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

Version 2.3

Note

Before using this information and the product it supports, read the information in Appendix C "Notices" on page 45.

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Figures

About this publication

This book provides instructions for installing and using Lenovo XClarity Integrator Add-in for Microsoft System Center Virtual Machine Manager.

For an overview of new functionality in version v2.3, 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*.

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 that is designed to manage Lenovo System x and Flex System servers and offer value-add features that connect the hardware infrastructure and the virtual infrastructure.

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	Provides a single element manager for x86 nodes in both Flex Systems and stand-alone racks.
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.
Management Node	A physical or virtual machine on which the SCVMM service, the Lenovo XClarity Integrator Unified Service and the Lenovo XClarity Integrator Add-in for Microsoft System Center Virtual Machine Manager 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

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

Term, Acronym, or Abbreviation	Definition
SCVMM	Microsoft System Center Virtual Machine Manager
UXSP	UpdateXpress System Pack
UXSPI	Lenovo UpdateXpress System Pack Installer

Information resources

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

World Wide Web resources

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

Lenovo website for Microsoft Systems Management Solutions for Lenovo servers

Locate the latest downloads for the Lenovo XClarity Integrator Add-in for Microsoft System Center Virtual Machine Manager:

- Lenovo XClarity Integrator for Microsoft System Center website

System Management with Lenovo XClarity Solutions

This website 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 website

Lenovo technical support portal

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

- Lenovo Support Portal website

Lenovo ServerProven pages

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

- Lenovo ServerProven: Compatibility for BladeCenter products
- Lenovo ServerProven: Compatability for Flex System Chassis
- Lenovo ServerProven: Compatability for System x hardware, applications, and middleware

Microsoft System Center website

This website can assist you in locating Microsoft System Center products:

- Microsoft System Center website

Chapter 1. About Lenovo XClarity Integrator Add-in for Microsoft System Center Virtual Machine Manager

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

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 requires the Lenovo XClarity Integrator Unified Service as its back end.

Chapter 2. System requirements

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

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 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. **Lenovo** supported hardware*

Lenovo-supported hardware	Server number
NeXtScale	• nx360 M5 (5465) • nx360 M5 DWC (5467, 5468, 5469)
System x server	• x3250 M6 (3633) • x3500 M5 (5464) x3550 M4 (7914) • x3550 M5 (5463) • x3630 M4 (7158) • x3650 M4 (7915) • x3650 M5 (5462) • x3750 M4 (8753) • x3850 X6 / x3950 X6 (6241)
ThinkServer	• RD350 • RD450 • RD550 • RD650 • SD350 (5493) • TD350
Flex Compute Node	• Flex System x240 Compute Node (7162, 2588) • Flex System x240 M5 Compute Node (2591, 9532) • Flex System x440 Compute Node (7167, 2590) • Flex System x280,x480,x880 X6 Compute Node (7196, 4258)

*Table 4. **IBM** supported hardware*

System	Server number
System x server	• dx360 M2 (7321, 7323) • dx360 M3 (6391) • dx360 M4 (7912, 7913, 7918, 7919) • nx360 M4 (5455) • Smart Analytics System (7949) • x3100 M4 (2582) • x3200 M2 (4367, 4368) • x3200 M3 (7327, 7328) • x3250 M2 (7657, 4190, 4191, 4194) • x3250 M3 (4251,4252,4261) • x3250 M4 (2583) • x3250 M5 (5458) • x3300 M4 (7382) • x3400 M2 (7836, 7837) • x3400 M3 (7378, 7379) • x3500 M2 (7839) • x3500 M3 (7380) • x3500 M4 (7383) • x3530 M4 (7160) • 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 (3837)
Flex Compute Node	• Flex System x220 Compute Node (7906, 2585) • Flex System x222 Compute Node (7916) • Flex System x240 Compute Node (8956, 8737, 8738, 7863) • Flex System x440 Compute Node (7917)
Blade System	• HS22 (7870, 7809, 1911, 1936) • HS22V (7871, 1949) • HS23 (7875, 1882, 1929) • HS23E (8038, 8039) • HX5 (7872, 7873, 1909, 1910)

Software requirements

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

Management nodes

- Windows Server 2016, 2012 SP1 (x64), 2012 R2 (x64)
- .NET Framework 4
- Microsoft System Center Virtual Machine Manager 2016, 2012 SP1, 2012 R2
- Microsoft Internet Explorer version 10.0.9200.17492 or later

Managed nodes

- Windows Server 2016, 2008 R2 (x64), 2012 SP1 (x64), 2012 R2 (x64)
- .NET Framework 3.5 and 4.0 on Windows Server 2008 R2
- Microsoft System Center Virtual Machine Manager 2016, 2012 SP1 , 2012 R2 Agent
- Hyper-V Role

Chapter 3. Installing Lenovo XClarity Integrator Add-in

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

Before you begin

You must be logged in as a user with Administrator privileges to install Lenovo XClarity Integrator Add-in.

Procedure

Step 1.   Download the Lenovo XClarity Integrator Add-in Installer from the XClarity Integrator download page at Lenovo XClarity Integrator for Microsoft System Center website.

Step 2.   Double-click the Lenovo XClarity Integrator Add-in installer file.
The Welcome screen displays.

Step 3.   Install the package according to prompts on InstallShield wizard.

Step 4.   After the installation completes, follow the steps in "Importing the Lenovo XClarity Integrator Add-in" on page 9 .

Upgrading Lenovo XClarity Integrator Add-in

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

Procedure

Step 1.   Upgrade the existing version by following the prompts on InstallShield Wizard.

Step 2.   The upgrade process also updates Lenovo XClarity Integrator Unified Service. For update details, see the Lenovo XClarity Integrator for Microsoft System Center website.

Step 3.   After the InstallShield Wizard completes, import the Lenovo XClarity Integrator Add-in zip file into SCVMM.The file name is `lnvgy_sw_scvmmaddin_version_windows_32-64.zip`. For information on how to import the file, refer to "Importing the Lenovo XClarity Integrator Add-in" on page 9 .

Uninstalling Lenovo XClarity Integrator Add-in

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

Procedure

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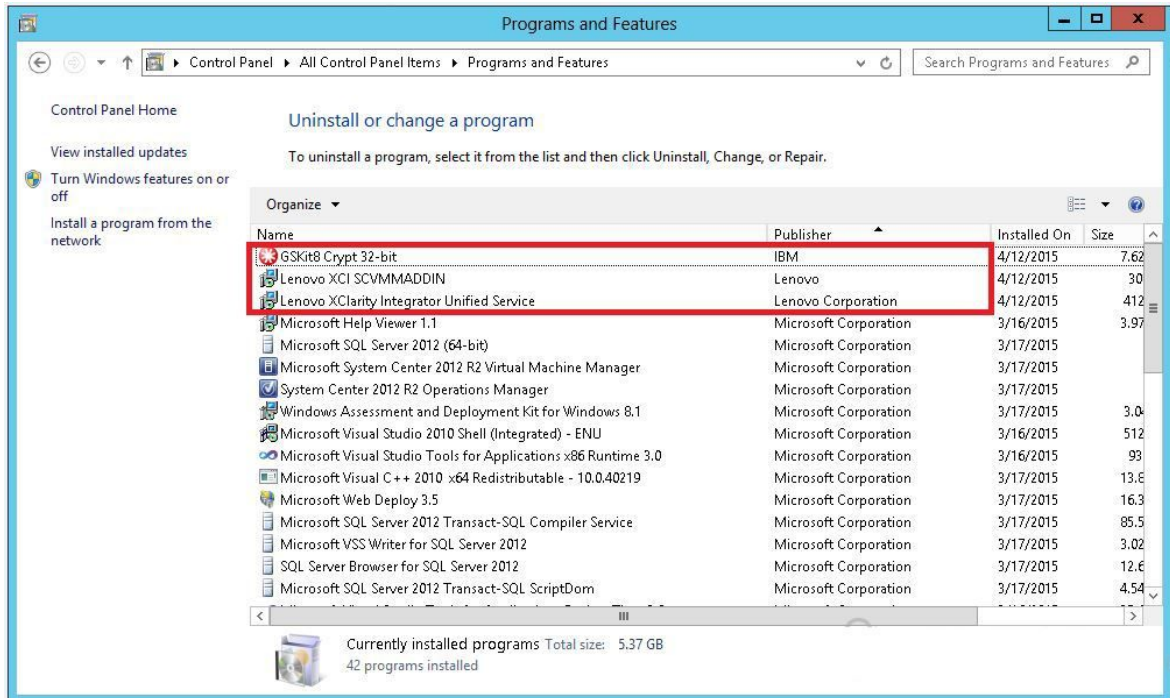
Figure 1. Programs and Features window

Step 2.   Uninstall GSKit8 Crypt 32-bit.

Step 3.   Uninstall Lenovo XCI SCVMMADDIN.

Step 4.   Uninstall Lenovo XClarity Integrator Unified Service.

Step 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" on page 8 .

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

Step 1.   Open the Settings category page from left-bottom of the SCVMM.

Step 2.   Select the Lenovo XClarity Integrator Add-in from the add-in list.

Step 3.   Click **Remove** from the toolbar at the top of the SCVMM.
A confirmation dialog displays.

Step 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. 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 InstallShiled 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

Step 1.   From the SCVMM Console, on the Settings category page, click **Import Console Add-in**. The Import Console Add-in Wizard window displays.
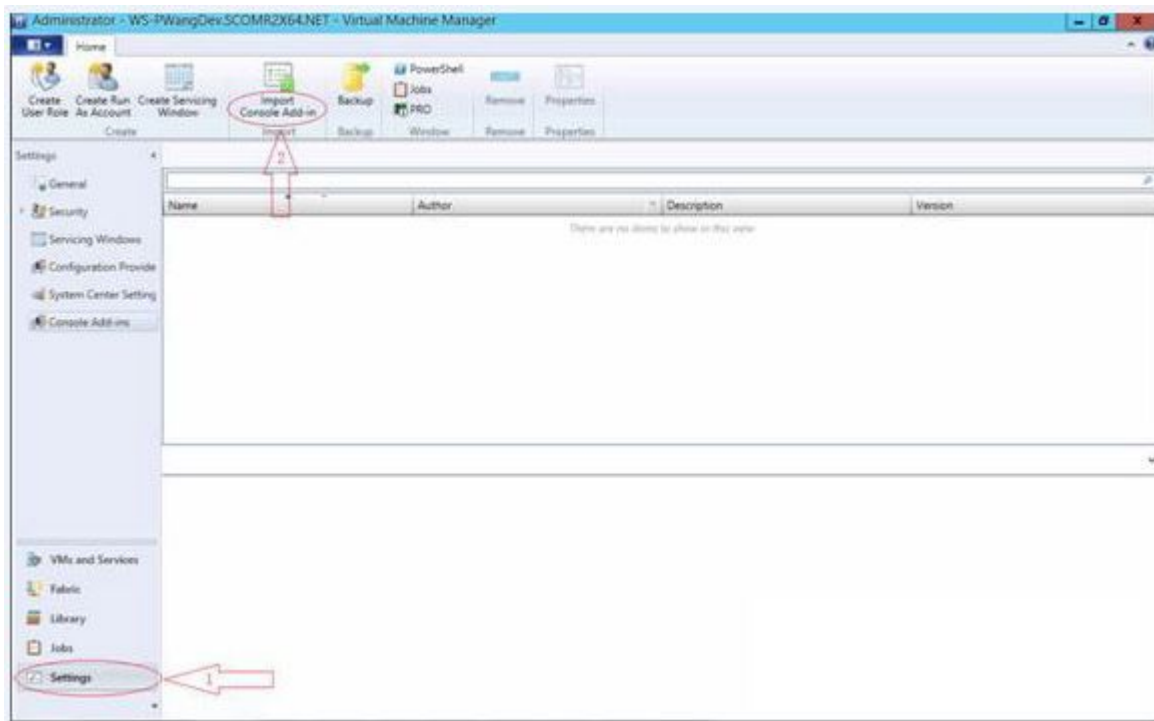
Figure 2. Import Console Add-in selection

Step 2.   In the Import Console Add-in Wizard window, click **Browse**.
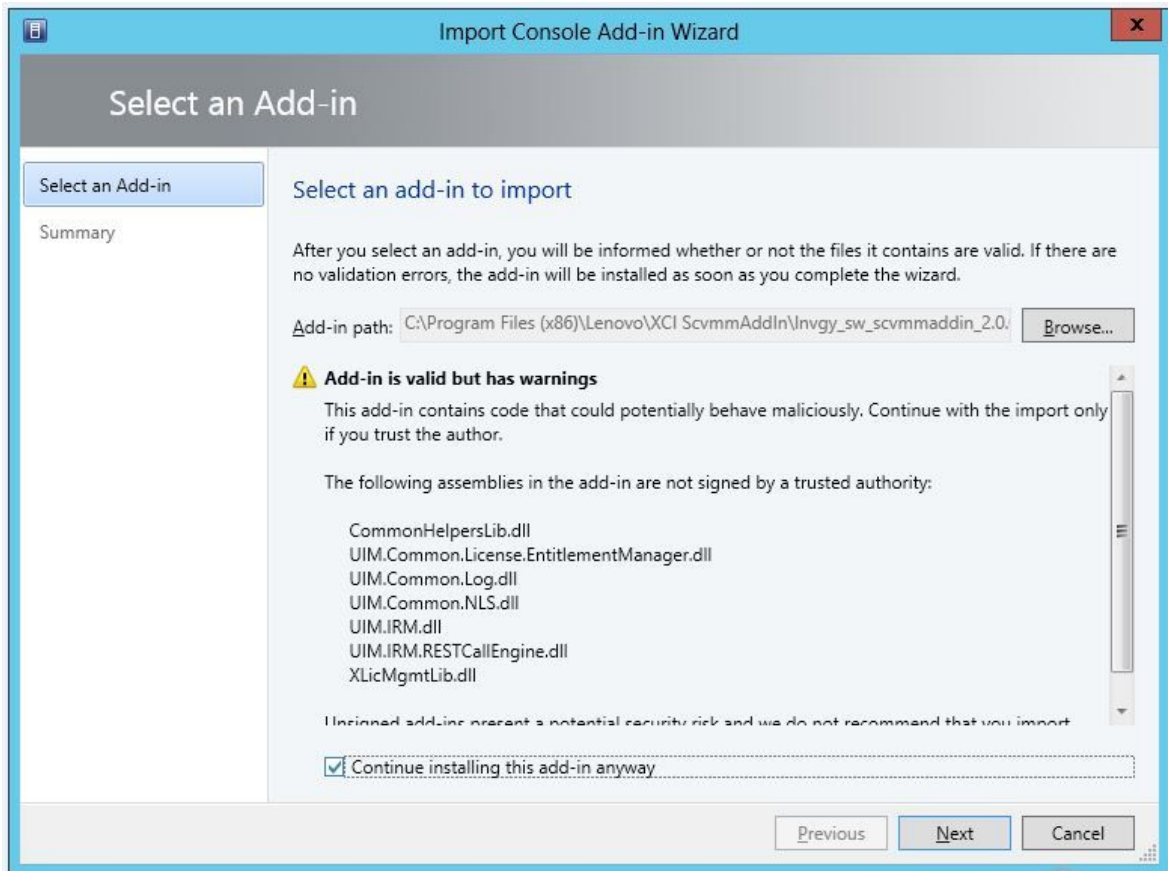
Step 3. Navigate to the `lnvgy_sw_scvmmaddin_`*version*`_windows_32-64.zip` file. The zip file is typically located in the following path: `C:\Program Files (x86)\Lenovo\XCI ScvmmAddIn`.

Step 4. Select the **Continue installing this add-in anyway** check box.

Step 5. Click **Next** to continue.

Step 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

Step 1. Open the SCVMM Console.

Step 2. Select **VMs and Services** or **Fabric** from the lower left corner of SCVMM Console.
A navigation pane displays.

Step 3. Select **All Hosts**.

Step 4. Click the **Lenovo XCI** icon at the top of the SCVMM Console.

Step 5. From either the Fabric category page or the VMs and Services page, click the **Lenovo XCI** icon at the top of the window.
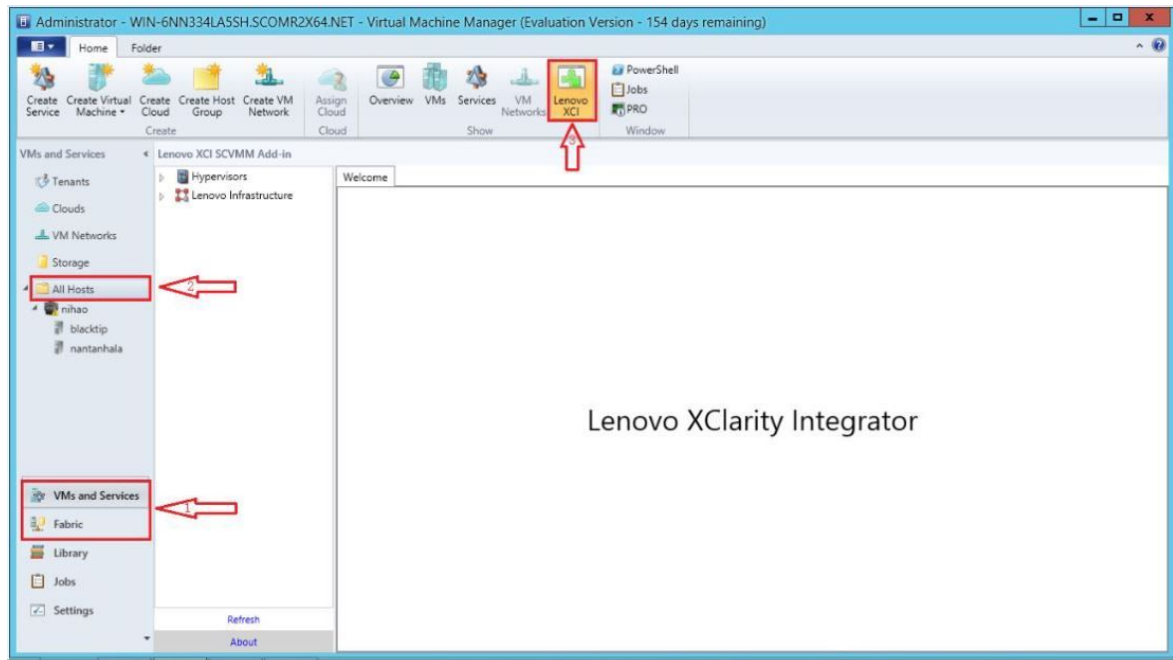
Figure 3. Starting Lenovo XClarity Integrator Add-in

The interface for Lenovo XClarity Integrator Add-in for Microsoft System Center Virtual Machine Manager 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 Administrator instances 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 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.
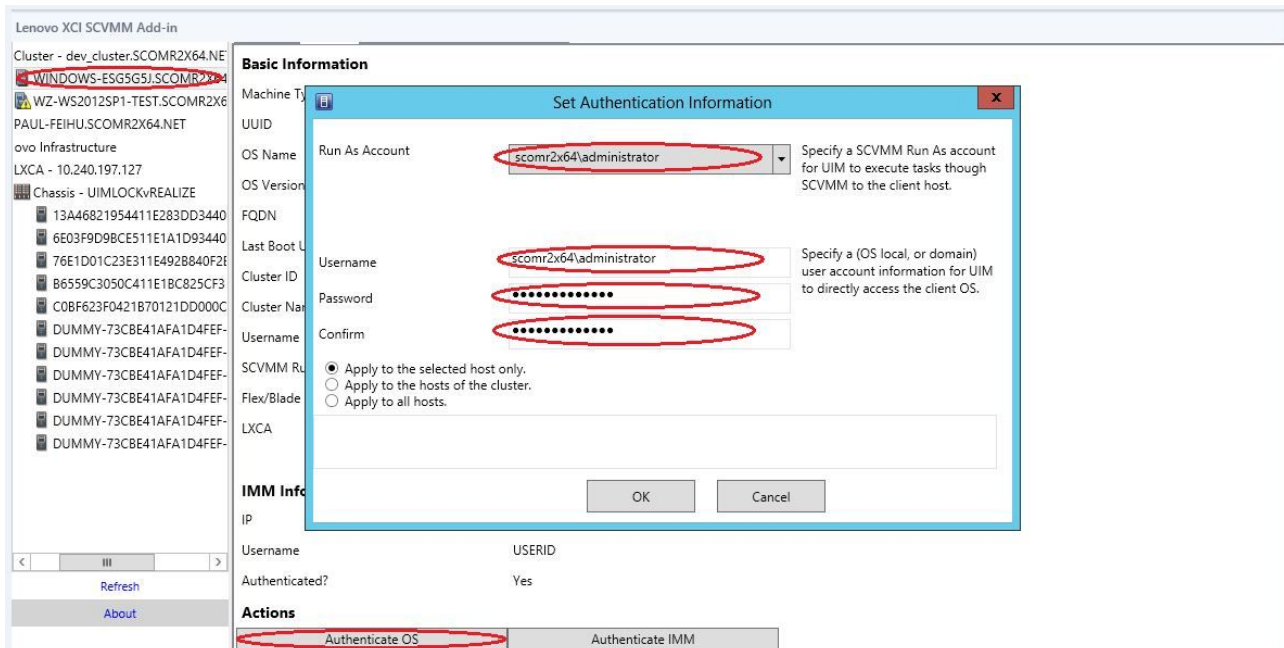
Figure 4. Setting host authentication

Setting Rolling System Update Preferences

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

Procedure

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

Step 2. From the top of the main frame, select Rolling System Update.

Step 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.

Step 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.

Step 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:
  1. Select the **Check Updates from Lenovo Website** check box.
  2. Configure your Internet settings.
  3. 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.

Step 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.

Step 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

Step 1. Select the **Hypervisors** or the **Lenovo Infrastructure** root entry in the navigation pane of the Lenovo XClarity Integrator Add-in.

Step 2. Choose the IMM Management page on the top of the main frame.

Step 3. Click **Discover**.
The IMM Discovery dialog displays.

Step 4. Enter one IP address or a range of IP addresses.IPv4 and IPv6 are supported.

Step 5. Clickc**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 XClarity Integrator database for future use in other functions.

Procedure

Step 1.   Select the **Hypervisors** or the **Lenovo Infrastructure** root entry in the navigation pane of the Lenovo XClarity Integrator Add-in.

Step 2.   Choose the IMM Management page on the top of the main frame.

Step 3.   Select the check boxes next to the IMMs to be authenticated.

Step 4.   Click **Authenticate**.
          The IMM Authentication dialog displays.

Step 5.   Enter username and password information.

Step 6.   Click **OK**. If the request has successfully completed, the IMM table on the IMM Management page is updated.

Adding Lenovo XClarity Administrator

Adding Lenovo XClarity Administrator into the Lenovo XClarity Integrator Add-in is prerequisite for certain functions, such as viewing general information about Lenovo XClarity Administrator and viewing a chassis map of its managed chassis. Use the steps in this section to add Lenovo XClarity Administrator into Lenovo XClarity Administrator.

Procedure

Step 1.   Click Lenovo Infrastructure from the navigation pane.

Step 2.   Click the **LXCA Registration** tab at the top of the main frame.
          The Registered LXCA page displays on the main frame. All registered Lenovo XClarity Administrator instances are displayed on the page.

Step 3.   Click **Register** to begin Lenovo XClarity Administrator registration.
          A Lenovo XClarity Administrator registration dialog displays.

Step 4.   Enter the IP address, User Name, Password, and Port for the Lenovo XClarity Administrator in the Lenovo XClarity Administrator registration dialog.
          After you submit, the Lenovo XClarity Integrator Add-in connects to the Lenovo XClarity Administrator to authenticate.

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

Step 6.   After you register, click **Refresh** to update the navigation pane.

What to do next

Note: If you registered a Lenovo XClarity Administrator instance using an earlier version of Lenovo XClarity Integrator, manually download the server certificate for the Lenovo XClarity Administrator instance, and import it in to Lenovo XClarity Integrator by click **Manage trusted certificates ➜ Add**. If the server certificate is not added to Lenovo XClarity Integrator, Lenovo XClarity Integrator will not connect to Lenovo XClarity Administrator.

Note: If your Lenovo XClarity Administrator works only in IPv6 environment, you can only manually import its certificate to Lenovo XClarity Integrator by click **Manage trusted certificates ➜ Add**. Otherwise, Lenovo XClarity Administrator will not be registered.

Other Lenovo XClarity Administrator Registration Operations:

After completing the registration, you can perform these actions:

- Edit Lenovo XClarity Administrator by clicking **Edit** and making any necessary changes.
- 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**.
- Viewed 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**.

Chapter 5. Working with functions

This section introduces Lenovo XClarity Integrator Add-in functions.

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, see the Microsoft System Center – Managing Host Clusters webpage.

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 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 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 Administrator instances you targeted. General Information about the Lenovo XClarity Administrator displays on the main frame like this:
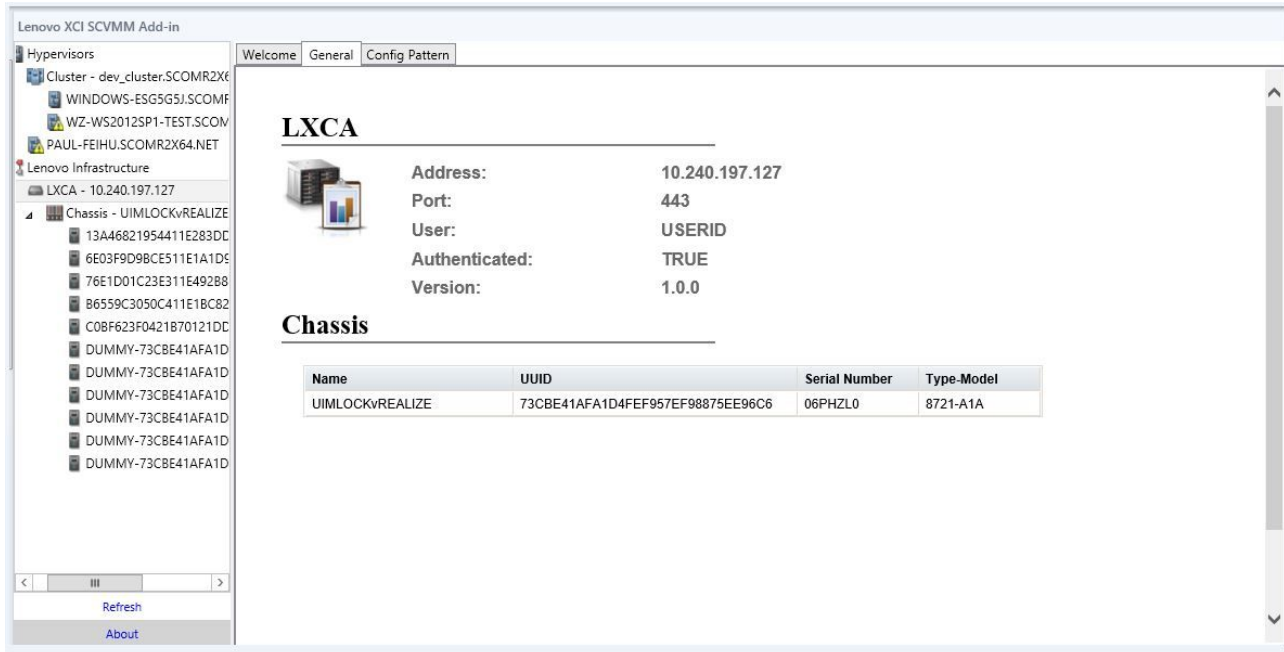
Figure 5. Lenovo XClarity Administrator general information

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

Step 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.

Step 2. The chassis should be managed by Lenovo XClarity Administrator under the Lenovo Infrastructure node in the Lenovo XClarity Integrator Add-in console's asset tree pane.

Step 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 "Hardware map overlays" on page 19 table provides more details about the overlays.

Figure 6. Chassis map

Table 5. Hardware map overlays

Overlay	Icon	Description
Hardware status		Use the hardware status overlay to show the status of each of the components. You can choose one or more of the following status criteria to show: • **Critical**. Components have one or more critical alerts and immediate user action is required. • **Warning**. Components have one or more warning alerts. User investigation is needed to determine the cause of the warnings, but there is no immediate risk of an outage. • **Synchronizing**. Lenovo XClarity Administrator is waiting for the components to provide updated status. • **Offline**. Components are not online. • **Unknown**. Lenovo XClarity Administrator is not able to retrieve the status from one or more components in a chassis. User investigation might be needed. • **Normal**. Components are operating normally. Hover over a specific component to get more information about the current status.
Highlight front panel LEDs		Use the highlight front panel LEDs overlay to see the LEDs that are available for each of the components. You can choose one or more of the following LEDs to show: • **Power LED**. Display the current power LED for each component. • **Event Log LED**. Display the event log LED, which is lit when there are events specific to a component in the Lenovo XClarity Administrator event log. • **Location LED**. Display the location LED, which can be turned on from the CMM to help you identify where a component is physically located. • **Fault LED**. Displays the status of the Fault LED for each component.

Table 5. Hardware map overlays (continued)

Overlay	Icon	Description
		• **Other LED**. Display all other LEDs that are available for each component. • **Only Active LEDs**. Display only the LEDs that are currently lit. Hover over a specific component to get more information about all LEDs for a component. For detailed information about each of the LEDs that can be displayed for a component, see the product documentation that is available for that component.
Component names and properties		Use the component names and properties overlay to display the name for each component in the chassis. When you hover over a component, additional properties about that component, such as IP address and UUID are displayed.
Compliance		Use the compliance overlay to determine whether the firmware that is currently installed on a component complies with the compliance policy that has been defined for that component.
Configuration Patterns		Use the Configuration Pattern overlay to determine which server patterns are assigned to each compute node.

Viewing details for a managed chassis

You can view the detailed information about the managed chassis from the Lenovo XClarity Administrator when you click the Open Lenovo XClarity Administrator 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 Administrator instances among the assets from theLenovo 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 Lenovo XClarity Administrator, 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 Lenovo XClarity Administrator instances.

Procedure

Step 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.

Step 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 Lenovo XClarity Administrator instances 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 Microsoft System Center – Creating a Hyper-V Host Cluster in VMM Overview webpage.

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 22.

Procedure

Step 1. Select the **Hypervisors** root entry, or a cluster, or a hypervisor node in a cluster in the left host navigation pane.

Step 2. Choose the **PFA Management** page on the top of the right pane.
The RAS Management page opens.

Step 3. Click **Set Policy**.
The Set Policy dialog displays.

Step 4. Choose the Enable VM migration on hardware events option from the drop-down list at the top.

Step 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.

Step 6. Click **OK**.
A page that prompts you to confirm the settings displays.

Step 7. Click **OK**.

Step 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 22.

Procedure

Step 1.   Select the **Hypervisors** root entry, or a cluster, or a hypervisor node in a cluster in the left host
navigation pane.

Step 2.   Choose the **PFA Management** page on the top of the right pane.
The RAS Management page opens.

Step 3.   Click **Set Policy**.
The Set Policy dialog displays.

Step 4.   Choose the Disable VM migration on hardware events option from the drop-down list at the top.

Step 5.   Change the selection of hosts if it is necessary.

Step 6.   Click **OK**.
A page that prompts you to confirm the settings displays.

Step 7.   Click **OK**.

Step 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 22.

Procedure

Step 1.   Select the **Hypervisors** root entry, or a cluster, or a hypervisor node in a cluster in the left host
navigation pane.

Step 2.   Choose the **PFA Management** page on the top of the right pane.
The RAS Management page opens.

Step 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.

Step 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.

• Install Microsoft Internet Explorer update KB3087038 using the instructions in "Installing Microsoft
Internet Explorer update KB3087038" on page 35.

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.

Notes: The Rolling System Update function is not supported for the following servers running Windows Server 2016:

-
-

Procedure

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

Step 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.

Step 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: • Rebooting host failed • VM migration failed
	Finished	The task has completed.

Table 6. Rolling System Update task status (continued)

Target	Status	Description
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: • Cannot enter maintenance mode • Cannot reboot the host • Cannot exit maintenance mode

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" on page 14.
- Log on to the Lenovo XClarity Administrator instances, 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 35.

Opening the Firmware Compliance page

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

Procedure

Step 1. In the asset tree pane, expand Lenovo Infrastructure.

Step 2. Click an Lenovo XClarity Administrator.

Step 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

Step 1. 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.

Step 2. Click the **Assign Policy** icon.
The Assign Policy dialog displays.

Step 3. Select a policy to assign.

Step 4. Select a target type.

Step 5. Click **OK**.

Updating firmware

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

Procedure

Step 1.   Select the system or systems on which you want to perform a firmware update.

Step 2.   Click the **Perform Updates** icon.
The Update Summary dialog displays.

Step 3.   Select **Update Rule ➜ Activation Rule**.

Step 4.   Click **Perform Update** to initiate the update.
A confirmation dialog displays.

Step 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

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

Step 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

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

Step 2.   Select Rolling System Reboot on the top of main frame.
The Task Management page displays.

Step 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.
Task	Running	The task is running.
	Canceled	The task is canceled.
	Failed	Causes of task failure: • Rebooting host failed • VM migration failed
	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: • Cannot enter maintenance mode • Cannot reboot the host • Cannot exit maintenance mode

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" 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

Step 1.   In the navigation pane, expand Lenovo Infrastructure, then click an Lenovo XClarity Administrator, or items under the Lenovo XClarity Administrator.

Step 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

Step 1. Select **Deploy Pattern** as your action.

Step 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.

Step 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.

Step 4. Select the systems you want to target to deploy the Configuration Pattern.

Step 5. Click **Deploy**. A summary dialog displays, allowing you to confirm your choice.
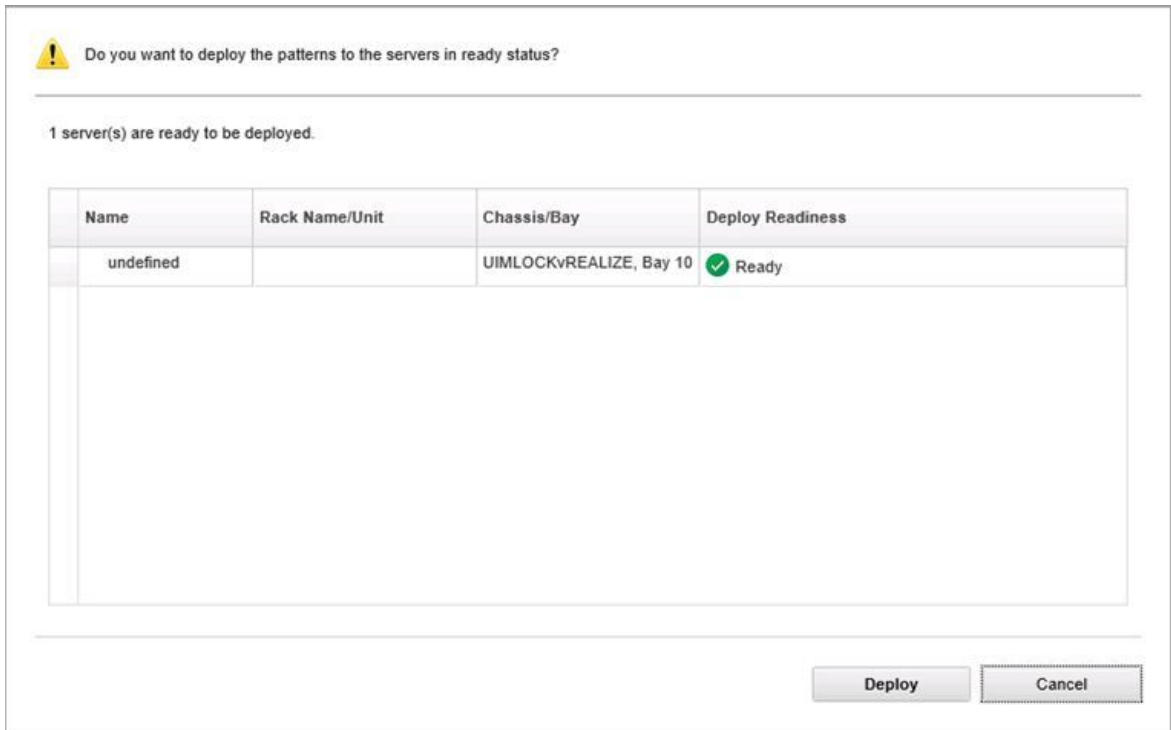
Figure 8. Configuration Pattern deployment summary dialog

Step 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.
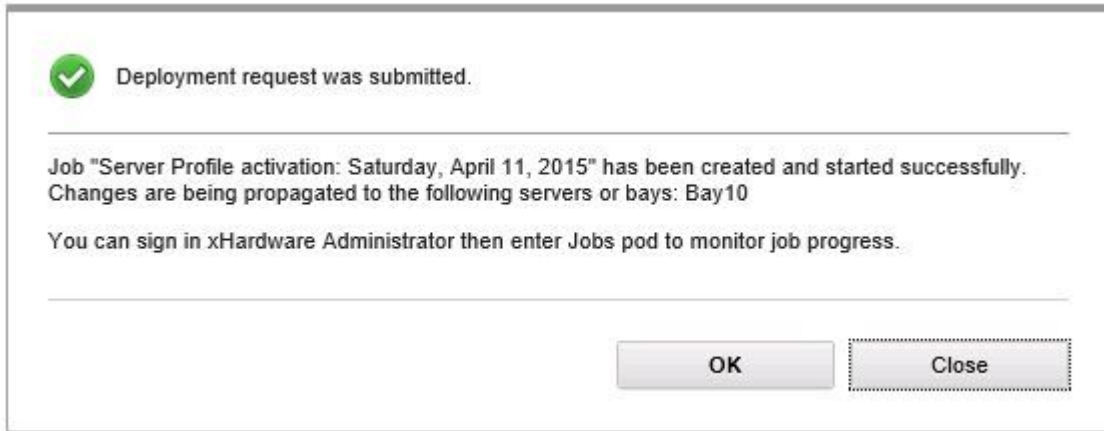
Figure 10. Deployment request submitted confirmation window

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.

Figure 11. Server pattern details

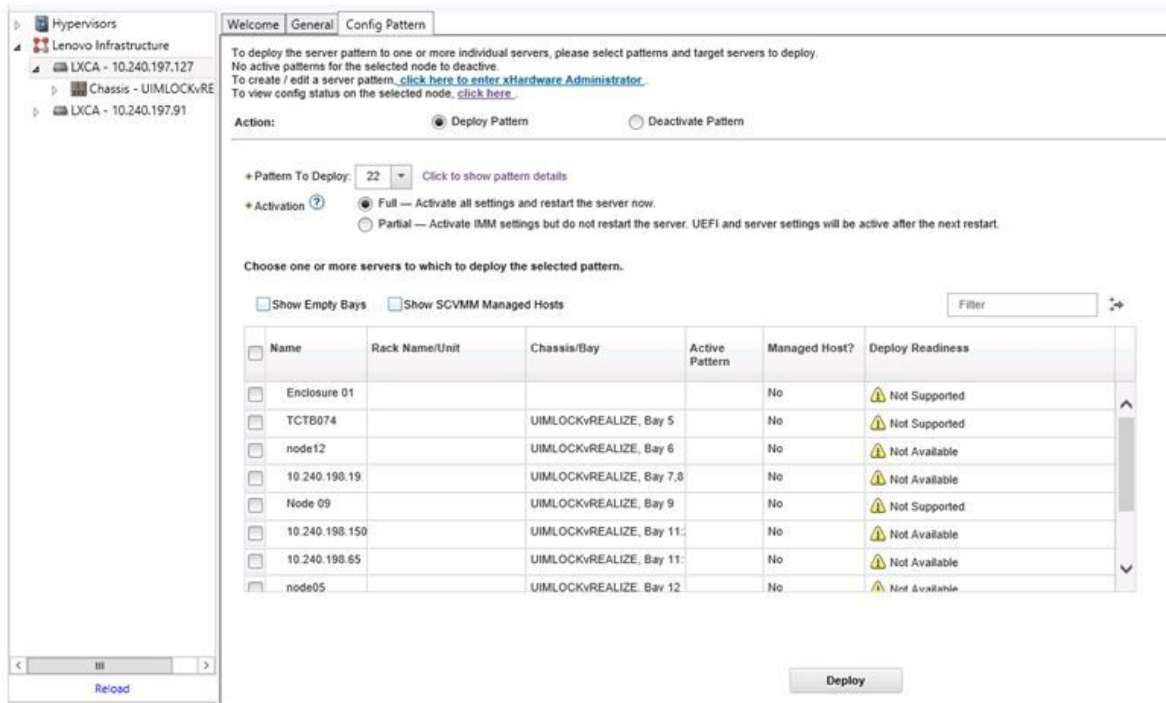## Deactivating a Configuration Pattern

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

Procedure

Step 1.   Select **Deactivate Pattern** as your action.
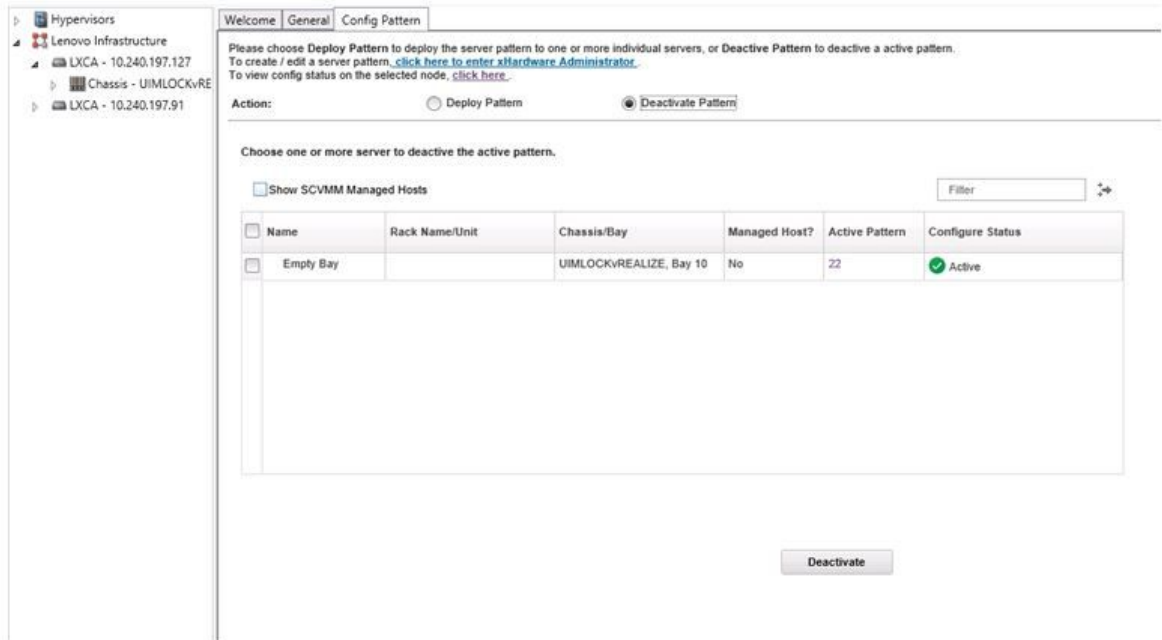
Figure 12. Deactivating a Configuration Pattern

Step 2. Select one or more check boxes next to the Configuration Patterns that you want to deactivate.

Step 3. Click **Deactivate**.
The Deactivate Server Pattern dialog displays.

Figure 13. Deactivate Server Pattern dialog

Step 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

Step 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.

Pre-authenticated IMM might lose connection after it is managed by Lenovo XClarity Administrator

For an IMM to which you have requested access using a local IMM account before in Lenovo XClarity Integrator, Lenovo XClarity Integrator loses access to the IMM after you manage the IMM with Lenovo XClarity Administrator.

Lenovo XClarity Administrator disables all local IMM accounts after it manages the IMM, so Lenovo XClarity Integrator cannot access the IMM using the local IMM account that you provided before.

Procedure

Use the account that you configured in Lenovo XClarity Administrator to request IMM access again in Lenovo XClarity Integrator.

Functions are not available for a System x server when selected from the asset tree view

Functions are not available for System x servers when selected from the asset tree view of Lenovo XClarity Integrator Add-in if the server's machine type is not determined.

Procedure

Complete one or more of the following steps to obtain machine type for a server.

- Make the UUS server service run with a Windows/domain log-on that has the WMI read permission to the target Hyper-V system. To change the user account of a Windows service, see the Microsoft TechNet: Configure How a Service Is Started webpage.

- Authenticate a hypervisor node with a Windows/domain log-on that has the WMI read permission to the target Hyper-V system.

- Manage the server with a Lenovo XClarity Administrator, and register the Lenovo XClarity Administrator in Lenovo XClarity Integrator Add-in.

- Discover the IMM for the specific server.

Failed to register Lenovo XClarity Administrator with IPv6 address

When you use an IPv6 address to register Lenovo XClarity Administrator, the message `Loading, Please wait …` is displayed but does not return because Lenovo XClarity Integrator Unified Service could not get the certificate chain from the IPv6 address. This issue is a limitation of Lenovo XClarity Integrator.

Procedure

To resolve the problem, manually download the certificate from Lenovo XClarity Administrator, and add the certificate to Lenovo XClarity Integrator by clicking **Manage trusted certificates ➔ Add**.

Note: Think servers only support the Rolling reboot. This is a limitation of Lenovo XClarity Integrator Add-in.

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**.

      Notes: 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 43.

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

Procedure

Step 1.   Click **Close** on the SCVMM Console window to close the current SCVMM Console.

Step 2.   From the Windows desktop, double-click the SCVMM Console shortcut to open the SCVMM Console window.

Step 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 functions require that Microsoft Internet Explorer be patched with the KB3087038 or later update.

Procedure

Step 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.

Step 2.   Download and install the KB3087038 patch.

    a.   Navigate to the appropriate Microsoft web page:

       - For X64-based systems, go to Cumulative Security Update for Internet Explorer 11 for Windows Server 2012 R2 (KB3087038).
       - For X86-based systems, go to Cumulative Security Update for Internet Explorer 11 for Windows Embedded Standard 7 (KB3087038).

    b.   Follow the instructions on the page to download and install the KB3087038 patch.

Lenovo XClarity Administrator certificate fails to import when using Internet Explorer 10

When you manually import a Lenovo XClarity Administrator certificate (PEM) file into Lenovo XClarity Integrator, the import might failed with the following message: `Fail to upload certificate file`. This is an known problem with Internet Explorer 10.

Procedure

Perform one of the following steps to workaround this problem:

- Upgrade Internet Explorer to a later version or use another web browser.
- When importing the certificate, select **Paste certificate in PEM format**. Do not use **Add from a file (PEM)** to add the certificate.

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	Lenovo XClarity Integrator Unified Service	HTTPS	The target port can be changed when Lenovo XClarity Integrator is installed.
		managed server	Hyper-V/Windows clients managed with SCVMM					
	not specified	management server	Lenovo XClarity Integrator Unified Service (localhost/127.0.0.1)	TCP 9501*	management server	PostgreSQL	n/a	The target port can be changed when Lenovo XClarity Integrator is installed.
	not specified	management server	Lenovo XClarity Integrator Unified Service	TCP 5988	managed server	IMM	HTTP, CIM, SLP	The IMM HTTP/HTTPS ports are changeable in IMM portal.
				TCP 5989			HTTPS, CIM, SLP	
	not specified	management server	Lenovo XClarity Integrator Unified Service	TCP 80	external resource	IBM/Lenovo website	HTTP	For downloading firmware from IBM/Lenovo websites, HTTP proxy is supported.
				TCP 443			HTTPS	
	not specified	management server	Lenovo XClarity Integrator Unified Service	TCP 443	external resource	Lenovo XClarity Administrator	HTTPS	The port depends on Lenovo XClarity Administrator configuration. You must input the correct port when registering theLenovo XClarity Administrator in Lenovo XClarity Integrator.
	not specified	management server	Lenovo XClarity Integrator Unified Service	TCP 135	managed server	Host OS - WMI Server	CIM	n/a
	not specified	management server	Lenovo XClarity Integrator Unified Service	UDP 137	managed server	Host OS - Samba Server	NetBIOS name service (NMBD)	n/a

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

Project	Source			Target			Protocol	Notes
	Port	Location	Component	Port	Location	Component		
				UDP 138			SMB	
				TCP 139				
				TCP 389			LDAP	
				TCP 445			NetBIOS	
				TCP 901			SWAT	
	not specified	managed server	Hyper-V/Windows clients managed with SCVMM	UDP 137	management server	OS - Samba Server	NetBIOS name service (NMBD)	n/a
				UDP 138			SMB	
				TCP 139				
				TCP 389			LDAP	
				TCP 445			NetBIOS	
				TCP 901			SWAT	
SCOM HWMP	not specified	management server	SCOM Hardware MP Console (localhost/127.0.0.1)	TCP 9500*	management server	management server - (Lenovo XClarity Integrator) Unified Service	HTTPS	You can change the target port when you install Lenovo XClarity Integrator.
	not specified	management server	Lenovo XClarity Integrator Unified Service (localhost/127.0.0.1)	TCP 9501*	management server	PostgreSQL	n/a	The target port can be changed when Lenovo XClarity Integrator is installed.
	not specified	management server	Lenovo XClarity Integrator Unified Service	TCP 5988	managed server	IMM	HTTP, CIM, SLP	The IMM HTTP/HTTPS ports are changeable in IMM portal.
				TCP 5989			HTTPS, CIM, SLP	
	not specified	management server	SCOM Hardware MP	TCP 161	managed server	CMM and/or AMM	SNMP Agent	The ports are changeable in CMM portal.
				TCP 162			SNMP Traps	

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

Project	Source			Target			Protocol	Notes
	Port	**Location**	**Component**	**Port**	**Location**	**Component**		
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				
				TCP 389			LDAP	
				TCP 445			NetBIOS	
				TCP 901			SWAT	
	not specified	managed server	PXE client	UDP 67	management server	DHCP Server	DHCP	n/a
				UDP 68				
				UDP 69		TFTP Server	TFTP	
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				
				TCP 389			LDAP	
				TCP 445			NetBIOS	
				TCP 901			SWAT	

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

Project	Source			Target			Protocol	Notes
	Port	**Location**	**Component**	**Port**	**Location**	**Component**		
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 Lenovo XClarity Integrator. The others are only used to access specific services in Lenovo XClarity Integrator.								

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

Step 1.   Select Lenovo Infrastructure from the Lenovo XClarity Integrator Add-in console's asset tree pane.

Step 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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