



ThinkAgile HX Series User Guide



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:

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 server, which can be found at:

<https://datacentersupport.lenovo.com/us/en/warrantylookup>

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Chapter 1. Lenovo ThinkAgile HX series

Lenovo® ThinkAgile™ HX series are Nutanix software defined hyper-converged cluster solutions. The solutions consolidates software-defined compute, storage, and networking into one cluster to provide high-performance, cost-effective, and easily scalable virtualization.

Important: ThinkAgile HX series does not support wireless WLAN/WWAN devices.

Solution series		Workloads and Scenarios
HX 1000 series-Intel® Xeon® Gen1/Gen2/Gen3	 • 1U 1-node • 2U 1-node	Light-to-medium workloads, for edge and remote office/branch office (ROBO)
HX 2000 series-Intel Xeon Gen1/Gen2/Gen3	 1U 1-node	Light-to-medium workloads, small and medium businesses (SMBs)
HX 3000 series-AMD® EPYC™ Gen2/Gen3	 1U 1-node	Compute-heavy workloads, for general virtualization and virtual desktop infrastructure (VDI)
HX 3000 series-Intel Xeon Gen1/Gen2/Gen3	 • 1U 1-node • 2U 1-node • 2U 4-node	Compute-heavy workloads, for general virtualization and virtual desktop infrastructure (VDI)

HX 5000 series-Intel Xeon Gen1/ Gen2/Gen3	 2U 1-node	Storage-heavy workloads, for big data and enterprise applications
HX 7000 series-Intel Xeon Gen1/ Gen2/Gen3	  • 2U 1-node • 4U 1-node	High-performance and mission critical workloads, for enterprise applications and in-memory databases (such as SAP HANA)
SR645 V3 series-AMD® EPYC™ Gen4	 2U 1-node	Light-to-medium workloads, small and medium businesses (SMBs)
SR665 V3 series-AMD® EPYC™ Gen4	 2U 1-node	Light-to-medium workloads, small and medium businesses (SMBs)
SR630 V3 series-Intel Xeon Gen4	 1U 1-node	Light-to-medium workloads, for edge and remote office/branch office (ROBO)
SR650 V3 series-Intel Xeon Gen4	 2U 1-node	Light-to-medium workloads, small and medium businesses (SMBs)
HX360 V2 Edge series-Intel Xeon D	 2U 1-node	Light-to-medium workloads, for edge and remote office/branch office (ROBO)

Resources and downloads

Use this section to find handy documents, driver and firmware downloads, and support resources.

Downloads

You can find the latest firmware, drivers, and software packages from the Best Recipe pages. See [Chapter 4 “Firmware/drivers/software updates” on page 25](#).

Note: The firmware, drivers, and software have been tested together as a stack to run on certain models. Lenovo highly recommends you use the Best Recipe in full to avoid unforeseen errors.

Web resources

- ThinkAgile HX series user guide (this document)
[ThinkAgile HX series user guide \(this document\)](#)
- Recommended UEFI settings - Intel Xeon SP Gen3
<https://datacentersupport.lenovo.com/solutions/ht512850>
- Recommended UEFI settings - Intel Xeon SP Gen1/Gen2
<https://datacentersupport.lenovo.com/solutions/ht507780>
- Nutanix software documentation
<https://portal.nutanix.com/>
- Lenovo software documentation
<https://pubs.lenovo.com/software>
- Lenovo press (Product guides/Technical briefs/Datasheets)
<https://lenovopress.com/servers/thinkagile/hx-series>
- Lenovo hardware documentation
<http://thinksystem.lenovofiles.com/help/index.jsp>

Lenovo Support

- Lenovo support portal
<http://datacentersupport.lenovo.com>
- Lenovo product warranty plans
<http://datacentersupport.lenovo.com/warrantylookup>
- Lenovo authorized service providers
<https://datacentersupport.lenovo.com/serviceprovider>
- Lenovo service request submission
<https://support.lenovo.com/servicerequest>
- Lenovo license information documents
<https://datacentersupport.lenovo.com/documents/Invo-eula>
- Lenovo product security advisories
https://datacentersupport.lenovo.com/product_security/home
- Lenovo privacy statement
<https://www.lenovo.com/privacy>

What is new

Review this information to learn about new enhancements in ThinkAgile HX series solutions.

What is new (August, 2024)

Lenovo delivers additional hardware support.

Additional hardware support

Enabled ThinkSystem SE360 V2 based models. (1U 1-Socket with Intel Xeon D-2700 processor)

Product	CTO model	Machine type
ThinkAgile HX360 V2 Edge	7DJDCTO1WW	7DJD
ThinkAgile HX360 V2 Edge with Controlled GPU	7DJDCTOAWW	7DJD
ThinkAgile HX360 V2 Edge 2U2N Enclosure	7DJ7CTO2WW	7DJ7

What is new (September, 2023)

Lenovo delivers additional hardware support.

Additional hardware support

Enabled ThinkSystem SR630 V3 based models. (1U 2-Socket with 4th Gen Intel Xeon scalable processors)

Product	CTO model	Machine type
HX630 V3 LOD Integrated System (PRC only)	7D6MCTO7WW	7D6M
HX630 V3 ROBO LOD Integrated System (PRC only)	7D6MCTO8WW	7D6M

Enabled ThinkAgile SR650 V3 based models. (2U 2-Socket with 4th Gen Intel Xeon scalable processors)

Product	CTO model	Machine type
HX650 V3 LOD Integrated System (PRC only)	7D6NCTO7WW	7D6N
HX650 V3 Storage LOD Integrated System (PRC only)	7D6NCTO8WW	7D6N

Enabled ThinkAgile SR645 V3 based models. (1U 2-Socket with 4th Gen AMD EPYC processors)

Product	CTO model	Machine type
HX645 V3 LOD Integrated System (PRC only)	7D9MCTO3WW	7D9M

Enabled ThinkSystem SR665 V3 based models. (2U 2-Socket with 4th Gen AMD EPYC processors)

Product	CTO model	Machine type
HX665 V3 Storage LOD Integrated System (PRC only)	7D9NCTO6WW	7D9N
HX665 V3 LOD Integrated System (PRC only)	7D9NCTO5WW	7D9N

What is new (July, 2023)

Lenovo delivers additional hardware support.

Additional hardware support

Enabled ThinkAgile SR630 V3 based models. (1U 2-Socket with 4th Gen Intel Xeon scalable processors)

Product	CTO model	Machine type
HX630 V3 ROBO Integrated System	7D6MCTO2WW	7D6M
HX630 V3 ROBO Certified Node	7D6MCTO4WW	7D6M

Enabled ThinkAgile SR665 V3 based models. (2U 2-Socket with 4th Gen AMD EPYC processors)

Product	CTO model	Machine type
HX665 V3 Integrated System	7D9NCTO1WW	7D9N
HX665 V3 Certified Node	7D9NCTO3WW	7D9N

What is new (June, 2023)

Lenovo delivers additional hardware support.

Additional hardware support

Enabled ThinkAgile SR630 V3 based models. (1U 2-Socket with 4th Gen Intel Xeon scalable processors)

Product	CTO model	Machine type
HX630 V3 Integrated System	7D6MCTO1WW	7D6M
HX630 V3 Certified Node	7D6MCTO3WW	7D6M

Enabled ThinkAgile SR650 V3 based models. (2U 2-Socket with 4th Gen Intel Xeon scalable processors)

Product	CTO model	Machine type
HX650 V3 Integrated System	7D6NCTO1WW	7D6N
HX650 V3 Storage Integrated System	7D6NCTO2WW	7D6N
HX650 V3 Certified Node	7D6NCTO3WW	7D6N
HX650 V3 Storage Certified Node	7D6NCTO4WW	7D6N

Enabled ThinkAgile SR645 V3 based models. (1U 2-Socket with 4th Gen AMD EPYC processors)

Product	CTO model	Machine type
HX645 V3 Integrated System	7D9MCTO1WW	7D9M
HX645 V3 Certified Node	7D9MCTO2WW	7D9M

Enabled ThinkAgile SR665 V3 based models. (2U 2-Socket with 4th Gen AMD EPYC processors)

Product	CTO model	Machine type
HX665 V3 Storage Integrated System	7D9NCTO2WW	7D9N
HX665 V3 Storage Certified Node	7D9NCTO4WW	7D9N

What is new (August, 2021)

Lenovo delivers additional hardware support.

Additional hardware support

Enabled ThinkAgile SR630 V2-based models. (1U 2-Socket with Intel Xeon Gen3 processors)

Product	CTO model	Machine type
HX1330 Appliance	7Z85CTO1WW	7Z85
HX2330 Appliance	7Z85CTO2WW	7Z85
HX3330 Appliance	7Z85CTO3WW	7Z85
HX1331 Certified Node	7D52CTO1WW	7D52
HX2331 Certified Node	7D52CTO2WW	7D52
HX3331 Certified Node	7D52CTO3WW	7D52

Enabled ThinkAgile SR650 V2-based models. (2U 2-Socket with Intel Xeon Gen3 processors)

Product	CTO model	Machine type
HX5530 Appliance	7Z82CTO1WW	7Z82
HX7530 Appliance	7Z82CTO2WW	7Z82
HX5531 Certified Node	7Z84CTO1WW	7Z84
HX7531 Certified Node	7Z84CTO2WW	7Z84

What is new (May, 2021)

Lenovo delivers additional hardware support.

Additional hardware support

Enabled AMD EYPC 7003 families of processors on below models.

Product	CTO model	Machine type
HX3375 Appliance	7D5UCTO1WW	7D5U
HX3376 Certified Node	7D5UCTO2WW	7D5U

Software enhancements

None

Known limitations

Item	Impacted products	Description
Hypervisor version	- HX3375 Appliance - HX3376 Certified Node	The AMD EPYC 7003 series processors do not support the AHV hypervisor at this time. Relevant downloads are available at: https://support.lenovo.com/solutions/HT511487.

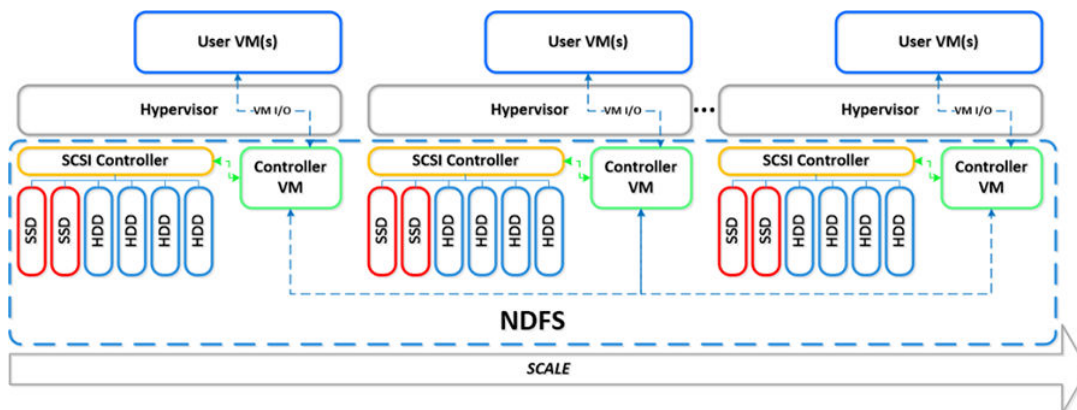
System architecture

The solution products are designed for Nutanix architecture cluster deployment. A typical ThinkAgile HX architecture includes three or more servers that are implemented as single-node, two-node, or four-node clusters.

Each server contributes storage to the Nutanix cluster from the local disks on the server:

- Hybrid Cluster – The server provides a combination of solid state disks (SSDs) for caching and hard disk drives (HDDs) for storage capacity.
- All-Flash Cluster – The server provides SSDs for caching and SSDs for storage capacity.

The following figure provides a conceptual view of the Nutanix architecture:



For detailed information on Nutanix architecture and workloads, visit

<https://lenovopress.com/lp0084-converged-hx-series-nutanix-appliances-workloads-ra>

HX series models

Use the methods in this section to view all available ThinkAgile HX series solution models.

Models with prebundled Nutanix software (ThinkAgile HX appliances/integrated systems)

- Fully validated and integrated Lenovo hardware and firmware.
- Pre-loaded Nutanix software for ready deployment, Nutanix software licenses are pre-bundled.
- Lenovo ThinkAgile HX series Advantage Single Point of Support for quick 24/7 problem reporting and resolution.
- Lenovo deployment services.

Note: ThinkAgile HX appliances/integrated systems are shipped with pre-bundled Nutanix software licenses.

Models without prebundled Nutanix software (ThinkAgile HX certified nodes)

- Fully validated and integrated Lenovo hardware and firmware, certified with Nutanix software.
- Pre-loaded Nutanix software for ready deployment, Nutanix software licenses need to be obtained separately.
- Lenovo ThinkAgile Advantage Single Point of Support for quick 24/7 problem reporting and resolution.
- Optional Lenovo deployment services.

Note: ThinkAgile HX certified nodes are shipped without pre-bundled Nutanix software licenses.

Base ThinkSystem system	Model name	Machine types	Form factor	Type
ThinkSystem SD530 For more information, refer to https://pubs.lenovo.com/sd530/	HX2720-E	7X82	2U Enclosure (4 nodes)	Appliance/Integrated System
	HX3720	7X81, 7X82	2U Enclosure (4 nodes)	Appliance/Integrated System
	HX Enclosure	7X81, 7Y87, 7Z02	2U Enclosure	Certified node
	HX3721	7Y88, 7Z03, 7Y87, 7Z02	2U Enclosure	Certified node
ThinkSystem SE350 For more information, refer to https://pubs.lenovo.com/se350/	HX1021	7D1X	1U rack	Certified node
	HX E1 Enclosure	7D22	1U Enclosure	Certified node
	HX E2 Enclosure	7D22	2U Enclosure	Certified node
ThinkEdge SE360 V2 For more information, refer to https://pubs.lenovo.com/se360-v2	HX360 V2 Edge	7DJD	2U rack	Pre-bundled with Nutanix software. Software can be deselected if required.
	HX360 V2 Edge with Controlled GPU	7DJD	2U rack	Pre-bundled with Nutanix software. Software can be deselected if required.
	HX360 V2 Edge 2U2N Enclosure	7DJ7	2U Enclosure	Pre-bundled with Nutanix software. Software can be deselected if required.
ThinkSystem SR630 For more information, refer to https://pubs.lenovo.com/sr630/	X1320	7X83	1U rack	Appliance/Integrated System
	HX2320	7X83	1U rack	Appliance/Integrated System
	HX2320-E	7X83	1U rack	Appliance/Integrated System
	HX3320	7X83	1U rack	Appliance/Integrated System

Base ThinkSystem system	Model name	Machine types	Form factor	Type
	HX3320 for SAP HANA	7X83	1U rack	Appliance/Integrated System
	HX1321	7Y89, 7Z04	1U rack	Certified node
	HX2321	7Y89, 7Z04	1U rack	Certified node
	HX3321	7Y89, 7Z04	1U rack	Certified node
	HX3321 for SAP HANA	7Y89	1U rack	Certified node
ThinkSystem SR630 V2 For more information, refer to https://pubs.lenovo.com/sr630-v2/	HX1330	7Z85	1U rack	Appliance/Integrated System
	HX2330	7Z85	1U rack	Appliance/Integrated System
	HX3330	7Z85	1U rack	Appliance/Integrated System
	HX1331	7D52	1U rack	Certified node
	HX2331	7D52	1U rack	Certified node
	HX3331	7D52	1U rack	Certified node
ThinkSystem SR630 V3 For more information, refer to https://pubs.lenovo.com/sr630-v3/	HX630 V3	7D6M	1U rack	Appliance/Integrated System
	HX630 V3 LOD (PRC only)	7D6M	1U rack	Appliance/Integrated System
	HX630 V3 for ROBO	7D6M	1U rack	Appliance/Integrated System
	HX630 V3 for ROBO LOD (PRC only)	7D6M	1U rack	Appliance/Integrated System
	HX630 V3	7D6M	1U rack	Certified node
	HX630 V3 for ROBO	7D6M	1U rack	Certified node
ThinkSystem SR645 For more information, refer to https://pubs.lenovo.com/sr645/	HX3375	7D5U	1U rack	Appliance/Integrated System
	HX3376	7D5U	1U rack	Certified node
ThinkSystem SR645 V3 For more information, refer to https://pubs.lenovo.com/sr645-v3/	HX645 V3	7D9M	1U rack	Appliance/Integrated System
	HX645 V3 LOD (PRC only)	7D9M	1U rack	Appliance/Integrated System
	HX645 V3	7D9M	1U rack	Certified node
ThinkSystem SR650 For more information, refer to https://pubs.lenovo.com/sr650/	HX1520-R	7X84	2U rack	Appliance/Integrated System
	HX3520-G	7X84	2U rack	Appliance/Integrated System
	HX5520	7X84	2U rack	Appliance/Integrated System

Base ThinkSystem system	Model name	Machine types	Form factor	Type
	HX5520-C	7X84	2U rack	Appliance/Integrated System
	HX7520	7X84	2U rack	Appliance/Integrated System
	HX7520 for SAP HANA	7X84	2U rack	Appliance/Integrated System
	HX1521-R	7Y90, 7Z05	2U rack	Certified node
	HX3521-G	7Y90, 7Z05	2U rack	Certified node
	HX5521	7Y90, 7Z05	2U rack	Certified node
	HX5521-C	7Y90, 7Z05	2U rack	Certified node
	HX7521	7Y90, 7Z05, 7Z45	2U rack	Certified node
	HX7521 for SAP HANA	7Y90	2U rack	Certified node
ThinkSystem SR650 V2 For more information, refer to https://pubs.lenovo.com/sr650-v2/	HX5530	7Z82	2U rack	Appliance/Integrated System
	HX7530	7Z82	2U rack	Appliance/Integrated System
	HX5531	7Z84	2U rack	Certified node
	HX7531	7Z84	2U rack	Certified node
ThinkSystem SR650 V3 For more information, refer to https://pubs.lenovo.com/sr650-v3/	HX650 V3	7D6N	2U rack	Appliance/Integrated System
	HX650 V3 LOD (PRC only)	7D6N	2U rack	Appliance/Integrated System
	HX650 V3 for Storage	7D6N	2U rack	Appliance/Integrated System
	HX650 V3 for Storage LOD (PRC only)	7D6N	2U rack	Appliance/Integrated System
	HX650 V3	7D6N	2U rack	Certified node
	HX650 V3 for Storage	7D6N	2U rack	Certified node
ThinkSystem SR665 V3 For more information, refer to https://pubs.lenovo.com/sr665-v3/	HX665 V3	7D9N	2U rack	Appliance/Integrated System
	HX665 V3 LOD (PRC only)	7D9N	2U rack	Appliance/Integrated System
	HX665 V3 for Storage	7D9N	2U rack	Appliance/Integrated System
	HX665 V3 for Storage LOD (PRC only)	7D9N	2U rack	Appliance/Integrated System
	HX665 V3	7D9N	2U rack	Certified node
	HX665 V3 for Storage	7D9N	2U rack	Certified node

Base ThinkSystem system	Model name	Machine types	Form factor	Type
ThinkSystem SR950 For more information, refer to https://pubs.lenovo.com/sr950/	HX7820	7Y95	4U rack	Appliance/Integrated System
	HX7820 for SAP HANA	7Z08	4U rack	Appliance/Integrated System
	HX7821	7Y96	4U rack	Certified node
	HX7821 for SAP HANA	7Z09	4U rack	Certified node

Solution components

Use this section for available hardware and software components and the license options in a solution product.

Table 1. Hardware components

Component	Description	Function
ThinkSystem SE350	1U edge server	Provides physical compute, storage, and network resources.
ThinkSystem SE350 E1	1U Enclosure	
ThinkSystem SE350 E2	2U Enclosure	
ThinkSystem SD530	Half-wide, 1U compute node	
ThinkSystem SR630	1U rack server	
ThinkSystem SR630 V2	1U rack server	
ThinkSystem SR630 V3	1U rack server	
ThinkSystem SR645	1U rack server	
ThinkSystem SR645 V3	1U rack server	
ThinkSystem SR650	2U rack server	
ThinkSystem SR650 V2	2U rack server	
ThinkSystem SR650 V3	2U rack server	
ThinkSystem SR665 V3	2U rack server	
ThinkSystem SR950	4U rack server	
Network switch	Rack switch (10 Gbe or higher)	

Table 2. Software components

Component(optional)	Description	Function
Foundation	Nutanix software deployment tool	Deploys required Nutanix software for the cluster.
Nutanix AHV(bundled with AOS)	Nutanix hypervisor bundled with the base operating system	Separates the operating system and applications from the underlying physical hardware.

Table 2. Software components (continued)

VMware vSphere	VMware hypervisor	Separates the operating system and applications from the underlying physical hardware.
Microsoft Hyper-V	Microsoft hypervisor	Separates the operating system and applications from the underlying physical hardware.
Nutanix Prism	Unified cluster resource management tool	Provides single-point control, data protection, expansion cluster monitoring, diagnostics and troubleshooting functions.
Lenovo XClarity Administrator	Unified bare metal cluster resource management tool	Simplifies infrastructure management, speeds responses, and enhances the availability of Lenovo solution server systems.
Lenovo XClarity Controller	Baseboard management controller	Manages devices of a single appliance and connects the appliance to the management layer.
Lenovo Capacity Planner	Capacity planning tool	Plans the power supply capacity based on server configurations.
Lenovo Energy Manager	Power management tool	Monitors and manages cluster power consumption.

Product specifications

Use the methods in this section to view the features and specifications of your models.

- **Product specific specifications**

One product guide is available for each model on Lenovo Press website. Perform the following steps to view the specification details of your product.

1. Go to <https://lenovopress.com/> and choose **SERVERS → ThinkAgile → HX Series for Nutanix**. All ThinkAgile HX series relevant resources appear in the page.
2. Locate and double-click the product name. The product guide page opens.
3. View the specification details in the **Specifications** section.

- **Specifications comparison of all HX solution products**

One product-by-product specification comparison page is also available for you to quickly view the specification differences among models. There is one reference link available to the product guide of a specific model in the page.

For details, see <https://lenovopress.com/lp1336-thinkagile-hx-series-comparison#availability=Available>.

Parts list

Use this section to understand and identify hardware parts of your product.

Parts definition

There are four types of hardware parts in each product:

- Tier 1 customer replaceable unit (CRU): Replacement of Tier 1 CRUs is your responsibility. If Lenovo installs a Tier 1 CRU at your request with no service agreement, you will be charged for the installation.
- Tier 2 customer replaceable unit (CRU): You may install a Tier 2 CRU yourself or request Lenovo to install it, at no additional charge, under the type of warranty service that is designated for your server.
- Field replaceable unit (FRU): FRUs must be installed only by trained service technicians.

- Consumable and Structural parts: Purchase and replacement of consumable and structural parts (components, such as a cover or bezel) is your responsibility. If Lenovo acquires or installs a structural component at your request, you will be charged for the service.

Identifying your parts

Go to the following pages to identify each of the components that are available for your server. Depending on the model, your server might look slightly different from the illustration.

- SD530-based servers:
https://pubs.lenovo.com/sd530/parts_list.html
- SE350-based servers:
https://pubs.lenovo.com/se350/parts_list.html
- SR630-based servers:
https://pubs.lenovo.com/sr630/parts_list.html
- SR630 V2-based servers:
https://pubs.lenovo.com/sr630-v2/parts_list.html
- SR630 V3-based servers:
https://pubs.lenovo.com/sr630-v3/parts_list.html
- SR645-based servers:
https://pubs.lenovo.com/sr645/parts_list.html
- SR645 V3-based servers:
https://pubs.lenovo.com/sr645-v3/parts_list.html
- SR650-based servers:
https://pubs.lenovo.com/sr650/parts_list.html
- SR650 V2-based servers:
https://pubs.lenovo.com/sr650-v2/parts_list.html
- SR650 V3-based servers:
https://pubs.lenovo.com/sr650-v3/parts_list.html
- SR665 V3-based servers:
https://pubs.lenovo.com/sr665-v3/parts_list.html
- SR950-based servers:
https://pubs.lenovo.com/sr950/parts_list.html

Chapter 2. Cluster deployment

Use this section to deploy a cluster.

Deployment engagement

Use this section to understand the Lenovo professional service team engagement in the pre-deployment and post-deployment phases.

Lenovo professional service team performs a specific set of activities to help ensure proper deployment of ThinkAgile HX series products. Additional predeployment services are also available.

The onsite deployment and configuration activities that Lenovo professional will perform include the following:

- Review the deployment worksheet that was completed during the predeployment engagement.
- Verify that the customer network is ready.
- Verify the as-shipped product configuration.
- Connect the switches to the customer network.
- Perform basic network configuration to integrate the rack into the customer environment.
- Set up Lenovo XClarity Administrator management of the product.
- Verify and update the product to the Best Recipe firmware profile.
- Create credentials for BMC access.
- Deploy Nutanix cluster.
- Register the ThinkAgile HX series product with Nutanix.
- Verify the product environment, to ensure a successful handover.
- Provide a skill transfer to the customer. This includes basic operational tasks and Support processes.

Lenovo professional team will provide information about the configured system, for your records.

The following items are not in the scope of the initial deployment engagement. Many of these can be handled via other available professional service offerings.

- Installation or configuration of server applications.
- Complete administrative or operations training.
- Data migration from existing storage systems and VMware environments.
- Installation assistance for nonstandard hardware components or components not purchased from Lenovo. Note that this activity can affect the support for the product.

License considerations

The ThinkAgile HX products provide different license options catering to your needs. You can use the default feature set of both Lenovo and Nutanix software, upgrade your software to an enhanced set, extend your license term, or reassign existing licenses to nodes or clusters as required.

Table 3. License options

Component	License options
Lenovo XClarity Administrator	- Lenovo XClarity Pro (for XClarity Administrator) - Lenovo XClarity Pro (for XClarity Administrator) and Prism Pro
Nutanix	Nutanix Software Solution Product Guide: https://lenovopress.lenovo.com/lp1765-nutanix-software-solution-product-guide
Microsoft	Microsoft Software Solution Product Guide: https://lenovopress.lenovo.com/lp1079-microsoft-software-solution-product-guide
SUSE	SUSE Software Solution Product Guide: https://lenovopress.lenovo.com/lp1264-suse-software-solution-product-guide
Veeam	Veeam Software Solution Product Guide: https://lenovopress.lenovo.com/lp1440-veeam-software-solution-product-guide
VMware	VMware Software Solution Product Guide: https://lenovopress.lenovo.com/lp1265-vmware-software-solution-product-guide
Red Hat	Red Hat Software Solution Product Guide: https://lenovopress.lenovo.com/lp1236-red-hat-software-solution-product-guide

Notes: Refer to below web pages for the most current information about license types, expiration dates, and any free license inventory:

- Nutanix Licensing Guide: <https://portal.nutanix.com/page/documents/details?targetId=Licensing-Guide:Licensing-Guide>
- Lenovo XClarity Pro license and free trials: https://pubs.lenovo.com/lxca/plan_freetrial.html

Preparing server hardware

Use the server setup checklist to ensure that the server hardware is operational prior to cluster deployment.

Phase	Task
1	Unpack the server and install any separately shipped components/peripherals to the server. • SE350-based servers: https://pubs.lenovo.com/se350/install_server_hardware_options.html • SE360 V2-based servers: https://pubs.lenovo.com/se360-v2/hardware_replacement_procedures.html • SR630-based servers: https://pubs.lenovo.com/sr630/install_server_hardware_options.html • SR630 V2-based servers: https://pubs.lenovo.com/sr630-v2/install_server_hardware_options.html • SR630 V3-based servers: https://pubs.lenovo.com/sr630-v3/hardware_replacement_procedures.html • SR645-based servers: https://pubs.lenovo.com/sr645/install_server_hardware_options.html • SR645 V3-based servers: https://pubs.lenovo.com/sr645-v3/hardware_replacement_procedures.html • SR650-based servers: https://pubs.lenovo.com/sr650/install_server_hardware_options.html • SR650 V2-based servers: https://pubs.lenovo.com/sr650-v2/install_server_hardware_options.html • SR650 V3-based servers: https://pubs.lenovo.com/sr650-v3/hardware_replacement_procedures.html • SR665 V3-based servers: https://pubs.lenovo.com/sr665-v3/hardware_replacement_procedures.html • SD530-based servers: https://pubs.lenovo.com/sd530/install_server_hardware_options.html • SR950-based servers: https://pubs.lenovo.com/sr950/install_server_hardware_options.html

2	Connect required internal cables if applicable. • SE360 V2-based servers: https://pubs.lenovo.com/se360-v2/internal_cable_routing.html • SR630-based servers: https://pubs.lenovo.com/sr630/internal_cable_routing.html • SR630 V2-based servers: https://pubs.lenovo.com/sr630-v2/internal_cable_routing.html • SR630 V3-based servers: https://pubs.lenovo.com/sr630-v3/internal_cable_routing.html • SR645-based servers: https://pubs.lenovo.com/sr645/internal_cable_routing.html • SR645 V3-based servers: https://pubs.lenovo.com/sr645-v3/internal_cable_routing.html • SR650-based servers: https://pubs.lenovo.com/sr650/internal_cable_routing.html • SR650 V2-based servers: https://pubs.lenovo.com/sr650-v2/internal_cable_routing.html • SR650 V3-based servers: https://pubs.lenovo.com/sr650-v3/internal_cable_routing.html • SR665 V3-based servers: https://pubs.lenovo.com/sr665-v3/internal_cable_routing.html • SD530-based servers: https://pubs.lenovo.com/sd530/internal_cable_routing.html • SR950-based servers: https://pubs.lenovo.com/sr950/internal_cable_routing.html
3	Install the server in the rack. • SE350-based servers: https://pubs.lenovo.com/se350/pdf_files • SE360 V2-based servers: https://serveroption.lenovo.com/rail_options/rail_options_edge_servers • SR630-based servers: https://pubs.lenovo.com/sr630/pdf_files • SR630 V2-based servers: https://pubs.lenovo.com/sr630-v2/pdf_files • SR630 V3-based servers: https://serveroption.lenovo.com/rail_options/rail_options_rack_servers/ • SR645-based servers: https://pubs.lenovo.com/sr645/pdf_files • SR645 V3-based servers: https://serveroption.lenovo.com/rail_options/rail_options_rack_servers/ • SR650-based servers: https://pubs.lenovo.com/sr650/pdf_files • SR650 V2-based servers: https://pubs.lenovo.com/sr650-v2/pdf_files • SR650 V3-based servers: https://serveroption.lenovo.com/rail_options/rail_options_rack_servers/ • SR665 V3-based servers: https://serveroption.lenovo.com/rail_options/rail_options_rack_servers/ • SD530-based servers: https://pubs.lenovo.com/sd530/rack_installation_guide.pdf • SR950-based servers:

	https://pubs.lenovo.com/sr950/sr950_rack_instructions.pdf
4	Connect external cables and power cords.
5	Verify BMC and UEFI firmware versions and update them to the required levels. For details, see Chapter 4 “Firmware/drivers/software updates” on page 25 .
6	Perform the green light check and resolve any installation issues. For details, see Chapter 6 “Troubleshooting” on page 31 .
7	(Optional) Image the server with a hypervisor and AOS combination if necessary. • Verify the OS and hypervisor versions. For details, see “Resources and downloads” on page 2. • Image the server by referring to https://portal.nutanix.com/page/documents/details?targetId=Field-Installation-Guide-v4_5:Field-Installation-Guide-v4_5.

Planning data

Use this section to plan login parameters and network parameters for physical host and each controller virtual machine for later Nutanix implementation.

- [“Locate service labels” on page 19](#)
- [“Create and activate a Nutanix account” on page 19](#)
- [“Plan the network” on page 20](#)
- [“Acquire default credentials” on page 19](#)

Locate service labels

The information on service labels are helpful for support technicians to identify your products and provide faster services. After receiving the product, peel the labels away and store them in a safe place.

- The machine type and serial number are on the ID label of each product.
- The BMC network access label is attached on the top side of the pull-out information tab.

Create and activate a Nutanix account

If you are new to Nutanix Support Portal, refer to the following steps to create and set up your Nutanix account.

1. Go to <http://portal.nutanix.com> and follow the on-screen instructions to create an account.
2. One verification email will be sent to your email address, click the verification link upon receiving the email. The Nutanix Welcome page is displayed.
3. Type the required information and click **Log in**.
4. Locate the “Support Portal” card in the “Support and Community” area. Then, click **Activate**. The Activation required dialogue box is displayed.
5. Specify the serial number of your product and click your account is well set up. See [“Locate service labels” on page 19](#).

Acquire default credentials

Use the following table to plan for all required software.

Software	Default user name	Default password
Lenovo XClarity Controller(BMC)	USERID	PASSW0RD

Prism Central	admin	admin
Prism	admin	nutanix/4u
Hypervisor (ESXi & AHV)	root	nutanix/4u
Hypervisor (Hyper-V)	administrator	nutanix/4u

Plan the network

Use the following table to plan the network for your Nutanix implementation.

ThinkAgile HX Servers														
	XCC IP address		XCC host name		Hypervisor IP address		Hypervisor host name							
Node 1														
Node 2														
Node 3														
User ID/ Password	User ID: USERID (Default) Password: PASSWORD (Default)				User ID: root (Default) Password:									
Virtual Machines (VMs)														
	IPV4		Host name		User ID		Password							
vCenter Server (for ESXi only)														
XClarity Administrator														
Infrastructure														
Domain														
DNS/NTP														
Default Gateway														
Virtual Network														
	Physical Adapters				VMkernel Adapter									
vSwitch 0														
vSwitch 1														
	VLAN Name		VLAN ID		VLAN Portgroup		Assigned vSwitch							
VMKernel Adapter Services		vMotion	Provi- sioning	FT Logging	Manage- ment	vSphere Replica- tion	vSphere Replica- tion NFC							
	Adapter 1													

	Adapter 2							
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Creating and configuring a cluster

To create and configure a ThinkAgile HX series cluster, you can use the Nutanix Foundation tool.

About the Nutanix foundation tool

The Nutanix Foundation tool is a virtual machine that you can install in your network. It helps with:

- Automatic provision hypervisor on Nutanix block
- Automatic Nutanix OS (NOS) cluster installation and configuration
- Automatic IPMI configuration
- Automatic CVM configuration
- Automatic bare metal discovery and Nutanix OS extension

Download and deploy the foundation tool

The foundation tool is available in OVF format and can be downloaded from Nutanix portal as **tar.gz** package.

For detailed information and deployment steps, see https://portal.nutanix.com/page/documents/details?targetId=Field-Installation-Guide-v4_5:Field-Installation-Guide-v4_5.

Chapter 3. Cluster management

You can monitor an appliance by using any of the following software tools.

Nutanix Prism

Nutanix Prism is a management and monitoring console tightly integrated with Nutanix cluster. From Nutanix Prism you can manage single Nutanix cluster, from Nutanix Prism Central you can manage multiple Nutanix clusters.

Documentation for Nutanix Prism is available at:

- Prism Central Guide: https://portal.nutanix.com/page/documents/details?targetId=Prism-Central-Guide-Prism-v5_19:Prism-Central-Guide-Prism-v5_19
- Prism Web Console Guide: https://portal.nutanix.com/page/documents/details?targetId=Web-Console-Guide-Prism-v5_19:Web-Console-Guide-Prism-v5_19

Lenovo XClarity Administrator

Lenovo XClarity Administrator is a centralized, resource-management tool that simplifies infrastructure management, speeds responses, and enhances the availability of Lenovo server systems and solutions. It runs as a virtual appliance that automates discovery, inventory, tracking, monitoring, and provisioning for server, network, and storage hardware in a secure environment.

Documentation for Lenovo XClarity Administrator is available at:

<https://pubs.lenovo.com/lxca/>

Chapter 4. Firmware/drivers/software updates

The HX Best Recipe details the supported firmware levels for the servers.

Best Recipe

- You can find the latest firmware, drivers, and software packages from below Best Recipe pages.

Note: The firmware, drivers, and software have been tested together as a stack to run on certain models. Lenovo highly recommends you use the Best Recipe in full to avoid unforeseen errors.

- Server models – Intel Xeon SP Gen3:

<https://support.lenovo.com/us/en/solutions/HT512728>

- Server models – Intel Xeon SP Gen1/Gen2:

<https://support.lenovo.com/solutions/ht505413>

- Server models – Intel Xeon SP Gen4:

<https://datacentersupport.lenovo.com/us/en/solutions/ht515453-thinkagile-hx-egs-systems-best-recipe>

- Server models – AMD EPYC Gen2/Gen3:

<https://support.lenovo.com/solutions/HT511487>

- Server models – AMD EPYC Gen4:

<https://datacentersupport.lenovo.com/solutions/ht515451-thinkagile-hx-genoa-systems-best-recipe>

- Server models – Intel Xeon D:

<https://support.lenovo.com/solutions/HT511485>

UEFI settings (CMOS settings)

- Lenovo also recommends specific UEFI settings (CMOS settings) for your reference. See **Recommended CMOS Settings** from the links in “Best Recipe” on page 25.

Note: **Recommended CMOS Settings** may still be displayed as **Recommended UEFI settings** in the Best Recipe web page.

Tools

You can use the tools listed here to install the latest updates from the ThinkAgile HX Best Recipe pages.

Tools available before OS installation

- **Lenovo XClarity Essentials Bootable Media Creator**

- Update the server using an ISO image or CD.
- Update the server using a USB key.
- Update the server using the Preboot Execution Environment (PXE) interface.
- Update the server in unattendance mode.
- Update the server in Serial Over LAN (SOL) mode.

Details about using Lenovo XClarity Essentials Bootable Media Creator to update firmware is available at:

<https://pubs.lenovo.com/lxce-bomc/>

- **Lenovo XClarity Controller**

If you need to update system and device firmware for a single server, connect the local keyboard, video, and mouse (KVM) to the server or log in to the web interface on the management PC.

Details about using Lenovo XClarity Controller to update firmware is available at:

https://pubs.lenovo.com/xcc/NN1ia_c_manageserverfirmware.html

Tools available within OS

- **Nutanix Prism**

Nutanix provides a Life Cycle Manager (LCM) dashboard that can track software and firmware versions of the various components in a single cluster. It allows you to view information about the current inventory and update the versions as needed. To view the LCM dashboard, select LCM from the pull-down list on the left of the main menu on Prism Web Console.

Details about using Nutanix Prism to update firmware is available at:

<https://portal.nutanix.com/#/page/docs/list?type=software&filterKey=software&filterVal=LCM&reloadData=false>

- **Lenovo XClarity Administrator**

If you are managing multiple servers using the Lenovo XClarity Administrator, you can batch update firmware for all managed instances through the management interface.

Details about using Lenovo XClarity Administrator to update firmware is available at:

https://pubs.lenovo.com/lxca/update_fw.html

- **Lenovo XClarity Controller**

If you need to update system and device firmware for a single server, connect the local keyboard, video, and mouse (KVM) to the server or log in to the web interface on the management PC.

Details about using Lenovo XClarity Controller to update firmware is available at:

https://pubs.lenovo.com/xcc/NN1ia_c_manageserverfirmware.html

Chapter 5. Configuration procedures

Lenovo recommends the following UEFI settings for Lenovo ThinkAgile HX series appliances.

The following procedure will configure the systems to the recommended levels:

1. Set UEFI to default settings:
`OneCli config loaddefault UEFI`
2. Set the following values:
`OneCli config set BootModes.SystemBootMode "Legacy Mode"`
`OneCli config set SystemRecovery.F1StartControl "Text Setup"`
`OneCli config set OperatingModes.ChooseOperatingMode "Maximum Performance"`

Notes:

1. The use of OneCLI above is for illustration purposes only. Configuring through F1 Setup at boot time works as well. Refer to the system documentation or OneCLI documentation for more information. Power on/reboot is necessary for the UEFI changes to take effect.
2. Refer to the following web page for the full list of ThinkAgile HX UEFI settings:
<https://support.lenovo.com/us/en/solutions/HT507780>
3. For VMWare clusters, it is possible that EVC (Enhanced vMotion Compatibility) could be affected by some UEFI settings. It might be necessary to change some settings, like MONITORMWAIT, from the recommended values below, to allow EVC to function as desired.

For more information on VMWare's EVC, refer to this article:

<https://kb.vmware.com/s/article/1003212>

Configuration boot order

Use corresponding OneCLI to configure the boot order as follows:

1. CD/DVD Rom
2. Hard Disk 0
3. PXE Network

• Intel Gen3 models:

```
OneCLI config set BootModes.SystemBootMode "UEFI Mode"
OneCLI config set BootOrder.BootOrder "CD/DVD Rom=Hard Disk=Network"
```

For other UEFI settings, see this page:

<https://support.lenovo.com/us/en/solutions/ht512850-recommended-uefi-settings-for-lenovo-thinkagile-hx-systems-3rd-gen-lenovo-thinkagile>

• AMD models:

```
OneCLI config loaddefault UEFI
OneCLI config set SystemRecovery.F1StartControl "Text Setup"
OneCLI config set BootModes.SystemBootMode "UEFI Mode"
OneCLI config set IMM.PowerRestorePolicy "Restore"
OneCLI config set BootOrder.BootOrder "CD/DVD Rom=Hard Disk=Network"
```

• Legacy models:

```
OneCli config set BootOrder.BootOrder="Legacy Only=CD/DVD Rom=Hard Disk 0=PXE Network"
```

For other UEFI settings, see this page:

<https://datacentersupport.lenovo.com/us/en/solutions/ht507780>

Configure M.2 Mirroring

The M.2 adapter must be configured with a RAID 1 mirrored virtual drive to allow the Hypervisor to be installed for booting.

Use OneCLI to configure the M.2 adapter:

```
[m.2]
#RAID level. RAID level can only be 0 or 1.
raid_level=1
#vol_name.the name of vol. vol_name=volume0
#Strip Size. Unit:KB.
stripe size can only be 32k or 64k.
```

Update the appliance/integrated system name

When the VPD string is updated, the corresponding appliance/integrated system name will also be updated. The appliance/integrated system name should be updated after the system board is replaced.

Use OneCLI to update the appliance/integrated system name as follows:

```
OneCli config set SYSTEM_PROD_DATA.SysInfoProdIdentifier "ThinkAgile HX3720 Appliance"
onecli config set SYSTEM_PROD_DATA.SysInfoProdIdentifierEx "ThinkAgile HX3720 Appliance:"-
- override
```

Table 4. Appliance/Integrated system names and the corresponding VPD strings

Appliance name	VPD String
ThinkAgile HX1320 Appliance	ThinkAgile HX1320 Appliance
ThinkAgile HX1330 Appliance	ThinkAgile HX1330 Appliance
ThinkAgile HX2320 Appliance	ThinkAgile HX2320 Appliance
ThinkAgile HX2330 Appliance	ThinkAgile HX2330 Appliance
ThinkAgile HX2320-E Appliance	ThinkAgile HX2320-E Appliance
ThinkAgile HX3320 Appliance	ThinkAgile HX3320 Appliance
ThinkAgile HX3320 Appliance for SAP HANA	ThinkAgile HX3320 Appliance for SAP HANA
ThinkAgile HX3330 Appliance	ThinkAgile HX3330 Appliance
ThinkAgile HX3375 Appliance	ThinkAgile HX3375 Appliance
ThinkAgile HX2720-E Appliance	ThinkAgile HX2720-E Appliance
ThinkAgile HX3720 Appliance	ThinkAgile HX3720 Appliance
ThinkAgile HX1520-R Appliance	ThinkAgile HX1520-R Appliance
ThinkAgile HX3520-G Appliance	ThinkAgile HX3520-G Appliance
ThinkAgile HX5520 Appliance	ThinkAgile HX5520 Appliance
ThinkAgile HX5520-C Appliance	ThinkAgile HX5520-C Appliance

Table 4. Appliance/Integrated system names and the corresponding VPD strings (continued)

ThinkAgile HX7520 Appliance	ThinkAgile HX7520 Appliance
ThinkAgile HX7520 Appliance for SAP HANA	ThinkAgile HX7520 Appliance for SAP HANA
ThinkAgile HX5530 Appliance	ThinkAgile HX5530 Appliance
ThinkAgile HX7530 Appliance	ThinkAgile HX7530 Appliance
ThinkAgile HX7820 Appliance	ThinkAgile HX7820 Appliance
ThinkAgile HX7820 HANA Appliance	ThinkAgile HX7820 HANA Appliance
ThinkAgile HX360 V2 Edge	ThinkAgile HX360 V2 Edge
ThinkAgile HX360 V2 Edge with Controlled GPU	ThinkAgile HX360 V2 Edge
ThinkAgile HX630 V3 Certified Node	ThinkAgile HX630 V3 CN
ThinkAgile HX630 V3 Integrated System	ThinkAgile HX630 V3 IS
ThinkAgile HX630 V3 LOD Integrated System	ThinkAgile HX630 V3 LOD IS
ThinkAgile HX630 V3 ROBO Certified Node	ThinkAgile HX630 V3 ROBO CN
ThinkAgile HX630 V3 ROBO Integrated System	ThinkAgile HX630 V3 ROBO IS
ThinkAgile HX630 V3 ROBO LOD Integrated System	ThinkAgile HX630 V3 ROBO LOD IS
ThinkAgile HX645 V3 Certified Node	ThinkAgile HX645 V3 CN
ThinkAgile HX645 V3 Integrated System	ThinkAgile HX645 V3 IS
ThinkAgile HX645 V3 LOD Integrated System	ThinkAgile HX645 V3 LOD IS
ThinkAgile HX650 V3 Certified Node	ThinkAgile HX650 V3 CN
ThinkAgile HX650 V3 Integrated System	ThinkAgile HX650 V3 IS
ThinkAgile HX650 V3 LOD Integrated System	ThinkAgile HX650 V3 LOD IS
ThinkAgile HX650 V3 Storage Certified Node	ThinkAgile HX650 V3 Storage CN
ThinkAgile HX650 V3 Storage Integrated System	ThinkAgile HX650 V3 Storage IS
ThinkAgile HX650 V3 Storage LOD Integrated System	ThinkAgile HX650 V3 Storage LOD IS
ThinkAgile HX665 V3 Certified Node	ThinkAgile HX665 V3 CN
ThinkAgile HX665 V3 Integrated System	ThinkAgile HX665 V3 IS
ThinkAgile HX665 V3 LOD Integrated System	ThinkAgile HX665 V3 LOD IS
ThinkAgile HX665 V3 Storage Certified Node	ThinkAgile HX665 V3 Storage CN
ThinkAgile HX665 V3 Storage Integrated System	ThinkAgile HX665 V3 Storage IS
ThinkAgile HX665 V3 Storage LOD Integrated System	ThinkAgile HX665 V3 Storage LOD IS

Chapter 6. Troubleshooting

This section provides reference links for troubleshooting the systems.

- Lenovo XClarity Controller:
http://sysmgt.lenovofiles.com/help/topic/com.lenovo.systems.management.xcc.doc/event_log.html
- Lenovo XClarity Administrator:
http://sysmgt.lenovofiles.com/help/topic/com.lenovo.lxca.doc/events_vieweventlog.html
- Nutanix Prism Web Console:
https://portal.nutanix.com/page/documents/details?targetId=Web-Console-Guide-Prism-v5_19:wc-alerts-management-wc-c.html
- Nutanix Prism Central:
https://portal.nutanix.com/page/documents/details?targetId=Prism-Central-Guide-Prism-v5_19:mul-alerts-management-pc-c.html

Chapter 7. Hardware replacement

This chapter provides installation and removal procedures for all serviceable system components and methods for ordering a serviceable part. Each component replacement procedure references any tasks that need to be performed to gain access to the component being replaced.

Ordering a serviceable part

Use this section to order a serviceable part for your product as required.

1. Go to <http://datacentersupport.lenovo.com> and select your product.
2. On the specific product page, choose the **Parts** from the left pane. The **Parts** tab page is displayed.
3. Search the part name and record the FRU part number of the part.
4. Directly call Lenovo Support or go to <https://support.lenovo.com/servicerequest> and submit a service ticket.

Replacing parts

This section provides installation and removal procedures for all serviceable system components. Each component replacement procedure references any tasks that need to be performed to gain access to the component being replaced.

Note: Ensure that you have updated the firmware and have applied the required settings after the component replacement. See [Chapter 4 “Firmware/drivers/software updates” on page 25](#).

- SD530-based servers:
https://pubs.lenovo.com/sd530/maintenance_manual_hardware_replacement_procedures.html
- SE350-based servers:
https://pubs.lenovo.com/se350/maintenance_manual_hardware_replacement_procedures.html

Notes: To identifying a drive slot number in HX1021, follow the steps below:

1. From the Prism GUI, select **Hardware** → **Diagram** from the drop down list to locate the **Serial Number**.
 2. Login to the Lenovo XClarity Controller page using the BMC IP. Under **Inventory** → **Storage Device**, the drive slot number will be located on the left of the **Serial Number** under the **Bay** column.
- SE360 V2-based servers:
https://pubs.lenovo.com/se360-v2/hardware_replacement_procedures.html
 - SR630-based servers:
https://pubs.lenovo.com/sr630/maintenance_manual_hardware_replacement_procedures.html
 - SR630 V2-based servers:
https://pubs.lenovo.com/sr630-v2/maintenance_manual_hardware_replacement_procedures.html
 - SR630 V3-based servers:
https://pubs.lenovo.com/sr630-v3/hardware_replacement_procedures.html
 - SR645-based servers:
https://pubs.lenovo.com/sr645/maintenance_manual_hardware_replacement_procedures.html
 - SR645 V3-based servers:
https://pubs.lenovo.com/sr645-v3/hardware_replacement_procedures.html
 - SR650-based servers:
https://pubs.lenovo.com/sr650/maintenance_manual_hardware_replacement_procedures.html

- SR650 V2-based servers:
https://pubs.lenovo.com/sr650-v2/maintenance_manual_hardware_replacement_procedures.html
- SR650 V3-based servers:
https://pubs.lenovo.com/sr650-v3/hardware_replacement_procedures.html
- SR665 V3-based servers:
https://pubs.lenovo.com/sr665-v3/hardware_replacement_procedures.html
- SR950-based servers:
https://pubs.lenovo.com/sr950/maintenance_manual_hardware_replacement_procedures.html

Appendix A. Getting help

If you need help, service, or technical assistance or just want more information about Lenovo products use the Lenovo Support Plan for ThinkAgile HX.

Details for the ThinkAgile HX Support Plan are available at the following site:

- ThinkAgile HX series appliances: <https://support.lenovo.com/solutions/ht505404>
- ThinkAgile HX series certified nodes: <https://support.lenovo.com/solutions/HT510301>

Before you call

Before you call, there are several steps that you can take to try and solve the problem yourself. If you decide that you do need to call for assistance, gather the information that will be needed by the service technician to more quickly resolve your problem.

Attempt to resolve the problem yourself

You can solve many problems without outside assistance by following the troubleshooting procedures that Lenovo provides in the online help or in the Lenovo product documentation. The Lenovo product documentation also describes the diagnostic tests that you can perform. The documentation for most systems, operating systems, and programs contains troubleshooting procedures and explanations of error messages and error codes. If you suspect a software problem, see the documentation for the operating system or program.

You can find the product documentation for ThinkSystem products at the following location:

<http://thinksystem.lenovofiles.com/help/index.jsp>

You can take these steps to try to solve the problem yourself:

- Check all cables to make sure that they are connected.
- Check the power switches to make sure that the system and any optional devices are turned on.
- Check for updated software, firmware, and operating-system device drivers for your Lenovo product. The Lenovo Warranty terms and conditions state that you, the owner of the Lenovo product, are responsible for maintaining and updating all software and firmware for the product (unless it is covered by an additional maintenance contract). Your service technician will request that you upgrade your software and firmware if the problem has a documented solution within a software upgrade.
- If you have installed new hardware or software in your environment, check <http://www.lenovo.com/serverproven/> to make sure that the hardware and software is supported by your product.
- Go to <http://datacentersupport.lenovo.com> and check for information to help you solve the problem.
 - Check the Lenovo forums at https://forums.lenovo.com/t5/Datacenter-Systems/ct-p/sv_eg to see if someone else has encountered a similar problem.

You can solve many problems without outside assistance by following the troubleshooting procedures that Lenovo provides in the online help or in the Lenovo product documentation. The Lenovo product documentation also describes the diagnostic tests that you can perform. The documentation for most systems, operating systems, and programs contains troubleshooting procedures and explanations of error messages and error codes. If you suspect a software problem, see the documentation for the operating system or program.

Gathering information needed to call Support

If you believe that you require warranty service for your Lenovo product, the service technicians will be able to assist you more efficiently if you prepare before you call. You can also see <http://datacentersupport.lenovo.com/warrantylookup> for more information about your product warranty.

Gather the following information to provide to the service technician. This data will help the service technician quickly provide a solution to your problem and ensure that you receive the level of service for which you might have contracted.

- Hardware and Software Maintenance agreement contract numbers, if applicable
- Machine type number (Lenovo 4-digit machine identifier)
- Model number
- Serial number
- Current system UEFI and firmware levels
- Other pertinent information such as error messages and logs

As an alternative to calling Lenovo Support, you can go to <https://support.lenovo.com/servicerequest> to submit an Electronic Service Request. Submitting an Electronic Service Request will start the process of determining a solution to your problem by making the pertinent information available to the service technicians. The Lenovo service technicians can start working on your solution as soon as you have completed and submitted an Electronic Service Request.

Collecting service data

To clearly identify the root cause of a server issue or at the request of Lenovo Support, you might need to collect service data that can be used for further analysis. Service data includes information such as event logs and hardware inventory. Service data can be collected through the following tools:

- **Lenovo XClarity Administrator**

Lenovo XClarity Administrator can be set up to collect and send diagnostic files automatically to Lenovo Support when certain serviceable events occur in Lenovo XClarity Administrator and the managed endpoints. You can choose to send diagnostic files to Lenovo Support using Call Home or to another service provider using SFTP. You can also manually collect diagnostic files, open a problem record, and send diagnostic files to the Lenovo Support Center.

You can find more information about setting up automatic problem notification within the Lenovo XClarity Administrator at http://sysmgt.lenovofiles.com/help/topic/com.lenovo.lxca.doc/admin_setupcallhome.html.

- **Lenovo XClarity Controller**

You can use the Lenovo XClarity Controller web interface or the CLI to collect service data for the server. The file can be saved and sent to Lenovo Support.

- For more information about using the web interface to collect service data, see http://sysmgt.lenovofiles.com/help/topic/com.lenovo.systems.management.xcc.doc/NN1ia_c_servicesandsupport.html.
- For more information about using the CLI to collect service data, see http://sysmgt.lenovofiles.com/help/topic/com.lenovo.systems.management.xcc.doc/nn1ia_r_ffdccommand.html.

Contacting Support

You can contact Support to obtain help for your issue.

You can receive hardware service through a Lenovo Authorized Service Provider. To locate a service provider authorized by Lenovo to provide warranty service, go to <https://datacentersupport.lenovo.com/>

[serviceprovider](#) and use filter searching for different countries. For Lenovo support telephone numbers, see <https://datacentersupport.lenovo.com/supportphonelist> for your region support details.

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