

Lenovo ThinkAgile SXM Series Administrator's Guide



Notices

Note

Before using this information and the product it supports, be sure to read and understand the safety information and the safety instructions, which are available at the following address:

https://pubs.lenovo.com/safety_documentation/pdf_files

In addition, be sure that you are familiar with the terms and conditions of the Lenovo warranty for your solution, which can be found at the following address:

http://datacentersupport.lenovo.com/warrantylookup

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Chapter 1. Administering ThinkAgile SXM Series solutions

This documentation refers to the following products:

- SXM4400
- SXM6400
- SXM4600

ThinkAgile SXM Administration considerations

The following considerations and limitations apply to ThinkAgile SXM solutions.

Limitation on automated service requests (Call Home)

Because ThinkAgile SXM products are serviced and supported at the rack level, it is recommended that you not activate Call Home functionality for the components. If you choose to activate Call Home, be aware that your entitlement might not be recognized.

Firmware and Best Recipe adherence

Lenovo publishes a ThinkAgile SXM firmware "Best Recipe", which identifies the supported levels for the various components. Any specific firmware that is above or below the level indicated in the Best Recipe is not supported and might impact Lenovo's ability to support any issues with the relevant component. See "Firmware maintenance and Best Recipe" on page 5 for more details.

ThinkAgile SXM entitlement

ThinkAgile SXM solutions are entitled at the rack level.

If you need support for the product or any of its components or included software, be sure to use your rack serial number associated with Machine Type 9565. If you use the component or software serial number, ThinkAgile Advantage Support might not immediately recognize the correct entitlement, which could delay proper case handling. You can find the serial number on the rack label.

Chapter 2. Product management and changes

Because of the complexity of ThinkAgile SXM Series solutions, extra caution and planning should be exercised before making certain changes.

High impact changes

The following changes (or lack of adherence) can significantly impact the functionality of the solution.

- Changing the point-to-point cabling from the initial configuration.
- Changing any firmware, software, or operating system (including CNOS, ENOS and Cumulus Linux) to levels outside the Best Recipe.

See "Firmware maintenance and Best Recipe" on page 5 for more information.

- Changing the IPv4 network scheme, such as addresses and subnets.
- Changing the IPv4 addresses for servers or switches.
- Updating the management stack outside of the recommended levels.
- Resetting the IMM, XCC or UEFI to the initial manufacturing defaults.
- Resetting a network switch to its initial configuration.

Standard management

After the initial ThinkAgile SXM Series solution setup and configuration by Lenovo Professional Services, you should be able to manage the system routinely with the following software.

Lenovo XClarity Administrator

Use Lenovo XClarity Administrator to monitor and manage the hardware. Typical uses include the following:

- UEFI settings (per the ThinkAgile SXM pattern file)
- Firmware and device driver updates (per the ThinkAgile SXM Best Recipe) via the Microsoft Azure Stack Hub patch and update process
- Hardware alerts and problem resolution

See https://pubs.lenovo.com/thinkagile-sxm/printable_doc for relevant links.

Microsoft Azure Stack Hub portals

Microsoft Azure Stack Hub enables management via the following portals:

Administrator portal

An Administrator can do the following:

- Perform administrative tasks.
- View Resources and Resource Groups.
- Create VMs, Plans, and Offers.
- Monitor solution health.
- Tenant portal
 - A Tenant can do the following:
 - Use available resources to do work.

- Consume VMs, Plans, and Offers that have been created by an administrator.

See https://pubs.lenovo.com/thinkagile-sxm/printable_doc for relevant links.

Managing IDs and passwords

Proper maintenance of IDs and passwords is essential for the security of the components and the overall product. Lenovo's Software Security Review Board stresses in the strongest possible terms that customers should manage all product credentials according to the recommendations stated here.

Initial IDs and passwords

Applicable IDs and passwords will be set or changed during the Lenovo Professional Services deployment engagement. Lenovo Professional Services will provide a list of all credentials used to deploy and manage the ThinkAgile SXM Series solution in the documentation that is provided to the customer during the solution handover. Lenovo Professional Services will provide a list of all credentials used to deploy and manage the ThinkAgile SXM Series solution in the documentation that is provided to the customer during the solution handover.

Changing passwords

For password change procedures, refer to the relevant component documentation. See https://pubs.lenovo.com/thinkagile-sxm/printable_doc. In particular, the following Microsoft web page provides an overview and gives detailed instructions for rotating secrets in the Azure Stack Hub environment:

https://docs.microsoft.com/en-us/azure-stack/operator/azure-stack-rotate-secrets

Important: Changing some IDs or passwords without proper planning (for example, the IMM/XCC credentials on any of the scale unit nodes) can affect the overall configuration of the solution and could result in the inability to manage the nodes via XClarity Administrator.

Password criteria

The following password criteria are strongly recommended by Lenovo's Software Security Review Board:

- No less than twenty (20) characters.
- Includes letters, specifically mixed case.
- Includes numbers.
- Includes punctuation.
- Does not include any repeated characters.

It is also recommended that a random password generator be used. One example is the Norton Identity Safe Password Generator. See the following Web site:

https://identitysafe.norton.com/password-generator

Chapter 3. Updating ThinkAgile SXM Series solution firmware

These topics include required steps to update firmware, device drivers, and software on the nodes and network switches of a running ThinkAgile SXM Series solution based on the current solution-specific Best Recipe.

The current ThinkAgile SXM Best Recipe can be viewed at the following URL:

https://datacentersupport.lenovo.com/us/en/solutions/HT505122

The complete process of system firmware update comprises the following main activities, and might differ slightly based on the version of Azure Stack Hub Build that is currently running.

Firmware maintenance and Best Recipe

ThinkAgile SXM Series solutions use a "Best Recipe" to identify the supported firmware levels for the product.

For information about ThinkAgile SXM Series Best Recipes, refer to the following Web site:

https://datacentersupport.lenovo.com/solutions/ht505122

Adherence to Best Recipe and Support impact

The ThinkAgile SXM Series Best Recipes include component firmware levels that have been tested in an appropriate environment. Any specific firmware that is above or below the level indicated in the Best Recipe is not supported and might impact Lenovo's ability to support any issues with the relevant component or the entire solution.

Updating firmware

See https://pubs.lenovo.com/thinkagile-sxm/printable_doc for links to relevant documentation.

Prerequisites

Before work can begin, confirm that you have the following items available:

- Access credentials to the Azure Stack Hub Administrator Portal
- Access credentials to XClarity Administrator on the HLH
- USB thumb drive containing:
 - Lenovo ThinkAgile SXM firmware update files for the appropriate Best Recipe
 - XClarity Administrator firmware update policy file for the appropriate Best Recipe
 - Lenovo OEM Extension Package for the appropriate Best Recipe

Note: The above can be obtained from the ThinkAgile SXM repository located at the following URL:

https://thinkagile.lenovo.com/SXM

Preparing to update ThinkAgile SXM firmware

Complete the following steps to prepare for ThinkAgile SXM firmware update.

Step 1. Access the ThinkAgile SXM Updates Repository at https://thinkagile.lenovo.com/SXM.

At the top level are directories based on specific ThinkAgile SXM Best Recipes. Each directory contains a full set of files required for a given Best Recipe and hardware platform.

- Step 2. Click the link for the directory associated with the current Best Recipe.
- Step 3. Download the files required for your environment, based on the following criteria:
 - Download the following for all environments:
 - AzureStackRecoveryHelper.ps1
 - LXCA_<date>.zip
 - OEM Extension Package for the Best Recipe
 - If your solution is an SXM4400 or SXM6400, download **PurleyFirmware_SXMBR<yyyy>.zip** (yyyy is the solution Best Recipe version). This single archive contains the firmware update payload files for the SR650 nodes.
 - If your solution is an SXM4600, download **EGSFirmware_SXMBR<yyyy>.zip** (yyyy is the solution Best Recipe version). This single archive contains the firmware update payload files for the SR650 V3 nodes.
- Step 4. Expand all the zipped archives, and then copy all the expanded content to a USB thumb drive.
- Step 5. Copy the expanded content from the USB thumb drive to the hardware lifecycle host (HLH) as follows:
 - 1. Copy the AzureStackRecoveryHelper.ps1 script file to D:\Lenovo\Scripts.
 - 2. Copy the **contents** (not the directory itself) of the LXCA_<date> directory to D:\Lenovo\LXCA, replacing any files or directories with the same name that are already in the directory.
 - 3. Copy the directory containing the downloaded system firmware update content to D:\Lenovo \LXCA.

Configure XClarity Administrator for a specific Best Recipe

One of the main tasks handled by XClarity Administrator in a ThinkAgile SXM Series solution is to provide a simple way to manage firmware updates on the Azure Stack Hub scale unit nodes. Firmware updates must be imported into XClarity Administrator before they can be applied to any managed system. Since the Azure Stack Hub nodes must run firmware versions according to specific firmware Best Recipes, the appropriate firmware update packages for each published Best Recipe are provided in a single directory.

Once XClarity Administrator has been prepared for a given Best Recipe, firmware updating can take place at any time that is convenient.

Preparing XClarity Administrator to manage firmware updates requires these main activities:

Update XClarity Administrator

Follow the steps in this topic to update XClarity Administrator if necessary (check the current Best Recipe) before proceeding with the remainder of these instructions.

To update XClarity Administrator, follow the steps in this topic. Updating LXCA typically is a two-step process. First, LXCA is updated to a new "base version" and then a "fix pack" is applied. For example, to update LXCA to v2.6.6, the LXCA v2.6.0 update package is applied to any previous v2.x version of LXCA and then the v2.6.6 FixPack is applied to LXCA v2.6.0.

The examples below show the process to update XClarity Administrator v2.1.0 to v2.4.0, but these instructions are valid for updating to any version.

- Step 1. Copy the LXCA Update Package directory to D:\Lenovo\LXCA on the HLH.
- Step 2. On the HLH server, sign in to XClarity Administrator.
- Step 3. At the top menu of the XClarity Administrator browser interface, select Administration → Update Management Server.

| Lenovo | XClarity / | Administr | ator | 🗹 Status * 🔽 Jobs * 🕒 AZURESTACKADMIN * | |
|---|-----------------------|----------------------|--------------|--|---|
| 🕰 Dashboard | Hardware 👻 | Provisioning 👻 | Monitoring 👻 | Administration - | |
| ✓ Hardware Status Servers 4 0 0 | 4 A A A A | e 0 0 @ 0 @ | Switches | Management Server Security Date and Time Network Access Service and Support Inventory Preference Remote Share Shut Down Management Server Update Management Server Back Up and Restore Data | ^ |

Figure 1. Administration menu → Update Management Server

- Step 4. Click the Import button (
- Step 5. Click Select Files.
- Step 6. Navigate to D:\Lenovo\LXCA\LXCA Update Package, select all four files in the directory, and then click **Open**. The example image below shows the update package files for XClarity Administrator v2.4.0, which might vary, depending on the version of XClarity Administrator specified in the current Best Recipe.

| 🌜 File Upload | | | × |
|---|------------------------|----------------------|------------------|
| \leftrightarrow \rightarrow \checkmark \Uparrow \checkmark \checkmark \checkmark LXCA \Rightarrow LXCA Update | Package 🗸 🗸 | ල් Search LXCA | Update Package 🔎 |
| Organize 👻 New folder | | | • • • |
| Name | Date modified | Туре | Size |
| Invgy_sw_lxca_186-2.4.0_anyos_noarch.chg | 4/30/2019 4:35 PM | CHG File | 67 KB |
| Invgy_sw_lxca_186-2.4.0_anyos_noarch.tgz | 4/30/2019 4:46 PM | TGZ File | 2,067,931 KB |
| Invgy_sw_lxca_186-2.4.0_anyos_noarch.txt | 4/30/2019 4:35 PM | Text Document | 5 KB |
| Invgy_sw_lxca_186-2.4.0_anyos_noarch.xml | 4/30/2019 4:35 PM | XML Document | 7 KB |
| File <u>n</u> ame: <mark>"Invgy_sw_lxca</mark> | a_186-2.4.0_anyos_noar | ch ∨ All Files (*.*) | Cancel |

Figure 2. Upload LXCA update package

- Step 7. Back in the Import window, click Import.
- Step 8. Status is displayed during the import process. Once complete, verify that the Download Status column shows Downloaded for the XClarity Administrator update package.

Step 9. Select the update package by clicking the radio button to the left of the package name, and then click the **Perform Update** button (

| Lenovo | XClarity Ad | ministra | tor | 🗹 Sta | itus - 🗹 | Jobs * | B AZURES | Tackadmin - |
|--|--|--------------------------|------------|--------------|--------------|----------|-----------------|----------------|
| 🕰 Dashboar | d Hardware v Pro | ovisioning - | Monitoring | - Adminis | stration 👻 | | | |
| Update Manag | jement Server | | | | | | | |
| Update the mana Update Managem | gement server software to the nent Server: Getting Started | latest level. | | | | | | |
| Before updating, 1 • Back up the m • Check the job | make sure that you: nanagement server. Learn mor log to make sure that there are | e e no jobs currently | running. | | | | | |
| Version: | 210 | Update History | | | | | | |
| Last Updated: | 05-13-2019-10:21 | | | | | | | |
| 2 GB of updates are | e ready to apply | All Actions 👻 | | | | | | |
| Update Name | | Release Notes | Version - | Build Number | Release Date | Download | l Status | Applied Status |
| C XClarity Licens | e Enablement license_anyos_noarch | i, | 2 | LICENSE3 | 2017-01-10 | U Clea | ned Up | Applied |
| Lenovo XClarit Invgy_sw_lxca | Administrator Cumulative Fi _cmfp7-2.1.0_anyos_noarch | | 2.1.0 | v210_cmfp7 | 2018-10-04 | Clea | ned Up | Applied |
| Lenovo XClarit Invgy_sw_lxca | y Administrator v2.4.0 _186-2.4.0_anyos_noarch | i, | 2.4.0 | v240_186 | 2019-04-18 | Down | nloaded | Not Applied |

Figure 3. Perform management server update

Step 10. In the Confirmation window that displays, click Restart.

| enovo® XClarit | y Administrator must re estart, all other active in | estart to complete the u | pdate |
|-------------------|--|--------------------------|---------|
| vant to apply the | update now? | bo mil bo otopped. De | , , 0 u |
| | | | |

Figure 4. Restart message after XClarity Administrator update

Step 11. After a few seconds, the XClarity Administrator browser interface is replaced by the following message:



Figure 5. XClarity Administrator update request message

Step 12. Once XClarity Administrator is back online, reconnect and sign in to the XClarity Administrator browser interface. It can take several minutes after logging in for all servers and switches to be accurately reflected in the XClarity Administrator interface. Initially, you might see Status as "Disconnected."

Import firmware update packages

To import the firmware updates, follow these steps:

Step 1. At the top menu of XClarity Administrator, select **Provisioning → Repository**. Initially, the firmware repository may be empty (for example, if you have just installed and configured XClarity Administrator), as indicated by the blue informational alert in the illustration below.

| Lenovo | XClarity A | dminist | rator | | 🗹 Status | - 🗾 Jobs | · • | AZURESTACKAD | MIN - |
|--|---|---------------------|-----------------|----------------------|------------------------|--------------------|----------------------------|-----------------------|-------|
| 🕰 Dashboard | Hardware 👻 | Provisioning 👻 | Monitoring |) - Admin | istration - | | | | |
| Firmware Updat | es: Repository | | | | | | | | |
| ⑦ Use Refresh Cata update package. Repository Usage: | alog to add new entries, i 0 KB of 25 GB | f available, to the | Product Catalog |) list. Then, befor | e using any r | new updates in a P | 'olicy, you n | nust first download t | he |
| Repository is | empty. | | | | | | | Show Details | × |
| All Actions 👻 📔 | P 🧭 🧗 🜉 Refresh Catalog 👻 | } 🖏 👼 | | | s | All firmwa | ire package ne types on | es • Ily • | |
| Product Catalo | g | Machine Type | Version Info | Release Date | Download | Status | Size | Release Notes | Polic |
| Lenovo Thir | nkSystem SR650 Serv | 7X06 | | | 1 0 to 0 | Not Downloaded | | | |
| Lenovo Rac | kSwitch G8052 | 7159 | | | 1 0 to 0 | Not Downloaded | | | |
| Lenovo Thir | kSystem NE2572 Ra | 7159 | | | 1 0 to 0 | Not Downloaded | | | |
| ¢ | | | | | | | | | > |

Figure 6. XClarity Administrator firmware update repository

- Step 2. Click the Import icon (and then click Select Files....
- Step 3. Navigate to the appropriate firmware directory located in D:\Lenovo\LXCA as described above, select all files in the directory, and click **Open**.

| Select Files | Make sure that you import the XML file as well as all p files, readme files, and change log files for the update package files not specified in the XML file are discard Learn more | ackag . Any ed. |
|--------------|--|-----------------------|
| | Files Selected: Invgy_fw_dsa_dsala8s-10.2_anyos_32-64.btt Invgy_fw_dsa_dsala8s-10.2_anyos_32-64.uxz Invgy_fw_dsa_dsala8s-10.2_anyos_32-64.xml Invgy_fw_dsa_dsala8s-10.2_anyos_anycpu.chg Invgy_fw_exp_12gb-sas-2.03_linux_32-64.bin Invgy_fw_exp_12gb-sas-2.03_linux_32-64.btt Invgy_fw_exp_12gb-sas-2.03_linux_32-64.btt Invgy_fw_exp_12gb-sas-2.03_linux_32-64.btt Invgy_fw_exp_12gb-sas-2.03_linux_32-64.btt Invgy_fw_exp_12gb-sas-2.03_linux_32-64.btt | |

Figure 7. Selecting files for import

Step 4. Click **Import**. A status bar appears at the top of the window during import and validation.

| Import | |
|--|---|
| The update is being imported into the firmware-update: file, this operation might take several minutes. You can operation from the Jobs log. | s repository. Depending on the size of th monitor the progress of the upload |
| | |
| 76% | |

Figure 8. Firmware import status

You can now expand the Product Catalog to reveal each component firmware update version contained in the repository.

| <mark>enovo.</mark> XClarity | Administra | tor | 🗹 Sta | itus - 🗹 J | Jobs - 🔒 | AZURES | TACKADMIN | |
|---|--------------------------------|-----------------------|-------------------|--------------------|--------------------|-------------|-------------|---|
| 🝘 Dashboard 🛛 Hardware 🗸 | Provisioning 👻 | Monitoring 👻 | Administratio | n - | | | | |
| irmware Updates: Repository | 1 | | | | | | | |
| Use Refresh Catalog to add new ent | ries, if available, to the Pro | duct Catalog list. Th | nen, before using | any new updates in | n a Policy, you mu | ist first d | ownload the | |
| odate package. | | - | | | | | | |
| Repository Usage: 452 MB of 25 GB | | | | | | | | |
| | | | | Chause All Grand | | | | |
| | | | | Managed ma | nware packages | - | Filter | |
| All Actions * Refresh Catalog * | | | | manageann | actine (peo only | | | |
| roduct Catalog | Machine Type | Version Infor | Release Date | Download Status | Release | e Notes | Policy Us | |
| Lenovo ThinkSystem SR650 Serv | ver/Thi 7X06 | | | 🚽 7 of 8 Downlo | aded | | | ^ |
| | | | | 🚽 1 of 2 Downlo | aded | | | |
| Lenovo XClarity Controlle Invgy_fw_xcc_cdi324q-1. | er (XC 90_an | 1.90 / cdi324q | 2018-07-11 | Downloaded | | I. | 🛥 In Us | |
| Lenovo XClarity Controlle Invgy_fw_xcc_cdi306x-1.0 | er (XC 08_an | 1.08 / cdi306x | 2018-05-24 | | ded | i | ൙ Not li | |
| | | | | 🔲 1 of 1 Downlo | aded | | | |
| 🔲 🖃 UEFI | | | | | | | | |
| UEFI Lenovo ThinkSystem SR(Invgy_fw_uefi_ive122d-1. | 630/S 30_an | 1.30 / IVE122D | 2018-06-21 | Downloaded | | IJ | 🗝 In Us | |

Figure 9. Product Catalog showing new updates

Import firmware compliance policy

XClarity Administrator compliance policies contained in the LXCA_<date>.zip archive downloaded from the ThinkAgile SXM Updates Repository have a name in the following format for easy recognition of the Best Recipe for which they are intended:

<Platform>Policy_SXMBRyyyy

where <Platform> is either "Purley" or "EGS" and yyyy is the ThinkAgile SXM Best Recipe version.

To import the XClarity Administrator firmware compliance policy, follow these steps:

Step 1. At the top menu of the XClarity Administrator browser interface, select Provisioning → Compliance Policies. Similar to the firmware repository, there may or may not be firmware update policies already shown. This list will grow over time as additional policies are added for new Best Recipes. In the example screenshot below, you see three previous policies for Best Recipes SXMBR1903, SXMBR1905, and SXMBR1910 for the Purley platform. We will continue with this example, preparing XClarity Administrator for Best Recipe SXMBR2002 for the Purley platform.

| Lenovo. | Clarity ⁻ | Administr | ator | Z Status - | 🛃 Jobs 🔹 | azurestackadmin - | | |
|---------------------|---------------------------------------|------------------------|-----------------------|--------------------------|-----------------|----------------------------|--|--|
| 🕰 Dashboard | Hardware 👻 | Provisioning 👻 | Monitoring 👻 | Administration \bullet | | | | |
| Firmware Update | Firmware Updates: Compliance Policies | | | | | | | |
| ⑦ Compliance Policy | allows you to create | or modify a policy bas | sed on the acquired (| updates in the Firmwar | e Repository. | | | |
| * | | | | | | | | |
| | | | All Actions * | | | | | |
| Compliance Policy | Name 👻 | Usage Status | Compliance Pol | Last Modified | Description | | | |
| PurleyPolicy_SXME | R1903 | 🗣 Not Assigned | User Defined | This policy was edi | Includes firmwa | re updates from ThinkAgile | | |
| PurleyPolicy_SXME | 3R1905 | ൙ Not Assigned | User Defined | This policy was edi | Includes firmwa | re updates from ThinkAgile | | |
| PurleyPolicy_SXME | BR1910 | - Assigned | User Defined | This policy was edi | Includes firmwa | re updates from ThinkAgile | | |
| | | | | | | | | |

Figure 10. Firmware Updates: Compliance Policies window

- Step 2. Click the Import icon () and then click Select Files....
- Step 3. Navigate to D:\Lenovo\LXCA, select the file titled <Platform>Policy_SXMBRyyyy.xml, and then click Import. As stated previously, the "<Platform>" portion of the file name is either "Purley" or "EGS" depending on your solution, and the "yyyy" portion of the file name reflects the ThinkAgile SXM Best Recipe version for which the policy file was created. Once the policy is imported, it is shown on the Firmware Updates: Compliance Policies page.

| Import Policy | |
|---------------|---|
| Select Files | Please upload .xml file(s) which contain policy information. Learn more Files Selected: PurleyPolicy_SXMBR2002.xml |
| | Import Cancel |

Figure 11. Import firmware compliance policy

| Lenovo. Clarity / | Administr | ator | 🗹 Status 👻 | 🗹 Jobs 🔹 | AZURE STACKADMIN - | | |
|--|------------------------|-----------------------|--------------------------|-----------------|----------------------------|--|--|
| 🚱 Dashboard Hardware 🕶 | Provisioning 👻 | Monitoring 👻 | Administration \bullet | | | | |
| Firmware Updates: Compliance Policies | | | | | | | |
| ⑦ Compliance Policy allows you to create | or modify a policy bas | sed on the acquired (| updates in the Firmwar | e Repository. | | | |
| | | . Generally | | | | | |
| | 3 🗳 🚰 | All Actions * | | | | | |
| Compliance Policy Name 🗸 | Usage Status | Compliance Pol | Last Modified | Description | | | |
| PurleyPolicy_SXMBR1903 | - Not Assigned | 8 User Defined | This policy was edi | Includes firmwa | re updates from ThinkAgile | | |
| PurleyPolicy_SXMBR1905 | Not Assigned | 8 User Defined | This policy was edi | Includes firmwa | re updates from ThinkAgile | | |
| PurleyPolicy_SXMBR1910 | - Assigned | 💄 User Defined | This policy was edi | Includes firmwa | re updates from ThinkAgile | | |
| PurleyPolicy_SXMBR2002 | Not Assigned | 8 User Defined | This policy was edi | Includes firmwa | re updates from ThinkAgile | | |

Figure 12. Imported firmware compliance policy

Assign firmware compliance policy

Now that the repository is populated with firmware update packages and the firmware compliance policy has been imported, the policy can be assigned to the scale unit nodes. To do so, follow these steps:

Step 1. At the top menu of the XClarity Administrator browser interface, select Provisioning → Apply / Activate. Initially, the assigned compliance policy for each system might be "No assignment" or reflect a policy from a previous Best Recipe. In the example illustration below, all four nodes already have the policy associated with Best Recipe SXMBR1910 assigned to them. Furthermore, all four nodes are shown as "Compliant" with that policy.

| Lenovo. 👂 | Clarity Ad | Iministrato | Status - | 🗹 Jobs 😁 | azurestackadmin - |
|--------------------------|---------------------------|-----------------------------|--------------------------------------|------------------|-------------------|
| 🕰 Dashboard | Hardware 👻 🛛 P | rovisioning - Mo | nitoring - Administration | - | |
| Firmware Update | s: Apply / Activate | | | | |
| ⑦ To update firmware | on a device, assign a co | mpliance policy and sel | lect Perform Updates. | | |
| Update with Policy | Update without Policy | | | | |
| te te 🧟 | | All Actions 👻 | Filter By 🚺 🛕 | ð | Filter |
| Critical Release Inform | nation | | Shov | v: All Devices 🔻 | |
| Device | Power | Installed Version | Assigned Complia | nce Policy | Compliance Target |
| Lenovo-01 ± 10.30.8.3 | 🙆 On | Compliant | PurleyPolicy_SXM | /BR1910 | - |
| Lenovo-02 10.30.8.4 | 🙆 On | Compliant | PurleyPolicy_SXM | /BR1910 | - |
| □ | 🙆 On | Compliant | PurleyPolicy_SXM | /BR1910 | - |
| □ | 🞯 On | Compliant | PurleyPolicy_SXM | IBR1910 | - |
| < | | | | | > |

Figure 13. Firmware Updates: Apply/Activate window

- Step 2. Before assigning the firmware update policy to the nodes, global settings for firmware updates must be set. To do this, click **All Actions** and then select **Global Settings** in the dropdown list that appears.
- Step 3. In the Global Settings: Firmware Updates window that opens, select to enable the checkboxes for all three options, and then click **OK**.



Figure 14. Global Settings: Firmware Updates window

Step 4. Now that global settings have been configured, on the Firmware Updates: Apply / Activate page, change the assigned compliance policy to the policy that was just imported. Notice in the following example illustration of a 4–node Purley solution that the policy has been changed to support Best Recipe SXMBR2002 for Purley solutions and all nodes now show as "Not Compliant" (highlighted by the red boxes) since the firmware has not yet been updated to SXMBR2002 levels. Also, because of the global settings that were configured, if any server is flagged as Not Compliant, the Status icon in the XClarity Administrator top banner (highlighted by the yellow box) will indicate a warning alert. It might take a minute or two for this alert icon to be updated.

| enovo. 💢 | Clarity Ac | dministrator | 🛕 Status - 🛛 🖉 Jobs - | e / | ZURESTACKADMIN |
|---------------------------|---------------------------|-------------------------------------|----------------------------|------------|-------------------|
| 🕰 Dashboard | Hardware 👻 🛛 | Provisioning - Monitorin | g 🗸 Administration 🕇 | | |
| rmware Updates: | Apply / Activate | • | | | |
|) To update firmware on | a device, assign a c | ompliance policy and select Pe | rform Updates. | | |
| odate with Policy | Jpdate without Policy | | | | |
| 🖻 🖻 🛃 | 8 8 1 🛃 | All Actions 👻 | Filter By 🗾 🛕 🔷 🛼 | | Tiller |
| Critical Release Informat | ion | | Show: All Devices * | | Filler |
| Device | Power | Installed Version | Assigned Compliance Policy | | Compliance Target |
| Lenovo-01 10.30.8.3 | 🙆 On | \Lambda Not Compliant | PurleyPolicy_SXMBR2002 | * | |
| Lenovo-02 10.30.8.4 | 🙆 On | \Lambda Not Compliant | PurleyPolicy_SXMBR2002 | * | |
| Lenovo-03 | 🙆 On | \Lambda Not Compliant | PurleyPolicy_SXMBR2002 | * | |
| Lenovo-04 10.30.8.6 | 🞯 On | \Lambda Not Compliant | PurleyPolicy_SXMBR2002 | • | |
| | | | | | |

Figure 15. Firmware compliance policy showing noncompliant nodes

XClarity Administrator is now ready to perform firmware updates on the ThinkAgile SXM Series solution. Proceed to "Update the ThinkAgile SXM OEM Extension Package" on page 15 at the start of the scheduled maintenance window for firmware updating of the solution.

Update the ThinkAgile SXM OEM Extension Package

These topics detail the process of applying an OEM Extension Package update to a running ThinkAgile SXM Series solution. The OEM Extension Package is the construct provided by Microsoft that contains device drivers for all components in the Azure Stack Hub nodes. As such, it is designed to work with the system firmware from a ThinkAgile SXM Best Recipe. This is why the OEM Extension Package is listed in each Best Recipe.

OEM Extension Packages are contained in a zip archive with the following name format:

OEMv<x>_SXMBR<yyyy> where <x> is either "2.2" or "3.0" and yyyy is the Best Recipe version for which it is intended.

To prepare for updating the OEM Extension Package, download the appropriate zip archive from the repository.

The high-level activities associated with updating the OEM Extension Package are:

- "Provide LXCA details to Azure Stack Hub" on page 16
- "Determine current versions" on page 18
- "Create the update storage container" on page 18
- "Upload the OEM Extension Package" on page 20
- "Perform the update" on page 22
- "Verify the update and Azure Stack Hub functionality" on page 24

Microsoft recommends keeping Azure Stack Hub running at the latest available version.

Prerequisites

Before work can begin, ensure that you have a USB thumb drive containing the appropriate OEM Extension Package available.

Also, do not attempt to update the OEM Extension Package until LXCA has been prepared, as described in "Configure XClarity Administrator for a specific Best Recipe" on page 6.

Provide LXCA details to Azure Stack Hub

The Patch and Update (PnU) feature of Azure Stack Hub requires the LXCA IP address and credentials to be stored in a specific variable within the Azure Stack Hub fabric to communicate all firmware update requests to LXCA and to handle its respective authentication.

Notes:

• The steps in this topic are required to be completed before the first PnU firmware update is executed. Every time the LXCA credentials are changed, these steps should be run again.

A helper script has been created to make this process easier. Follow these steps to use the script:

- Step 1. Copy "AzureStackManagerCredsHelper.ps1" to "D:\Lenovo\Scripts" on the HLH.
- Step 2. Open a new instance of PowerShell ISE as Administrator, and then open the helper script. The script includes comments throughout to assist in using it.
 # Set the variables used by the rest of the lines
 #
 # <EmergencyConsoleIPAddresses> is the IP address of a PEP

\$ip = "<EmergencyConsoleIPAddresses>"

<Password> is the password for the Azure Stack Hub Administrator account
\$pwd = ConvertTo-SecureString "<Password>" -AsPlainText -Force

<DomainFQDN> is the domain name of the scale unit # <UserID> is the UserID of the Azure Stack Hub admin account (often "CloudAdmin") \$cred = New-Object System.Management.Automation.PSCredential ("<DomainFQDN>\<UserID>", \$pwd) Enter-PSSession -ComputerName \$ip -ConfigurationName PrivilegedEndpoint -Credential \$cred

The following command will pop up a window for LXCA Credentials # <LXCAIPAddress> is the IP Address of LXCA Set-OEMExternalVM -VMType HardwareManager -IPAddress "<LXCAIPAddress>"

This script includes bracketed parameters that must be replaced by real values from your environment. These values can be found in the table contained in the **Lenovo ThinkAgile SXM** - **Customer Deployment Summary** document that was left with you and copied to the HLH ("D: \Lenovo \Azure Stack Deployment Details") after Azure Stack Hub was initially deployed in your datacenter. Replace the bracketed parameters as follows:

- <EmergencyConsoleIPAddresses> is the IP address of a Privileged Endpoint (PEP), which can be found in the Emergency Recovery Console Endpoints section of the table. Any of the three IP addresses can be used.
- <*Password>* is the password for the Azure Stack Hub Administrator account, which can be found in the *Azure Stack Infrastructure* section of the table. This is the password that is used to log in to the Azure Stack Hub Administrator Portal.
- *<DomainFQDN>* is the domain name of the scale unit, which can be found in the *Azure Stack Hub Infrastructure* section of the table.

- *<UserID>* is the UserID of the Azure Stack Hub Administrator account, which can be found in the *Azure Stack Infrastructure* section of the table. This is the UserID that is used to log in to the Azure Stack Hub Administrator Portal.
- <*LXCAIPAddress*> is the IP address of the LXCA virtual machine, which can be found in the *LXCA* section of the table.
- Step 3. After replacing all bracketed parameters with real values, save the script so it can be reused in the future if the LXCA credentials are changed.
- Step 4. Select all lines in the script except the last three lines, and run the selected portion by clicking the **Run Section** () button. It is normal to see an orange warning message, displaying the following text:

The names of some imported commands from the module 'ECEClient' include unapproved verbs that might make them less discoverable. To find the commands with unapproved verbs, run the Import-Module command again with the Verbose parameter. For a list of approved verbs, type Get-Verb.

Step 5. A window will pop up, requesting credentials. **Enter the credentials that are used to log in to LXCA.** The credentials at the time of Azure Stack Hub deployment can be found in the same table referenced above, in the **LXCA** section of the table.

| Windows PowerShell Credential Request: ? × Warning: A script or application on the remote computer 10.30.29.225 is requesting your credentials. Enter your credentials only if you trust the remote computer and the application or script that is requesting them. Supply values for the following parameters: User name: Password: OK Cancel | | |
|--|---|--|
| Warning: A script or application on the remote computer 10.30.29.225 is requesting your credentials. Enter your credentials only if you trust the remote computer and the application or script that is requesting them. Supply values for the following parameters: User name: Password: OK Cancel | Windows PowerShell | Credential Request: ? 🛛 🗙 |
| Warning: A script or application on the remote computer 10.30.29.225 is requesting your credentials. Enter your credentials only if you trust the remote computer and the application or script that is requesting them. Supply values for the following parameters: User name: Password: OK Cancel | | |
| User name: AzureStackAdmin v Password: OK Cancel | Warning: A script or a 10.30.29.225 is requ credentials only if you application or script the Supply values for the | application on the remote computer esting your credentials. Enter your a trust the remote computer and the hat is requesting them. following parameters: |
| Password: OK Cancel | User name: | 🔮 AzureStackAdmin 🗸 |
| OK Cancel | Password: | ••••• |
| | | OK Cancel |

Figure 16. Credentials that are used to log in to LXCA

It will take a few minutes for the command to complete. PowerShell will periodically update with the following verbose status messages:

VERBOSE: Overall action status: 'Running' VERBOSE: VERBOSE: Step 'OEM Hardware Manager password update' status: 'InProgress' VERBOSE:

Once complete, you will see a final status update ("VERBOSE: DONE") before a summary of what was done is displayed.

This completes the steps required to provide XClarity Administrator details to the scale unit. Please proceed to "Determine current versions" on page 18.

Determine current versions

Follow this procedure to check your Microsoft Azure Stack Hub version.

Check the Dashboard blade in the Azure Stack Hub Administrator Portal to ensure that there are no current alerts shown. All alerts need to be resolved before performing any update to the OEM Extension Package or Azure Stack Hub Build. Otherwise, the update process will simply wait for the scale unit to become healthy before attempting the update.

To determine whether an update is necessary, check the current version. To do this, sign in to the Azure Stack Hub Administrator Portal. To find the version of the OEM Extension Package currently used by the solution, click the Update tile to open the Update blade.

The OEM Extension Package version currently used by the solution is shown as "Current OEM version" as shown in the following illustration. Make a note of the versions found, so they can be compared against the latest versions available. In the example screen capture below, the solution is running Azure Stack Hub Build 1910 (in the yellow box) and OEM Extension Package version 2.1.1910.503 (in the light blue box).



Figure 17. Checking current running Azure Stack Hub versions

Create the update storage container

Follow this procedure for creating a storage container within Azure Stack Hub to import the update package.

For an OEM Extension Package to be applied to Azure Stack Hub, it must be imported into a specific storage container within Azure Stack Hub. This container must be created as follows:

- Step 1. Sign in to the Administrator Portal of Azure Stack Hub.
- Step 2. In the Azure Stack Hub Administrator Portal, navigate to **All services** → **Storage Accounts** (found under DATA + STORAGE).
- Step 3. In the filter box, type update, and select updateadminaccount.

| Micr | osoft Azure Stack - Administration | Storage accounts | | Q | Q | ŝ | 0 | globaladmin@lenovo LENOVOMASLAE | |
|------|--|------------------|--------------------|----------|-----|----------|-----|------------------------------------|-----|
| | Storage accounts | | | | | | | | * × |
| + | + Add ≣≣ Columns 🕐 Refresh | | | | | | | | |
| | Subscriptions: Default Provider Subscription | | | | | | | | |
| | upda | | | × | Ne | o groupi | ing | | ~ |
| | 1 items NAME V | KIND 🗸 | RESOURCE GROUP 🗸 🗸 | LOCATIO | n ~ | | | SUBSCRIPTION V | |
| ٢ | updatezdminaccount | | | kirkland | | | | Default Provider Subscription | |
| | | | | | | | | | |
| â | | | | | | | | | |
| | | | | | | | | | |
| • | | | | | | | | | |
| > | | | | | | | | | |

Figure 18. Navigating to the updateadminaccount storage container

| Microsoft Azure Stack | - Administration P Search | 1 resources | × Û | \$ | ₽ | Global Admin LENOVOMASLAB |
|--|--|--|-----------------------------|---|-----------|------------------------------|
| ← Create a resource i = All services | Home > Storage accounts > updateadm updateadminaccount Storage account | inaccount → Move | 🛅 Delete 💍 Refr | resh | | * × |
| FAVORITES Dashboard All resources Resources | Cverview Activity log Activity log Access control (IAM) Tags | Resource group system.redmond1 Status Primary: Available Location redmond1 Subscription Default Provider Subscription Scitorization ID | Perf Star Rep Loca | iormance ndard lication ally-redundant | storage (| LRS) |
| Virtual machines | SETTINGS | Services | d9a80 ≈ | | | |
| i⊟ Plans ✔ Offers â Marketplace management | Shared access signature Froperties Cocks | Blobs REST-based object storag Configure CORS rules Setup custom domain View metrics | ge for unstructured data | | | |
| Monitor | BLOB SERVICE | Tables Tabular data storage | | | | |

Step 4. In the updateadminaccount storage account details, under Services, select Blobs.

Figure 19. Navigating to the Blobs storage container

Step 5. On the Blob service tile, click + **Container** to create a container, enter a name for the container (for example, **oem-update-2002**), and click **OK**.

| Microsoft Azure Stack - | - Administration P Search resources $	imes \ Q$ 🚳 🔿 🖞 | Global Admin |
|--|--|--------------|
| | Home > Storage accounts > updateadminaccount > Blob service | |
| + Create a resource | Blob service updateadminaccount | * × |
| E All services | + Container U Refresh 🗇 Delete | |
| — 🗙 FAVORITES ———————————————————————————————————— | New container | |
| 🔟 Dashboard | * Name | |
| All resources | oem-update-2002 | |
| 🜍 Resource groups | Public access level ① Private (no anonymous access) | |
| Virtual machines | | |
| lecent | OK Cancel | |
|) Plans | You don't have any containers set Click '+ Container' to get started | |
| Øffers | | |

Figure 20. Creating the new container

Upload the OEM Extension Package

Now that the storage container has been created, the update package files must be uploaded into the container. To do this, follow these steps:

Step 1. After the container is created, select it to open a new tile.

| Microsoft Azure Stack | - Administration P Search resources | × 🗘 🐯 🕐 🖫 Global Admin 🥥 |
|-----------------------|--|---|
| | Home > Blob service | |
| + Create a resource | Blob service | * × |
| i≘ All services | 🕂 Container 💍 Refresh 📓 Delete | |
| 🗕 📩 FAVORITES | Storage account updateadminaccount | Blob service endpoint https://updateadminaccount.blob.redmond1.lenovo.azs.local/ |
| 🔟 Dashboard | Status Primary: Available Location | |
| III resources | redmond1 Subscription (-hange) Default Provider Subscription | |
| 📦 Resource groups | Subscription ID b70e0f2e-52c4-4523-9e5b-109be0bd9a80 | |
| 👰 Virtual machines | | * |
| 🕒 Recent | Search containers by prefix | |
|) E Plans | A new undate 1911 | |
| Offers | • ven-opaare-ion | 17/3/2010 0.5 % 10 PM Available |

Figure 21. Selecting the storage container for upload

Step 2. Click Upload.

| Microsoft Azure Stack | - Administration | ${\cal P}$ Search resources | | × 🗘 🕴 | \$ ⑦ ₽ | Global Admin |
|-----------------------|---|-----------------------------|----------------------|-------------------|---------------|--------------|
| * | | em-update-1811 | | | | |
| + Create a resource | oem-update-1811 _{Container} | | | | | * × |
| i≣ All services | | T Upload | 🕑 Refresh 🗴 📋 Deleti | e 🔹 Acquire lease | 🆇 Break lease | |
| + FAVORITES | Cverview | Location: cem | | | | |
| 🔳 Dashboard | SETTINGS | | | MODIFIED | BLOB T SIZE | LEASE S |
| All resources | Access policy | No blobs fou | ind. | | | |
| 📦 Resource groups | Properties | | | | | |
| Virtual machines | | | | | | |

Figure 22. Selecting the Upload control

Step 3. Browse to the update package, select both package files, and click **Open** in the file explorer window.

| → * ↑ | his PC → Local Disk (C:) → OEMPack | age1811 | ~ | G | Search OEMPacka | ige1811 | |
|---|---|---|--------------------|-----------------------|---------------------|---------------|--------------|
| Irganize 🔻 New fold | ler | | | | = | | |
| Quick access Desktop Downloads Documents Pictures This PC Network | Name AzS-Lenovo2.1.2002.500.zip comMetadata.xml | Date modified 2/24/2020 8:12 AM 2/24/2020 8:12 AM | Type Con XMI | e npres: . File | sed (zipped) Folder | Size 30,42 | 3 KB 4 KB |
| | < | | | | | | |
| File r | name: AzS-Lenovo2.1.2002.500.zip | ", "oemMetadata.xml | | ~ | All Files (*.*) | | |

Figure 23. Selecting the update package files for upload

Step 4. Click **Upload** in the administrator portal.

| Microsoft Azure Stack - | Administration | ρ Search resource | es | | | × | L | ŝ | ? | Ŗ |
|-------------------------|-----------------|------------------------|-----------------|---------------|---------------|-------|----------|----------------|---------|------|
| * | | em-update-2002 | | | | | | | | |
| + Create a resource | oem-update-2002 | | | | | | | | | |
| i≡ All services | | | ⊼ Upload | ပီ Refresh | 面 Delete | 🗣 Acq | | : *// = | Break I | ease |
| - 🛨 Favorites | Overview | | Location: 08 | | | | | | | |
| Dashboard | | | | | | | | | | |
| | SETTINGS | | NAME | | | м | DDIFIED | | BLOE | 8 T |
| Air resources | Y Access policy | | 📄 Az | zS-Lenovo2.1 | .2002.500.zip | 2/2 | 24/2002 | 8:12 AM | Bloc | k |
| Resource groups | Properties | | 📄 oe | emMetadata.xn | nl | 2/2 | 24/2002 | 8:12 AM | Bloc | k |
| Virtual machines | | | | | | | | | | |

Figure 24. Uploading the update package files

When the upload is complete, all package files are listed in the container. You can review the Notifications area () to verify that each upload has completed.

Figure 25. Verifying uploads completed successfully

Perform the update

Once the OEM Extension package files have been uploaded to their container, return to the Dashboard view. The Update tile now displays "Update available." The OEM Extension Package update can now be applied as follows:

- Step 1. Select **Update** to review the newly added update package with version number.
- Step 2. To install the update, select the OEM Extension Package update marked as **Ready**. Note that if an Azure Stack Hub Update is available, it will be listed along with the OEM Extension Package update and will require a completely separate update process. Make sure to select the correct update before proceeding.

| Microsoft Azure Stack - | Administration | ✓ Search reso | | |
|-------------------------|--------------------------------------|---------------------|-----------|--|
| * | | | | |
| + Create a resource | redmond1 _{Updates} | | | |
| i≣ All services | 1 Update now | | | |
| - 🛧 Favorites | Essentials ^ | | | |
| | State | | | |
| 🗔 Dashboard | Update available | | | |
| All resources | Current stamp version 1.1910.0.58 | | | |
| 📦 Resource groups | | | | |
| Virtual machines | PUBLISHER | NAME | * STATE * | |
| • | | | | |
| 🕓 Recent | Lenovo | Lenovo-2.1.2002.500 | Ready | |
|) Plans | | | | |
| Offers | | т. | | |

Figure 26. Initiating the update

Step 3. With the OEM Extension Package update selected, either right-click and select **Update now**, or click **Update now** in the command bar at the top of the window to begin the update process. The state of the update at the bottom of the Portal changes to "In progress" and the state of any other update available changes to "Not applicable" since an update is now in progress.

| Microsoft Azure Stack - | Administration | $\mathcal P$ Search resource | 5 |
|---|--------------------------------|------------------------------|----------------|
| | Home > redmond1 | | |
| + Create a resource | redmond1 ^{Updates} | | |
| i∃ All services | ↑ Update now | | |
| - 🛨 FAVORITES | Essentials 🔨 | | |
| | State | | |
| 🗔 Dashboard | In progress | | |
| 20 - 12 - 12 - 12 - 12 - 12 - 12 - 12 - | Current stamp version | | |
| All resources | 1.1910.0.58 | | |
| 📦 Resource groups | | | |
| Virtual machines | PUBLISHER | NAME 🗽 STATI | |
| 🕓 Recent | Lenovo | | Installing |
| 📋 Marketplace management | | | |
| j≡ Plans | | | |
| A | Update runs: Len | iovo-2.1.2002.500 | |
| Others | STATE | τ ₆ | TIME STARTED |
| 🕒 Monitor | | | |
| | In progress | | February 25, 2 |

Figure 27. Update progress indicators

Step 4. Click the **In progress** indicator to open the Update run details tile to view details of the currently installing update package.

| Microsoft Azure Stack - A | dministration \mathcal{P} Search | resources | | × 다 ல () 대 Global Admin |
|---|---|-------------------------|--|--|
| Create a resource | Home > redmond1 redmond1 Updates | | | Update run details × redmond1/0EM2.12002.500/186862be-d1d5-6b4d-e505-e4b5bdfb71 |
| i ≘ All services | ↑ Update now | | | |
| ★ FAVORITES | State In progress Current stamp version | | Last updated February 12, Current OEM ve | In progress |
| All resources Resource groups | 1.1910.0.58 Filter by name | | 2.1.1910.503 | Gen Package Update Perform Cern Extension update. Check Cloud Health |
| Virtual machines | PUBLISHER NAME | °↓ STATE | PREREQUIS | Check the health of all roles in parallel before beginning update. |
| Narketplace management | Lenovo Lenovo-1.0.1811.1 | l Installing | 1.0.0.0 | |
| j≡ Plans | | | | |
| Offers Monitor | Update runs: Lenovo-2.1.2002.500 | TIME STARTED | | |
| | In progress | February 25, 2020 9:49: | :21 PM | |

Figure 28. Installation details

Step 5. The entire update process can take a significant amount of time, since each node is drained, redeployed from bare metal, and resumed during the process. Once the update is complete, you will see that the STATE column updates to "Succeeded" and the Update run details tile on the right side of the portal shows no updates in progress.

Verify the update and Azure Stack Hub functionality

Once the update has been applied successfully, it can take some time (two hours or more) for Azure Stack Hub to "settle down" and return to normal behavior. During the update process and this settling period, alerts may appear based on infrastructure component availability.

You can verify that the update has been applied by checking the version of the current environment in the Azure Stack Hub Administrator Portal. Return to the dashboard and click **Update** to open the Update blade. Check that the "Current OEM version" is as expected.

The Azure Stack Hub validation tool (**Test-AzureStack**) is a PowerShell cmdlet that lets you run a series of tests on your system to identify failures if present. It is a recommended practice to run the Test-AzureStack cmdlet after applying each update. See here for Microsoft's current instructions for performing this test: https://docs.microsoft.com/en-us/azure/azure-stack/azure-stack-diagnostic-test.

Update the ThinkAgile SXM switch firmware (Lenovo switches only)

Current ThinkAgile SXM Series solutions are no longer shipped with Lenovo network switches. This topic presents the steps required to update Lenovo BMC and TOR switches in a running Lenovo ThinkAgile SXM Series solution that was shipped with Lenovo switches. Steps are included to backup the switch configurations, update the Network Operating System (NOS) on each switch, and verify that the switches are operating properly.

Introduction

Once a ThinkAgile SXM Series solution has been deployed and is running workloads, it is essential to ensure minimal disruption of the production environment. It is necessary to maintain active network connectivity at all times, even during updates of the network switch operating systems and configurations. The Azure Stack Hub network design incorporates two redundant TOR switches to achieve this level of high availability.

In these topics, the steps include entering switch credentials in the form of "admin/<password>." You must substitute the actual credentials for each switch in order to complete this process. You can find these credentials in the Customer Deployment Summary document left with you at solution turnover. You can modify passwords after updating the switch successfully.

The switch firmware update process includes the following activities:

- Prepare XClarity Administrator to update switch firmware
- Back up TOR switch configurations
- Update the TOR switches
- Verify TOR switch functionality
- Back up BMC switch configuration
- Update the BMC switch
- Verify BMC switch functionality

Prerequisites

Follow the instructions in this topic before starting the process of switch firmware update.

Before work can begin, confirm that you have the following items available:

- Access credentials to the Azure Stack Hub Administrator Portal
- Access credentials to XClarity Administrator on the HLH
- In case a direct serial connection to a switch is needed for troubleshooting:
 - Lenovo-specific serial cable (Mini-USB-RJ45-Serial) supplied with switch
 - USB-to-serial cable
 - USB thumb drive containing:
 - Lenovo ThinkAgile SXM firmware update files for the appropriate Best Recipe
 - XClarity Administrator firmware update policy file for the appropriate Best Recipe

Note: The above files can be obtained from the ThinkAgile SXM repository located at the following URL:

https://thinkagile.lenovo.com/SXM

- This guide assumes that your ThinkAgile SXM Series solution is running Lenovo XClarity Administrator version 2.x on the HLH to perform firmware updates on the ThinkAgile SXM network switches. If XClarity Administrator version 2.x is running on the HLH, it is easily updated to any other version 2.x following the instructions in the topic Update XClarity Administrator.
- The minimum switch NOS versions required to use XClarity Administrator to perform updates are CNOS v10.6.1.0 (on the TOR switches and NE0152T BMC switch) and ENOS v8.4.8.0 (on the G8052 BMC switch). If a switch is running an earlier version, you cannot use XClarity Administrator to update the NOS on the switch. In this situation, refer to Appendix B "Updating ThinkAgile SXM Series switches using the CLI (Lenovo switches only)" on page 91 for instructions on how to use the switch CLI method to update switch firmware.
- Establish a solution maintenance window, during which the expectation is that the solution might not be available. Lenovo recommends allowing a minimum 2-hour maintenance window for all three switches.

Prepare XClarity Administrator to update switch firmware

Follow the instructions in this topic to prepare XClarity Administrator to update Lenovo switch firmware.

Using XClarity Administrator to update Lenovo switch firmware is straightforward and quick. Before updating, the switches must be managed by XClarity Administrator. To verify that XClarity Administrator manages the switches, use the top menu in XClarity Administrator to navigate to **Hardware** \rightarrow **Switches**. If you do not see all the solution switches as shown in the screen capture below, refer to the "Manage the switches" topic in Appendix A "XClarity Administrator deployment and configuration" on page 55 for steps to manage the switches.

| Lenovo. | Clari | ty ⁻Ad | ministrat | or | 🗹 Status 🕤 | 🗹 Jobs - 😋 | AZURESTACKADMIN - |
|---------------|----------|---------------|--------------|----------------|--------------------|------------------|-------------------|
| 🕰 Dashboard | Hardward | e 🔻 🦳 Pr | ovisioning 👻 | Monitoring 👻 | Administration 👻 | | |
| Switches | | | | | | | |
| . | Unmanage | | | Filter By | | | |
| All Actions 👻 | | | | | Show: All S | ystems - | Filter |
| Switch | Status | Power | IP Addresses | Product Name | | Serial Number | Description |
| Lenovo-BMC | Normal | 🕑 On | 10.30.8.169, | Lenovo RackSw | vitch G8052 | 10/04/1110/01/7 | 48*1 GbE(RJ-45), |
| Lenovo-TOR1 | Normal | 🙆 On | 10.30.8.170, | Lenovo ThinkSy | stem NE2572 RackSw | itch A40578A8822 | 48*25 GbE SFP+, |
| Lenovo-TOR2 | Normal 📃 | 🙆 On | 10.30.8.171, | Lenovo ThinkSy | stem NE2572 RackSw | itch A4057400824 | 48*25 GbE SFP+, |

Figure 29.

XClarity Administrator must be prepared to perform switch firmware updates exactly as it is prepared to update node firmware. If not already done, refer to "Preparing to update ThinkAgile SXM firmware" on page 5 and "Configure XClarity Administrator for a specific Best Recipe" on page 6 to prepare XClarity Administrator to update the switch firmware.

Once XClarity Administrator has been prepared to update the firmware on the switches, it is important to verify that the Azure Stack Hub environment is healthy. Sign in to the Azure Stack Hub Administrator Portal and verify that no alerts are displayed. We will refer back to the portal throughout this process to check the general health of the solution.

| 승 🛞 🗠 https://adminportal.santa | clarab.scmas.labs.l., 🔎 ~ 🔒 🖒 🍳 | Dashboard - Microsoft Azur. | . × 📑 BMC_Migration_8.4.6 | -8.4.8 - Te | | | | | 6 🕁 🕲 😊 |
|---------------------------------|---------------------------------|-----------------------------|---------------------------|------------------|--------|------|----------|-------------|------------------------------------|
| Microsoft Azure Stack - | Administration | م | Search resources | | × | Q | ٢ | 0 | globaladmin@lenovo |
| = | Dashboard \checkmark + | New dashboard 🥒 Edit da | ishboard 🦨 Fullscreen | 🗗 Clone 🔋 Delete | | | | | |
| + New | | | | — | | | | | |
| Dashboard | Region management | | Resource providers | | | Quic | kstart I | tutorials | |
| III resources | 1 🥺 | | NAME | HEALTH | ALERTS | | Cre | ate a viri | tual machine 🗵 |
| 🞲 Resource groups | REGION CRITICAL | WARNING | Capacity | Healthy | | | Crea | ite a VM to | validate deployment |
| - Martantan management | santaclarab 0 | | Compute | Healthy | | | | | |
| Marketplace management | | | Key Vault | Healthy | | 🥠 | Off | ering ser | vices 🗹 |
| Virtual machines | Update | Alerts | Network | 🤗 Healthy | | | | | analiacie to your datta |
| Ì≣ Plans | Applied successfully | | Storage | 😔 Healthy | | | | | e Azure Stack marketplace 🛽 |
| Inters Offers | | Critical 0 | | | | | Add | apps and i | resources to the marketplace |
| S Recent | Version: 1.0.171201.3 | A Warning 0 | | | | - | Ma | nage infr | rastructure 12 |
| More services > | | | | | | | Mon | ator nearth | , manage opulates, and other tasks |

Figure 30. Verifying Azure Stack Hub health before update

Update Lenovo TOR switch firmware

This topic outlines the sequence of steps required to update the CNOS image of the TOR switches.

Back up Lenovo TOR switch configurations

Before beginning the update procedure, ensure that both Lenovo TOR switch configurations have been backed up.

Backing up the switch configuration files from the TOR switches is a simple matter of a few clicks in XClarity Administrator. Follow these steps:

- Step 1. At the top menu of the XClarity Administrator browser interface, select **Hardware** \rightarrow **Switches**.
- Step 2. Select both TOR switches by clicking the checkbox to the left of each switch.

| L | enovo. 👂 | Clarity | Adm | inistrato | 🖌 🔽 Status - | 🗹 Jobs 🔹 | AZURE STACKADMIN |
|---|-------------|------------|--------|-------------------------|--------------------------------------|---------------|-----------------------|
| | 🕰 Dashboard | Hardware 👻 | Provis | ioning - Mor | nitoring 🗸 Administration 🗸 | | |
| S | witches | | | | | | |
| | 🗊 🛛 🙀 🚰 | Unmanage | | | Filter By 🔕 🛕 🔳 📗 Show: All Sys | tems 👻 | Filter |
| | Switch 🔺 | Status | Power | IP Addresses | Product Name | Serial Number | Description |
| | Lenovo-BMC | Normal | 🕑 On | 10.30.8.169, | Lenovo RackSwitch G8052 | Y01NJ111W0Y7 | 48*1 GbE(RJ-45), 4*10 |
| ~ | Lenovo-TOR1 | Mormal | 🔁 On | 10.30.8.170, | Lenovo ThinkSystem NE2572 RackSwitch | A4CS78X0022 | 48*25 GbE SFP+, 6*100 |
| ~ | Lenovo-TOR2 | Mormal | 🕑 On | 10.30.8.171, | Lenovo ThinkSystem NE2572 RackSwitch | A4CS78X0021 | 48*25 GbE SFP+, 6*100 |
| | | | | | | | |
| - | | | | | | | |

Figure 31. Selecting both TOR switches

Step 3. Select All Actions \rightarrow Configuration \rightarrow Backup configuration file.

| Lenovo. | | Clarity | Adm | inistrato | 🗹 🔽 Status - | 🗹 Jobs - | AZURE STACKADMIN * |
|-----------------------|---|---------------------------------------|---------------------|--------------|-------------------------------------|---------------|-----------------------|
| 🖓 Dashboard | | Hardware 👻 | Provis | ioning 👻 Mor | nitoring 👻 Administration 👻 | | |
| Switches | | | | | | | |
| All Actions 👻 | 1 | Unmanage | | | Filter By 🚫 🛕 📄 Show: All S | Systems - | Filter |
| Launch | • | Status | Power | IP Addresses | Product Name | Serial Number | Description |
| Power Actions > | | Normal | 🔁 On | 10.30.8.169, | Lenovo RackSwitch G8052 | Y01NJ111W0Y7 | 48*1 GbE(RJ-45), 4*10 |
| Inventory Service | | P Normal | 😁 On | 10.30.8.170, | Lenovo ThinkSystem NE2572 RackSwite | h A4CS78X0022 | 48*25 GbE SFP+, 6*100 |
| Security + | | Mormal | 🕑 On | 10.30.8.171, | Lenovo ThinkSystem NE2572 RackSwite | h A4CS78X0021 | 48*25 GbE SFP+, 6*100 |
| Configuration Groups | B | ackup configurati anage configurat | on file ion file | | | | |

Figure 32. Backing up TOR configuration file

Step 4. Verify that both TOR switches display in the **Selected Switches** field. Enter a descriptive comment for the backup, and click **Backup**.

| comment | ThinkAgile SXM TOR switch config backup |
|---------|---|
| elected | Lenovo-TOR1 |
| witches | Lenovo-TOR2 |

Figure 33. Backup configuration file dialog box

Step 5. The window should confirm successful backup. Click **Close** to dismiss this window.

| Switch Name | IP Address | Status | Explanation | Recovery |
|-----------------|-------------|-------------------------|---|----------|
| Lenovo- TOR2 | 10.30.8.171 | Operation successful | Configuration was backed up successfully. | |
| Lenovo- TOR1 | 10.30.8.170 | Operation successful | Configuration was backed up successfully. | |

Figure 34. Backup configuration file results

- Step 6. The backup switch configuration files are stored internal to XClarity Administrator, but it is a good idea to save a more accessible copy. To save a copy to the HLH, click a switch to open a detailed view of the switch.
- Step 7. In the left pane, select **Configuration Files**, and click the checkbox to the left of the file name to select the backed up configuration file.
| Lenovo. X | Clarity ⁻ A | dmin | nistrator | 🗹 Status 🔹 | 🗹 Jobs 🔹 | 🖰 AZI | IRESTACKADMIN * |
|--------------------------------|------------------------|------------|----------------------|--|-----------------|-------|-------------------|
| 🔗 Dashboard | Hardware 👻 | Provisioni | ing 👻 Monitoring 👻 | Administration - | | | |
| Lenovo-TOR1 | Actions * | e | Switches > Lenovo | -TOR1 Details - Confi guration File | iguration File: | 5 | Filter |
| Normal On | | 8 | File Name | Time Stamp | - Switch | Name | Switch Type |
| General | | | Lenovo-TOR1-10.30.8. | 170-20 Jul 24, 2018, 7:5 | 4:59 PM Lenovo | -TOR1 | Lenovo ThinkSyste |
| Summary Inventory | | I | | | | | |
| Status and Health | | | | | | | |
| Alerts | | | | | | | |
| ▶ Event Log ☑ Jobs | - | | | | | | |
| Configuration Files | | | | | | | |
| 다 Ports 移 Power and Thermal | | | | | | | |
| | | | < | | | | > |

Figure 35. Selecting backup configuration file to download to local PC

Step 8. Click the Download configuration file from XClarity to local PC button (

| Step 9. | Depending on the browser being used, specify a download location and save the file. The default |
|---------|---|
| | file name provided by XClarity Administrator is in the following format: <switchhostname>-</switchhostname> |
| | - <date>-<time>.cfg.</time></date> |

- Step 10. Repeat steps 6 through 9 for the other TOR switch.
- Step 11. If not already present, create the directory D:\Lenovo\SwitchConfigBackups on the HLH and move the TOR configuration backup files into this directory.

Update CNOS on Lenovo TOR switches

With the switch configuration files backed up, update the Lenovo TOR switch firmware using XClarity Administrator.

The process includes updating the firmware on a single TOR switch, validating TOR switch functionality, and updating the other TOR switch and confirming functionality. To update the first TOR switch, follow these steps:

- Step 1. Use the XClarity Administrator top menu to navigate to **Provisioning → Apply / Activate**.
- Step 2. Verify that the TOR switches display as "Not Compliant" for the Best Recipe firmware update policy assigned to them. In the example screenshot below, the TOR switches are non-compliant, but the BMC switch is shown as "Compliant" so it does not need to be updated.
- Step 3. Select the TOR1 switch by clicking the checkbox to the left, and click Perform Updates

- .

| Lenovo. | XClarity A | dministra | tor | 🔥 Sta | tus - 🗹 Jobs | - e Azurestackadmin - |
|----------------------------|---------------------------|---------------------------|----------------------|------------------|---|-----------------------|
| 🕰 Dashboard | Hardware 👻 | Provisioning - | Monitoring 👻 | Administration 👻 | | |
| Firmware Updat | tes: Apply / Activa | ate | | | | |
| 🕜 To update firmwa | re on a device, assign : | a compliance policy and | i select Perform Upd | ates. | | |
| Update with Policy | Update without Pol | icy | | | | |
| 💽 🖻 🔗 | ormation | All Actions 👻 | Filter | By 🗾 🛕 | All Devices | Filter |
| Device | Power | Installed Version | Assigned Compl | iance Policy | Compliance Target | Update Status |
| □ | 🔁 On | Compliant | PurleyPolicy_S | XMBR1903 👻 | | Complete |
| □ | 🔁 On | Compliant | PurleyPolicy_S | XMBR1903 × | | Complete |
| □ | 🔁 On | Compliant | PurleyPolicy_S | XMBR1903 * | | Complete |
| □ ± Lenovo-04 10.30.8.6 | 🔁 On | Compliant | PurleyPolicy_S | XMBR1903 × | | Complete |
| Lenovo-BMC 10.30.8.169 | 🗃 On | Compliant | PurleyPolicy_S | XMBR1903 × | 8.4.11 / 0804 Invgy_fw_torsw_g8052 | 2-8.4.11.0 |
| Lenovo-TOR 10.30.8.170 | 1 🗃 On | \Lambda Not Compliant | PurleyPolicy_S | XMBR1903 * | 10.8.1.0 / 1009 Invgy_fw_torsw_ne257 | 72-cnos-10 |
| Lenovo-TOR: 10.30.8.171 | 2 📴 On | \Lambda Not Compliant | PurleyPolicy_S | XMBR1903 - | 10.8.1.0 / 1009 Invgy_fw_torsw_ne257 | 72-cnos-10 |

Figure 36. Selecting TOR1 switch for update

- Step 4. In the Update Summary window, set the following options, and select **Perform Update**:
 - Update Rule: Stop all updates on error
 - Activation Rule: Immediate activation

| Update Rule: Stop all updates on erro Activation Rule: Immediate activation | or • ⑦ | electing "Immediate activati night disrupt applications or ny running workloads have virtualized environment, mo | on" might restart the device, which network communication. Ensure that been stopped, or if you are working in wed to a different server. |
|--|-------------------|---|---|
| 💽 📄 All Actions 👻 | | | Filter |
| levice | Rack Name / Unit | Chassis / Bay | Installed Version |
| Lenovo-TOR1 10.30.8.170 | Unassigned / Unas | | |
| | | | |

Figure 37. Selecting options in the TOR1 Update Summary

Step 5. Open the Jobs page to follow the update progress.

| Lenovo. | ator | 🗹 Sta | itus - 🗹 J | obs * 😫 | AZURESTACKADMIN * | | |
|----------------------|---------------------|----------------|-----------------------|--------------------------------|--------------------------------|------------|----------------------|
| 🕰 Dashboard | Hardware 👻 | Provisioning 👻 | Monitoring 👻 | Admini | stration 👻 | | |
| Jobs Page > Firr | mware Updates | | | | | | |
| • | • • B | | | | | | |
| Job | | | ▲ Start | | Complete | Targets | Status |
| 🖃 🔆 Firmware Updat | es | | January 9 15:08:26 | January 9, 2019 at 15:08:26 | | Lenovo-TOR | 1 Executing - 64.00% |
| 🖃 🔆 Lenovo-TOR | 1 | | January 9 15:08:26 | , 2019 at | | Lenovo-TOR | 1 Executing - 64.00% |
| RackSwit | ch Readiness Check | | January 9 15:08:26 | , 2019 at | January 9, 2019 at 15:08:26 | Lenovo-TOR | 1 Complete |
| 🔆 Applying | RackSwitch firmware | | January 9 15:08:28 | , 2019 at | | Lenovo-TOR | 1 Executing - 28.00% |
| Summary for Firmw | are Updates job a | nd sub-jobs | | | | | |
| No summary available | | | | | | | |

| Jobs Page > Firr | nware Updates | | | | | |
|---------------------|---------------------|-----------------------|------------|--------------------------------|-------------|----------|
| ••• | • 🖲 B | | | | | |
| Job | | - Start | | Complete | Targets | Status |
| 🗉 📝 Firmware Update | es | January 9 15:08:26 | 9, 2019 at | January 9, 2019 at 15:13:20 | Lenovo-TOR1 | Complete |
| 🖃 🗹 Lenovo-TOR | 1 | January 9 15:08:26 | 9, 2019 at | January 9, 2019 at 15:13:20 | Lenovo-TOR1 | Complete |
| RackSwit | ch Readiness Check | January 9 15:08:26 | 9, 2019 at | January 9, 2019 at 15:08:26 | Lenovo-TOR1 | Complete |
| 🔽 Applying I | RackSwitch firmware | January 9 15:08:28 | 9, 2019 at | January 9, 2019 at 15:13:20 | Lenovo-TOR1 | Complete |

Figure 38. Update progress on Jobs Page

Step 6. Return to the Firmware Updates: Apply / Activate page in XClarity Administrator to verify that the new switch firmware is now running in the Active image on the TOR switch. You may need to click

Refresh () to get an accurate display.

| Lenovo | Clarity | Administra | tor 💌 | Status - | 🗹 Jobs - 🧧 | AZURESTACKADMIN | 1 * |
|-------------------------|---------------------------|-------------------------|-------------------------------|-----------------------------|----------------------------|-----------------|-----|
| 🕰 Dashbo | ard Hardware - | Provisioning 🗸 | Monitoring - Administration - | | | | |
| Firmware Up | dates: Apply / Activ | vate | | | | | |
| ⑦ To update fir | mware on a device, assign | a compliance policy and | d select Perform Updates. | | | | |
| Update with Po | Update without Po | blicy | | | | | |
| | | All Actions 👻 | Filter By 🔽 🛕 | ۵ 🔿 | Show: | | |
| Critical Releas | Information | | | | All Devices * | Filter | |
| Device | Power | Installed Version | Assigned Compliance Policy | Complianc | e Target | Update Status | |
| Enovo- 10.30.8 | 01 3 On | Compliant | PurleyPolicy_SXMBR1903 | • | | Complete | ^ |
| E ± Lenovo- | 02 4 On | Compliant | PurleyPolicy_SXMBR1903 | - | | Complete | |
| Enovo- 10.30.8 | 03 5 On | Compliant | PurleyPolicy_SXMBR1903 | • | | Complete | |
| E . Lenovo- 10.30.8. | 04 6 On | Compliant | PurleyPolicy_SXMBR1903 | • | | Complete | |
| E ± Lenovo- | BMC 169 On | Compliant | PurleyPolicy_SXMBR1903 | 8.4.11 / 080 Invgy_fw_to | 04 prsw_g8052-8.4.11.0_ | | |
| E Lenovo- 10.30.8. | TOR1 170 On | Compliant | PurleyPolicy_SXMBR1903 | 10.9.3.0 / 1 Invgy_fw_to | 009 prsw_ne2572-cnos-10 | Complete | |
| Ubo | ot | 10.9.3.0 | | | | | |
| Activ | e Image (🧿 | 10.9.3.0 | | | | | |
| Star | dby Image | 10.8.1.0 | | | | | Ļ |

Figure 39. Active and standby images

Note: For the TOR switches running CNOS, XClarity Administrator updates only the Uboot and standby image and makes it the active image before reloading the switch. Therefore, the "N-1" switch firmware version from a Best Recipe perspective is always available as the standby image. In the screenshot above, The Uboot and Active image are running the new firmware (shown in the green box) and the Standby image still holds the previous firmware (shown in the red box).

Step 7. From an SSH session with the TOR switch that was just updated (you can use PuTTY, which is available on the HLH), issue the following command to save the running configuration to the startup configuration.

| write | | |
|-------|--|--|
| | | |

Verify Lenovo TOR switch functionality

After updating the Lenovo TOR switch, ensure that the switch is fully functional, based on the solution configuration.

In addition to comparing the running configuration of the switch to the backup configuration file saved before updating the switch firmware, the following suggested validation procedures help to verify that:

- Switch NOS is updated and set to boot to it
- vLAG ISL is intact and operational
- BGP connections are up and sessions are established
- VRRP master and backup are up and forwarding
- All links are up and IP addresses are assigned
- ACLs are in place and counters are incrementing

Perform the following tasks to ensure that the updated TOR switch is working properly before proceeding. Use PuTTY on the HLH to connect to the TOR switch. Select **Yes** in the PuTTY Security Alert that displays.



Figure 40. PuTTY security alert

Verify Lenovo TOR switch update

To verify that the Lenovo TOR switch NOS update has been applied, enter the following command:

Show version

Example

```
Lenovo-TOR1#show version
Lenovo Networking Operating System (NOS) Software
Technical Assistance Center: http://www.lenovo.com
Copyright (C) Lenovo, 2016. All rights reserved.
Software:
  Bootloader version: 10.8.1.0
  System version: 10.8.1.0
  System compile time: Jul 18 17:06:53 PDT 2018
Hardware:
  NE2572 ("48x25GE + 6x100GE")
  Intel(R) Celeron(R) CPU with 8192 MB of memory
  Device name: Lenovo-TOR1
  Boot Flash: 16 MB
Kernel uptime is 0 day(s), 0 hour(s), 6 minute(s), 46 second(s)
Last Reset Reason: Power Cycle
Lenovo-TOR1#
2019-01-09T23:18:00.924+00:00 Lenovo-TOR1(cnos:default) %VLAG-5-OS_MISMATCH: vLAG OS version mismatch,
local OS version is 10.8.x.x peer OS version is 10.6.x.x
2019-01-09T23:18:10.924+00:00 Lenovo-TOR1(cnos:default) %VLAG-5-0S MISMATCH: vLAG OS version mismatch,
local OS version is 10.8.x.x peer OS version is 10.6.x.x
```

Note: You might see informational messages display periodically, as shown at the end of the example above, indicating an OS mismatch between the two TOR switches. This is expected at this point in the process. These messages should stop displaying after updating the second TOR switch.

Verify boot image

To verify that the TOR switch is set to boot to the new firmware image (which is now the active image), enter the following command:

show boot

Example

```
Lenovo-TOR1#show boot
Current ZTP State: Enable
Current FLASH software:
  active image: version 10.8.1.0, downloaded 00:33:35 PST Thu Jan 10 2019
  standby image: version 10.6.1.0, downloaded 18:24:35 PST Fri Jan 12 2018
  Grub: version 10.8.1.0, downloaded 23:09:14 PST Wed Jan 9 2019
  BIOS: version O2OAB, release date O2/14/2018
  Secure Boot: Enabled
  ONIE: version unknown, downloaded unknown
Currently set to boot software active image
Current port mode:
        Port Ethernet1/37 is set in 10G mode
        Port Ethernet1/38 is set in 10G mode
        Port Ethernet1/39 is set in 10G mode
        Port Ethernet1/40 is set in 10G mode
        Port Ethernet1/45 is set in 10G mode
        Port Ethernet1/46 is set in 10G mode
        Port Ethernet1/47 is set in 10G mode
        Port Ethernet1/48 is set in 10G mode
Next boot port mode:
        Port Ethernet1/37 is set in 10G mode
        Port Ethernet1/38 is set in 10G mode
        Port Ethernet1/39 is set in 10G mode
        Port Ethernet1/40 is set in 10G mode
        Port Ethernet1/45 is set in 10G mode
        Port Ethernet1/46 is set in 10G mode
        Port Ethernet1/47 is set in 10G mode
        Port Ethernet1/48 is set in 10G mode
Currently scheduled reboot time: none
```

Verify links

To verify that all links are up and IP addresses are assigned, run the following command:

show interface brief | include up

| Example | | | | | | | | | |
|-----------|---------|-------|-----------|----------|--------|-------------|--------|------|--|
| Lenovo-TO | R1#shc | ow in | terface b | rief i | nclude | up | | | |
| Ethernet1 | /1 | 7 | eth | trunk | up | none | 25000 | | |
| Ethernet1 | /2 | 7 | eth | trunk | up | none | 25000 | | |
| Ethernet1 | /3 | 7 | eth | trunk | up | none | 25000 | | |
| Ethernet1 | /4 | 7 | eth | trunk | up | none | 25000 | | |
| Ethernet1 | /40 | | eth | routed | up | none | 10000 | | |
| Ethernet1 | /43 | | eth | routed | up | none | 25000 | | |
| Ethernet1 | /44 | | eth | routed | up | none | 25000 | | |
| Ethernet1 | /47 | | eth | routed | up | none | 10000 | | |
| Ethernet1 | /48 | | eth | routed | up | none | 10000 | | |
| Ethernet1 | /49 | 99 | eth | trunk | up | none | 10000 | 101 | |
| Ethernet1 | /50 | 99 | eth | trunk | up | none | 10000 | 101 | |
| po101 | | 99 | eth | trunk | up | none | 100000 | lacp | |
| mgmt0 m | nanagen | nent | up | 10.30.8 | 3.170 | | 1000 | 1500 | |
| Vlan7 | | | | | up | | | | |
| Vlan107 | | | | | up | | | | |
| loopbackO | | | up | Loo | pbackO | _Rack1_TOR1 | | | |

Note: The state of Ethernet interfaces 1/5 through 1/16 depend on the number of nodes in the scale unit. The above example is taken from a 4-Node SXM4400 solution.

Verify vLAG ISL

To verify that the vLAG ISL is intact and operational, run the following command:

show vlag information

Example

| Lenovo-TOR1 Global St VRRP acti vLAG syst ISL Inforr | l#show vlag ir ate: ive/active mo tem MAC: nation: | nformation enabled de: enabled 08:17:f4: | c3:dd:63 | |
|--|--|---|----------|--|
| PCH | Ifindex | State | Previous | State |
| 101 | 100101 | Active | Inactive | |
| Mis-Match | Information: | | | |
| | Loca | ι | | Peer |
| Match I Tier ID System OS Vers | Result : Match : 100 Type : NE25 sion : 10.8.x | 1 72 .X | | Match 100 NE2572 10.8.x.x |
| Role Info | rmation: Loca | ι | | Peer |
| Admin I Oper Ro Priorit <u>u</u> System | Role : Prima ole : Secor J : O MAC : a4:8 | ry Idary c:db:bb:0b:01 | | Secondary Primary O a4:8c:db:bb:0c:01 |
| Consisten State Strict Final R | cy Checking 1 : Mode : esult : | Information: enabled disabled pass | | |

Verify BGP is operational

To verify that the BGP connections are up and sessions are established, run the following command:

show ip bgp summary

Example

```
Lenovo-TOR1#show ip bgp summary

BGP router identifier 10.30.8.152, local AS number 64675

BGP table version is 74

2 BGP AS-PATH entries

0 BGP community entries

8 Configured ebgp ECMP multipath: Currently set at 8

8 Configured ibgp ECMP multipath: Currently set at 8

Neighbor V AS MsgRcv MsgSen TblVer InQ OutQ Up/Down State/PfxRcd

10.30.8.146 4 64675 72 74 74 0 0 01:09:14 5

10.30.8.158 4 64675 74 74 74 0 0 01:09:15 33

10.30.8.162 4 64675 74 74 74 0 0 01:09:15 33

10.30.29.12 4 64719 235 215 74 0 0 01:09:17 25

10.30.29.13 4 64719 235 214 74 0 0 01:09:17 25

Total number of neighbors 5

Total number of Established sessions 5
```

Note that the above example is from a statically routed solution. A solution using dynamic routing also includes two BGP sessions for the Border switches, totaling 7 sessions.

Verify VRRP is operational

To verify that the VRRP master and backup are up and forwarding, run the following command on each TOR switch:

show vrrp vlag

Example

```
Lenovo-TOR1#show vrrp vlag

Flags: F - Forwarding enabled on Backup for vLAG

vLAG enabled, mode: vrrp active

Interface VR IpVer Pri Time Pre State VR IP addr

(F)Vlan7 7 IPV4 100 100 cs Y Backup 10.30.29.1

(F)Vlan107 107 IPV4 100 100 cs Y Backup 10.30.28.1

Lenovo-TOR2#show vrrp vlag

Flags: F - Forwarding enabled on Backup for vLAG

vLAG enabled, mode: vrrp active

Interface VR IpVer Pri Time Pre State VR IP addr

Vlan7 7 IPV4 100 100 cs Y Master 10.30.29.1

Vlan107 107 IPV4 100 100 cs Y Master 10.30.29.1
```

Verify ACLs are present and operational

To verify that ACLs are in place and counters are incrementing, run the following commands:

```
Lenovo-TOR-1#show ip access-lists summary
IPV4 ACL Rack01-CL01-SU01-Infra_IN
        statistics enabled
        Total ACEs Configured: 28
        Configured on interfaces:
                 Vlan7 - ingress (Router ACL)
        Active on interfaces:
                 Vlan7 - ingress (Router ACL)
        Configured and active on VRFs:
IPV4 ACL Rack01-CL01-SU01-Infra_OUT
        statistics enabled
        Total ACEs Configured: 28
        Configured on interfaces:
                 Vlan7 - egress (Router ACL)
        Active on interfaces:
                 Vlan7 - egress (Router ACL)
        Configured and active on VRFs:
IPV4 ACL Rack01-CL01-SU01-Stor_IN
        statistics enabled
        Total ACEs Configured: 6
        Configured on interfaces:
                 Vlan107 - ingress (Router ACL)
        Active on interfaces:
                 Vlan107 - ingress (Router ACL)
        Configured and active on VRFs:
IPV4 ACL Rack01-CL01-SU01-Stor OUT
        statistics enabled
        Total ACEs Configured: 6
        Configured on interfaces:
                 Vlan107 - egress (Router ACL)
        Active on interfaces:
                 Vlan107 - egress (Router ACL)
        Configured and active on VRFs:
IPV4 ACL UPLINK ROUTED IN
        statistics enabled
        Total ACEs Configured: 4
        Configured on interfaces:
                 Ethernet1/47 - ingress (Router ACL)
                 Ethernet1/48 - ingress (Router ACL)
        Active on interfaces:
                 Ethernet1/47 - ingress (Router ACL)
        Configured and active on VRFs:
IPV4 ACL copp-system-acl-authentication
        Total ACEs Configured: 3
        Configured on interfaces:
        Active on interfaces:
        Configured and active on VRFs:
IPV4 ACL copp-system-acl-bgp
        Total ACEs Configured: 2
        Configured on interfaces:
        Active on interfaces:
        Configured and active on VRFs:
•••
```

```
Lenovo-TOR-1#show ip access-lists
IP access list RackO1-CLO1-SUO1-Infra IN
        statistics per-entry
        500 remark "Permit R01-C01-SU01-INF (10.20.25.0/24) TO R01-C01-SU01-INF
(10.20.25.0/24)"
        510 permit any 10.20.25.0/24 10.20.25.0/24 [match=70214264]
        520 remark "Permit R01-C01-SU01-INF (10.20.25.0/24)_T0_azs-hlh-dvm00 (10
.20.3.61/32)"
        530 permit any 10.20.25.0/24 host 10.20.3.61 [match=11180]
        540 remark "Permit R01-C01-SU01-INF (10.20.25.0/24) TO R01-C01-SU01-InVI
P (10.20.126.128/25)"
        550 permit any 10.20.25.0/24 10.20.126.128/25
        560 remark "Permit R01-C01-SU01-InVIP (10.20.126.128/25)_T0_R01-C01-SU01
-INF (10.20.25.0/24)"
        570 permit any 10.20.126.128/25 10.20.25.0/24 [match=27814360]
        580 remark "Permit R01-C01-SU01-INF (10.20.25.0/24)_T0_pub-adm-vip (10.2
0.23.0/27)"
        590 permit any 10.20.25.0/24 10.20.23.0/27 [match=80158]
        600 remark "Permit pub-adm-vip (10.20.23.0/27)_T0_R01-C01-SU01-INF (10.2
0.25.0/24)"
        610 permit any 10.20.23.0/27 10.20.25.0/24 [match=76824]
        620 remark "Permit 112 any (0.0.0/0) to Multicast (224.0.0.18/32)"
        630 permit 112 any host 224.0.0.18 [match=62576]
        640 remark "Permit UDP any_TO_any(BOOTP) port 67"
        650 permit udp any any eq bootps [match=443]
...
```

Verify solution network connectivity

Once the basic system convergence is verified in the updated Lenovo TOR switch, test solution connectivity using the following steps:

- Use the top menu of the XClarity Administrator browser interface to navigate to Administration → Network Access.
- 2. Click the Test Connection button near the top of the interface.
- 3. In the Host field, enter 8.8.8.8, and click Test Connection.
- 4. A success window displays. Click Close to dismiss this window.
- 5. As an additional verification step, sign in to the Azure Stack Hub Administrator Portal.
- 6. Check the Azure Stack Hub Administrator Portal Portal to ensure that no alerts are currently visible.

| Microsoft Azure Stack - / | Administration | | ۶ | | | | Q | 1 |) globalad |
|---------------------------|-----------------------|-----------|-----------------|-----------------------|----------------------|--------|----------------------|----------|------------------------------------|
| | Dashboard ~ | + New das | hboard 🥔 Edit d | ashboard 🖍 Fullscreen | d ⁹ Clone | e | | | |
| + New | | | | | - | - | | | |
| Dashboard | Region management | t | | Resource providers | | | Quickstart tutorials | | |
| All resources | 1 🥺 | | | NAME | HEALTH | ALERTS | _ | Create | a virtual mach |
| Resource groups | REGION CR | UTICAL | WARNING | Capacity | Healthy | | | Create a | /M to validate de |
| | santaclarab 0 | | | Compute | Healthy | | | | |
| Marketplace management | | | | Key Vault | Healthy | | | Offerin | services 🖾 |
| Virtual machines | Update | Alert | | Network | Healthy | | | Make per | nces avanable to |
| 1 Plans | Applied successful | y 1 | \ | Storage | Healthy | | - | Popula | |
| 🥏 Offers | | • • | itical 0 | | | | | Add appr | and resources to |
| Becent | Version: 1.0.171201.3 | | arning 1 | | | | | Manag | e infrastructur waith, manage u |
| More services | | | | | | | | | |

Figure 41. Checking Azure Stack Hub Administrator Portal for alerts

Wait until network traffic and reachability fully reconverge and the systems stabilize. Also check the Azure Stack Hub Administrator Portal to ensure all component status indicators are shown as healthy. Once the solution has stabilized, return to the "Update CNOS on TOR switches" topic and repeat the process on the other TOR switch. Once both TOR switches have been updated and their functionality and stability have been verified, proceed with the BMC switch update.

| Le | enovo. XClarit | y⁻Ad | ministrato | r 🗷 s | tatus - | 🗹 Job | ns • 🔒 A | ZURESTACKADMIN | 1 - |
|-----|-----------------------------------|------------|--------------------------|---------------------------|-------------------------|-----------|-------------|----------------|-----|
| | Dashboard Hardware | • Pr | rovisioning 👻 Mon | itoring - Admi | nistration - | | | | |
| Fir | mware Updates: Apply / A | ctivate | | | | | | | |
| 0 | To undate firmware on a device as | sion a co | mpliance policy and sele | et Perform Undates | | | | | |
| | | Joign a co | | cer enorm opdates. | | | | | |
| Up | date with Policy Update with | out Policy | | | | | | | |
| ų | | | All Actions 👻 | Filter By | | ¢ | - | Filter | |
| С | ritical Release Information | | | | Show: A | II Device | s * | | |
| | Device | Power | Installed Version | Assigned Complian | ce Policy | C | ompliance T | Update Status | |
| | tenovo-04 10.30.8.6 | 🕑 On | Compliant | SR650PolicyThin | Agile_SXM | * | | | ^ |
| | Lenovo-BMC 10.30.8.169 | 🕑 On | No Compliance Po | No applicable pol | icies | • | | | |
| | Enovo-TOR1 10.30.8.170 | 🕑 On | No Compliance Po | No applicable pol | icies | - | | Complete | |
| | Uboot | | 10.8.1.0 | | | | | | |
| | Active Image (?) | | 10.8.1.0 | | | | | | |
| | Standby Image | | 10.6.1.0 | | | | | | |
| | Lenovo-TOR2 10.30.8.171 | 🕑 On | No Compliance Po | No applicable pol | icies | * | | Complete | |
| | Uboot | | 10.8.1.0 | | | | | | |
| | Active Image (?) | | 10.8.1.0 | | | | | | |
| | Standby Image | | 10.6.1.0 | | | | | | ~ |
| | < | | | | | | | | > |

Figure 42. Verifying that TOR switch firmware updates are complete

Update Lenovo BMC switch firmware

This topic outlines the steps required to update the firmware image on a Lenovo BMC switch.

Note: If the Lenovo ThinkSystem NE0152T RackSwitch is not being managed by LXCA, use the steps in "Updating BMC switch firmware using the CLI" on page 97 to update this switch if it exists in your solution.

Back up BMC switch configuration

Before beginning the update procedure, ensure that the BMC switch configuration has been backed up.

Note: If the Lenovo ThinkSystem NE0152T RackSwitch is not being managed by LXCA, use the steps in "Updating BMC switch firmware using the CLI" on page 97 to update this switch if it exists in your solution.

Backing up the switch configuration files from a Lenovo BMC switch is simple in XClarity Administrator. Follow these steps:

- Step 1. At the top menu of the XClarity Administrator browser interface, select **Hardware** \rightarrow **Switches**.
- Step 2. Click the checkbox to select the BMC switch.

| Lenovo | Clar | ity⁻A | dminist | rator 💌 statu | s - 🛛 🗹 Jobs - | AZURE STACKADMIN - |
|-------------|------------|------------------|----------------|------------------------------|--------------------|------------------------------|
| 🕰 Dashboard | d Hardwa | are - | Provisioning 👻 | Monitoring 🗸 Administr | ation 🕶 | |
| Switches | | | | | | |
| 🎩 🗔 🐕 | a Unmana | ge | | Filter By 🔕 🛕 | W: All Systems + | Filter |
| Switch | Status | Power | IP Addresses | Product Name | Serial Numb | Description |
| Lenovo-BMC | Normal | 🙆 On | 10.30.8.169, | Lenovo RackSwitch G8052 | Y01NJ111W | 0Y7 48*1 GbE(RJ-45), 4*10 Gb |
| Lenovo-TOR1 | Normal | 🙆 On | 10.30.8.170, | Lenovo ThinkSystem NE2572 Ra | ckSwitch A4CS78X00 | 22 48*25 GbE SFP+, 6*100 G |
| Lenovo-TOR2 | Normal | 🕑 On | 10.30.8.171, | Lenovo ThinkSystem NE2572 Ra | ckSwitch A4CS78X00 | 21 48*25 GbE SFP+, 6*100 G |
| | | | | | | |

Figure 43. Selecting BMC switch for configuration backup

Step 3. Select All Actions → Configuration → Backup configuration file.

Step 4. In the window that displays, verify that the BMC switch displays in the **Selected Switches** field. Enter a descriptive comment for the backup, and click **Backup**.

| Comment | ThinkAgile SXM BMC switch config backup |
|----------------------|---|
| Selected Switches | Lenovo-BMC |

Figure 44. Verifying and commenting BMC switch for backup

- Step 5. A successful backup confirmation message displays. Click **Close** to dismiss this message.
- Step 6. The backup switch configuration files are stored internal to XClarity Administrator, but we must provide a more accessible copy. To save a copy to the HLH, click a switch to open a detailed view of the switch.
- Step 7. In the left pane, select **Configuration Files**, and click the checkbox next to the file name to select the backup configuration file.

| Lenovo. XClarity Ad | ministra | ator | 📓 Status 👻 | 🗹 Jobs - | e azure | STACKADMIN * |
|---|--------------------------|-----------------------------|---------------|----------------|---------------|--------------|
| 🚱 Dashboard Hardware 👻 P | rovisioning - | Monitoring 👻 | Administratio | n - | | |
| Actions * | Switcl | nes > Lenovo-BM | NC Details ↔ | Configuration | Files Filt | er |
| Lenovo-BMC | File N | ame vo-BMC-10.30.8.169-2 | Time 9 | Stamp - | Switch Name | Switch Type |
| General Summary Inventory Status and Health Alerts Event Log Jobs Configuration Files Ports Power and Thermal | | | | | | |
| | < | | | | | > |

Figure 45. Selecting the configuration file backup for download

Step 8. Click the Download configuration file from XClarity to local PC button



Step 10. Move the BMC configuration backup file into the D:\Lenovo\Switch Config Backups directory on the HLH.

Update the Lenovo BMC switch

With the switch configuration file backed up, use XClarity Administrator to update the BMC switch firmware.

Note: If the Lenovo ThinkSystem NE0152T RackSwitch is not being managed by LXCA, use the steps in "Updating BMC switch firmware using the CLI" on page 97 to update this switch if it exists in your solution.

The process includes updating the firmware on the BMC switch and validating BMC switch functionality. To update a Lenovo BMC switch, follow these steps:

- Step 1. Sign in to XClarity Administrator if necessary and use the top menu to navigate to **Provisioning** → **Apply / Activate**.
- Step 2. Verify that the BMC switch displays as "Not Compliant" for the Best Recipe firmware update Policy assigned to them. If the switch is shown as "Compliant," no update is necessary.
- Step 3. If the switch is non-compliant, select the BMC switch by clicking the checkbox to the left of it, and

click the Perform Updates button (

- Step 4. In the Update Summary window that opens, set the following options, and click **Perform Update**:
 - Update Rule: Stop all updates on error
 - Activation Rule: Immediate activation
 - Install prerequisite firmware

| * Update Rule: Stop all upd | ates on error 🔹 🥐 | | |
|------------------------------|-------------------|---------------|-------------------|
| * Activation Rule: Immediate | e activation 🔹 🧿 | | |
| Force update 🕜 | | | |
| Memory test (?) | | | |
| 🙀 🖷 All Actions 🗸 | | | • |
| Device | Rack Name / Unit | Chassis / Bay | Installed Version |
| HCI-Node01 10.241.83.201 | M5 / Unit 1 | | |
| | | | |
| | | | |

Figure 46. Selecting BMC update and activation rules

Step 5. Open the Jobs Page to follow the update progress.

| Lenovo. XClarity Administrato | r 🖻 | Status - 🔽 | Jobs - e | AZURESTACKADMIN * |
|---|---------------------------------|---------------------------------|------------|--------------------|
| 🔗 Dashboard Hardware 🗸 Provisioning 🗸 Mor | nitoring - Adm | inistration 👻 | | |
| Jobs Page > Firmware Updates | | | | |
| 🖻 🕒 👼 🔴 🖉 🖪 | | | | |
| Job | Start | Complete | Targets | Status |
| ⇒ ¹ / ₂ ¹ Firmware Updates | January 14, 2019 at 12:50:55 | | Lenovo-BMC | Executing - 64.00% |
| ∃ ¹ / ₂ Lenovo-BMC | January 14, 2019 at 12:50:55 | | Lenovo-BMC | Executing - 64.00% |
| RackSwitch Readiness Check | January 14, 2019 at 12:50:55 | January 14, 2019 at 12:50:56 | Lenovo-BMC | Complete |
| $\tilde{\mathbb{H}}_{\mathcal{K}}^{L}$ Applying RackSwitch firmware | January 14, 2019 at 12:50:57 | | Lenovo-BMC | Executing - 28.00% |
| Summary for Firmware Updates job and sub-jobs | | | | |
| No summary available | | | | |

| bbs Page > Firmware Updates | | | | | |
|------------------------------|---|---------------------------------|---------------------------------|------------|----------|
| • • 5 • 7 | | | | | |
| lob | • | Start | Complete | Targets | Status |
| 🛛 🜌 Firmware Updates | | January 14, 2019 at 12:50:55 | January 14, 2019 at 12:54:51 | Lenovo-BMC | Complete |
| 🖃 🜌 Lenovo-BMC | | January 14, 2019 at 12:50:55 | January 14, 2019 at 12:54:51 | Lenovo-BMC | Complete |
| RackSwitch Readiness Check | | January 14, 2019 at 12:50:55 | January 14, 2019 at 12:50:56 | Lenovo-BMC | Complete |
| Applying RackSwitch firmware | | January 14, 2019 at 12:50:57 | January 14, 2019 at 12:54:51 | Lenovo-BMC | Complete |

Figure 47. Following BMC update progress on Jobs Page

Step 6. Return to the Firmware Updates: Apply / Activate page in XClarity Administrator to verify that the new switch firmware is running in the Active image on the BMC switch. You may need to click the

Refresh button () to get an accurate display.

6

| Lenovo. XClarit | y Administrate | Or 🗵 Status - | 🗹 Jobs 🔹 😫 | AZURESTACKADMIN * |
|--------------------------------------|---------------------------------|-------------------------------|-------------------|-------------------|
| 🕰 Dashboard Hardware | | lonitoring - Administration - | | |
| Firmware Updates: Apply / A | Activate | | | |
| ⑦ To update firmware on a device, as | ssign a compliance policy and s | elect Perform Updates. | | |
| Update with Policy Update with | out Policy | | | |
| | All Actions | Filter By | 3 ¹ /2 | |
| Critical Release Information | | Show: All | Devices * | Filter |
| Device | Power Installed Version | Assigned Compliance Policy | Compliance T | . Update Status |
| Lenovo-02 10.30.8.4 | 🕑 On 🛛 Compliant | SR650PolicyThinkAgile_SXM | • | ^ |
| □ | 🕑 On 🛛 Compliant | SR650PolicyThinkAgile_SXM | • | |
| Lenovo-04 10.30.8.6 | 🙆 On 🛛 Compliant | SR650PolicyThinkAgile_SXM | • | |
| Lenovo-BMC 10.30.8.169 | 🙆 On 🛛 😵 No Compliance | Pc No applicable policies | - | |
| Boot ROM | 8.4.11 | | | |
| Main Image 1 (Active) 🧿 | 8.4.11 | | | |
| Main Image 2 (Not Active) | 8.4.8 | | | |
| Lenovo-TOR1 10.30.8.170 | 🕑 On 🛛 🕸 No Compliance | Pc No applicable policies | • | |
| Lenovo-TOR2 10.30.8.171 | 🙆 On 🗇 No Compliance | Pc No applicable policies | - | |
| ٢ | | | | > |

Figure 48. Verifying new BMC firmware running in active image

Note: For a Lenovo BMC switch running ENOS, XClarity Administrator updates only the non-active image and then makes this image the active image before reloading the switch. Therefore, the N-1 switch firmware version from a Best Recipe perspective is always available as the standby image. In the screenshot above, the boot ROM and active image (Main Image 1) are running the new firmware (shown in the green box). The non-active image (Main Image 2) still holds the previous firmware (shown in the red box).

Step 7. From an SSH session with the BMC switch (you can use PuTTY, which is available on the HLH), issue the following command to save the running configuration to the startup configuration.

copy running-config startup-config

Verify BMC switch functionality

After updating the BMC switch, ensure that the switch is fully functional, based on the solution configuration.

In addition to comparing the running configuration of the switch to the backup configuration file saved before updating the switch firmware, these suggested validation procedures help to verify that:

- Switch NOS is updated and set to boot to it
- All links are up and IP addresses are assigned
- BGP connections are up and sessions are established

· ACLs are in place and counters are incrementing

Perform each of the following tasks to ensure that the updated BMC switch is working properly before proceeding.

Verify BMC switch update

To verify that the switch NOS update has been applied and the switch is set to boot to the updated image, sign in to the BMC switch and run the following command:

show boot

Example

```
Lenovo-BMC#show boot
Current running image version: 8.4.11
Currently set to boot software image1, active config block.
NetBoot: disabled, NetBoot tftp server: , NetBoot cfgfile:
Current boot Openflow protocol version: 1.0
USB Boot: disabled
Currently profile is default, set to boot with default profile next time.
Current FLASH software:
  image1: version 8.4.11, downloaded 12:52:04 Mon Jan 14, 2019
          NormalPanel, Mode Stand-alone
  image2: version 8.4.8, downloaded 10:26:19 Mon Jan 14, 2019
          NormalPanel, Mode Stand-alone
  boot kernel: version 8.4.11
          NormalPanel
  bootloader : version 8.4.11
Currently scheduled reboot time: none
```

Verify links

To verify that all links are up and IP addresses are assigned, run the following command:

show interface link state up

Example

| Lenovo | -BMC#s | how int | erface link | state | up | | |
|--------|--------|---------|-------------|--------|------------|------|---|
| Alias | Port | Speed | Duplex | Flow (| ctrl RX | Link | Description |
| 1 | 1 | 1000 | full | no | no | up | BMCMgmt Ports |
| 2 | 2 | 1000 | full | no | no | up | BMCMgmt Ports |
| 3 | 3 | 1000 | full | no | no | up | BMCMgmt Ports |
| 4 | 4 | 1000 | full | no | no | up | BMCMgmt Ports |
| 8 | 8 | 1000 | full | no | no | up | BMCMgmt Ports |
| 46 | 8 | 1000 | full | no | no | up | BMCMgmt Ports |
| 47 | 47 | 1000 | full | no | no | up | SwitchMgmt Ports |
| 48 | 48 | 1000 | full | no | no | up | SwitchMgmt Ports |
| XGE1 | 49 | 10000 | full | no | no | up | BMCMgmt Ports |
| XGE2 | 50 | 10000 | full | no | no | up | BMCMgmt Ports |
| XGE 3 | 51 | 10000 | full | no | no | up | P2P_Rack1/TOR1_To_Rack1/BMC TOR Port 46 |
| XGE4 | 52 | 10000 | full | no | no | up | P2P_Rack1/TOR2_To_Rack1/BMC_TOR_Port_46 |

Note: The state of ports 1 through 16 depends on the number of nodes in the solution. The above example is from a 4-node solution.

Another useful command to verify IP configuration and state:

show interface ip

Example

```
Lenovo-BMC#show interface ip
Interface information:
5: IP4 10.30.8.169 255.255.258 10.30.8.175, vlan 5, up
6: IP4 10.30.1.1 255.255.255.128 10.30.8.151, vlan 6, up
Routed Port Interface Information:
XGE3: IP4 10.30.8.146 255.255.255.252 10.30.8.147 , routed , up
XGE4: IP4 10.30.8.150 255.255.255.252 10.30.8.151 , routed , up
Loopback interface information:
lo1: 10.30.30.26 255.255.255 10.30.30.26, up
```

Verify BGP is operational

To verify that the BGP connections are up and sessions are established, run the following command:

show ip bgp neighbor summary

Example

```
Lenovo-BMC#show ip bgp neighbor summary

BGP ON

BGP router identifier 10.30.8.154, local AS number 64675

BGP thid 21, allocs 1168, frees 301, current 147124, largest 5784

BGP Neighbor Summary Information:

Peer V AS MsgRcvd MsgSent Up/Down State

1: 10.30.8.145 4 64675 106 104 01:41:23 established

2: 10.30.8.149 4 64675 106 104 01:41:23 established
```

Verify ACLs are present and operational

To verify that ACLs are in place and counters are incrementing, run the following command:

```
show access-control
show access-control group
show access-control counters
```

```
Lenovo-BMC#show access-control
Current access control configuration:
Filter 200 profile:
   IPv4
     - SRC IP
                : 10.20.3.0/255.255.255.192
     - DST IP : 10.20.3.0/255.255.255.192
   Meter
     - Set to disabled
     - Set committed rate : 64
     - Set max burst size : 32
   Re-Mark
     - Set use of TOS precedence to disabled
   Actions
               : Permit
   Statistics : enabled
   Installed on vlan 125
                           in
   ACL remark note
     - "Permit R01-bmc (10.20.3.0/26)_T0_R01-bmc (10.20.3.0/26)"
Filter 202 profile:
  IPv4
    - SRC IP : 10.20.3.0/255.255.255.192
- DST IP : 10.20.30.40/255.255.255.248
  Meter
   - Set to disabled
   - Set committed rate : 64
    - Set max burst size : 32
  Re-Mark
   - Set use of TOS precedence to disabled
  Actions : Permit
  Statistics : enabled
  Installed on vlan 125 in
  ACL remark note
    - "Permit R01-bmc (10.20.3.0/26)_T0_R01-SwitchMgmt (10.20.30.40/29)"
Filter 204 profile:
  IPv4
    - SRC IP : 10.20.3.61/255.255.255.255
- DST IP : 0.0.0.0/0.0.0
•••
```

Lenovo-BMC#show access-control group Current ACL group Information: -----ACL group 1 (14 filter level consumed): - ACL 200 - ACL 202 - ACL 204 - ACL 206 - ACL 208 - ACL 210 - ACL 212 - ACL 214 - ACL 216 - ACL 218 - ACL 220 - ACL 222 - ACL 224 - ACL 226 ACL group 2 (50 filter level consumed): - ACL 228 - ACL 230 - ACL 232

Example

```
      Lenovo-BMC#show access-control counters

      ACL stats:

      Hits for ACL 200
      vlan 125
      in
      1357392

      Hits for ACL 202
      vlan 125
      in
      60229537

      Hits for ACL 204
      vlan 125
      in
      237099377

      Hits for ACL 208
      vlan 125
      in
      0

      Hits for ACL 208
      vlan 125
      in
      0

      Hits for ACL 210
      vlan 125
      in
      0

      Hits for ACL 210
      vlan 125
      in
      0

      Hits for ACL 211
      vlan 125
      in
      0

      Hits for ACL 212
      vlan 125
      in
      0

      Hits for ACL 214
      vlan 125
      in
      0

      Hits for ACL 216
      vlan 125
      in
      0

      Hits for ACL 218
      vlan 125
      in
      0

      Hits for ACL 220
      vlan 125
      in
      573818

      Hits for ACL 222
      vlan 125
      in
      0

      Hits for ACL 224
      vlan 125
      in
      0

      Hits for ACL 224
      vlan 125
      in
      0

      Hits for ACL 224
      vlan 125
      in
      0
```

•••

Verify solution network connectivity

Once the basic system convergence is verified in the updated BMC switch, test connectivity for the following:

Ping from BMC switch to connected TOR switch IP interfaces

Lenovo-BMC#ping 10.30.8.130 [host 10.30.8.130, max tries 4, delay 1000 msec, length 0, ping source N/S, ttl 255, tos 0] 10.30.8.130: #1 ok, RTT 7 msec. 10.30.8.130: #2 ok, RTT 0 msec. 10.30.8.130: #4 ok, RTT 0 msec. 10.30.8.130: #4 ok, RTT 0 msec. Ping finished. Lenovo-BMC#ping 10.30.8.134 [host 10.30.8.134, max tries 4, delay 1000 msec, length 0, ping source N/S, ttl 255, tos 0] 10.30.8.134: #1 ok, RTT 0 msec. 10.30.8.134: #2 ok, RTT 0 msec. 10.30.8.134: #3 ok, RTT 0 msec. 10.30.8.134: #3 ok, RTT 0 msec. 10.30.8.134: #4 ok, RTT 0 msec. Ping finished.

• Ping from BMC switch to TOR Mgmt IP addresses

Example

Lenovo-BMC#ping 10.30.8.170 [host 10.30.8.170, max tries 4, delay 1000 msec, length 0, ping source N/S, ttl 255, tos 0] 10.30.8.170: #1 ok, RTT 1 msec. 10.30.8.170: #2 ok, RTT 0 msec. 10.30.8.170: #3 ok, RTT 0 msec. Ping finished. Lenovo-BMC#ping 10.30.8.171 [host 10.30.8.171, max tries 4, delay 1000 msec, length 0, ping source N/S, ttl 255, tos 0] 10.30.8.171: #1 ok, RTT 0 msec. 10.30.8.171: #2 ok, RTT 0 msec. 10.30.8.171: #3 ok, RTT 0 msec. 10.30.8.171: #4 ok, RTT 0 msec. 10.30.8.171: #4 ok, RTT 0 msec. Ping finished.

Ping from BMC switch to node IMMs/XCCs

```
Example
```

Lenovo-BMC#ping 10.30.8.3 [host 10.30.8.3, max tries 4, delay 1000 msec, length 0, ping source N/S, ttl 255, tos 0] 10.30.8.3: #1 ok, RTT 1 msec. 10.30.8.3: #2 ok, RTT 0 msec. 10.30.8.3: #3 ok, RTT 0 msec. 10.30.8.3: #4 ok, RTT 0 msec. Pina finished. Lenovo-BMC#ping 10.30.8.4 [host 10.30.8.4, max tries 4, delay 1000 msec, length 0, ping source N/S, ttl 255, tos 0] 10.30.8.4: #1 ok, RTT 0 msec. 10.30.8.4: #2 ok, RTT 1 msec. 10.30.8.4: #3 ok, RTT 1 msec. 10.30.8.4: #4 ok, RTT 1 msec. Ping finished. Lenovo-BMC#ping 10.30.8.5 [host 10.30.8.5, max tries 4, delay 1000 msec, length 0, ping source N/S, ttl 255, tos 0] 10.30.8.5: #1 ok, RTT 0 msec. 10.30.8.5: #2 ok, RTT 1 msec. 10.30.8.5: #3 ok, RTT 0 msec. 10.30.8.5: #4 ok, RTT 1 msec. Pina finished. Lenovo-BMC#ping 10.30.8.6 [host 10.30.8.6, max tries 4, delay 1000 msec, length 0, ping source N/S, ttl 255, tos 0] 10.30.8.6: #1 ok, RTT 1 msec. 10.30.8.6: #2 ok, RTT 1 msec. 10.30.8.6: #3 ok, RTT 1 msec. 10.30.8.6: #4 ok, RTT 1 msec. Ping finished.

Fallback

If an issue prevents any of the switches from being updated, all switches must be returned to their initial state.

The following fallback process includes high-level steps to accomplish this. In general, the same commands specified in this document to perform the switch updates can be used to return the switches to their original state.

- If one of the switch updates fails, do not proceed to another switch. If XClarity Administrator reports an error when attempting to transfer the image files to the switch, refer to Appendix B "Updating ThinkAgile SXM Series switches using the CLI (Lenovo switches only)" on page 91 for instructions on using the switch CLI method to update switch firmware.
- 2. The original switch firmware is available in the "standby" image slot for all switches in the ThinkAgile SXM Series solution except the RackSwitch G8052 BMC switch. For this switch, the original firmware is available in the non-active image slot, which could be "image1" or "image2." If a switch update fails, the switch can be reverted to the original firmware using the following command syntax:

All switches except the G8052: boot image <standby | active

RackSwitch G8052 BMC switch: boot image <image1 | image2

Important: Do not allow the TOR switches to run different versions of firmware except during the period in which TOR1 has been updated and the TOR2 update is pending. That is, if TOR1 fails to update properly, do not update TOR2. Also, if TOR2 fails to update properly, TOR1 must be reverted to the previous firmware until the update issue can be resolved.

3. The configuration file from each switch is backed up before updating the switches. These files are also saved to D:\Lenovo\SwitchConfigBackups on the HLH. Any switch can be restored to its backup configuration to restore the switch to its previous configuration.

Updated CNOS command syntax

With the release of Lenovo switch firmware CNOS v10.7.1.0, several CLI command keywords have changed for consistency.

The left table column shows the keyword used in CNOS versions 10.6.x and earlier. The right column shows the updated keyword used in CNOS versions 10.7.x and later.

| Previous CLI Keyword | New CLI Keyword |
|----------------------|--------------------|
| configure device | configure terminal |
| routing-protocol | router |
| bridge-port | switchport |
| port-aggregation | port-channel |
| aggregation-group | channel-group |
| cancel | abort |
| startup | boot |
| remove | clear |
| ср | сору |
| apply | set |
| display | show |
| save | write |
| dbg | debug |

Beginning with CNOS v10.7.1.0, the NOS advertised only new formats (end-user documentation, help strings, and so on). However, the NOS accepts and processes both old and new formats for a limited time. Therefore, the new NOS images contain messages that the old format will be deprecated in a future release.

Also note that although CNOS v10.7.1.0 and later accepts and processes old CLI commands, the information display shows only the new syntax. For example, any "routing-protocol" settings now display in the "router" section when looking at the switch running or startup configurations.

The information in a saved configuration file is not affected and remains intact with the old commands. To store the commands in a file in the new format, after reloading the switch to the v10.7.1.0 or later image, you must explicitly run save/write for each TOR switch.

Copy the newly saved configuration from all switches to the HLH for future reference. In addition, if XClarity Administrator v2.1 or later is installed and configured to manage the switches, back up all switch configurations using XClarity Administrator.

Chapter 4. Component service and replacement considerations

The ThinkAgile SXM Series components are precisely configured to provide the necessary solution-level functionality. Before attempting to service, replace, or reinstall any hardware and software component, you should review the relevant topic to ensure that you are aware of any specific procedures or requirements.

Replacing servers

ThinkAgile SXM Series solutions require specific configuration of the HLH and scale unit nodes. Use the following tips to help ensure successful server replacement.

HLH system replacement

When replacing the HLH system, do the following:

- 1. If Lenovo XClarity Administrator is still accessible, unmanage all Azure Stack Hub scale unit nodes and network switches.
- 2. If the HLH OS is still accessible, copy the D:\lenovo folder to a USB thumb drive for restoration.
- 3. After replacing the HLH hardware, ensure that the firmware level and UEFI settings are configured according to the ThinkAgile SXM Best Recipe. See "Firmware maintenance and Best Recipe" on page 5 for more information.
- 4. Apply all platform security settings.
- 5. Configure the IMM or XCC IPv4 address according to the worksheet generated during the initial deployment.
- 6. Reconfigure the Supervisor-level account.
- 7. Remove the default USERID account from the IMM or XCC.
- 8. If available, copy the files from the backup USB thumb drive (from 2 on page 53 above) to D:\Lenovo on the replacement HLH system.
- 9. Reinstall Lenovo XClarity Administrator. See Appendix A "XClarity Administrator deployment and configuration" on page 55.

Azure Stack Hub scale unit node replacement

When replacing an Azure Stack Hub scale unit node , do the following:

- 1. If the system is still responsive, use the Azure Stack Hub Administrator Portal to Drain the scale unit node that will be replaced.
- 2. In LXCA, unmanage the node.
- 3. Replace the scale unit node hardware.
- 4. Reconnect the network and power cables.
- 5. Configure the IMM/XCC IPv4 address according to the worksheet generated during the initial deployment.
- 6. Reconfigure the Supervisor-level account on the IMM/XCC to be managed by LXCA using the same credentials currently used for the other nodes.
- 7. Remove the default USERID account from the IMM/XCC.
- 8. Ensure that the firmware levels on the replacement node are configured according to the ThinkAgile SXM Best Recipe that is currently in use for the solution.

See "Firmware maintenance and Best Recipe" on page 5 for more information.

- 9. Use Lenovo XClarity Administrator to apply the Microsoft Azure Stack Hub pattern UEFI settings. See "Import and apply server pattern" on page 87 for more information.
- 10. Configure the boot volume as a RAID-1 mirror.

Replacing server parts

ThinkAgile SXM Series solutions require specific server configuration. Use the following tips to help ensure successful part replacement.

Requirement for product-specific server motherboard

In order to meet functional requirements, ThinkAgile SXM Series solutions require a specific motherboard Field Replaceable Unit (FRU) for the scale unit nodes and the HLH system. When attempting to service the scale unit nodes, make sure that your Support Engineer is aware of the following:

- Do not use common server motherboard spares.
- Always check the ThinkAgile SXM Series support information on the Web for the correct motherboard FRU part number.

Server hot-swap fans

The ThinkAgile SXM Series racks do not have cable management arms. To replace a hot-swap fan on the HLH or scale unit node, the server must be powered off and pulled out of the rack. Always make sure to Drain a scale unit node using the Azure Stack Hub Administrator Portal before powering it off for any reason.

RAID adapter for boot volume

The RAID adapter supports only the OS boot volume and not the storage devices that make up the solution storage pool.

- 1. Use Lenovo XClarity Administrator to update the adapter firmware to the same Best Recipe level that is currently in use for the solution. See "Firmware maintenance and Best Recipe" on page 5.
- 2. Restore the RAID configuration to the drives.

Mellanox network adapter

- 1. Reconnect the cables according to the point-to-point diagrams and tables found in the appropriate topic:
 - For SXM4400/SXM6400 solutions, refer to

https://pubs.lenovo.com/thinkagile-sxm/sxm_r2_network_cabling

• For SXM4600 solutions, refer to

https://pubs.lenovo.com/thinkagile-sxm/sxm_r3_network_cabling

2. Use Lenovo XClarity Administrator to update the adapter firmware to the same Best Recipe level that is currently in use for the solution. See "Firmware maintenance and Best Recipe" on page 5.

Memory

No solution-specific configuration is required after replacement.

CPU

No solution-specific configuration is required after replacement.

Appendix A. XClarity Administrator deployment and configuration

Although it is typically not necessary to reinstall and configure XClarity Administrator (LXCA) from scratch for use with ThinkAgile SXM Series solutions, this document contains instructions to do so if it becomes necessary for any reason. This document also includes instructions to update LXCA to the version contained in the current ThinkAgile SXM Series Best Recipe.

Retire the current LXCA installation

If LXCA v2.x or later is deployed on the HLH, it is typically not necessary to retire LXCA. In this case, simply update LXCA to the version specified in the current Best Recipe. However, if LXCA v1.x is deployed on the HLH, perform the tasks shown here to retire the existing installation of LXCA. Then proceed to deploy LXCA from scratch in the next topics.

If LXCA v1.x is deployed on the HLH, perform these tasks to retire the existing installation of LXCA.

- Step 1. On the HLH, use Internet Explorer to sign in to LXCA.
- Step 2. Using the LXCA menu bar near the top of the screen, navigate to Administration \rightarrow Network Access.
- Step 3. To prepare for configuring a fresh deployment of LXCA later, record the IPv4 settings of the current LXCA environment using the highlighted parameters in the following illustration. If for some reason LXCA is not accessible, these parameters are available in the Customer Deployment Summary document left with the customer after initial solution deployment.

| Lenovo | Clarity / | Administra | ator | 🗹 Status 👻 | 🔕 Jobs 🔹 | e Azurestackadmin * |
|---|----------------------------------|---------------------------|---------------------------------------|------------------------|--------------------------------|---|
| 🕰 Dashboard | Hardware 👻 | Provisioning - | Monitoring 👻 | Administration - | | |
| Network Access | | | | | | |
| Edit Network Acces | s Test Conne | ction | | | | |
| ✓ Network Topology | | | | | | |
| Network Topology: | Use Eth0 to discove | r and manage hardwa | re and manage ar | nd deploy operating sy | stem images. | |
| | | | | | | |
| ✓ IP Settings | | | | | | |
| | | IPv4 | | | IPv6 | |
| Eth0(00:15:5D:08:7E:1 | 9) | IPv4 Addre Network M | ss:10.30.8.115(st ask:255.255.255. | atic) 128(static) | IPv6 link-loca IPv6 address | l address:Disabled /prefix length:Disabled |
| Default gateway | | Gateway:1 | 0.30.8.1 | | Gateway: | |
| | | | | | | |
| Advanced Route Setting | JS | | | | | |
| Internet Access: | Direct Connect | on | | | | |
| Host Name and Domain Host name: Domain name: DNS | Name for Virtual Ap LXCA | ppliance | | | | |
| DNS Search Order: | 1: 10.50.50.50 2: 10.50.10.50 | | | | | |

Figure 49. LXCA IPv4 settings to record

Record the settings in the following table:

| | Lenovo LXCA IPv4 Settings |
|-------------------------|---------------------------|
| IPv4 Address | |
| Network Mask | |
| Gateway | |
| DNS Server 1 | |
| DNS Server 2 (optional) | |

Step 4. Using the LXCA menu bar near the top of the screen, navigate to **Provisioning** \rightarrow Server Profiles.

Step 5. Select all server profiles shown, and click the **Deactivate Server Profiles** icon (

| Lenovo. Clarity Administrator | | | | | | | | | | |
|-------------------------------|--|---|--|-------------------------------|--|--|--|--|--|--|
| | 🕰 Dashboard | Hardware 👻 | Provisionin | g - | Monitoring 👻 | Administration | | | | |
| Co | Configuration Patterns: Server Profiles | | | | | | | | | |
| 0 | ⑦ Server profiles represent the specific configuration of a single server. ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ | | | | | | | | | |
| ~ | Profile | | ▲ Se | rver | Rack Name/Unit | | | | | |
| | | | | | | t | | | | |
| ~ | SR650PatternThi | nkAgileSXM_121218-p | orofile2 Le | novo-01 | Unassigned / U | t nassigned | | | | |
| y y | SR650PatternThi | nkAgileSXM_121218-r nkAgileSXM_121218-r | orofile2 Lei | novo-01 novo-02 | Unassigned / Unass | t nassigned nassigned | | | | |
| XXX | SR650PatternThin SR650PatternThin SR650PatternThin | nkAgileSXM_121218-r nkAgileSXM_121218-r nkAgileSXM_121218-r | profile2 Lei profile3 Lei profile4 Lei | novo-01 novo-02 novo-03 | Unassigned / Unass | t nassigned nassigned nassigned | | | | |

Figure 50. Selecting LXCA server profiles to deactivate

Step 6. In the window that is displayed, deselect (uncheck) the Reset BMC identity settings option if it is checked, and click **Deactivate**.



Figure 51. Resetting BMC identity settings

- Step 7. Using the LXCA menu bar near the top of the screen, navigate to **Hardware** \rightarrow **Servers**.
- Step 8. Select all nodes and click Unmanage.

| L | enovo | <mark>).</mark> XCla | arity ⁻ / | Adminis | strator | 🗹 Status 🔹 | 🗹 Jobs 👻 | AZURE STACKADMIN | |
|---|--|----------------------|----------------------|--------------|---------------------------|---------------|-------------------|---------------------------|--|
| | 🕰 Dashbo | ard Hard | lware - | Provisioning | ← Monitoring • | Administratio | 1 - | | |
| S | ervers | | | | | | | | |
| | _ | | • | 0 | | | | | |
| | | | () | 2 | Filter By | | | Filter | |
| U | Unmanage All Actions - Show: All Systems - | | | | | | | | |
| • | Server 🔺 | Status | Power | IP Addresses | Product Name | Type-Model | Firmware (UEFI/B | IIOS) | |
| | Lenovo-01 | Normal | 🙆 On | 10.30.8.3, 1 | ThinkSystem SR650 | 7X06-CTO1WW | IVE1260 / 1.41 (0 | oct 29, 2018, 5:00:00 PM) | |
| • | Lenovo-02 | 📄 Normal | 🔁 On | 10.30.8.4, 1 | ThinkSystem SR650 | 7X06-CTO1WW | IVE1260 / 1.41 (0 | oct 29, 2018, 5:00:00 PM) | |
| • | Lenovo-03 | 🗾 Normal | 🙆 On | 10.30.8.5, 1 | ThinkSystem SR650 | 7X06-CTO1WW | IVE1260 / 1.41 (0 | oct 29, 2018, 5:00:00 PM) | |
| ~ | Lenovo-04 | Mormal | 🕑 On | 10.30.8.6, 1 | ThinkSystem SR650 | 7X06-CTO1WW | IVE1260 / 1.41 (0 | oct 29, 2018, 5:00:00 PM) | |

Figure 52. Unmanaging the nodes

Step 9. In the window that opens, select Force unmanage even if the device is not reachable, and click Unmanage.

| Lenov | 0.)(C | larity / | Administr | ator | 🔽 Status 🕤 | 🔽 Jobs - | AZURE ST |
|-----------|---------------|---|---|--|---|---------------|-----------|
| 🕰 Dashbo | oard H | ardware - | Provisioning - | Monitoring 👻 | Administr | ration 👻 | |
| Servers | | | | | | | |
| Jnmanage | All Actions | (2) | 900 | Filter By | Show: | All Systems 👻 | Filter |
| Server 🔺 | Status | | | | | | |
| Lenovo-01 | Nor | 🔔 Are you | sure that you want to | o unmanage the 4 | servers? | | 2018, 5:0 |
| Lenovo-02 | Nor | ✓ Servers to | be unmanaged | | | | 2018, 5:0 |
| Lenovo-03 | Nor | System Nan | ne | | | IP Address | 2018, 5:0 |
| Lenovo-04 | Nor | Lenovo-03 | | | | 10.30.8.5 | 2018, 5:0 |
| | | Lenovo-01 | | | | 10.30.8.3 | |
| | | Lenovo-02 | | | | 10.30.8.4 | |
| | | Lenovo-04 | | | | 10.30.8.6 | |
| | | This will perf 1. Start to unn 2. Clear the c 3. Remove th 4. Remove ac 5. Remove Cl 6. Unmanage Force unr | orm the following ac nanage the rack serv onfiguration for mana e IMM certificate from ccess to the NTP sen M subscriptions from the rack server nanage even if the do | tions: er aged authentication the management ver from the IMM n the management evice is not reacha | n server trust stor server ble. Unmanage | e Cancel | |

Figure 53. Selecting option to force unmanage nodes

- Step 10. Using the LXCA menu bar near the top of the screen, navigate to Hardware \rightarrow Switches.
- Step 11. If any switches display, select all switches and click **Unmanage**.
- Step 12. In the window that opens, select Force unmanage even if the device is not reachable, and click Unmanage.
- Step 13. Once all managed servers and switches have been unmanaged, shut down the LXCA Server by using the menu bar to select Administration → Shut Down Management Server.
- Step 14. In the window that opens, ensure that there are no active jobs, and click Shutdown.
- Step 15. In the confirmation window, click OK.
- Step 16. On the HLH, open Hyper-V Manager and wait for the LXCA virtual machine to show a state of Off.

Once the LXCA virtual machine is powered off, work can begin to deploy and configure a new version of LXCA on the HLH.

Deploy and configure LXCA

To prepare for a new deployment of LXCA, the appropriate files need to be downloaded from the ThinkAgile SXM Series Updates Repository. This includes the "LXCA_SXMBR<xxyy>.zip" archive file and the LXCA full

VHD image file, which will have a file name in the format "Invgy_sw_lxca_<version>_winsrvr_x86-64.vhd" and will be found in the current Best Recipe directory on the site.



Lenovo ThinkAgile SXM Series Updates Repository

September 2023 ThinkAgile SXM Series update release (SXMBR2309)

Important: The OEM Extension Packages in this Best Recipe include functionality to perform au attempt to update to this OEM Extension Package until LXCA has been prepared to perform syst Administrator for a specific Best Recipe topic in the <u>ThinkAgile SXM Series Information Center</u> fc

| File Name | Date Modified |
|---|------------------|
| Parent Directory | |
| HelperScripts.zip | 09/29/2023 |
| Invgy_sw_lxca_264-4.0.0_winsrvr_x86-64.vhd | 09/29/2023 |
| LXCA_SXMBR2309.zip SHA256 Hash: fc833a189538e3b930270d3fa70a794bc77ac4b7d0ee7eb6c581df892a2bdae7 MD5 Hash: 114f1376d28d3242f2141d89d2dc9bda | 09/29/2023 |
| OEMv2.2_SXMBR2309-EGS.zip | |

Once all files have been downloaded from the ThinkAgile SXM Series Updates Repository and copied to a USB thumb drive, follow these steps:

- Step 1. Expand the "LXCA_SXMBR<xxyy>.zip" archive onto the thumb drive.
- Step 2. Copy the VHD file and expanded archive content (not the directory itself) to D:\LXCA on the hardware lifecycle host (HLH). Replace any files or directories with the same names that are already in the directory.
- Step 3. Copy the LXCA VHD file from **D:\Lenovo\LXCA to D:\Hyper-V\Virtual hard disks** on the HLH, creating the specified directories if necessary. Make sure to copy, not move, the file so the original can serve as a backup in case LXCA must be reinstalled in the future.
- Step 4. Open Hyper-V Manager, select Lenovo-HLH in the left navigation pane.
- Step 5. In the Actions pane on the right, click **New → Virtual Machine...**
- Step 6. On the Before You Begin page, click **Next**.
- Step 7. On the Specify Name and Location page, enter a Name for the VM, such as "LXCA", click to check the Store the virtual machine in a different location checkbox, enter "D:\Hyper-V\" as the Location, and then click **Next**.
- Step 8. On the Specify Generation page, leave Generation 1 selected and click Next.
- Step 9. On the Assign Memory page, enter "16384" for Startup memory and then click Next.

- Step 10. On the Configure Networking page, use the Connection dropdown list to select "External" and then click **Next**.
- Step 11. On the Connect Virtual Hard Disk page, click the option to Use an existing virtual hard disk, click **Browse...** and navigate to the LXCA VHD file located at **D:\Hyper-V\Virtual hard disks** on the HLH. Once the VHD file has been selected, click Next.
- Step 12. On the Summary page, verify that all parameters are shown correctly before clicking **Finish** to create the virtual machine.

| 👤 New Virtual Machine Wizar | d | × | | | |
|---|---|---------------|--|--|--|
| Completing t | he New Virtual Machine Wizard | × dyr ≯ | | | |
| Before You Begin Specify Name and Location Specify Generation | You have successfully completed the New Virtual Machine Wizard. You are about to create the following virtual machine. Description: | | | | |
| Assign Memory Configure Networking Connect Virtual Hard Disk Summary | Name: LACA Generation: Generation 1 Memory: 16384 MB Network: External Hard Disk: D:\Hyper-V\Virtual hard disks\Invgy_sw_lxca_264-4.0.0_winsrvr_x86-64.vhd (VHD, dy | | | | |
| | < To create the virtual machine and close the wizard, click Finish. | > | | | |
| | | | | | |
| | < Previous Next > Finish Cancel | | | | |

- Step 13. Once the VM is created, it will appear in the Virtual Machines pane of Hyper-V Manager. Select the VM and then click **Settings...** in the right pane.
- Step 14. In the page that opens, select Processor in the left pane, increase the Number of virtual processors to "8", and then click OK.

| LXCA | · · · | 3 ▲ ► | |
|---------------------------------|----------------------|--|--|
| A Hardware | ~ | Processor - | |
| Add Hardware | | | |
| BIOS | | You can modify the number of virtual proce | ssors based on the number of processors on |
| Boot from CD | | the physical computer. You can also modify | outer resource control securigs. |
| Security Key Storage Driv | ve disabled | Number of virtual processors: | 8 🛨 |
| Memory | | Resource control | |
| 16384 MB | | You can use resource controls to balance | e resources among virtual machines. |
| Processor 8 Virtual process | ors | Virtual machine reserve (percentage): | 0 |
| IDE Controller 0 | | Percent of total system resources: | 0 |
| 🗄 👝 Hard Drive | | | |
| Invgy_sw_lx | ca_264-4.0.0 | Virtual machine limit (percentage): | 100 |
| E IDE Controller 1 | | Percent of total system resources | 50 |
| DVD Drive | | recent or total system resources: | |
| None | | Relative weight: | 100 |
| SCSI Controller | | | |
| External | | | |
| COM 1 | | | |
| None | | | |
| COM 2 | | | |
| None | | | |
| Diskette Drive | | | |
| None | | | |
| A Management | | | |
| I] Name | | | |
| LXCA | | | |
| Some services o | ces ffered | | |
| Checkpoints Production | | | |
| Smart Paging File | Location | | |
| D: Hyper-V\LXC/ | A | | |

Configure LXCA static IP address

Perform this procedure to configure the LXCA static IP address for your ThinkAgile SXM Series solution.

- Step 1. In Hyper-V Manager, select the LXCA virtual machine in the center pane, and click **Connect...** in the right pane.
- Step 2. In the Virtual Machine Connection window, click the **Start** button ((2)) to start the LXCA virtual machine.
- Step 3. Watch the boot process until the following displays, then type "1" and press Enter.



Figure 54. Virtual Machine Connection window

Step 4. Enter the requested parameters, as shown in the yellow boxes in the following illustration. Refer to the table that you completed in "Retire the current LXCA installation" on page 55.


Figure 55. Virtual machine parameters

- Step 5. Verify that all parameters have been entered correctly, and then type "Y" and press Enter.
- Step 6. Open Internet Explorer and access the LXCA Initial Setup page: https://<IPv4Address>/ui/login. html

where </Pv4Address> is the LXCA IP address that was just configured.

The Initial Setup page displays. When you access LXCA for the first time, you must complete several initial setup steps.

To execute the initial setup of LXCA, work through each of the seven tasks shown on the Initial Setup page and complete them as instructed in the following topics.

| Leno | VO. | XClarity Administrator | |
|------------|---------------------|---|------------|
| | | | |
| Initial Se | tup | | |
| Language: | English | n US 🔹 Restore from backup | Learn more |
| | * Read a | and Accept Lenovo® XClarity Administrator License Agreement | > |
| | * Create | e User Account | > |
| ٢ | Config Config | ure Network Access ure IP settings for management and data network access. | > |
| | * Config Set loc | ure Date and Time Preferences al date and time or use an external Network Time Protocol (NTP) server. | > |
| | • Config Jump t | ure Service And Support Settings to the Service and Support page to configure the settings. | > |
| Q | Config Jump t | ure Additional Security Settings to the Security page to change the defaults for certificates, user groups, and the LDAP client. | > |
| | Start N Jump t | Janaging Systems to the Discover and Manage New Devices page where you can select systems to manage. | > |

Figure 56. LXCA Initial Setup page

Read and Accept Lenovo XClarity Administrator License Agreement task

Procedure for performing the license agreement task as part of LXCA initial setup.

Step 1. In the Initial Setup window, click **Read and Accept Lenovo® XClarity Administrator License Agreement**. The license agreement displays.

| Lenovo. XClari | ty Administ | trator ◎ | Ŧ |
|---|--|---|------|
| | | | |
| Read and Accept Lenovo® | XClarity Administra | ator License Agreement | |
| Print License | | | |
| Lenovo Non-Warranted License | Non-Lenovo License | Notice | |
| International License A | greement for No | on-Warranted Programs | ^ |
| Part 1 - General Terms | | | - 11 |
| BY DOWNLOADING, INSTALLIN OTHERWISE USING THE PROG ACCEPTING THESE TERMS ON FULL AUTHORITY TO BIND LIC | IG, COPYING, ACCESS RAM, LICENSEE AGRE BEHALF OF LICENSE ENSEE TO THESE TER | ING, CLICKING ON AN "ACCEPT" BUTTON, OR EES TO THE TERMS OF THIS AGREEMENT. IF YOU ARE E, YOU REPRESENT AND WARRANT THAT YOU HAVE IMS. IF YOU DO NOT AGREE TO THESE TERMS: | |
| DO NOT DOWNLOAD, INST PROGRAM; AND | ALL, COPY, ACCESS, | CLICK ON AN "ACCEPT" BUTTON, OR USE THE | |
| PROMPTLY RETURN THE U OBTAINED FOR A REFUN ALL COPIES OF THE PRO | JNUSED MEDIA AND D D OF THE AMOUNT PA GRAM. | OCUMENTATION TO THE PARTY FROM WHOM IT WAS ID. IF THE PROGRAM WAS DOWNLOADED, DESTROY | 5 |
| 1. Definitions | | | |
| "Authorized Use" - the sp level may be measured by ("PVUs"), or other level of | pecified level at which Lid number of users, million use specified by Lenovo | censee is authorized to execute or run the Program. That ns of service units ("MSUs"), Processor Value Units o. | |
| "Lenovo" - Lenovo PC H | K Limited or one of its aff | iliates. | ~ |
| Accept Cance | View Licenses | Online | |

Figure 57. Read and Accept Lenovo XClarity Administrator License Agreement task window

Step 2. Click Accept. The initial startup page now shows a green checkmark on this task.

Proceed to the "Create User Account task" on page 67.

Create User Account task

Procedure for performing the user account creation task as part of LXCA initial setup.

Step 1. In the Initial Setup window, click **Create User Account**.

The Create New Supervisor User window displays.

| ^k Username: | AzureStackAdmin |
|-------------------------------|----------------------------|
| Description: | Supervisor account used to |
| * New password: | ••••• |
| Confirm new password: | ••••• |
| Password and password confirm | values must match |

Figure 58. Create New Supervisor User window

- Step 2. Create a supervisor account to access LXCA and manage the Azure Stack Hub physical nodes. Include the following parameters:
 - Username: AzureStackAdmin (or your preferred user name)
 - Description: < Description of your choice> (optional)
 - **Password**: <*Password*>
- Step 3. Click **Create**. The Local User Management page displays with the new user shown. The current active session is now running under this account (upper right corner of screenshot below).

| Lenovo. Clarity Administrator azurestackadi | | | | | | MIN - | 0 - | | |
|---|-------------------------|----------------|---------------------|----------------|--------------------|------------------------|-----------------|------------------|-------|
| | | | | | | | | | |
| Lo | cal User Manager | nent | | | | | | | |
| _ | | | | | | | | | |
| | Consider creating | at least two | supervisor accoun | ts | × | | | | |
| * |] 🖻 🖪 á | 🔁 All Ad | tions 👻 | | | | Filter | | |
| Ē | User Name | Role Groups | Descriptive Name | Account Status | Active Sessions | Time before expiration | ore 1 (days) | Last Modified | Creat |
| 0 | SYSRDR_W6XN0IB4 | lxc-sysrdr | System reader | Enabled | 0 | 89 | | March 4, | March |
| 0 | SYSMGR_BDNEUD | lxc-sysmgr | System Manager | Enabled | 0 | 89 | | March 4, | March |
| 0 | AZURESTACKADMIN | Ixc-supe | Supervisor acc | Enabled | 0 | 90 | | March 4, | March |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | < | | | | | | | | > |
| | Return to Initial Setup | 1 | | | | | | | |

Figure 59. Local User Management window

Step 4. It is good practice to create at least two supervisor accounts. In the event that the password of the account just created is lost or forgotten, the "failsafe" account can be used to sign in to LXCA and

reset the lost password. To create a second account, click the **Create New User** icon (shown in the red box in the screenshot above.

- Step 5. Repeat step 2 to create a second supervisor account. Include the following parameters:
 - **Username**: Backup (or your preferred user name)
 - **Description**: < Description of your choice> (optional)
 - **Password**: <*Password*>
- Step 6. Click **Create**. The Local User Management page displays with the second new user. The two other accounts listed are internal system accounts used by LXCA. Do not be modify or remove these accounts.

 \boldsymbol{P}

| | Lenovo. XClarity Administrator Azurestackadm | | | | | | in - @ |) - |
|------|--|----------------|---------------------|----------------|--------------------|----------------------------------|------------------|------|
| | | | | | | | | |
| Loca | al User Managem | ent | | | | | | |
| *] | Ø 🕅 💈 | 📕 All Acti | ons 👻 | | | Filter | | |
| U | Jser Name | Role Groups | Descriptive Name | Account Status | Active Sessions | Time before expiration (days) | Last Modified | Crea |
| O s | SYSRDR_W6XN0IB4 | lxc-sysrdr | System reader | Enabled | 0 | 89 | March 4, | Marc |
| O s | SYSMGR_BDNEUDFB | lxc-sysmgr | System Manager | Enabled | 0 | 89 | March 4, | Marc |
| • B | BACKUP | lxc-supe | Failsafe accou | Enabled | 0 | 90 | March 4, | Mar |
| () A | ZURESTACKADMIN | Ixc-supe | Supervisor acc | Enabled | 1 | 89 | March 4, | Marc |

Figure 60. Local User Management window with backup user

Step 7. Record all LXCA credentials in the following table to add to your records later.

| | User Name | Password |
|-------------------|-----------|----------|
| Primary account | | |
| Secondary account | | |

Step 8. Back in LXCA, click **Return to Initial Setup** to finish the Create User Account task and return to the Initial Setup page.

Proceed to the "Configure Network Access task" on page 70.

Configure Network Access task

Procedure for configuring network access as part of LXCA initial setup.

Step 1. In the Initial Setup window, click **Configure Network Access**.

The Edit Network Access window displays.

| lit Networ | k Access | | | | | | | |
|-------------|--|---|--|-----------------|---|--------------------------|-------------------|----------------|
| IP Settings | Advanced Routing | DNS & | Proxy | | | | | |
| Settings | | | | | | | | |
| th0: 🔽 Enat | terface detected: oled - used to discov | ver and mana | age hardware only. | | | | · (?) | |
| _ | You w | ill not be able | e to manage or deploy op | perating system | n images and up | date opera | ting system drive | rs. |
| - | You w | ill not be able 4 | e to manage or deploy op | perating systen | n images and up IPv6 | date opera | ting system drive | rs. |
| - | You w | ill not be able 4 Jse statically | e to manage or deploy op assigned IP address | perating system | n images and up IPv6 Use stateful | date opera address co | onfiguration (DHC | cPv6) + |
| Eth0: | You w | rill not be able 4 Use statically 9 address: | e to manage or deploy op assigned IP address 10.30.8.52 | verating system | IPv6 Use stateful IP address: | address co | nfiguration (DHC | rs. 2Pv6) + |
| Eth0: | You w | ill not be able 4 Jse statically P address: twork Mask: | e to manage or deploy op assigned IP address 10.30.8.52 255.255.255.192 | verating system | IPv6 Use stateful IP address: Prefix Length: | address co 0::0 64 | onfiguration (DHC | rs. CPv6) v |

Figure 61. Edit Network Access window

- Step 2. On the Edit Network Access page with the IP Settings tab visible, verify that the correct IPv4 parameters display in the **IP address**, **Network Mask**, and **Gateway** fields.
- Step 3. Go to the DNS & Proxy tab and verify that the DNS Server(s) were entered correctly.
- Step 4. On the same page, enter "LXCA" in the Host name field, as shown in the following illustration.

Lenovo. XClarity Administrator

Edit Network Access

| IP Settings | Advanced Routing | DNS & Proxy |
|---------------------------------|---------------------|----------------------------|
| Names for this | s Virtual Appliance | |
| Host name: Domain nai | LXCA | |
| DNS Servers | | |
| DNS Operatin <u>c</u> | Mode: Static | • (?) |
| Order | | DNS Server |
| 1 | | 10.241.80.5 |
| Proxy Setting Internet Acces | s: Direct | t Connection HTTP Proxy |
| | | |
| Save DNS & | Proxy Restar | rt Return to Initial Setup |

Figure 62. DNS & Proxy settings tab

- Step 5. Click **Save DNS & Proxy**, then click **Save** in the confirmation window , and then click **Close** in the Internet/DNS Settings window.
- Step 6. Return to the IP Settings tab of the Edit Network Access page.
- Step 7. Under the IPv6 column heading, select **Disable IPv6** in the dropdown list. Click **Close** to dismiss the pop-up window, and then click **Save IP Settings**.

| _enovo | XClarity: | Administrator | J | 🛛 Status 🔹 | 🗹 Jobs 👻 | 😫 Azure Stack Admin 🔹 |
|---|---|--|-----------------------------|---------------------------------------|--|-----------------------|
| | | | | | | |
| Edit Network A | Access | | | | | |
| IP Settings | Advanced Routing | Internet/DNS Settings | | | | |
| If you use DHCP a permanent to avoid One network interf | nd an external security d communication issue ace detected: | certificate, make sure that the add es with managed resources when | dress leases the manager | for the managem ment server IP ad | ent server on the DH dress changes. | ICP server are |
| Eth0: 📝 Enabled | I - used to discover a You will no | nd manage hardware only. ot be able to manage or deploy op | erating system | m images and up | date operating syste | em. |
| | IPv4 | | | IPv6 | | |
| | Use st | atically assigned IP address | • | Disable IPv6 | | * |
| Eth0: | * IP add Network | Interview Interview <t< td=""><td></td><td>IP address: 0::0 Prefix Length:</td><td>64</td><td></td></t<> | | IP address: 0::0 Prefix Length: | 64 | |
| Default gateway | : Gateway | 10.30.8.1 | | Gateway: | | |
| Save IP Settings | Restart | Return to Initial Setup | | | | |

Figure 63. Disabling IPv6 settings

- Step 8. Click **Save** in the confirmation pop-up window.
- Step 9. A window appears prompting you to restart the management server to apply these changes. Click **Restart** and then click **Close** in the confirmation window that displays.

| e manageme ck Restart to anges. | ent server must be restarted to restart the management serve | apply these changes r and apply the |
|---------------------------------------|---|--|
| 🥑 The ne | etwork specified configur | Show Details × |
| 🕑 The ga | ateway configuration rem | Show Details × |

Figure 64. Saving IP Settings tab changes

Step 10. Wait for the management server to restart, approximately five minutes. During this time, a pop-up window displays that reads "The connection to the management server was lost. A connection to

the server could not be established." This message is normal when restarting the management server and can be ignored. When this pop-up displays, click **Close**. For LXCA v4.0 and later, a login screen should be presented once the LXCA management server has restarted.

Step 11. If necessary, refresh the browser to return to the LXCA login page, then log in using the primary supervisor account created earlier. The Initial Setup page displays, this time with the first three tasks checked.

| Lenovo. XClarity Administrator | |
|--|------------|
| | |
| Initial Setup | |
| Language: English US 🔹 | Learn more |
| * Read and Accept Lenovo® XClarity Administrator License Agreement | > |
| Create User Account | > |
| Configure Network Access Configure IP settings for management and data network access. | > |
| Configure Date and Time Preferences Set local date and time or use an external Network Time Protocol (NTP) server. | > |
| Configure Service And Support Settings Jump to the Service and Support page to configure the settings. | > |
| Configure Additional Security Settings Jump to the Security page to change the defaults for certificates, user groups, and the LDAP client. | > |
| Start Managing Systems Jump to the Discover and Manage New Devices page where you can select systems to manage. | > |

Figure 65. Initial Setup page with completed tasks checked

Proceed to the "Configure Date and Time Preferences task" on page 74.

Configure Date and Time Preferences task

Procedure for configuring date and time preferences as part of LXCA initial setup.

Step 1. In the Initial Setup window, click **Configure Date and Time Preferences**.

The Edit Date and Time window displays.

| Lenovo. XCla | rity ⁻ Administ | rator | | | Help - |
|-------------------------------------|-------------------------------|---|---|---------|--------|
| | | | | | |
| Edit Date and Time | | | | | |
| Date and time will be automatical | lly synchronized with the NTP | server. | | | |
| Time zone | | UTC -00:00, Coordinate Daylight saving time is not | d Universal Time Etc/Universal 🔻 observed in this time zone. | | |
| Edit clock settings (12 or 24 hour: | s format): | 24 12 | | | |
| NTP server host name or IP address: | 173.230.149.23 | 0.0.0.0 | 0.0.0.0 | 0.0.0.0 | |
| NTP v3 Authentication: | Required None | | | | |
| | | | | | |
| Save | icel | | | | |

Figure 66. Edit Date and Time window

Step 2. On the Edit Date and Time page, specify the **Time zone** as "UTC -0:00, Coordinated Universal Time Etc/UCT" and **NTP server host name or IP address** that is suitable for your location.

Note: LXCA does not support Windows time servers. If you normally use a Windows time server, substitute an address appropriate for your location.

Step 3. Once you have entered the parameters, click **Save** to return to the Initial Setup page.

Proceed to the "Configure Service and Support Settings task" on page 75.

Configure Service and Support Settings task

Procedure for configuring service and support settings as part of LXCA initial setup.

- Step 1. In the Initial Setup window, click the **Configure Service and Support Settings** task. The Lenovo Privacy Statement is displayed. Click Accept to dismiss this window and move to the Service and Support page.
- Step 2. On the Periodic Data Upload tab, select the options you prefer, and click Apply.

| Lenovo. XClarity A | dministrator | Help 👻 |
|-------------------------------|--|--------------------------|
| | | |
| rin. | Periodic Data Upload | |
| | I Attention | × |
| Service and Support | In order to complete the initial setup process, you will have to go through all the steps in this panel and end click "Return to Initial Setup" | at the |
| Configure Service And Support | We'd like to ask a favor. In order to improve the product, and make your experience better, would you allow u information on how you use this product? | s to collect |
| 涬 Periodic Data Upload | Langua Privary Statement | |
| 💊 Call Home Configuration | | |
| 😰 Lenovo Upload Facility | No Thanks | |
| 🖉 Warranty | Hardware 💿 | |
| Service Recovery Password | I agree to send hardware inventory and system event data to Lenovo on a periodic basis to Lenovo. usd the data to enhance future support experience (for example, to stock and move the right parts close | Lenovo can r to vou). |
| Initial Setup | To download an example of data, click here. | |
| 🔷 Return to Initial Setup | | |
| | Us <mark>age</mark> ⑦ | |
| | I agree to send usage data to Lenovo on a periodic basis to help Lenovo understand how the produ osed. All data is anonymous. | ict is being |
| | To download an example of data, click here. | |
| | You can change these settings at any time from the Service and Support page. | |
| | Apply | |

Figure 67. Service and Support Periodic Data Upload tab

Step 3. On the Call Home Configuration tab, scroll to the bottom of the page if necessary and select **Skip Step** (the Call Home feature is not used for ThinkAgile SXM Series solutions).

| Lenovo. XClarity | Administrator | Help * |
|---|--|--------|
| | | |
| Service and Support Configure Service And Support Usage Data Call Home Configuration Lenovo Upload Facility | Call Home Configuration City State or Province Zip Code System Phone Number System Country System Street Address System City | ^ |
| Initial Setup | System State System Zip Code | - 1 |
| | Lenovo Privacy Statement Apply & Enable Apply only Reset Configuration Call Home Connection Test Skip Step | ~ |

Figure 68. Service and Support Call Home Configuration tab

Step 4. On the Lenovo Upload Facility tab, scroll to the bottom of the page and click **Skip Step**.

| Lenovo. XClarity A | Administrator Help - |
|---|---|
| | |
| | Lenovo Upload Facility |
| Service and Support | Attention × |
| Configure Service And Support | In order to complete the initial setup process, please complete the remaining steps in this panel and at the end click "Return to Initial Setup" |
| Usage Data Call Home Configuration | Configuring the Lenovo Upload Facility is recommended for faster resolution of your issues. When working directly with Lenovo on a problem, service data is made available directly to the support team and developers as soon as possible. When configured: |
| Lenovo Upload Facility Warranty | From the service collection pages, you can choose to manually transfer service data that is collected for the management server or managed devices directly to Lenovo for use in resolving issues. From the Service Forwarder page you can choose to create a service forwarder that automatically |
| Initial Setup | sends service data for any managed device to Lenovo when serviceable hardware issues are detected. The "Default Lenovo Upload Facility" is created automatically, but is disabled by default. |
| Return to Initial Setup | Default Lenovo Upload Facility Forwarder ⑦ Default Lenovo Upload Facility Forwarder: Unconfigured |
| | Please enter a prefix to be prepended to file names. This will be used by the support team to correlate uploaded files with the reporter of an issue. Its suggested that it be your company name or something else that will uniquely identify this instance of XClarity Administrator. |
| | * Prefix |
| | * Email |
| | Lenovo Privacy Statement |
| | Apply & Enable Apply only Reset Configuration |
| | Lenovo Upload Connection Test Skip Step |

Figure 69. Service and Support Lenovo Upload Facility tab

Step 5. On the Warranty tab, ensure that all drop-down lists are set to **Disabled**, and then click **Apply**. Since ThinkAgile SXM Series solution warranty entitlement is based on the rack serial number, this LXCA feature is not supported.

| <u>enovo</u> XClarity [®] | Admii | nistrator | | | Help 🔹 | | |
|---|---|---|---|---|----------------------------|--|--|
| <u>i</u> | | Warranty | | | | | |
| | | 1 Attention | | | × | | |
| Service and Support | | In order to complete the initial setup pro "Return to Initial Setup" | ocess, please comple | te the remaining steps in this panel and at the | end click | | |
| Configure Service And Support | | The management server can automatically | retrieve warranty infor | mation for your managed devices, if the approp | priate exter | | |
| Periodic Data Upload | | connections are enabled. This allows you to close to the expiration date. Enabling the fir | o see when the warra st two resources belo | nties expire and to be notified when each devic w is recommended for most parts of the world | e is getting For device | | |
| Call Home Configuration | that were purchased in China, enabling the third resource is recommended. | | | | | | |
| Lenovo Upload Facility | | the URLs. | | | | | |
| 🖑 Warranty | | Warranty servers are used to retrieve wa | arranty information for | all managed devices. These are external conr | nections to | | |
| Lenovo Bulletin Service | | Lenovo. If you don't require this information | , the connections to th | ese warranty servers can be disabled. | | | |
| Service Recovery Password | | - Enable/Disable - Warranty server (China- | only) | | | | |
| Initial Setup | | Online Resources | Status | Description | | | |
| Return to Initial Setup | | Lenovo Warranty Web Service | Disabled 👻 | This connection is used to retrieve wa | | | |
| | | Lenovo Warranty Database (China only) | Disabled 👻 | This connection is used to retrieve wa | | | |
| | | Lenovo Privacy Statement Apply Skip Step | | | | | |

Figure 70. Service and Support Warranty tab

- Step 6. Click **Close** in the Success window that displays, choose whether to receive bulletins from Lenovo, and then click **Apply**.
- Step 7. On the Service Recovery Password tab, enter and confirm a password for LXCA recovery, and click **Apply**. Record this password for future reference.

| Lenovo. XClarity A | dministrator 🗤 | elp - |
|---|--|-------|
| | | |
| rīn. | Service Recovery Password | |
| | 1 Attention | × |
| Service and Support | To complete the initial setup process, please complete this step, and then click "Return to Initial Setup" |) |
| Configure Service And Support | If the management server becomes unresponsive and cannot be recovered, you can use this password to collect and download enrice data and loss Learn more. | |
| Usage Data Call Home Configuration Lenovo Upload Facility Warranty | Recovery Password Recovery Password Apply | |
| Service Recovery Password | | |
| Initial Setup | 1 | |
| 💠 Return to Initial Setup | | |

Figure 71. Service Recovery Password page

Step 8. Click Close in the Success window that displays, and then click Return to initial setup.

Proceed to the "Configure Additional Security Settings task" on page 79.

Configure Additional Security Settings task

Procedure for configuring additional security settings as part of LXCA initial setup.

- Step 1. In the Initial Setup window, click **Configure Additional Security Settings**. The Security page displays.
- Step 2. Since nothing needs to be modified here, click Return to Initial Setup.
- Step 3. At this point, LXCA is ready to start managing systems. Verify that all steps on the Initial Setup page display a green checkmark except for the last one, as shown in the screenshot below.

| Lenovo. XClarity Administrator | | Help + |
|--|---|--------|
| | | |
| Initial Setup | | |
| Language: English US - | | |
| * Read and Accept Lenovo® XClarity Administrator License Agreement | > | |
| Create User Account | > | |
| Configure Network Access Configure IP settings for management and data network access. | > | |
| Configure Date and Time Preferences Set local date and time or use an external Network Time Protocol (NTP) server. | > | |
| Configure Service And Support Settings Jump to the Service and Support page to configure the settings. | > | |
| Configure Additional Security Settings Jump to the Security page to change the defaults for certificates, user groups, and the LDAP client. | > | |
| Start Managing Systems Jump to the Discover and Manage New Devices page where you can select systems to manage. | > | |
| | | |

Figure 72. Initial Setup window with one task remaining

Proceed to "Start Managing Systems task" on page 80.

Start Managing Systems task

Procedure for managing systems in LXCA.

- Step 1. In the Initial Setup window, click **Start Management Systems**. The Start Management Systems page displays.
- Step 2. Click No, don't include Demo Data.

| Lenovo | Clarity Administrator | Help * |
|---|---|--------|
| | | |
| Start Managing S | ystems | |
| Would you like to incl environment? The de | ude demonstration rack server and Flex chassis in the managed monstration hardware can be deleted later by unmanaging it | |
| Yes, include Demo I | No, don't include Demo Data | |

Figure 73. Selecting No, don't include Demo Data in Start Managing Systems window

- Step 3. Click **No thanks** in the pop-up window.
- Step 4. The Discover and Manage New Devices page displays. Automatic discovery takes place for the subnet on which LXCA resides. Since the BMCs in the systems that will become nodes in the Azure Stack Hub scale unit have IP addresses on the same subnet, they should display in the table. If your solution uses Lenovo TOR switches, they may also be listed.

We will not manage any systems or switches at this point. We will return to manage systems after the LXCA Pro license key has been enabled and LXCA has been updated to the version specified by the current ThinkAgile SXM Best Recipe.

Proceed to "Apply LXCA Pro license" on page 81.

Apply LXCA Pro license

Before using LXCA to manage systems, you must import and apply the LXCA Pro License key. This key is specifically for long-term use of the Pattern functionality. To import and apply the license key, follow these steps:

- Step 1. Using the top menu of LXCA, navigate to Administration \rightarrow Licenses.
- Step 2. On the License Management page, click the Import icon (
- Step 3. Click Accept License on the License Agreement window that opens, and then click Select Files....
- Step 4. Navigate to D:\Lenovo\LXCA\LXCA License Files, select the file in the directory, and then click **Open**.
- Step 5. In the Import and apply window, click **Import and apply**, and then click **Yes** in the confirmation window that appears.
- Step 6. Click **Close** in the Success window that appears.
- Step 7. Back on the License Management page, confirm that the LXCA Pro license key has been applied successfully and the Status is "Valid".

| Lenovo. | XClarity / | Administr | ator 💌 | itatus - 🔽 Jobs | 5 * 🔒 AZ | URESTACKADMIN - |
|--------------------|-------------------|---------------------------|-------------------|------------------|----------|-----------------|
| 🕰 Dashboard | Hardware 👻 | Provisioning 👻 | Monitoring 👻 | Administration - | | |
| License Manage | ement | | | | | |
| The warning period | d is: 90 days 🦪 I | Edit e entitlements, 0 |) which will expi | re soon | | |
| a 9 y | 🕰 🛛 🖉 🍯 | All Actions 👻 | I | | | • |
| License Key Desc | ription Number of | licenses St | art Date | Expiration Date | ▲ Stat | us |
| XClarity Pro | 4 | 10 | 0/05/2023 | 12/30/2025 | | Valid |

Figure 74. License Management page with valid LXCA Pro license shown

Apply LXCA update package

Two types of LXCA updates are typically available. An LXCA Update Package is applied to a base VHD image to update to the latest major release (for example, from v3.0.0 to v3.1.0 or v3.2.0 or v3.3.0, etc.). An LXCA FixPack is applied to a major release to update LXCA to the latest minor release (for example, from v3.6.0 to v3.6.8). To apply an update to LXCA, follow these steps:

- Step 1. Using the top menu of LXCA , navigate to Administration \rightarrow Update Management Server.
- Step 2. Click the Import icon (and then Select Files....
- Step 3. Navigate to the appropriate Update Package or FixPack directory inside D:\Lenovo\LXCA\LXCA Update Packages. For example, if updating LXCA base VHD v3.4.5 to v3.6.8, use the content of the "LXCA v3.6.0 Update" directory to update to v3.6.0 and then use the content of the "LXCA v3.6.8 FixPack" directory to update to v3.6.8. In our example below, we update LXCA v4.0.0 to v4.0.14, which does not require an LXCA Update Package, but does require an LXCA FixPack.
- Step 4. Select all four files in the directory, and click **Open**.

| 📦 File Upload | | | | | × |
|---|------------------|---------------|------------------|--------|--------|
| \leftarrow \rightarrow \checkmark \uparrow \bullet LXCA Update \rightarrow LXCA | v4.0.14 FixPack | ✓ Ö Search | LXCA v4.0.14 Fix | Pack | ٩ |
| Organize 🝷 New folder | | | | | ? |
| Name | Date modified | Туре | Size | | |
| Invgy_sw_lxca_gfx-4.0.14_anyos_noarch.chg | 9/7/2023 4:34 PM | CHG File | 8 KB | | |
| Invgy_sw_lxca_gfx-4.0.14_anyos_noarch.tgz | 9/7/2023 4:37 PM | TGZ File | 1,949,483 KB | | |
| Invgy_sw_lxca_gfx-4.0.14_anyos_noarch.txt | 9/7/2023 4:35 PM | Text Document | 4 KB | | |
| Invgy_sw_lxca_gfx-4.0.14_anyos_noarch.xml | 9/7/2023 4:35 PM | XML Document | 8 KB | | |
| | | | | | |
| File name: | | ~ All File | es (*.*) | | \sim |
| | | 0 |)pen | Cancel | |

Figure 75. Selecting LXCA FixPack files

- Step 5. In the Import window, click **Import**. Progress displays until import and validation of the update content completes. The Import window will close when complete.
- Step 6. In the Update Management Server page, select the Update Name for the update that was just

imported, and then click the **Perform Update** (**T**) button.

| Lenovo | . XClarity ⁻ A | dministrat | Or 🔨 Repo | ort Problem | 🗹 Status 👻 | 🗹 Jobs 🔹 😫 | AZURESTACKADMIN 👻 |
|---|---|-------------------------------------|--------------|------------------|--------------|-----------------|-------------------|
| 🕰 Dashboa | urd Hardware - | Provisioning - | Monitoring 🔻 | Administration • | - | | |
| Update Mana | gement Server | | | | | | |
| Update the man Update Manage | agement server software to ment Server: Getting Started | the latest level. d | | | | | |
| Before updating • Back up the • Check the jo | , make sure that you: management server. Learn b log to make sure that ther | more re are no jobs currently ru | inning. | | | | |
| Lenovo® XCIa | rity Administrator | Update History | | | | | |
| Version: | 4.0.0 | | | | | | |
| Last Updated: | Oct 5, 2023, 5:52:09 PM | | | | | | |
| Repository U: | sage: 0.3 KB of 50 GB | | | | | | |
| 🐐 🧗 🧃 🖳 🕌 🖬 All Actions 🔹 Filter by All types 💌 All update packages 💌 🔹 | | | | | | | |
| Update Name |) | Release Notes | Version • | Build Number | Release Date | Download Status | Applied Status |
| Lenovo XClar Invgy_sw_lxc | ity Administrator GA Fix 4.0. a_gfx-4.0.14_anyos_noarch | 14 i | 4.0.14 | V4014_GFX | 2023-08-15 | Downloaded | Not Applied |

Figure 76. Selecting the update package and performing update

- Step 7. In the confirmation pop-up window, click Restart.
- Step 8. Wait for the management server to restart, which can take several minutes. If necessary, refresh the browser to return to the LXCA sign-in page, then sign in using the primary supervisor account created earlier.
- Step 9. Return to the Update Management Server page and wait for the download status to become "Cleaned Up" and applied status to become "Applied" before proceeding. You may need to refresh the page to get the final status to update.

| Lenovo | XClarity Ad | Iministrat | Or 🔨 Repo | rt Problem | 🗹 Status 👻 | 🗹 Jobs 🕤 | SAZURE STACKADMIN - |
|--|---|--------------------------------|--------------|--------------------|----------------|-----------------|---------------------|
| 🕰 Dashboa | rd Hardware v P | rovisioning 👻 🛛 | Aonitoring 👻 | Administration | - | | |
| Update Mana | gement Server | | | | | | |
| Update the mana Update Manager | agement server software to the nent Server: Getting Started | e latest level. | | | | | |
| Before updating, • Back up the r • Check the jot | make sure that you: nanagement server. Learn mo log to make sure that there a | ore re no jobs currently ru | inning. | | | | |
| Lenovo® XClar | rity Administrator | Update History | | | | | |
| Version: | 4.0.14 | | | | | | |
| Last Updated: | Oct 5, 2023, 5:52:09 PM | | | | | | |
| Repository Us | age: 0.3 KB of 50 GB | | | | | | |
| 🌯 🏼 🕅 | y a s | All Actions | r F | ilter by All types | ▼ All update p | ackages 👻 | Ŧ |
| Update Name | | Release Notes | Version - | Build Number | Release Date | Download Status | Applied Status |
| Lenovo XClari Invgy_sw_lxca | ty Administrator GA Fix 4.0.14 _gfx-4.0.14_anyos_noarch | | 4.0.14 | V4014_GFX | 2023-08-15 | Cleaned Up | Applied |

Figure 77. Update package final statuses

Manage the nodes

Now that LXCA configuration is complete, it can manage the nodes and network switches in the Azure Stack Hub scale unit. To manage the nodes in the Azure Stack Hub scale unit, follow these steps:

- Step 1. At the top menu of LXCA, select **Hardware → Discover and Manage New Devices**.
- Step 2. To manage the Lenovo servers, select the checkbox to the left of each of them and click **Manage Selected**. Leave any switches and the HLH unselected if they are listed.

| Le | enovo. 🛛 | Clarity Admin | nistrator | 🗾 Statı | ıs * 🛛 Jobs * | AZURE STACKADMIN * | | | |
|---|-------------|---------------------------|--------------------------|---------------|------------------|--------------------|--|--|--|
| | 🕰 Dashboard | Hardware 👻 Provisioni | ing 👻 Monitoring 🗸 | Administratio | n - | | | | |
| Discover and Manage New Devices | | | | | | | | | |
| If the following list does not contain the device that you expect, use the Manual Input option to discover the device. For more information about why a device might not be automatically discovered, see the Cannot discover a device help topic. | | | | | | | | | |
| L | Mana | age Selected 🔁 Last SLP | discovery: 3 minutes ago | | | Filter | | | |
| | Name | IP Addresses | Serial Number | Туре | Type-Model | Manage Status | | | |
| ~ | Lenovo-01 | 10.30.8.3 | J1000GE2 | Server | 7X06-CTO1WW | Ready | | | |
| ~ | Lenovo-02 | 10.30.8.4 | J1000GE8 | Server | 7X06-CTO1WW | Ready | | | |
| ~ | Lenovo-03 | 10.30.8.5 | J1000GEG | Server | 7X06-CTO1WW | Ready | | | |
| ~ | Lenovo-04 | 10.30.8.6 | J1000GEA | Server | 7X06-CTO1WW | Ready | | | |
| | Lenovo-BMC | 10.30.8.1, 10.30.8.146 | Y01NJ111W0Y7 | Switches | 7159-HC1 (G8052) | Ready | | | |
| | | | | | | | | | |

Figure 78. Four nodes selected to be managed

Step 3. In the Manage window, uncheck Managed Authentication, and click Manage stored credentials.

| 3 servers are going to t | e managed. | |
|---|---|--------|
| oose to use managed a | uthentication or not | |
| Managed Authenticatio | n | |
| | | |
| lect or manage stored c | redentials (?) | |
| Stored Credentials | Manage stored crede | ntials |
| is being managed by t instance of Lenovo® X Administrator | his or another Clarity ent, need to use | |
| When force managem the Recovery-id managed | jement. | |

Figure 79. Manage stored credentials

- Step 4. Click Create new stored credentials (
- Step 5. Enter the credentials that LXCA will use to communicate with the XClarity controllers on the nodes. These credentials should be recorded in the Customer Deployment Summary document that was left with the customer after initial solution deployment. Since the credentials are identical between nodes, they only need to be entered once. Enter a description that makes it obvious that LXCA uses this credential set to manage the nodes. After entering the credentials, click **Create Stored Credential**.

| User name | LXCA | |
|------------------|-----------------|--|
| Password | ••••• | |
| Confirm Password | ••••• | |
| escription | XCC credentials | |



Step 6. Back in the Stored credentials management window, select the credentials that were just created, and click **Select**.

| 🖯 📝 💌 I i | 🔁 🛛 All Actions 👻 | Filter |
|-----------|-------------------|------------------------|
| ID | User Account Name | User Description |
| 6107 | admin | BMC switch credentials |
| 6108 | admin | TOR switch credentials |
|) 144102 | LXCA | XCC credentials |

Figure 81. Selecting new stored credential for management

- Step 7. In the Manage window, click Manage.
- Step 8. A status window displays the process of establishing a management connection with each XClarity controller.

| | | 39% | |
|---------------|------------|--------|---|
| View Details: | | | |
| System Name | IP Address | Status | |
| Lenovo01 | 10.30.8.3 | 39% | 1 |
| Lenovo02 | 10.30.8.4 | 39% | Ĩ |
| Lenovo03 | 10.30.8.5 | 39% | 1 |
| Lenovo04 | 10.30.8.6 | 39% | |

Figure 82. Establishing management connections with each XClarity controller

Step 9. Once the process completes, click **View All Servers** to close the Manage window and return to the LXCA main window.

| lanage completed | | | |
|------------------|------------|-----------------------|--|
| | | 100% | |
| View Details: | | | |
| System Name | IP Address | Status | |
| Lenovo01 | 10.30.8.3 | Successfully managed. | |
| Lenovo02 | 10.30.8.4 | Successfully managed. | |
| Lenovo03 | 10.30.8.5 | Successfully managed. | |
| Lenovo04 | 10.30.8.6 | Successfully managed. | |

Figure 83. View All Servers

Even though the job completes successfully, inventory collection from the nodes may take 20 minutes or more to complete. During this time, some tasks (such as applying a server pattern or policy) may not be allowed. A Pending status indicates that inventory collection is in progress.

Eventually, the status of all nodes displays as Normal.

| Lenovo | XClarity [®] | Admi | nistrator | • 🔽 Status | - 🛛 🖉 . | lobs - 😫 AZUREST | rackadmin - | |
|-------------------|--|----------|-------------------------|-----------------|--------------|---------------------------|------------------|--|
| 🚱 Dashboard | Hardware 👻 | Provisio | oning - Moni | toring 👻 Admi | nistration 👻 | | | |
| Servers | | | | | | | | |
| unmanage All Ac | Image All Actions * Filter By Image Filter By Fi | | | | | | | |
| Server 🔺 | Status | Power | IP Addresses | Product Name | Type-Model | Firmware (UEFI/BIOS) | | |
| Lenovo01 | Normal | 🕑 On | 10.30.8.3, 169 | System x3650 M5 | 8871-AC1 | TCE132N / 2.53 (Feb 4, 2 | 018, 4:00:00 PM) | |
| Lenovo02 | Normal | 🕑 On | 10.30.8.4, 169 | System x3650 M5 | 8871-AC1 | TCE132N / 2.53 (Feb 4, 2) | 018, 4:00:00 PM) | |
| Lenovo03 | Normal | 🕑 On | 10.30.8.5, 169 | System x3650 M5 | 8871-AC1 | TCE132N / 2.53 (Feb 4, 2 | 018, 4:00:00 PM) | |
| Lenovo04 | Normal | 🕑 On | 10.30.8.6, 169 | System x3650 M5 | 8871-AC1 | TCE132N / 2.53 (Feb 4, 2 | 018, 4:00:00 PM) | |
| | | | | | | | | |

Figure 84. Inventory collection completed

Import and apply server pattern

A server pattern represents a bare-metal server configuration and can be applied to multiple servers at a time.

The appropriate server pattern is available in the D:\Lenovo\LXCA directory on the HLH.

To import the Lenovo ThinkAgile SXM Series server pattern, follow these steps:

- Step 1. At the top menu of the LXCA browser interface, select **Provisioning** \rightarrow **Patterns**.
- Step 2. On the Configuration Patterns: Patterns page, click the **Import** icon (1990), and then **Select Files...**
- Step 3. Navigate to D:\Lenovo\LXCA, select the LXCA pattern file appropriate for your solution, and then click **Open**.
- Step 4. Click **Import**. When the import success window displays, click **Close**.
- Step 5. To deploy the pattern, select the checkbox to the left of the pattern that was just imported and click the **Deploy Pattern** icon (

| Lenovo | XClarity A | Administra | tor 💌 | Status * 🛛 🛛 | Jobs • 🔒 | AZURESTACKADMIN 👻 |
|----------------------|--------------------------|-------------------------|---------------|-------------------------|---|--|
| 🖍 Dashboard | Hardware 👻 | Provisioning 👻 | Monitoring 👻 | Administration · | | |
| Configuration F | Patterns: Patterns | i | | | | |
| Server Patterns | Category Patterns | Placeholder Chassis | 3 | | | |
| () Use server patter | ns to configure multiple | servers from a single p | attern. | | | |
| 1 a D | 🧭 🔟 🦉 | S B . | All Actions 👻 | | | • |
| Name | | ▲ Usage | Status Patte | rn Origin Des | cription | |
| SXM_EGS_Patte | ern_092923 | ⊶ No | tin use 💧 Us | ser defined Thir Imp | kAgile SXM V3 Patte orted on Sep 27, 202 | rn for scale unit nodes. 23, 4:33:56 PM |

Figure 85. Deploying a pattern

Step 6. Ensure that the **Partial – Activate BMC settings but do not restart the server...** radio button is selected, then select all Azure Stack Hub scale unit nodes and click **Deploy**.

Important: Make sure that the **Partial...** option is selected, since we do NOT want all the nodes to restart at the same time.

| epl | oy the server syment, one | pattern to one server profile is | or more individual s created for each in | ervers or group dividual server. | ps of servers (for example | , a chassis). During |
|---------------|------------------------------|-------------------------------------|---|--------------------------------------|--|-------------------------|
| Pa | ttern To | SR650Patte | ernThinkAgileSXM_1 | 21218 - | | |
| *Activation ⑦ | | | | | | |
| | | Partial | Activate BMC setting e next restart. | gs but do not re | estart the server. UEFI and | server settings will be |
| | | O Deferred - | — Generate a profil | e with the settin | ngs for review, but do not a | ctivate settings on the |
| | | Server. | | | | |
| | | | | | | |
| hoo | se one or m | ore servers to | which to deploy th | e selected pat | tern. | |
| hoo | ose one or m | ore servers to | which to deploy th | e selected patr | tern. y Deploy Status 🔹 👻 | Filter |
| hoo | ose one or m Name | ore servers to | which to deploy th Rack Name/Unit | e selected path An Chassis/Bay | tern. y Deploy Status Deploy Status | Filter |
| hoo | Name Lenovo-0 | ore servers to | Rack Name/Unit Unassigned / Ur | e selected path An Chassis/Bay | tern. y Deploy Status Deploy Status Ready | Filter |
| hoo | Name Lenovo-0 Lenovo-0 | nore servers to | Rack Name/Unit Unassigned / Un Unassigned / Un | e selected patr An Chassis/Bay | tern. Deploy Status Oeploy Status Ready Ready | Filter |
| hoo V | Name Lenovo-0 Lenovo-0 | 1 2 3 | Rack Name/Unit Unassigned / Ur Unassigned / Ur Unassigned / Ur | e selected patr An Chassis/Bay | tern. y Deploy Status Deploy Status Oeploy Status Oepl | Filter |

Figure 86. Deploy pattern with full activation

Step 7. In the pop-up window that is displayed, select **Jump to Profiles page**.

| Job "Server Profile activ | vation: Feb 27, 2018" has been | created and started successful, Lenovo02, Lenovo03, Lenov | Illy. Changes are being |
|---------------------------|----------------------------------|---|-------------------------------|
| propagated to the follow | ving servers or bays: Lenovo01 | | 004 |
| You can monitor job pro | ogress from the Jobs pod in the | banner above. | |
| You can view the profile | e creation progress from the Se | erver Profiles link that is located | d under the Provisioning ment |
| in the menu bar. Profile | s will not show up in the Server | r Profiles table until the profile l | has been created. |



Step 8. Wait for all profiles to become active, as shown in the Profile Status column.

| Le | enovo. | XClarity A | dminis | strator | 🔽 Status | - 🔽 Job | s * 😫 AZURESTACKADMIN * |
|----|---------------------|----------------------------|----------------------------|---------------------------|-------------|---------------------|----------------------------------|
| | 🕰 Dashboard | Hardware 👻 | Provisioning | • Monitoring • | Administ | ration - | |
| Co | onfiguration P | atterns: Server Pro | ofiles | | | | |
| 0 | Server profiles rep | resent the specific config | juration of a sir | ngle server. | | | |
| 0 | n | | | | | | |
| _ | -14 - 13 | All Actio | ins + | | | All Sys | Filter |
| | Profile | | Server | Rack Name/Unit | Chassis/Bay | Profile Status | Pattern |
| | SR650PatternTh | inkAgileSXM_121218-pro | file6 Lenovo- | 01 Unassigned / Un | 4 | Active | SR650PatternThinkAgileSXM_121218 |
| | SR650PatternTh | nkAgileSXM_121218-pro | file7 Lenovo- | 02 Unassigned / Un | | Active | SR650PatternThinkAgileSXM_121218 |
| | SR650PatternTh | inkAgileSXM_121218-pro | file8 Lenovo- | 03 Unassigned / Un | ł | Active | SR650PatternThinkAgileSXM_121218 |
| | SR650PatternTh | inkAgileSXM_121218-pro | file9 Lenovo- | 04 Unassigned / Un | ł | Active | SR650PatternThinkAgileSXM_121218 |
| | | | | | | | |

Figure 88. Server profiles with Active status

This completes the LXCA deployment and configuration process.

Appendix B. Updating ThinkAgile SXM Series switches using the CLI (Lenovo switches only)

If updating the ThinkAgile SXM Series switch firmware using XClarity Administrator doesn't work (for example, if the current switch firmware version does not allow update via XClarity Administrator), follow this procedure to update the ThinkAgile SXM Series switch firmware using the CLI.

Prerequisites

Follow the instructions in this topic before starting switch firmware update using the CLI.

Before work can begin, make sure you have the following items available:

- Lenovo Specific Serial Cable (Mini-USB-RJ45-Serial) supplied with switch
- USB to Serial cable
- USB thumb drive (must be formatted as FAT32 and must not have a capacity greater than 32GB)
- Appropriate switch firmware images, based on the ThinkAgile SXM Best Recipe

Prepare switch image files

Prepare the switch image files for switch firmware update as instructed in this topic.

The switch firmware image files are contained in the main firmware update archive found in the ThinkAgile SXM Updates Repository. This archive is titled using the format *<Platform>*Firmware_SXMBR<yyyy>.zip, where *<*Platform> is either "Broadwell" or "Purley" and yyyy represents the ThinkAgile SXM Best Recipe version. To prepare the switch firmware image files for update using the CLI method, follow these steps:

- Step 1. Extract all content from the main firmware update archive file.
- Step 2. In the extracted directory, look for the appropriate switch firmware update files. The following example shows the firmware update packages for the switches included in Broadwell-based ThinkAgile SXM solutions.

| 📕 🛃 📮 Extract | BroadwellFirm | ware_SXMBR1905 | _ | |
|--|-----------------------|--------------------------|----------------------|-----------|
| File Home Share View Compressed Folder | Tools | | | ~ 🕐 |
| \leftarrow \rightarrow \checkmark \uparrow \blacksquare « Lenovo > Broadwell_SXMBR1905 > | BroadwellFirmware_SXM | 4BR1905 ~ ひ | Search BroadwellFirm | ware_SX 🔎 |
| Name | Date modified | Туре | Size | ^ |
| Invgy_fw_sraidmr_1200-24.21.0-0084-1_linux_x86-64.bin | 4/26/2019 4:10 PM | BIN File | 8,144 KB | |
| Invgy_fw_sraidmr_1200-24.21.0-0084-1_linux_x86-64.chg | 4/26/2019 4:10 PM | CHG File | 140 KB | |
| Invgy_fw_sraidmr_1200-24.21.0-0084-1_linux_x86-64.txt | 4/26/2019 4:10 PM | Text Document | 13 KB | |
| Invgy_fw_sraidmr_1200-24.21.0-0084-1_linux_x86-64.xml | 4/26/2019 4:10 PM | XML File | 21 KB | |
| Invgy_fw_torsw_g8052-8.4.11.0_anyos_noarch.chg | 8/15/2018 2:47 PM | CHG File | 84 KB | |
| Invgy_fw_torsw_g8052-8.4.11.0_anyos_noarch.txt | 8/15/2018 2:47 PM | Text Document | 3 KB | |
| Invgy_fw_torsw_g8052-8.4.11.0_anyos_noarch.xml | 8/15/2018 2:47 PM | XML File | 9 KB | |
| Invgy_fw_torsw_g8052-8.4.11.0_anyos_noarch.zip | 8/15/2018 2:47 PM | Compressed (zipped) Fold | er 22,599 KB | |
| Invgy_fw_torsw_g8272-cnos-10.10.1.0_anyos_noarch.chg | 4/30/2019 9:47 AM | CHG File | 65 KB | |
| Invgy_fw_torsw_g8272-cnos-10.10.1.0_anyos_noarch.txt | 4/30/2019 9:47 AM | Text Document | 6 KB | |
| Invgy_fw_torsw_g8272-cnos-10.10.1.0_anyos_noarch.xml | 4/30/2019 9:47 AM | XML File | 9 KB | |
| Invgy_fw_torsw_g8272-cnos-10.10.1.0_anyos_noarch.zip | 4/30/2019 9:47 AM | Compressed (zipped) Fold | er 188,968 KB | |
| Invgy_fw_uefi_tce140d-2.90_anyos_32-64.chg | 4/26/2019 4:04 PM | CHG File | 38 KB | |
| Invgy_fw_uefi_tce140d-2.90_anyos_32-64.txt | 4/26/2019 4:05 PM | Text Document | 10 KB | |
| Invgy_fw_uefi_tce140d-2.90_anyos_32-64.uxz | 4/26/2019 4:05 PM | UXZ File | 7,287 KB | |
| Invgy_fw_uefi_tce140d-2.90_anyos_32-64.xml | 4/26/2019 4:05 PM | XML File | 10 KB | |
| mlnx-lnvgy_fw_nic_4.5-1.0.1.0.2_linux_x86-64.bin | 4/26/2019 4:24 PM | BIN File | 59,839 KB | |
| mlnx-lnvgy_fw_nic_4.5-1.0.1.0.2_linux_x86-64.chg | 4/26/2019 4:23 PM | CHG File | 2 KB | |
| mlnx-lnvgy_fw_nic_4.5-1.0.1.0.2_linux_x86-64.txt | 4/26/2019 4:23 PM | Text Document | 12 KB | |
| mlnx-lnvgy_fw_nic_4.5-1.0.1.0.2_linux_x86-64.xml | 4/26/2019 4:24 PM | XML File | 66 KB | ~ |
| 40 items 2 items selected 206 MB | | | | |

Figure 89. Broadwell-based ThinkAgile SXM switch firmware update packages

Step 3. For each switch to be updated, open the appropriate zip archive file. The following example shows the contents of the archive for the RackSwitch G8272 TOR switches included in Broadwell-based ThinkAgile SXM solutions.

| 💁 🗹 🔲 🖛 | Extract | Invgy_fw_torsw_g8272-cnos-10.10.1.0_an | nyos_noarch | · | | \times |
|--------------------------------|----------------------------|--|--------------|------------|-------|----------|
| File Home Share View | Compressed Folder Tools | | | | | ~ 🕐 |
| ← → × ↑ 🔋 « BroadwellFir | > Invgy_fw_torsw_g8272-cno | s-10.10.1.0_anyos_noarch.zip 🗸 🗸 | Search Invgy | _fw_torsw_ | g8272 | P |
| Name | Туре | Compressed size | Passw | ord prot | Size | |
| 📜 mibs | File folder | | | | | |
| G8272-CNOS-10.10.1.0.imgs | IMGS File | 188 | 3,675 KB No | | | |
| | | | | | | |
| < | | | | | | > |
| 2 items 1 item selected 188 MB | | | | | | |

Figure 90. Switch firmware update archive contents

Step 4. Select the IMGS image files and copy the files. Note that for the BMC switch running ENOS, there are two IMGS files, as shown in the following example.

| I I I File Home Share | Extract Compressed Folder Tools | Invgy_fw_torsw_g8052-8.4.11.0_anyos | _noarch.zip | · – | | × ~ ? |
|---|------------------------------------|-------------------------------------|-------------|---------------------|-------|----------|
| ← → × ↑ 👔 « BroadwellFirm | ware > Invgy_fw_torsw_g805 | i2-8.4.11.0_anyos_noarch.zip 🗸 🗸 | ල් Sear | rch Invgy_fw_torsw_ | g8052 | ٩ |
| Name | Туре | Compressed size | | Password prot | Size | |
| MIBS | File folder | | | | | |
| G8052-8.4.11.0_Boot.imgs | IMGS File | | 7,370 KB | No | | |
| G8052-8.4.11.0_OS.imgs | IMGS File | | 14,865 KB | No | | |
| | | | | | | |
| < | | | | | | > |
| 3 items 2 items selected 22.0 MB | | | | | ECE I | EE 🖬 |

Figure 91. ThinkAgile SXM switch firmware IMGS image files

- Step 5. Paste the image files into the root of the USB thumb drive.
- Step 6. Repeat this procedure to copy any other required switch image files to the USB thumb drive.

Verify Azure Stack Hub health

Before working with any switches, it is important to verify that the Azure Stack Hub environment is healthy.

To do this, sign in to the Azure Stack Hub Administrator Portal and verify that no alerts are being displayed. See the following illustration for an example. We will refer back to the portal throughout this process to check the general health of the solution.





Updating Lenovo TOR switch firmware using the CLI

This topic outlines the sequence of steps required to update the CNOS image of Lenovo TOR switches. The process is the same for the Lenovo G8272 RackSwitch switches found in the Broadwell solutions and the Lenovo ThinkSystem NE2572 RackSwitch switches found in the Purley solutions.

Back up TOR switch configurations

Before beginning the update procedure, ensure that both TOR switch configurations have been backed up.

Although switch configuration backup can be done using XClarity Administrator v2.1 and later, switch CLI commands are provided here since a serial connection and USB thumb drive are used for the steps in this appendix.

For the two TOR switches running CNOS, use these steps:

- Step 1. Connect to the TOR1 switch via serial console from the HLH.
- Step 2. Insert the USB thumb drive into the TOR1 switch.
- Step 3. Sign in to the TOR1 switch using the credentials admin/<password>.
- Step 4. Use the following commands to copy the currently running configuration to the startup configuration and save the configuration file to the root of the USB thumb drive:

enable cp running-config startup-config cp startup-config usb1 TOR1StartupBackup.cfg system eject-usb

- Step 5. You can now remove the USB thumb drive from the TOR1 switch.
- Step 6. Connect to the TOR2 switch via serial console from the HLH.
- Step 7. Insert the USB thumb drive into the TOR2 switch.
- Step 8. Sign in to the TOR2 switch using the credentials admin/<password>.
- Step 9. Use the following commands to copy the currently running configuration to the startup configuration and save the configuration file to the root of the USB thumb drive:

```
enable
cp running-config startup-config
cp startup-config usb1 TOR2StartupBackup.cfg
system eject-usb
```

Step 10. You can now remove the USB thumb drive from the TOR2 switch.

The TOR switch configurations are now backed up to the USB drive in case issues are encountered during switch updating and the switches need to be recovered to the current configuration.

Update CNOS on TOR switches using the CLI

This procedure describes how to update the CNOS on your ThinkAgile SXM Series TOR switches (Lenovo ThinkSystem NE2572 RackSwitch for Purley-based solutions and Lenovo RackSwitch G8272 for Broadwell-based solutions).

Examples in this topic might show slightly different results, depending on the version of CNOS against which the commands are run. Important aspects shown in examples are called out.

To update CNOS on your ThinkAgile SXM Series TOR switches, follow these steps on the TOR1 switch, then verify switch functionality before repeating the process on the TOR2 switch.

- Step 1. Insert the USB thumb drive into the TOR switch.
- Step 2. Connect to the TOR switch using the serial console from the HLH.
- Step 3. Sign in to the TOR switch using the credentials admin/<password>.
- Step 4. Use the following commands to copy the new switch firmware image file from the root of the USB thumb drive to the standby image slot on the TOR switch (replace the bracketed item with the actual switch image file name):

enable cp usb1 <ImageFileName>.imgs system-image all

```
Example
```

```
TOR1 login: admin
Password:
...
TOR1#enable
TOR1#cp usb1 CNOS/68272-CNOS-10.6.1.0.imgs system-image all
WARNING: This operation will overlay the currently booting image.
Confirm download operation (y/n)? y
TOR1#
```

Step 5. To verify that the switch is set to restart using the new standby image, run the following command:

display boot

Example

```
TOR1#display boot
Current ZTP State: Enable
Current FLASH software:
active image: version 10.6.1.0, downloaded 20:49:51 UTC Tue Jan 16 2018
standby image: version 10.8.1.0, downloaded 10:25:35 UTC Thu Jan 11 2018
Uboot: version 10.8.1.0, downloaded 07:47:27 UTC Sun Jan 14 2018
ONIE: empty
Currently set to boot software active image
Current port mode: default mode
Next boot port mode: default mode
Currently scheduled reboot time: none
```

In the above example, two key details are found:

- New switch firmware is available in the standby image.
- Switch is set to boot to the active image; this must be changed.
- Step 6. To change the image from which the switch will boot, run the following commands:

```
configure
startup image standby
exit
```

Example

```
TOR1#configure

TOR1(config)# startup image standby

TOR1(config)#exit

TOR1#display boot

Current ZTP State: Enable

Current FLASH software:

active image: version 10.6.1.0, downloaded 20:49:51 UTC Tue Jan 16 2018

standby image: version 10.8.1.0, downloaded 10:25:35 UTC Thu Jan 11 2018

Uboot: version 10.8.1.0, downloaded 07:47:27 UTC Sun Jan 14 2018

ONIE: empty

Currently set to boot software standby image

Current port mode: default mode

Next boot port mode: default mode
```

In the above example, running the display boot command again shows that the switch is now set to boot from the standby image, which contains the new switch firmware image.

Step 7. Before restarting the TOR switch to implement the changes, it is good practice to shut down all the ports on the switch and confirm that the other TOR switch has taken over and is processing all network traffic. To shut down the ports on the TOR switch that is being updated, run the following commands:

configure interface ethernet 1/1-54 shutdown exit

- Step 8. Once the ports have been shut down, verify the failover of traffic to TOR2 by verifying connectivity. Follow these steps:
 - a. Use the top menu of the XClarity Administrator browser interface to navigate to Administration → Network Access.
 - b. Click the Test Connection button near the top of the interface.
 - c. In the Host field, enter 8.8.8.8 and then click Test Connection.
 - d. A Success window displays. Click Close to dismiss this window.
 - e. As an additional verification step, sign in to the Azure Stack Hub Administrator Portal.
 - f. Check the Azure Stack Hub Administrator Portal to ensure that no alerts are currently visible.

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Figure 93. Checking Azure Stack Hub Administrator Portal for alerts

Step 9. Once switch failover is complete, restart the TOR switch that is being updated by issuing the following command: Reload

A warning is displayed since the current running configuration has all ports shut down, which is different from the current startup configuration. Enter y and press Enter to continue.

Important: Do NOT save the running configuration at this point or all ports will remain shut down after the switch is reloaded.

Example

```
TOR1(config)#reload
WARNING: The running-config is different to startup-config.
Confirm operation without saving running-config to startup-config (y/n)? y
... After reload ...
TOR1 login: admin
Password:
...
TOR1#enable
```

Step 10. Once the switch has come back online, sign in to the switch using the serial console.

Step 11. Remove the USB thumb drive from the TOR switch.

Refer to "Verifying TOR switch functionality" on page 33 to ensure proper functionality of the updated TOR switch. Once verified, repeat the above process, including verification steps, on the other TOR switch. If the BMC switch also needs to be updated, proceed to "Updating BMC switch firmware using the CLI" on page 97. Otherwise, the switch firmware update process is now complete.

Updating BMC switch firmware using the CLI

This topic outlines the sequence of steps that are required to update the ENOS image and configuration of the BMC switch using the switch CLI method. Although the process is similar to the one used for the TOR switches, the commands executed on the switch are different, since the BMC switch runs a different NOS than the TOR switches.

Back up BMC switch configuration

Before beginning the update procedure, ensure that the BMC switch configuration has been backed up.

To perform a backup of the BMC switch configuration file, follow these steps:

- Step 1. Insert a USB thumb drive into the BMC switch.
- Step 2. Connect to the BMC switch via serial console from the HLH.
- Step 3. Sign in to the BMC switch using the credentials admin/<password>.
- Step 4. Use the following commands to copy the currently running configuration to the startup configuration, and then save the startup (boot) configuration to the root of the USB thumb drive.

```
enable
copy running-config startup-config
usbcopy tousb BMCStartupBackup.cfg boot
```

The BMC switch configuration file is now backed up to the USB thumb drive in case issues are encountered during switch updating and the switch needs to be recovered to the current configuration.

Update the BMC switch using the CLI

The procedure describes how to update the Network Operating System on your ThinkAgile SXM Series BMC switch.

To update the BMC switch, follow these steps:

- Step 1. Connect to the BMC switch using the serial console from the HLH.
- Step 2. Sign in to the BMC switch using the credentials admin/<password>.
- Step 3. Use the following commands to copy the new switch OS image file from the root of the USB thumb drive to the 'image2' slot on the BMC switch, and the new switch boot image file to the 'boot' slot on the BMC switch:

enable configure terminal usbcopy fromusb <ImageFileName>_OS.imgs image2 usbcopy fromusb <ImageFileName>_Boot.imgs boot

Example

Enter login username: admin Enter login password:

BMC#enable BMC#configure terminal BMC(config)#usbcopy fromusb G8052-8.4.8.0_OS.imgs image2 Switch to be booted with image1. (Y/N) : Y BMC(config)#usbcopy fromusb G8052-8.4.8.0_Boot.imgs boot

Step 4. To set the switch to reboot using the new OS image loaded in the 'image2' slot and the matching boot image, and then verify this setting, run the following commands:

boot image image2 exit show boot

Example

BMC(config)#boot image image2 BMC(config)#exit BMC#show boot Current running image version: 8.4.8 Currently set to boot software image2, active config block. NetBoot: disabled, NetBoot tftp server: , NetBoot cfgfile: Current boot Openflow protocol version: 1.0 USB Boot: disabled Currently profile is default, set to boot with default profile next time. Current FLASH software: image1: version 8.4.8, downloaded 08:04:14 Fri Jan 19, 2018 NormalPanel, Mode Stand-alone image2: version 8.4.11, downloaded 22:20:41 Thu Jan 18, 2018 NormalPanel, Mode Stand-alone boot kernel: version 8.4.11 NormalPanel bootloader : version 8.4.11 Currently scheduled reboot time: none

Step 5. Before restarting the BMC switch to implement the changes, it is good practice to shut down all the ports on the switch. To shut down all ports on the BMC switch, run the following commands:

configure terminal interface port 1-52 shutdown exit

Step 6. Eject the USB thumb drive from the BMC switch and reboot it by entering the following commands:

System usb-eject reload

A warning is displayed since the current running configuration has all ports shut down, which is different from the current startup configuration. Enter y and press Enter to continue.

Important: Do NOT save the running configuration at this point or all ports will remain shut down after the switch is reloaded.

Step 7. Once the switch has come back online, sign in to the switch using the serial console.

Step 8. Remove the USB thumb drive from the BMC switch.

Refer to "Verifying BMC switch functionality" on page 45 to ensure proper functionality of the updated BMC switch. Once verification is complete, the switch firmware update process is complete.
