM before you are going to import a newly installed one or before/after you uninstall the Lenovo XClarity Integrator Add-in from the system.

### Procedure

1. Open the Settings category page from left-bottom of the SCVMM.
2. Select the Lenovo XClarity Integrator Add-in from the add-in list.
3. Click **Remove** from the toolbar at the top of the SCVMM. A confirmation dialog displays.
4. Click **Yes** on the confirmation dialog.

---

## Chapter 4. Using the Lenovo XClarity Integrator Add-in

This section provides information about importing and starting the Lenovo XClarity Integrator Add-in for Microsoft System Center Virtual Machine Manager, v2.1.0. It also provides procedures for setting host authentication, setting Rolling System preferences, and adding an Integrated Management Module (IMM).

---

### Importing the Lenovo XClarity Integrator Add-in

You must import the Lenovo XClarity Integrator Add-in zip file into SCVMM manually. After the InstallShield Wizard completes, the Lenovo XClarity Integrator Add-in zip file is copied into a specified folder. Use following the procedure to import it.

#### Before you begin

Ensure that the Lenovo XClarity Integrator Add-in has not been imported or has been removed. For removal instructions, see “Removing the Lenovo XClarity Integrator Add-in from SCVMM” on page 8.

#### Procedure

1. From the SCVMM Console, on the Settings category page, click **Import Console Add-in**.

The Import Console Add-in Wizard window displays.

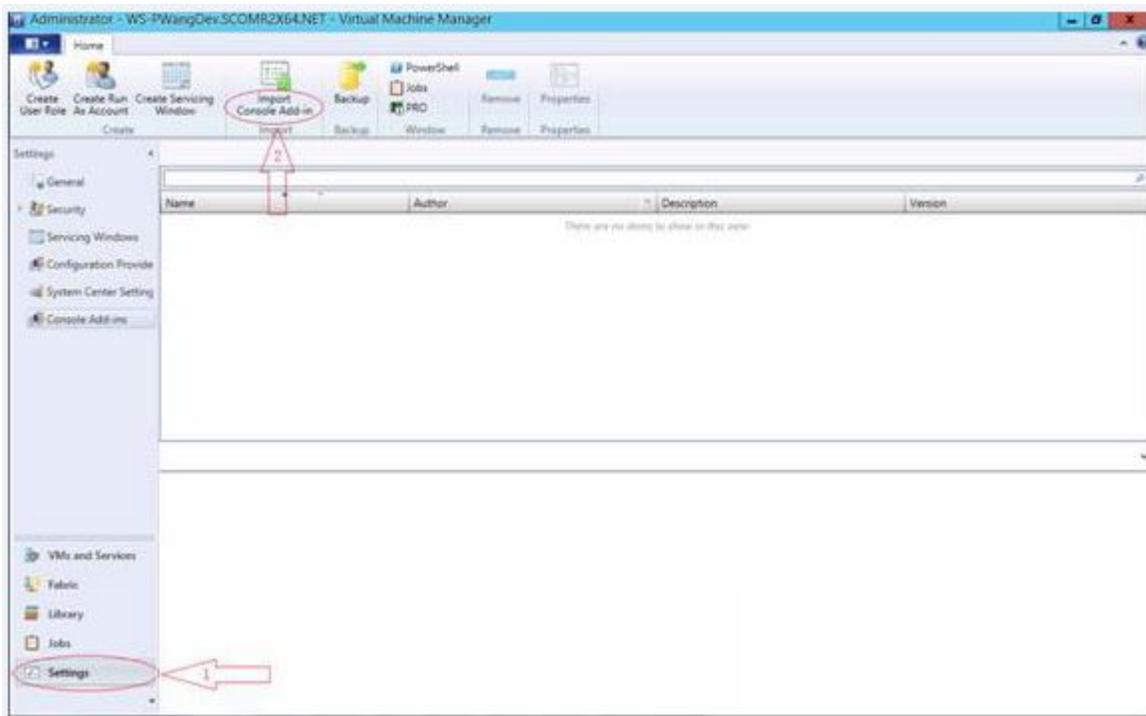
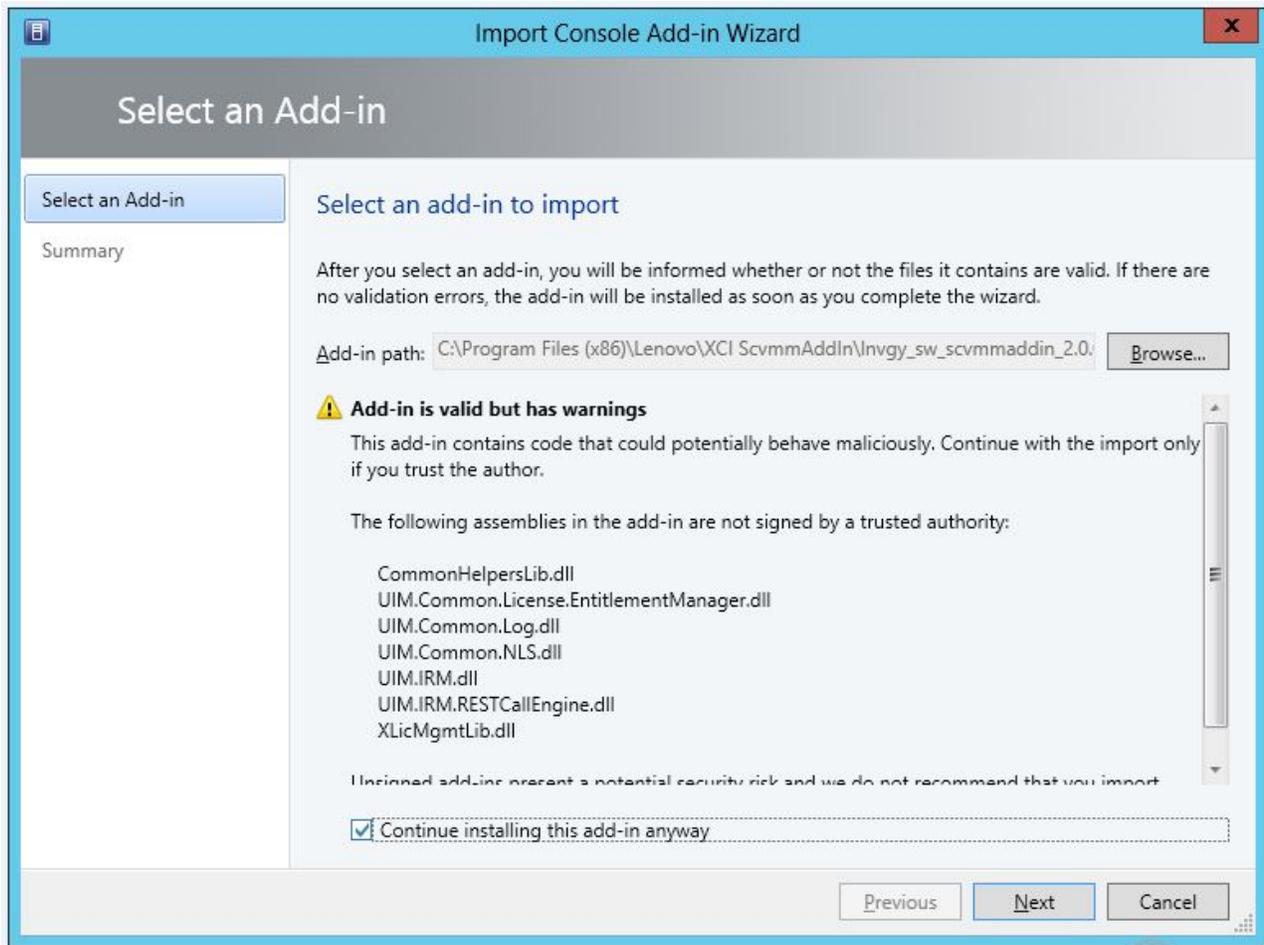


Figure 2. Import Console Add-in selection

2. In the Import Console Add-in Wizard window, click **Browse**.



3. Navigate to the `Invgv_sw_scvmmaddin_version_windows_32-64.zip` file. The zip file is typically located in the following path: `C:\Program Files (x86)\Lenovo\XCI ScvmmAddIn`.
4. Select the **Continue installing this add-in anyway** check box.
5. Click **Next** to continue.
6. Click **Finish** to continue with the import procedure. The status of the import procedure is presented in the Jobs report console.

---

## Starting the Lenovo XClarity Integrator Add-in

After importing the Lenovo XClarity Integrator Add-in zip file, use the procedure in this section to start the Lenovo XClarity Integrator Add-in.

### Before you begin

**Important:** Lenovo XClarity Integrator Add-in provides some functions that enable you to operate hosts, clusters, chassis, racks, and Lenovo XClarity Administrator. To avoid unauthorized operation, only Domain Administrators and accounts with a “delegated administrator” user role can access the Lenovo XClarity Integrator Add-in.

### Procedure

1. Open the SCVMM Console.

2. Select **VMs and Services** or **Fabric** from the lower left corner of SCVMM Console. A navigation pane displays.
3. Select **All Hosts**.
4. Click the **Lenovo XCI** icon at the top of the SCVMM Console.
5. From either the Fabric category page or the VMs and Services page, click the **Lenovo XCI** icon at the top of the window.

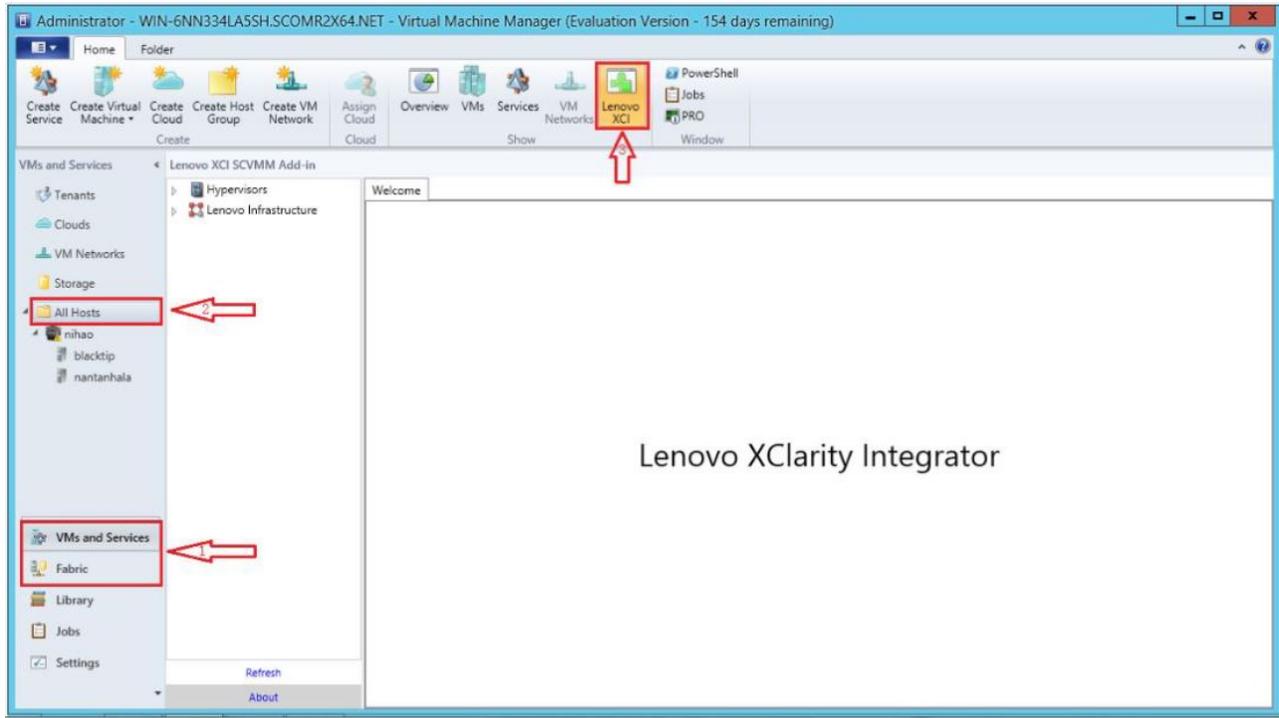


Figure 3. Starting Lenovo XClarity Integrator Add-in

The interface for Lenovo XClarity Integrator Add-in for Microsoft System Center Virtual Machine Manager, v2.1.0 console comprises two sections. On the left side is a navigation pane containing managed assets, including host clusters and their managed hosts that are synchronized with SCVMM configuration; and Lenovo XClarity Administrators and their managed chassis. On the right side is the main frame, which displays the current operation relevant to the asset selected in the left tree view. To refresh or reload assets in left navigation pane, press Ctrl+F5 or click **Refresh** at the bottom of the navigation pane.

## Setting host authentication

Use the Hypervisor node to view information about the host.

The authentication information is required to collect detailed system information, such as Machine Type, and to enable some Lenovo XClarity Integrator functions, such as Rolling System Update and Rolling System Reboot. To set host authentication information, you can expand Hypervisor from the navigation pane of the Lenovo XClarity Integrator Add-in, and then expand the cluster and click one host. On the Host General page, you can see **Authentication OS**. Click it to enter the Host Authentication Information dialog. You must set the following information to finish host authentication.

## Run As Account

SCVMM Run As account is used for the SCVMM service to execute scripts on the target host. You must specify an account with domain administrator permission for all Lenovo XClarity Integrator Add-in functions to work correctly.

## Username and Password

A user account with domain administrator permission is required to connect to a specific host via WMI to collect system information, to execute scripts and applications, or to access the SMB share folder (typically C\$) of a specific host.

**Note:** Ensure that the SMB and WMI services of the managed hosts are enabled. After being encrypted, the authentication information is stored in the Lenovo XClarity Integrator Unified Service database.

Click **Set Auth Info** on the bottom of the host General tab. Then complete the fields on the Set Authentication Information window. The information can be applied to either the selected host, the hosts in the same cluster, or to all hosts listed in the navigation pane. Wait after applying the information. The information is verified and the result is shown in the UI.

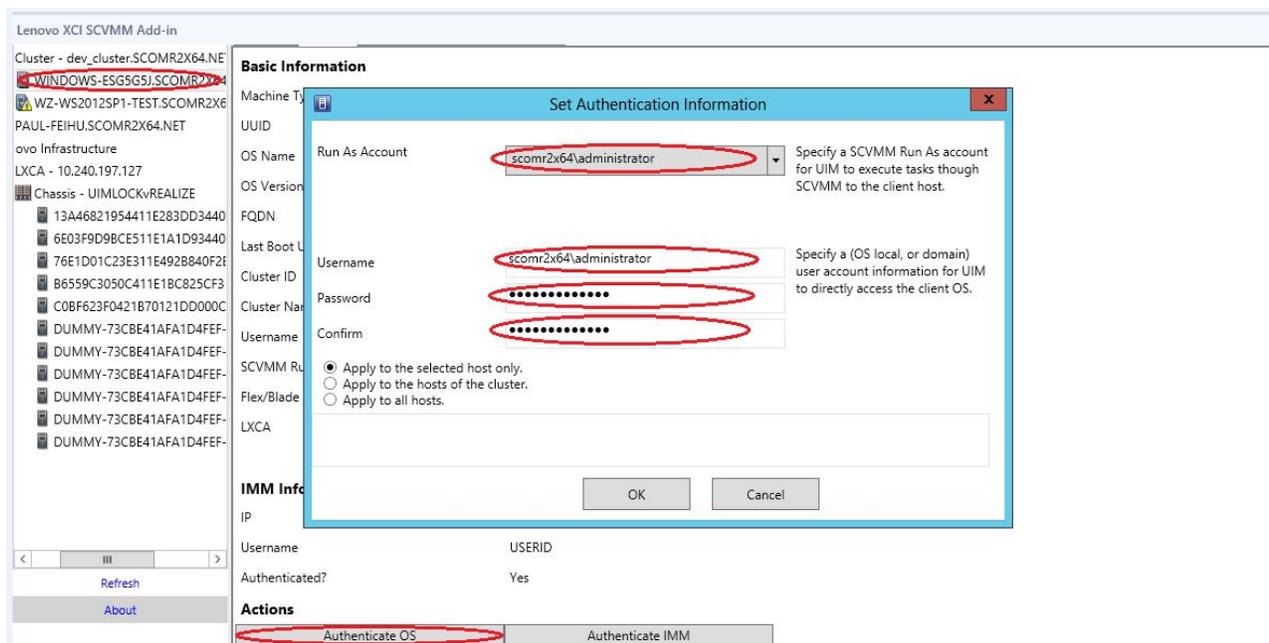


Figure 4. Setting host authentication

## Setting Rolling System Update Preferences

Setting Rolling System Update Preferences is precondition of Rolling System Update functions. Use following the procedure.

### Procedure

1. Expand Hypervisor from the navigation pane of the Lenovo XClarity Integrator Add-in, and then select the target cluster.
2. From the top of the main frame, select Rolling System Update.

3. Click the Preferences tab on the Rolling System Update page. If Preferences have not been set before, the Preferences page automatically displays. If Preferences have been set already, the Rolling System Update Task Manager page displays, and you can click the Preferences link to go to the Preferences page.
4. Specify credentials (username and password) for a local Windows account or a Windows domain account that you will use to access the Windows share folder on the management server from remote managed servers. The Lenovo XClarity Integrator Add-in automatically creates the Windows share folder using the path specified by the value in the **Local Repository Folder** text box for containing the firmware payloads.
5. Perform one of the following steps:
  - If you have update packages available, copy them into the Local Repository Folder path.
  - If you do not have update packages available, set the Check Updates from Lenovo Website Section to download update packages from the Lenovo website automatically:
    - a. Select the **Check Updates from Lenovo Website** check box.
    - b. Configure your Internet settings.
    - c. Choose the frequency for downloading update packages automatically. If you want to download an update package immediately, select the **Check Now** checkbox. The download process begins after you submit the package.
6. Click **Save** to save the settings. If the settings save successfully, nothing happens.

**Note:** Click the Check Now link to check for the latest firmware from the Lenovo website.
7. Click the Go Back link to return to the Rolling System Update Task Manager page.

---

## Adding an Integrated Management Module (IMM)

Adding an Integrated Management Module (IMM) into the Lenovo XClarity Integrator Add-in is a precondition for some functions, such as the PFA function.

There are two steps to add IMM:

1. IMM discovery
2. IMM authentication

### IMM discovery

This function is to discover IMM entries.

#### Procedure

1. Select the **Hypervisors** or the **Lenovo Infrastructure** root entry in the navigation pane of the Lenovo XClarity Integrator Add-in.
2. Choose the IMM Management page on the top of the main frame.
3. Click **Discover**. The IMM Discovery dialog displays.
4. Enter one IP address or a range of IP addresses. IPv4 and IPv6 are supported.
5. Click **OK** in the IMM Discovery dialog.

The dialog closes immediately if the **Run in the background** option is selected. Otherwise, the dialog closes when the discovery process has successfully completed. Successful completion means that the request has been handled and returned regardless of the number of IMM entries actually discovered.

If the request has successfully completed, the newly discovered IMM entries are updated on the IMM table on the IMM Management page.

The dialog remains open when there is a failure in handling the request. This can occur when the request has not reached to the server due to a communication failure.

## IMM authentication

This function is to input username and password information for IMM entries. The information is saved in the Lenovo XClarity Integrator database for future use in other functions.

### Procedure

1. Select the **Hypervisors** or the **Lenovo Infrastructure** root entry in the navigation pane of the Lenovo XClarity Integrator Add-in.
2. Choose the IMM Management page on the top of the main frame.
3. Select the check boxes next to the IMM to be authenticated.
4. Click **Authenticate**. The IMM Authentication dialog displays.
5. Enter username and password information.
6. Click **OK**. If the request has successfully completed, the IMM table on the IMM Management page is updated.

---

## Adding Lenovo XClarity Administrator (LXCA)

Adding Lenovo XClarity Administrator (LXCA) into the Lenovo XClarity Integrator Add-in is precondition of some functions, such as viewing general information about Lenovo XClarity Administrator (LXCA) and viewing a chassis map of its managed chassis. Use the steps in this section to add one Lenovo XClarity Administrator into Lenovo XClarity Administrator (LXCA).

### Procedure

1. Click **Lenovo Infrastructure** from the navigation pane.
2. Click the **LXCA Registration** tab at the top of the main frame. The Registered LXCA page displays on the main frame. All registered LXCA are displayed on the page.
3. Click **Register** to begin LXCA registration. An LXCA registration dialog displays.
4. Enter the IP address, User Name, Password, and Port for the Lenovo XClarity Administrator (LXCA) in the LXCA registration dialog. After you submit, the Lenovo XClarity Integrator Add-in connects to the Lenovo XClarity Administrator (LXCA) to authenticate.
5. After you register, click **Refresh** to update the navigation pane.

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## Chapter 5. Working with functions

This section introduces Lenovo XClarity Integrator Add-in functions.

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### Collecting information

Lenovo XClarity Integrator Add-in collects information about hosts, chassis, and Lenovo XClarity Administrator in order to aid in managing systems.

#### Viewing host information

You can get general information about hosts inside of a host cluster that is configured in SCVMM.

For information on how to configure a host cluster in SCVMM, refer to <https://technet.microsoft.com/en-us/library/cc956009.aspx>.

To view host information, expand Hypervisor from the navigation pane of the Lenovo XClarity Integrator Add-in, and then expand the cluster and click one host.

To see general information for a host inside a cluster, expand the **Hypervisor** node from the navigation pane of the Lenovo XClarity Integrator Add-in for Microsoft System Center Virtual Machine Manager, v2.1.0 UI, select the cluster where the host resides, and select the host.

To see the general information for a host outside a cluster, expand the **Hypervisor** node from the navigation pane of the Lenovo XClarity Integrator Add-in for Microsoft System Center Virtual Machine Manager, v2.1.0 UI, then select the host.

#### Viewing general information about Lenovo XClarity Administrator

You can view general information about Lenovo XClarity Administrator and the chassis that Lenovo XClarity Administrator manages.

To view general information of Lenovo XClarity Administrator, you must first register Lenovo XClarity Administrator. See chapter 4 for more information.

Then expand Lenovo Infrastructure from the navigation pane, and select one of Lenovo XClarity Administrators you targeted. General Information about the Lenovo XClarity Administrator displays on the main frame like this:

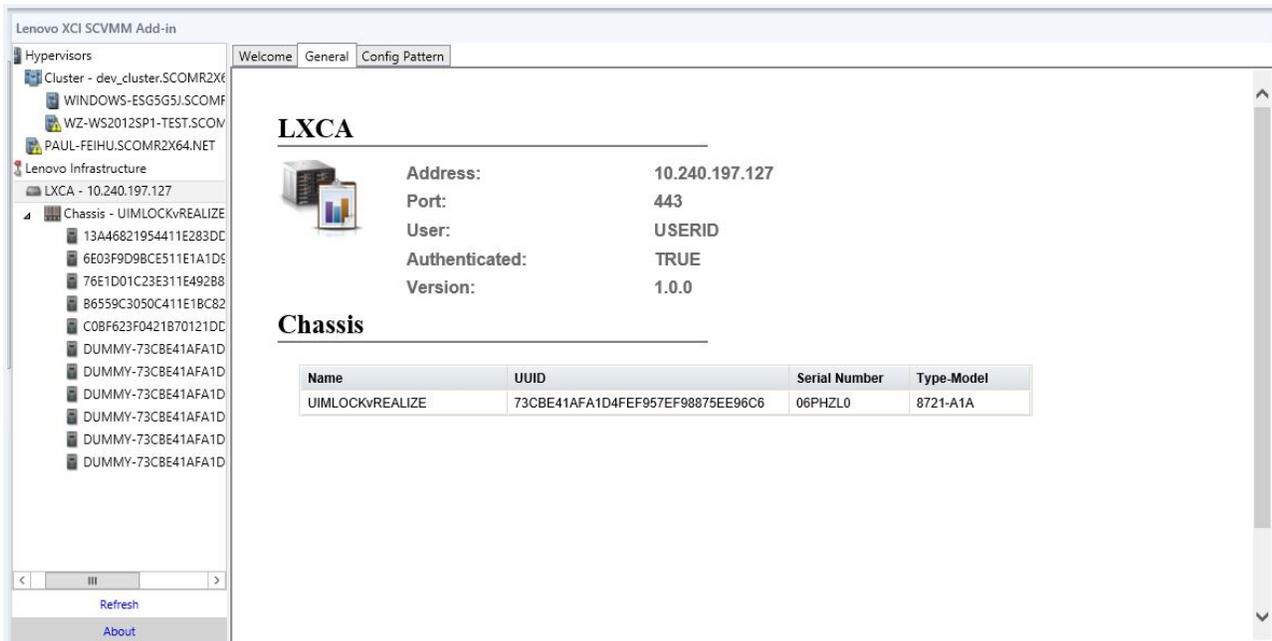


Figure 5. Lenovo XClarity Administrator general information

## Viewing a chassis map

After Lenovo XClarity Administrator is registered in the Lenovo XClarity Integrator Add-in, you can review the chassis map for a chassis that is managed by the Lenovo XClarity Administrator.

### Procedure

1. Locate a chassis or a server in a specific chassis and select it from the asset tree pane of the Lenovo XClarity Integrator Add-in console. The chassis should be managed by an LXCA under the Lenovo Infrastructure node in the Lenovo XClarity Integrator Add-in console's asset tree pane.
2. Click the Chassis Map tab from the work area on the Lenovo XClarity Integrator Add-in console.

You can:

- Click a component in the chassis to view its basic inventory and status information from a prompt.
- Apply various overlays to show different information or status for components in the chassis.
- Enable the overlays that you are interested in from the toolbar on the top of the Chassis Map view. The Table 5 on page 17 table provides more details about the overlays.



Figure 6. Chassis map

Table 5. Hardware map overlays

Overlay	Icon	Description
Hardware status		<p>Use the hardware status overlay to show the status of each of the components. You can choose one or more of the following status criteria to show:</p> <ul style="list-style-type: none"> <li>• <b>Critical.</b> Components have one or more critical alerts and immediate user action is required.</li> <li>• <b>Warning.</b> 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.</li> <li>• <b>Synchronizing.</b> The LXCA is waiting for the components to provide updated status.</li> <li>• <b>Offline.</b> Components are not online.</li> <li>• <b>Unknown.</b> The LXCA is not able to retrieve the status from one or more components in a chassis. User investigation might be needed.</li> <li>• <b>Normal.</b> Components are operating normally. Hover over a specific component to get more information about the current status.</li> </ul>

Table 5. Hardware map overlays (continued)

Overlay	Icon	Description
Highlight front panel LEDs		<p>Use the highlight front panel LEDs overlay to see the LEDs that are available for each of the components. You can choose one or more of the following LEDs to show:</p> <ul style="list-style-type: none"> <li>• <b>Power LED.</b> Display the current power LED for each component.</li> <li>• <b>Event Log LED.</b> Display the event log LED, which is lit when there are events specific to a component in the LXCA event log.</li> <li>• <b>Location LED.</b> Display the location LED, which can be turned on from the CMM to help you identify where a component is physically located.</li> <li>• <b>Fault LED.</b> Displays the status of the Fault LED for each component.</li> <li>• <b>Other LED.</b> Display all other LEDs that are available for each component.</li> <li>• <b>Only Active LEDs.</b> Display only the LEDs that are currently lit.</li> </ul> <p>Hover over a specific component to get more information about all LEDs for a component. For detailed information about each of the LEDs that can be displayed for a component, see the product documentation that is available for that component.</p>
Component names and properties		<p>Use the component names and properties overlay to display the name for each component in the chassis. When you hover over a component, additional properties about that component, such as IP address and UUID are displayed.</p>
Compliance		<p>Use the compliance overlay to determine whether the firmware that is currently installed on a component complies with the compliance policy that has been defined for that component.</p>
Configuration Patterns		<p>Use the Configuration Pattern overlay to determine which server patterns are assigned to each compute node.</p>

### Viewing details for a managed chassis

You can view the detailed information about the managed chassis from the LXCA when you click the Open LXCA for Details link.

These details include firmware levels, IP addresses, and universally unique identifiers (UUIDs).

#### **All Action button**

There is an **All Action** button on the Chassis Map page. By clicking this button, you can access the IMM interface and control one selected host remotely.

#### **Launch Management Module Interface**

If you select a chassis or host in the Chassis Map page, you can open an IMM web page in new window.

#### **Launch Remote Control**

You can open a Remote Control if you select a host in the Chassis Map view.

## **Searching for assets**

The "searching for assets" feature provides the search capability for quickly locating specific servers, clusters, chassis, and/or Lenovo XClarity Administrators (LXCAs) among the assets from the Lenovo XClarity Integrator Add-in console with a keyword.

### **Keywords**

Keyword matching is case-insensitive. A keyword does not support wildcards or regular expressions.

### **Search fields**

Search fields vary according to search targets. A match is found when the search text is included in any one of the fields of a search target.

For servers, the search fields are:

- **OS FQDN**
- **OS IP address**
- **OS Name**
- **Machine type**
- **Server UUID**
- **IMM IP address**
- **IMM model**
- **IMM part number**
- **IMM serial number**
- **IMM UUID**

For chassis, the search fields are:

- **Domain name**
- **Machine type**
- **Model**
- **Name**
- **Part number**
- **Serial number**
- **CMM IP address**

- **Product name**
- **UUID**

For LXCA, the search field is:

- **IP address**

For cluster, the search fields are:

- **Cluster ID**
- **Cluster Name**

## **Search results**

The search results display in the asset tree in the hierarchical structure. Matches are highlighted in blue. The upper-level nodes of a match node are expanded. A match node that has subordinate nodes without matches is collapsed.

From within the search results, you can select one node and operate it as usual. Its functions operate normally as well.

The asset tree stops automatically refreshing while displaying the search results.

## **Starting a search**

The "start a search" function enables you to search for specific assets of servers, clusters, chassis, and/or LXCA's.

### **Procedure**

1. Type keyword text into the **Search** field. The **Search** field is located at the top of the Lenovo XClarity Integrator Add-in asset tree.
2. Perform one of the following steps:
  - Wait for one second.
  - Press the Return/Enter key.
  - Click the magnifier icon next to the **Search** field.

## **Clearing search results**

The "clear search results" function enables you to clear results from a search so that full assets of servers, clusters, chassis, and/or LXCA's display.

### **Procedure**

Perform one of the following steps:

- Clear the **Search** field, then hold for one second or press the Return/Enter key.
- Click the Search button when it displays as a cross sign.

---

## **Monitoring**

This section covers managing RAS, setting policy, disabling VM auto-migration function from server nodes, and viewing Event History.

## **PFA management**

This feature provides the virtual machine (VM) automatic migration capability on specified hardware events.

## Before you begin

This feature is cluster-based. Before you continue with the operations, you must create clusters in SCVMM and add hosts in clusters. The Cluster Shared Volume (CSV) is also required. For additional details, refer to the Microsoft System Center topic *Creating a Hyper-V Host Cluster in VMM Overview*.

You must also perform the steps in “Adding an Integrated Management Module (IMM)” on page 13.

## Setting a policy

With the set policy function, you can enable VM auto-migration to selected server nodes with specific conditions and event categories.

## Before you begin

Complete the prerequisites in “PFA management” on page 20.

## Procedure

1. Select the **Hypervisors** root entry, or a cluster, or a hypervisor node in a cluster in the left host navigation pane.
2. Choose the **PFA Management** page on the top of the right pane. The RAS Management page opens.
3. Click **Set Policy**. The Set Policy dialog displays.
4. Choose the Enable VM migration on hardware events option from the drop-down list at the top.
5. Select or clear Conditions, Event Categories, and Hosts if it is necessary. A host is not selectable if its IMM has not been discovered or has not authenticated.
6. Click **OK**. A page that prompts you to confirm the settings displays.
7. Click **OK**.
8. Click the Back link on the bottom to go back to the RAS Management page.

## Disabling VM auto-migration function from server nodes

This function allows you to disable VM auto-migration from selected server nodes.

## Before you begin

Complete the prerequisites in “PFA management” on page 20.

## Procedure

1. Select the **Hypervisors** root entry, or a cluster, or a hypervisor node in a cluster in the left host navigation pane.
2. Choose the **PFA Management** page on the top of the right pane. The RAS Management page opens.
3. Click **Set Policy**. The Set Policy dialog displays.
4. Choose the Disable VM migration on hardware events option from the drop-down list at the top.
5. Change the selection of hosts if it is necessary.
6. Click **OK**. A page that prompts you to confirm the settings displays.
7. Click **OK**.
8. Click the Back link on the bottom to go back to the RAS Management page.

## View Event History

The View Event History function enables you to view hardware events and what has been done to the events.

### Before you begin

Complete the prerequisites in “PFA management” on page 20.

### Procedure

1. Select the **Hypervisors** root entry, or a cluster, or a hypervisor node in a cluster in the left host navigation pane.
2. Choose the **PFA Management** page on the top of the right pane. The RAS Management page opens.
3. Click **View Event History**. The **RAS Events** page displays, showing the RAS events and the operation history of the events present for the hosts shown in the table on the PFA Management page.
4. Click the Back link on the bottom to go back to the RAS Management page.

---

## Updating

This chapter provides information Rolling System Reboot and Rolling System Update.

### Rolling System Update

The Rolling System Update function helps you to update the servers while the system continues running without interruption to application services on server hosts.

#### Before you begin

- You must set the information described in “Setting host authentication” on page 11.
- You must complete the steps in “Setting Rolling System Update Preferences” on page 12.

#### About this task

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

The Task Manager provides the following task options:

- Create a Rolling System Update task. Each cluster can have only one active task whatever the task type is Update Only / Update and Reboot / Reboot Only.
- Edit a Rolling System Update task that has not been started.
- 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

1. Expand Hypervisor from the navigation pane of the Lenovo XClarity Integrator Add-in, and then select target cluster.

2. Select Rolling System Update on the top of main frame. If Preferences have not been set before, the Preferences page automatically displays. If Preferences have been set already, the Rolling System Update Task Manager page displays, and you can click the Preferences link to go to the Preferences page.
3. Perform one of the following steps:
  - Create 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 6. Rolling System Update task status

Target	Status	Description
Rolling Reboot	Not Started	The task has not started.
Task	Running	The task is running.
	Canceled	The task is canceled.
	Failed	Causes of task failure: <ul style="list-style-type: none"> <li>• Rebooting host failed</li> <li>• VM migration failed</li> </ul>
	Finished	The task has completed.
Host	Not Started	The reboot for the host has not started.
	Migrating	The host is entering maintenance mode.
	Maintenance	The host is in maintenance mode.
	Reboot	The host is rebooting after updating completes.
	Exit Maintenance	The host is exiting maintenance mode.
	Success	The reboot and exit Maintenance succeeded.
	Failed	The causes of host failure: <ul style="list-style-type: none"> <li>• Cannot enter maintenance mode</li> <li>• Cannot reboot the host</li> <li>• Cannot exit maintenance mode</li> </ul>

## Managing Firmware Compliance

The Firmware Compliance functions allow you to update firmware or assign compliance policies to chassis or servers.

## Before you begin

You must perform the following before you can use the firmware compliance functions:

- Complete the steps in “Adding Lenovo XClarity Administrator (LXCA)” on page 14.
- Log on to the Lenovo XClarity Administrators, create or edit firmware compliance policies, and download the relevant update packages.
- Install Microsoft Internet Explorer update KB3087038 using the instructions in “Installing Microsoft Internet Explorer update KB3087038” on page 34.

## Opening the Firmware Compliance page

The Firmware Compliance page is the starting point for using the Firmware Compliance functions.

### Procedure

1. In the asset tree pane, expand Lenovo Infrastructure.
2. Click an LXCA.
3. Click the **Firmware Compliance** tab at the top of the main frame. The Firmware Compliance page displays.

## Assigning a compliance policy

The "assigning a compliance policy" function allows you to assign a predefined firmware policy.

### Procedure

1. Optional: Select the system or systems to which you want to assign a policy. You will have the option to specify targets that could be the selected systems in a later step.
2. Click the **Assign Policy** icon. The Assign Policy dialog displays.
3. Select a policy to assign.
4. Select a target type.
5. Click **OK**.

## Updating firmware

Follow the steps in this procedure to perform an actual firmware update.

### Procedure

1. Select the system or systems on which you want to perform a firmware update.
2. Click the **Perform Updates** icon. The Update Summary dialog displays.
3. Select **Update Rule > Activation Rule**.
4. Click **Perform Update** to initiate the update. A confirmation dialog displays.
5. Click **OK**. The update progress displays in the Update Status column for the selected system(s).

## Canceling a firmware update

The Lenovo XClarity Integrator Add-in allows you to cancel a firmware update after you have initiated it.

### Procedure

1. Select the system or systems for which you want to cancel the firmware update process.

2. Click the **Cancel Updates** icon.

## Rolling System Reboot

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

### Before you begin

- You must set the information described in “Setting host authentication” on page 11.
- You must complete the steps in “Setting Rolling System Update Preferences” on page 12.

### About this task

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

The Task Manager provides the following task options:

- Create a Rolling System Reboot task. Each cluster can have only one active task whatever the task type is:
  - Update Only
  - Update and Reboot
  - Reboot Only
- Edit a Rolling System Reboot task that has not been started
- Remove a Rolling System Reboot task from the Task List
- Cancel a Rolling System Reboot task that is running
- View Rolling System Reboot task status

### Procedure

1. Expand Hypervisor from the navigation pane of the Lenovo XClarity Integrator Add-in, and then select target cluster.
2. Select Rolling System Reboot on the top of main frame. The Task Management page displays.
3. Perform one of the following:
  - Create 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 7. Rolling System Reboot task status

Target	Status	Description
Rolling Reboot	Not Started	The task has not started.

Table 7. Rolling System Reboot task status (continued)

Target	Status	Description
Task	Running	The task is running.
	Canceled	The task is canceled.
	Failed	Causes of task failure: <ul style="list-style-type: none"> <li>• Rebooting host failed</li> <li>• VM migration failed</li> </ul>
	Finished	The task has completed.
Host	Not Started	The reboot for the host has not started.
	Migrating	The host is entering maintenance mode.
	Maintenance	The host is in maintenance mode.
	Reboot	The host is rebooting after updating completes.
	Exit Maintenance	The host is exiting maintenance mode.
	Success	The reboot and exit Maintenance succeeded.
	Failed	The causes of host failure: <ul style="list-style-type: none"> <li>• Cannot enter maintenance mode</li> <li>• Cannot reboot the host</li> <li>• Cannot exit maintenance mode</li> </ul>

## Configuring

All the functionality described in this section is based on Lenovo XClarity Administrator and describes how to work with configuration patterns.

### Configuration Pattern

The Configuration Pattern function helps you to deploy a Configuration Pattern easily. Configuration Pattern represents a pre-OS server configuration, including local storage configuration, I/O adapter configuration, boot settings, and other IMM and uEFI firmware settings. A Configuration Pattern is used as an overall pattern to quickly configure multiple servers simultaneously.

#### Before you begin

- You must complete the steps in “Adding Lenovo XClarity Administrator (LXCA)” on page 14.
- You must log on to the Lenovo XClarity Administrator and create a Configuration Pattern on its website.

To open the Configuration Pattern page, follow the steps in the procedure.

## Procedure

1. In the navigation pane, expand Lenovo Infrastructure, then click an LXCA, or items under the LXCA.
2. Click the **Config Pattern** tab at the top of the main frame. The Config Pattern page displays.

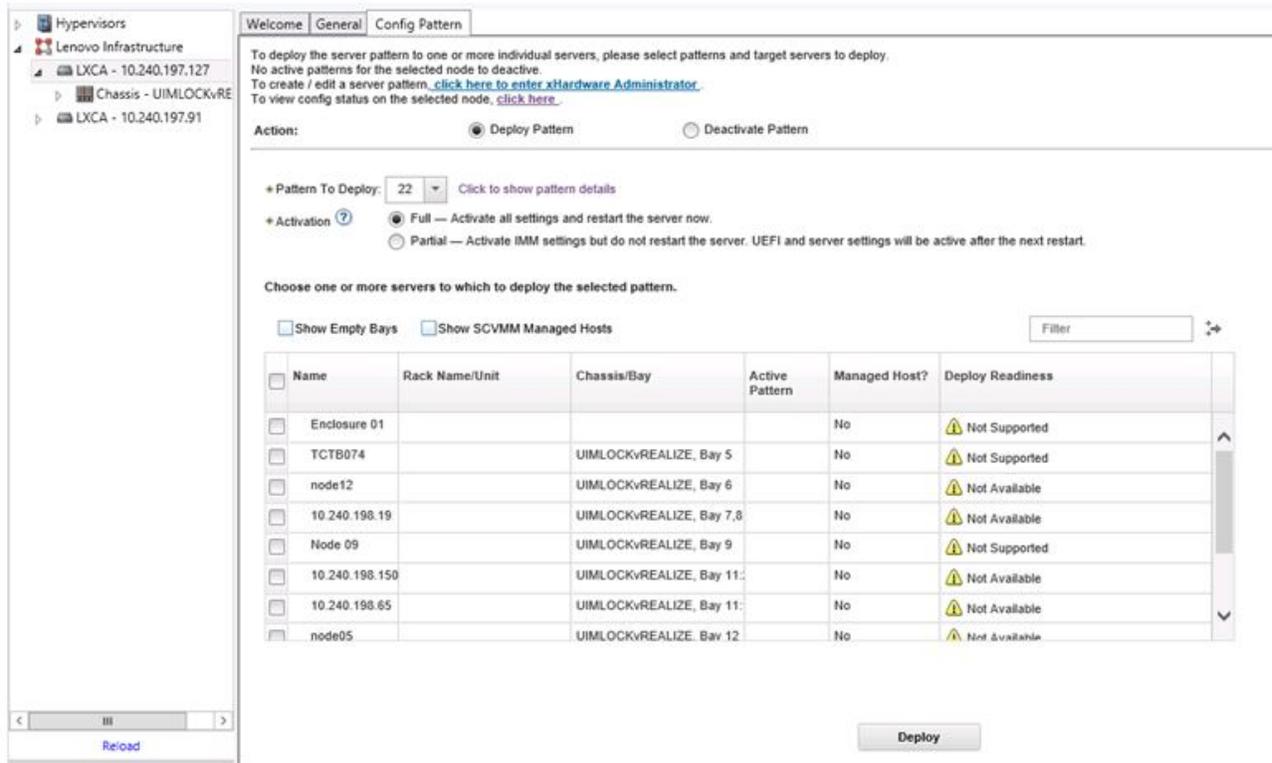


Figure 7. Configuration Pattern page

## Deploying a Configuration Pattern

Using the Configuration Pattern page, you can follow the steps in this section to deploy a Configuration Pattern.

### Procedure

1. Select **Deploy Pattern** as your action.
2. Select the pattern you want to deploy. If there are no items in the **Pattern to Deploy** list, you must log in to the Lenovo XClarity Administrator to create one.
3. Make your choice about how you want to activate the Configuration Pattern.
  - **Full** means activate all settings and restart the server now.
  - **Partial** means activate IMM settings but do not restart the server. uEFI and server settings will be active after the next restart.
4. Select the systems you want to target to deploy the Configuration Pattern.
5. Click **Deploy**. A summary dialog displays, allowing you to confirm your choice.

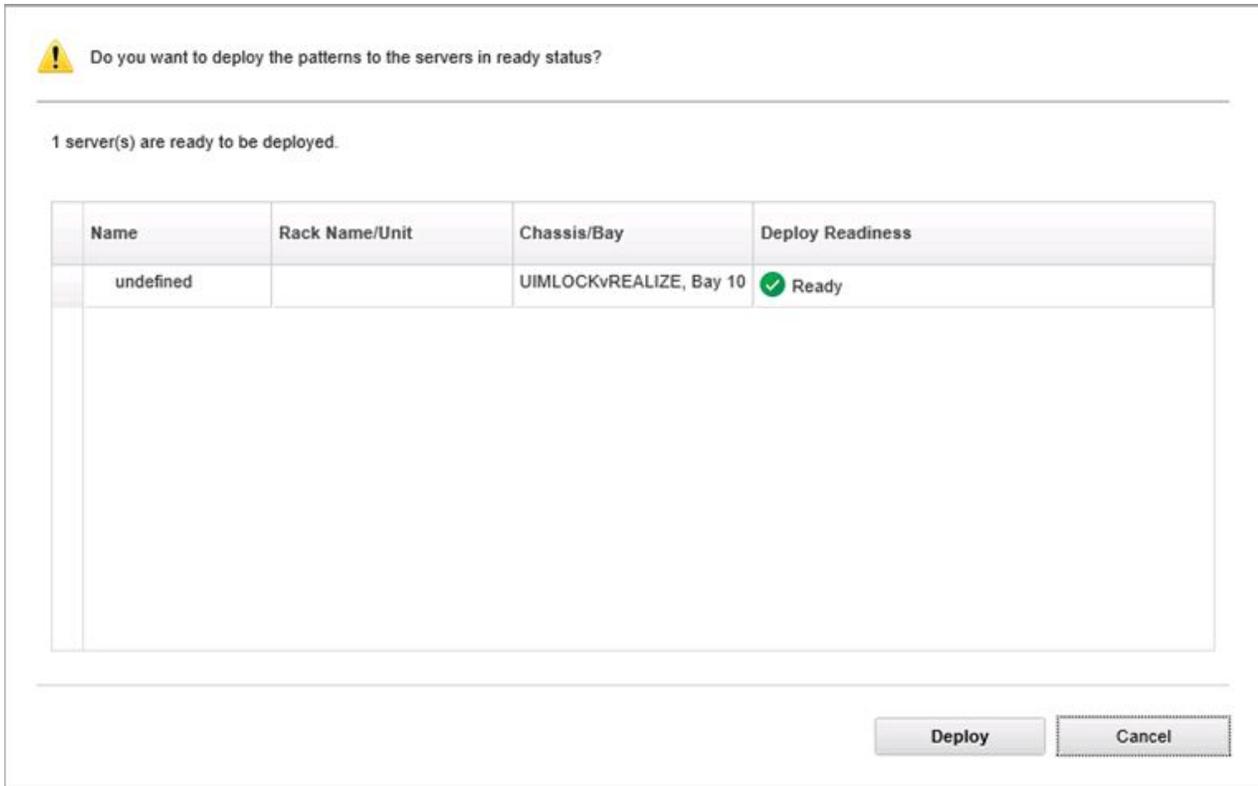


Figure 8. Configuration Pattern deployment summary dialog

6. Click **Deploy**.

A confirmation window showing that the deployment request is being submitted displays.



Figure 9. Deployment request confirmation window

When the submission is complete, another confirmation window displays.

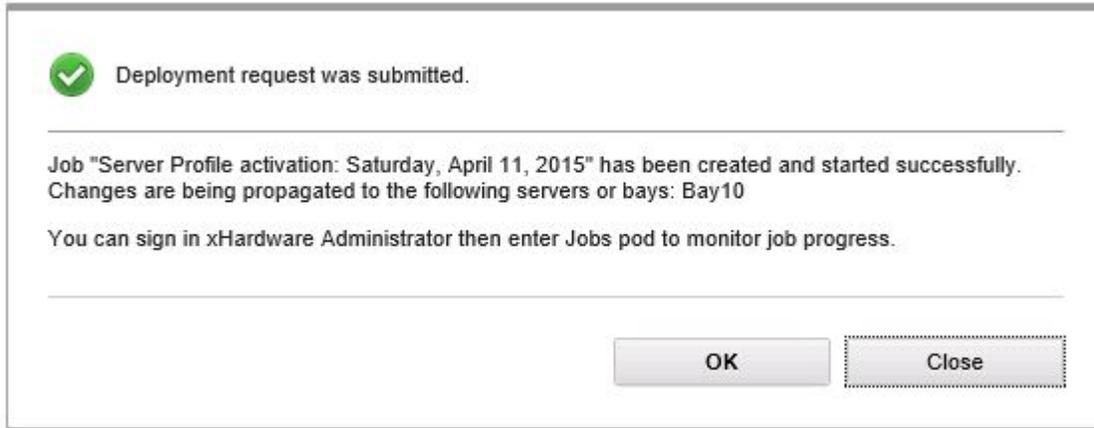


Figure 10. Deployment request submitted confirmation window

## Results

To view the details of a server pattern, click the “Click to show pattern details” link in the Deploy Server Pattern windows. The details of a server pattern display similar to the example in the screen below.

### angela01 - Details

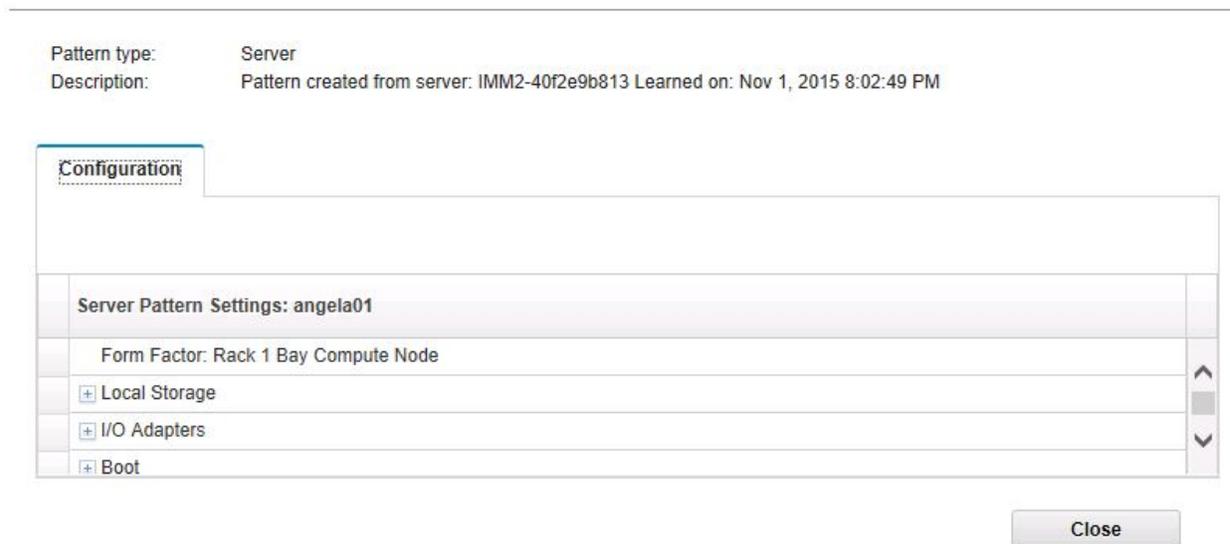


Figure 11. Server pattern details

## Deactivating a Configuration Pattern

Using the Configuration Pattern page, you can follow the steps in this section to deactivate a Configuration Pattern.

### Procedure

1. Select **Deactivate Pattern** as your action.

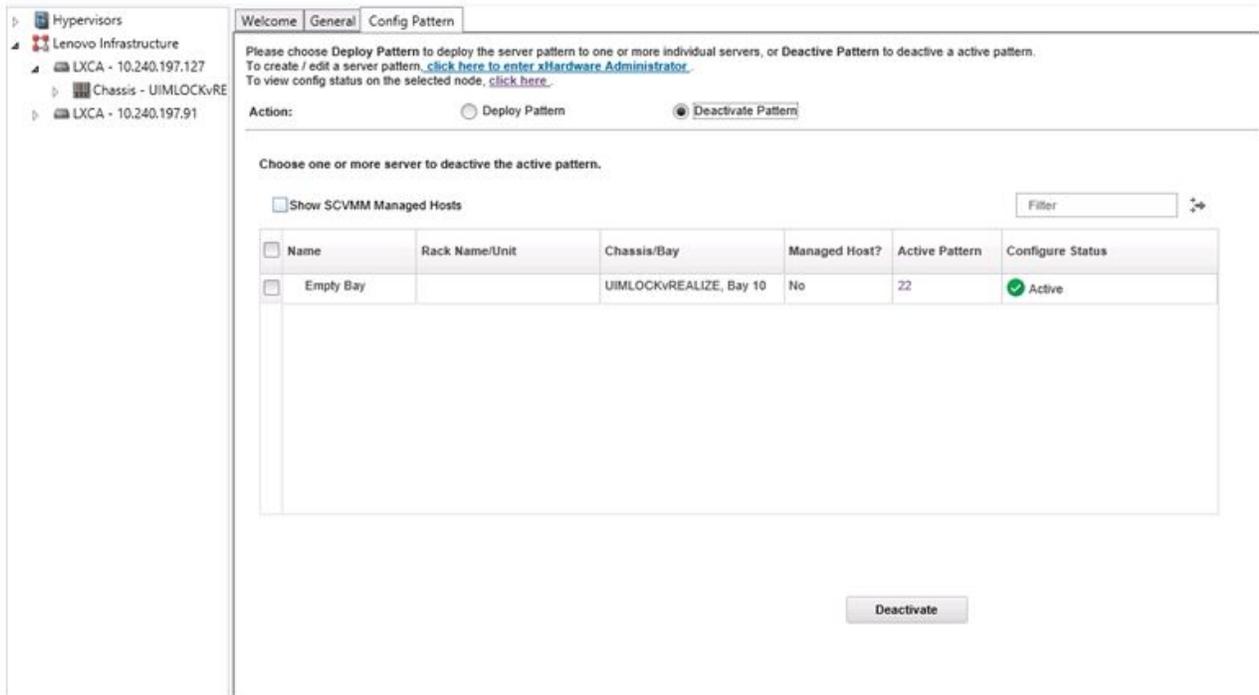


Figure 12. Deactivating a Configuration Pattern

2. Select one or more check boxes next to the Configuration Patterns that you want to deactivate.
3. Click **Deactivate**. The Deactivate Server Pattern dialog displays.



Figure 13. Deactivate Server Pattern dialog

4. Click **Deactivate** to confirm that you want to deactivate the Configuration Pattern  
A status dialog displays while the Configuration Pattern is being deactivated.



Figure 14. Deactivate status dialog

When the deactivation is complete, the Pattern Deactivation Summary dialog displays.



Figure 15. Pattern Deactivation Summary dialog

5. Click **Close** to return to the Configuration Pattern page.



---

## Chapter 6. Troubleshooting

This section describes situations that sometimes occur with Add-in and how you can solve them, as well as a detailed table against which you can set your firewall settings.

---

### Host is visible in SCVMM host list but not in Lenovo XClarity Integrator Add-in

Sometimes a host appears in the SCVMM host list but not in the Lenovo XClarity Integrator Add-in. You can work around this issue by manually adding the host into SCVMM.

Occasionally, a host is absent from the Lenovo XClarity Integrator Add-in host list, even though it is visible in the SCVMM host list. This happens when the SCVMM Service/Agent applications fail to collect the hardware system UUID from the BIOS of the host. It is possible that the SCVMM Service/Agent applications will successfully collect the information later, but whether this will happen and how long it will take is unpredictable. To ensure that the host is listed in Lenovo XClarity Integrator Add-in, you can manually add it by following these steps.

1. From the SCVMM Admin page, manually remove the host from the SCVMM host list.
  - a. Select the host from the host list.
  - b. Click **Host**, and select **Start Maintenance Mode**.
  - c. Depending upon whether the host is in a cluster or not, perform one of the following steps.
    - If the host is not in a cluster, from the **Host** menu, select **Remove**.
    - If the host is in a cluster, from the **Host** menu, select **Remove Cluster Node**.

**Note:** Sometimes the above instructions in step 1 do not work. If that happens, run the following PowerShell commands:

- `import-module virtualmachinemanager $RunAsAccount = Get-SCRunAsAccount -Name "RunAsAccount01" Get-SCVMHost -ComputerName "VMHost01"`
- `remove-SCVMHost -Credential $RunAsAccount`

2. From the Admin UI, manually add the host into the SCVMM or cluster.
  - a. Select the Hypervisor node in the Lenovo XClarity Integrator Add-in list.
  - b. Press Ctrl+F5 to reload the list.
3. If the host does not appear in the Lenovo XClarity Integrator Add-in host list, restart the host and then perform the previous steps again.

---

## Installer fails with error message

On rare occasions, the Lenovo XClarity Integrator Add-in installer fails and displays an error message.

The error usually occurs when the installer runs for the first time on a system.

If the installer fails, perform the following steps:

1. Close the message window to stop the installation.
2. Run the installer again.

After running the installer a second time, it will work correctly, and the Lenovo XClarity Integrator Add-in will be installed.

---

## The Lenovo XClarity Integrator Unified Service session becomes invalid

The Lenovo XClarity Integrator Add-in console logs in to the background daemon, the Lenovo XClarity Integrator Unified Service, when the console starts. That is, a new session is created.

### About this task

The session does not expire if the console stays open and the daemon stays in service without interruption. But when the daemon is somehow interrupted, for example by being restarted, the session becomes invalid.

When a session becomes invalid, you will observe the following symptoms:

- The asset tree pane in the Lenovo XClarity Integrator Add-in shows nothing more than root nodes, or asset changes are not shown in the asset tree pane.
- The functional UI pages display as blank or contain no data when the data should display.

**Note:** For instructions on how to check log-on history, see Appendix B, “Checking Lenovo XClarity Integrator Unified Service sessions,” on page 39.

To fix the problem, use the following procedure to restart the SCVMM Console and the Lenovo XClarity Integrator Add-in console.

### Procedure

1. Click **Close** on the SCVMM Console window to close the current SCVMM Console.
2. From the Windows desktop, double-click the SCVMM Console shortcut to open the SCVMM Console window.
3. Open the Lenovo XClarity Integrator Add-in console by following the instructions in “Starting the Lenovo XClarity Integrator Add-in” on page 10.

---

## Installing Microsoft Internet Explorer update KB3087038

Some Lenovo XClarity Integrator Add-in for Microsoft System Center Virtual Machine Manager, v2.1.0 functions require that Microsoft Internet Explorer be patched with the KB3087038 or later update.

## Procedure

1. Check to see whether your version of Microsoft Internet Explorer requires a patch.

- a. Open the About Internet Explorer dialog.

**Note:** The steps you use to open the dialog may vary among Internet Explorer versions.

- b. Check the version number. If the version number is less than 10.0.9200.17492, then you need to patch Internet Explorer with Internet Explorer update KB3087038. If the value is equal to or greater than 10.0.9200.17492, then you do not need to patch it.
  - c. If you need to patch Internet Explorer, proceed to the next step. If you do not need to patch Internet Explorer, stop here.
2. Download and install the KB3087038 patch.
    - a. Navigate to the appropriate Microsoft web page:
      - For X64-based systems, go to <http://www.microsoft.com/en-us/download/details.aspx?id=48888>.
      - For X86-based systems, go to <http://www.microsoft.com/en-us/download/details.aspx?id=48859>.
    - b. Follow the instructions on the page to download and install the KB3087038 patch.



# Appendix A. System firewall settings

Use the table in this section to set firewall exceptions.

The table below shows ports used by the Lenovo XClarity Integrator Add-in and other Lenovo XClarity Integrator products for Microsoft System Center.

*Table 8. Ports used by Lenovo XClarity Integrator products.*

Project	Source			Target			Protocol	Notes
	Port	Location	Component	Port	Location	Component		
SCVMM Add-in	not specified	management server	SCVMM Add-in Console (localhost/127.0.0.1)	TCP 9500*	management server	LXCI Unified Service	HTTPS	The target port can be changed when LXCI is installed.
		managed server	Hyper-V/Windows clients managed with SCVMM					
	not specified	management server	LXCI Unified Service (localhost/127.0.0.1)	TCP 9501*	management server	PostgreSQL	n/a	The target port can be changed when LXCI is installed.
	not specified	management server	LXCI Unified Service	TCP 5988 TCP 5989	managed server	IMM	HTTP/CIM/SLP HTTPS/CIM/SLP	The IMM HTTP/HTTPS ports are changeable in IMM portal.
	not specified	management server	LXCI Unified Service	TCP 80 TCP 443	external resource	IBM/Lenovo website	HTTP HTTPS	For downloading firmware from IBM/Lenovo websites, HTTP proxy is supported.
	not specified	management server	LXCI Unified Service	TCP 443	external resource	LXCA	HTTPS	The port depends on LXCA configuration. You must input the correct port when registering the LXCA in LXCI.
	not specified	management server	LXCI Unified Service	TCP 135	managed server	Host OS - WMI Server	CIM	n/a
	not specified	management server	LXCI Unified Service	UDP 137 UDP 138 TCP 139 TCP 389 TCP 445 TCP 901	managed server	Host OS - Samba Server	NetBIOS name service (NMBD) SMB LDAP NetBIOS SWAT	n/a
	not specified	managed server	Hyper-V/Windows clients managed with SCVMM	UDP 137 UDP 138 TCP 139 TCP 389 TCP 445 TCP 901	management server	OS - Samba Server	NetBIOS name service (NMBD) SMB LDAP NetBIOS SWAT	n/a
	SCOM HWMP	not specified	management server	SCOM Hardware MP Console (localhost/127.0.0.1)	TCP 9500*	management server	management server - (LXCI) Unified Service	HTTPS
not specified		management server	LXCI Unified Service (localhost/127.0.0.1)	TCP 9501*	management server	PostgreSQL	n/a	The target port can be changed when LXCI is installed.
not specified		management server	LXCI Unified Service	TCP 5988 TCP 5989	managed server	IMM	HTTP/CIM/SLP HTTPS/CIM/SLP	The IMM HTTP/HTTPS ports are changeable in IMM portal.
not specified		management server	SCOM Hardware MP	TCP 161 TCP 162	managed server	CMM and/or AMM	SNMP Agent SNMP Traps	The ports are changeable in CMM portal.
SCCM OSD	not specified	management server	SCCM OSD Console	UDP 137	managed server	Preboot OS & Host OS - Samba Server	NetBIOS name service (NMBD)	n/a
				UDP 138			SMB	
				TCP 139			LDAP	
				TCP 389			NetBIOS	
				TCP 445			NetBIOS	
				TCP 901			SWAT	
	not specified	managed server	PXE client	UDP 67 UDP 68 UDP 69	management server	DHCP Server TFTP Server	DHCP TFTP	n/a

**Table 8. Ports used by Lenovo XClarity Integrator products. (continued)**

Project	Source			Target			Protocol	Notes
	Port	Location	Component	Port	Location	Component		
SCCM Update	not specified	management server	SCCM Update Tool	TCP 80	external resource	WSUS Server	HTTP	n/a
				TCP 443			HTTPS	
				TCP 8530	external resource	WSUS Server (Windows Server 2012 and later version)	HTTP	n/a
				TCP 8531			HTTPS	
				UDP 137	managed server	Host OS - Samba Server	NetBIOS name service (NMBD)	n/a
				UDP 138			SMB	
				TCP 139			LDAP	
				TCP 389			NetBIOS	
TCP 445	SWAT							
TCP 901								
SCCM Inventory	not specified	management server	SCCM Inventory Tool	TCP 5988	managed server	IMM	HTTP/CIM/SLP	The IMM HTTP/HTTPS ports are changeable in IMM portal.
				TCP 5989			HTTPS/CIM/SLP	
SCCM Configuration	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

\*The ports marked with an asterisk are registered by LXCI. The others are only used to access specific services in LXCI.

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## Appendix B. Checking Lenovo XClarity Integrator Unified Service sessions

You can check all sessions or currently active sessions owned by the Lenovo XClarity Integrator Unified Service daemon to which the current Lenovo XClarity Integrator Add-in connects. Use the steps in this section to check the log-on history.

### Procedure

1. Select Lenovo Infrastructure from the Lenovo XClarity Integrator Add-in console's asset tree pane.
2. Click the Unified Service Sessions tab on the top of the main frame. By default, only active sessions display. Select **Show historical sessions** to show all sessions.



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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.

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# Index

## A

about this publication vii  
Adobe Acrobat Reader xi

## C

conventions and terminology vii

## E

Extensions 1

## H

Host information  
    Setting 11  
    Viewing 11

## I

important notices 44  
information resources ix

## N

notes, important 44  
notices 41, 43

## P

pdf files xi

## S

saving pdf files xi  
SCVMM Add-in 1  
Systems Technical support site xiii

## T

trademarks 44

## U

UIM 1  
UpdateXpress System Pack vii  
Upward Integration Modules (UIM) 1  
UXSPi vii

## W

Web resources xiii





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