



# ThinkAgile VX Deployment Guide (manual deployment)



## **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:

[http://thinksystem.lenovofiles.com/help/index.jsp?topic=%2Fsafety\\_documentation%2Fpdf\\_files.html](http://thinksystem.lenovofiles.com/help/index.jsp?topic=%2Fsafety_documentation%2Fpdf_files.html)

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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# Contents

<b>Contents</b> . . . . .	<b>i</b>	Deploying the vSAN cluster . . . . .	9
<b>Chapter 1. Downloads and resources</b> . . . . .	<b>1</b>	Installing and setting up vSphere . . . . .	9
<b>Chapter 2. Deploying a vSAN cluster manually</b> . . . . .	<b>3</b>	Creating and configuring a vSAN cluster . . . . .	9
Preparing for the deployment . . . . .	3	Adding a node to an existing cluster . . . . .	10
Deployment configuration worksheet . . . . .	3	<b>Appendix A. Getting help</b> . . . . .	<b>11</b>
Installing hardware into rack . . . . .	4	<b>Appendix B. Before you call</b> . . . . .	<b>13</b>
Cabling the network . . . . .	6	<b>Appendix C. Contacting Support</b> . . . . .	<b>15</b>
Configuring DNS entries. . . . .	9	<b>Appendix D. Trademarks</b> . . . . .	<b>17</b>



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# Chapter 1. Downloads and resources

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

## Product support

- Firmware/software/driver downloads-VX Best Recipes  
<https://datacentersupport.lenovo.com/solutions/ht505302>
- Product warranty lookup  
<https://datacentersupport.lenovo.com/warrantylookup>
- Interactive 3D Tour of VX series offerings  
<https://www.lenovofiles.com/3dtours/products/superblaze/thinkagile-vx/index.html>
- vSphere and ThinkAgile VX hardware models interoperability lookup  
<https://lenovopress.com/osig>
- VMware software compatibility check  
<https://www.vmware.com/resources/compatibility/search.php>
- Technical support portal  
<https://datacentersupport.lenovo.com/>
- Service request submission  
<https://support.lenovo.com/servicerequest>

## Documentation

- ThinkAgile VX series user guide - [PDF](#)
- ThinkAgile VX vSAN cluster deployment  
[https://thinkagile.lenovofiles.com/help/topic/com.lenovo.thinkagile.vx/cluster\\_deployment.html](https://thinkagile.lenovofiles.com/help/topic/com.lenovo.thinkagile.vx/cluster_deployment.html)
  - ThinkAgile VX Deployment Guide (with VX Deployer) - [PDF](#)
  - ThinkAgile VX Deployment Guide (manual deployment) - [PDF](#)
- ThinkAgile VX vSAN cluster hardware replacement  
[https://thinkagile.lenovofiles.com/help/topic/com.lenovo.thinkagile.vx/hw\\_replacement.html](https://thinkagile.lenovofiles.com/help/topic/com.lenovo.thinkagile.vx/hw_replacement.html)
- ThinkAgile VX product guides and datasheets  
<https://lenovopress.com/servers/thinkagile/vx-series>
- ThinkSystem rack server documentation  
[https://thinksystem.lenovofiles.com/help/topic/rack\\_servers/overview\\_rack\\_servers.html](https://thinksystem.lenovofiles.com/help/topic/rack_servers/overview_rack_servers.html)
- XClarity Integrator for VMware vCenter documentation  
[https://sysmgmt.lenovofiles.com/help/topic/com.lenovo.lxci\\_vcenter.doc/vcenter\\_welcome.html](https://sysmgmt.lenovofiles.com/help/topic/com.lenovo.lxci_vcenter.doc/vcenter_welcome.html)
- VMware vSphere documentation  
<https://docs.vmware.com/en/VMware-vSphere/index.html>



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## Chapter 2. Deploying a vSAN cluster manually

Use this section to deploy a ThinkAgile VX series vSAN cluster manually.

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### Preparing for the deployment

Prepare for the manual vSAN deployment by filling in the deployment worksheet, installing the ThinkAgile VX appliances in a rack, cabling the appliances to the network, and adding entries to the DNS server.

### Deployment configuration worksheet

Use this worksheet to record values for the settings that you will need to deploy the vSAN cluster.

Record values for the following sections:

- “XClarity controller (BMC) and ESXi” on page 3
- “Global Network Services Settings” on page 4
- “vSAN implementation” on page 4

#### XClarity Controller (BMC) and ESXi

The following settings are required for the XClarity Controller(BMC) and ESXi hosts.

Properties	Appliance 1	Appliance 2	Appliance 3	Appliance 4
Serial number				
<b>XClarity Controller (BMC)</b>				
IP address				
Net mask				
Gateway				
VLAN (native)				
Default credentials				
Desired credentials				
<b>ESXi</b>				
Host name				
IP address				
Net mask				
Gateway				

#### Notes:

- 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.
- The new credentials should be the same for all hosts.

## Global Network

Deployer Page Number	Name of the Deployer page	Type	Values
4	Network Services	Primary and secondary (optional) DNS servers IP addresses	
		Primary and secondary (optional) NTP servers IP addresses	
5	New or Existing vCenter	vCenter hostname (if installing a new vCenter) during deployment	Valid FQDN name
5	New or Existing vCenter	vCenter hostname (if installing a new vSAN cluster in an existing vCenter)	Valid FQDN name
7	Cluster Hierarchy	Valid Region and Site Name Strings	<< Could be any user specified string >>

## vSAN cluster implementation

Virtual Appliances (VMs)				
	IPv4 IP address	Host name	User ID	Password
XClarity Integrator (optional)				
Infrastructure				
Domain				
DNS/NTP				
Default Gateway				

## Installing hardware into rack

Install the ThinkAgile VX appliances in a rack. See the following table for instructions on installing the appliances.

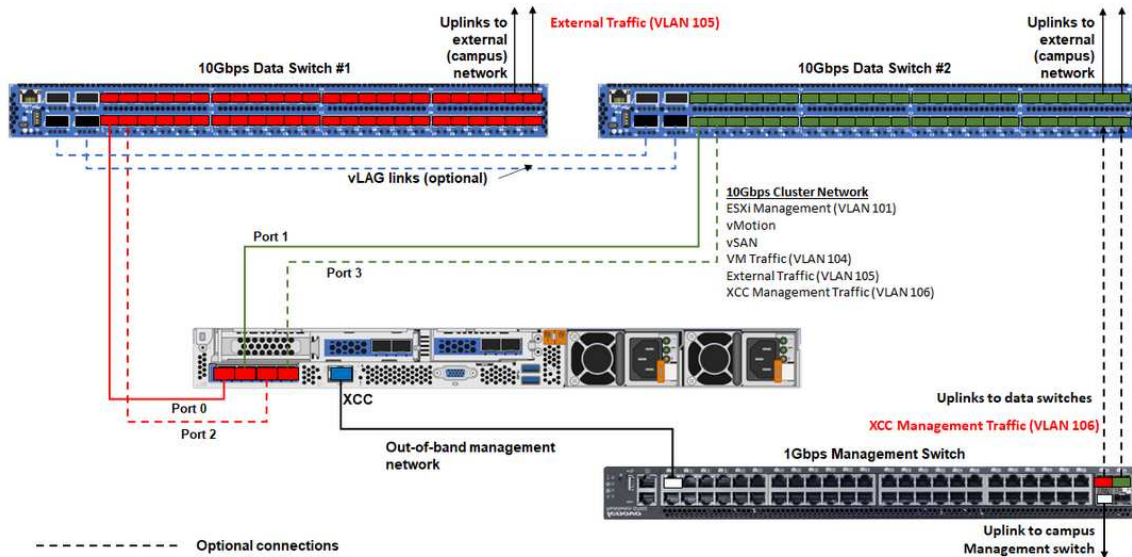


Phase	Task	Description
1	Unpack the server and install any separately shipped components/peripherals into the server.	<ul style="list-style-type: none"> <li>• SR250-based models <a href="https://thinksystem.lenovofiles.com/help/topic/SR250/install_server_hardware_options.html">https://thinksystem.lenovofiles.com/help/topic/SR250/install_server_hardware_options.html</a></li> <li>• SR630-based models <a href="https://thinksystem.lenovofiles.com/help/topic/7X01/install_server_hardware_options.html">https://thinksystem.lenovofiles.com/help/topic/7X01/install_server_hardware_options.html</a></li> <li>• SR630 V2-based models <a href="https://thinksystem.lenovofiles.com/help/topic/SR630V2/install_server_hardware_options.html">https://thinksystem.lenovofiles.com/help/topic/SR630V2/install_server_hardware_options.html</a></li> <li>• SR665-based models <a href="https://thinksystem.lenovofiles.com/help/topic/7D2W/install_server_hardware_options.html">https://thinksystem.lenovofiles.com/help/topic/7D2W/install_server_hardware_options.html</a></li> <li>• SR650-based models <a href="https://thinksystem.lenovofiles.com/help/topic/7X05/install_server_hardware_options.html">https://thinksystem.lenovofiles.com/help/topic/7X05/install_server_hardware_options.html</a></li> <li>• SR650 V2-based models <a href="https://thinksystem.lenovofiles.com/help/topic/SR650V2/install_server_hardware_options.html">https://thinksystem.lenovofiles.com/help/topic/SR650V2/install_server_hardware_options.html</a></li> <li>• SD530-based models <a href="https://thinksystem.lenovofiles.com/help/topic/7X21/install_server_hardware_options.html">https://thinksystem.lenovofiles.com/help/topic/7X21/install_server_hardware_options.html</a></li> <li>• SR950-based models <a href="https://thinksystem.lenovofiles.com/help/topic/7X12/install_server_hardware_options.html">https://thinksystem.lenovofiles.com/help/topic/7X12/install_server_hardware_options.html</a></li> </ul>

2	Connect required internal cables.	<ul style="list-style-type: none"> <li>• SR250-based models <a href="https://thinksystem.lenovofiles.com/help/topic/7Y51/internal_cable_routing.html">https://thinksystem.lenovofiles.com/help/topic/7Y51/internal_cable_routing.html</a></li> <li>• SR630-based models <a href="https://thinksystem.lenovofiles.com/help/topic/7X01/internal_cable_routing.html">https://thinksystem.lenovofiles.com/help/topic/7X01/internal_cable_routing.html</a></li> <li>• SR630 V2-based models <a href="https://thinksystem.lenovofiles.com/help/topic/SR630V2/internal_cable_routing.html">https://thinksystem.lenovofiles.com/help/topic/SR630V2/internal_cable_routing.html</a></li> <li>• SR650-based models <a href="https://thinksystem.lenovofiles.com/help/topic/7X05/internal_cable_routing.html">https://thinksystem.lenovofiles.com/help/topic/7X05/internal_cable_routing.html</a></li> <li>• SR650 V2-based models <a href="https://thinksystem.lenovofiles.com/help/topic/SR650V2/internal_cable_routing.html">https://thinksystem.lenovofiles.com/help/topic/SR650V2/internal_cable_routing.html</a></li> <li>• SR665-based models <a href="https://thinksystem.lenovofiles.com/help/topic/7D2W/internal_cable_routing.html">https://thinksystem.lenovofiles.com/help/topic/7D2W/internal_cable_routing.html</a></li> <li>• SD530-based models <a href="https://thinksystem.lenovofiles.com/help/topic/7X21/internal_cable_routing.html">https://thinksystem.lenovofiles.com/help/topic/7X21/internal_cable_routing.html</a></li> <li>• SR950-based models <a href="https://thinksystem.lenovofiles.com/help/topic/7X12/internal_cable_routing.html">https://thinksystem.lenovofiles.com/help/topic/7X12/internal_cable_routing.html</a></li> </ul>
3	Install the server in the rack.	<ul style="list-style-type: none"> <li>• SR250-based models <a href="https://thinksystem.lenovofiles.com/help/topic/7Y51/SR250_rack_installation_guide.pdf">https://thinksystem.lenovofiles.com/help/topic/7Y51/SR250_rack_installation_guide.pdf</a></li> <li>• SR630-based models <a href="https://thinksystem.lenovofiles.com/help/topic/7X01/sr630_rack_install_guide.zip">https://thinksystem.lenovofiles.com/help/topic/7X01/sr630_rack_install_guide.zip</a></li> <li>• SR630 V2-based models <a href="https://thinksystem.lenovofiles.com/help/topic/SR630V2/sr630_v2_rack_install_guide.zip">https://thinksystem.lenovofiles.com/help/topic/SR630V2/sr630_v2_rack_install_guide.zip</a></li> <li>• SR665-based models <a href="https://thinksystem.lenovofiles.com/help/topic/7D2W/sr665_rack_install_guide.zip">https://thinksystem.lenovofiles.com/help/topic/7D2W/sr665_rack_install_guide.zip</a></li> <li>• SR650-based models <a href="https://thinksystem.lenovofiles.com/help/topic/7X05/sr650_rack_install_guide.zip">https://thinksystem.lenovofiles.com/help/topic/7X05/sr650_rack_install_guide.zip</a></li> <li>• SR650 V2-based models <a href="https://thinksystem.lenovofiles.com/help/topic/7X05/SR650V2_v2_rack_install_guide.zip">https://thinksystem.lenovofiles.com/help/topic/7X05/SR650V2_v2_rack_install_guide.zip</a></li> <li>• SD530-based models <a href="https://thinksystem.lenovofiles.com/help/topic/7X21/install_server_hardware_options.html">https://thinksystem.lenovofiles.com/help/topic/7X21/install_server_hardware_options.html</a></li> <li>• SR950-based models <a href="https://thinksystem.lenovofiles.com/help/topic/7X12/sr950_rack_instructions.pdf">https://thinksystem.lenovofiles.com/help/topic/7X12/sr950_rack_instructions.pdf</a></li> </ul>

## Cabling the network

Review the following information to understand how to cable the ThinkAgile VX appliances to the network.



Network type	Required/optional	From	To
In-band management network: <ul style="list-style-type: none"> <li>• Communication with ESXi hosts</li> <li>• Communication between the vCenter server appliance and ESXi hosts</li> <li>• vSAN storage traffic</li> <li>• vMotion (virtual machine migration) traffic</li> <li>• iSCSI storage traffic (if present)</li> </ul>	Required	Port 0 on NIC	10 Gbps Data Switch #1
	Required	Port 1 on NIC	10 Gbps Data Switch #2
	Optional	Port 2 on NIC	10 Gbps Data Switch #1
	Optional	Port 3 on NIC	10 Gbps Data Switch #2
Out-of-band management network: <ul style="list-style-type: none"> <li>• Initial server discovery on the network via the SLP protocol</li> <li>• Server power control</li> <li>• LED management</li> <li>• Inventory</li> <li>• Events and alerts</li> <li>• BMC logs</li> <li>• Firmware updates</li> <li>• OS provisioning via remote media mount</li> </ul>	Required	BMC network connector	1 Gbps Management Switch
Data or user network	Required	10 Gbps Data Switch #1 and #2	External network

#### Notes:

- **On Out-of-band network**

- The out-of-band management network does not need to be on a dedicated physical network. It can be included as part of a larger management network.
- The ThinkAgile VX Deployer, Lenovo XClarity Integrator (LXCI) must be able to access this network to communicate with the XCC modules.

- During the initial cluster deployment and subsequent operations, the XCC interfaces should be accessible over this network to the deployer utility as well as xClarity Integrator (LXCI), xClarity Administrator (LXCA), etc., management software.

- **On network redundancy**

- Active-standby redundancy mode:

When only 2 ports (ports 0 to 1) are connected to the 2 top-of-rack switches, you can configure the redundancy mode as active-standby mode. If the primary connection fails or the primary switch fails, the connection fails over.

- Active-active redundancy mode:

When 4 ports (ports 0 to 3) are connected to the 2 top-of-rack switches, you can configure the redundancy mode as active-active mode. If one connection fails, the other connections are still active. Also, loads are balanced across the ports.

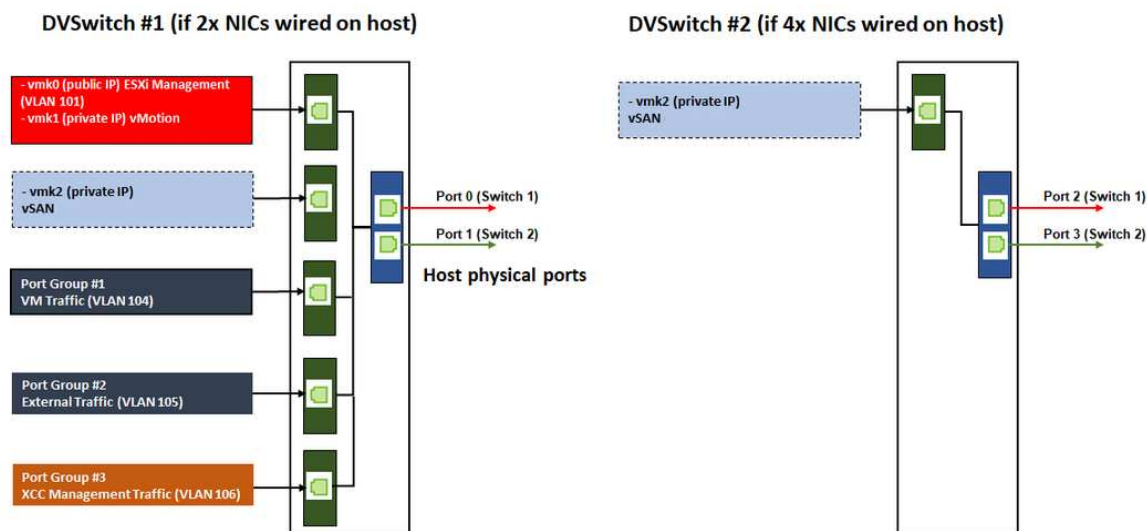
- Optionally, some switches might also support the virtual link aggregation (vLAG) protocol or equivalent, which connects the two top-of-rack switches via dedicated links and makes the switches appear as a single logical switch to the downstream hosts. In this case, the two connections going to the switches from the host can be configured as active-active links so that you can get load-balancing across the ports as well as a 20 Gb aggregate bandwidth.

- **On distributed vSwitches**

The distributed vSwitches essentially form a logical switch that spans all hosts in the cluster. The physical ports on each host become logical uplink ports on the distributed vSwitch. As opposed to a *standard* vSwitch, distributed vSwitches provide advanced configuration options, such as traffic policy, link aggregation (LACP), and traffic shaping.

The number of created distributed switches is determined by the number of physical ports on each host that are connected to top-of-rack switches:

- If only two ports on each host are connected, a single distributed vSwitch will be created to carry all types of traffic, including ESXi management, vMotion, internal VM, XCC management, vSAN storage traffic, and external network traffic.
- If four ports connected, two distributed vSwitches will be created. The vSAN storage traffic will be carried on the second distributed vSwitch.



## Configuring DNS entries

Make sure that you have configured the hostnames and IP addresses for the nodes in the cluster with the DNS server.

Minimally, you will need to configure the following DNS entries:

- Each of the ESXi hosts that will be included in the vSAN cluster
- Optionally, the Lenovo XClarity Integrator (LXCI) appliance. You need to configure a DNS entry for LXCI if you are using LXCI and vSphere Lifecycle Manager (vCLM) to manage the hardware from vCenter.
- Optionally, vCSA if you are planning to install vSphere as part of the vSAN cluster.

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## Deploying the vSAN cluster

To deploy the vSAN cluster manually, use the VMware documentation to set up vSphere and create the vSAN cluster.

## Installing and setting up vSphere

To set up vSphere, determine the supported version, download the ISO images based on the ThinkAgile VX Best Recipe, and deploy vCenter and ESXi.

Complete the following steps to install and set up vSphere:

1. Check the supported vSphere version on the server.

<https://lenovopress.com/osig>

2. Download the ISO images of the corresponding ESXi and vCenter Server version from the latest operating system guidelines in the ThinkAgile VX Best Recipe.

<https://datacentersupport.lenovo.com/solutions/ht505302-thinkagile-vx-best-recipes>

3. Follow the instructions in the corresponding guides to deploy vCenter Server and ESXi.

vSphere version	Installation and Setup Guide
vSphere 7.0	<ul style="list-style-type: none"><li>• <a href="#">ESXi 7.0 Installation and Setup</a></li><li>• <a href="#">vCenter Server 7.0 Installation and Setup</a></li></ul>
vSphere 6.7	<ul style="list-style-type: none"><li>• <a href="#">ESXi 6.7 Installation and Setup</a></li><li>• <a href="#">vCenter Server 6.7 Installation and Setup</a></li></ul>
vSphere 6.5	<a href="#">vSphere 6.5 Installation and Setup</a>
vSphere 6.0	<a href="#">vSphere 6.0 Installation and Setup</a>
vSphere 5.5	<a href="#">vSphere 5.5 Installation and Setup</a>

## Creating and configuring a vSAN cluster

Follow the VMware procedure to create and configure a vSAN cluster.

Instructions for creating and configuring a vSAN cluster are available at the following site:

[Creating a vSAN Cluster](#)

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## Adding a node to an existing cluster

To add a node to an existing vSAN cluster manually, use the VMware documentation.

**Note:** The node which is going to be added must be the same machine type and configuration as the nodes in the existing cluster.

Follow the VMware documentation for adding the node to the cluster: <https://docs.vmware.com/en/VMware-vSphere/6.7/com.vmware.vsphere.virtualsan.doc/GUID-EA47DC82-4678-4430-AEF7-1D77FB9C77DB.html>

After adding the node to the cluster, update the firmware on all nodes in the cluster to match the latest ThinkAgile VX Best Recipe, which can be found here: <https://datacentersupport.lenovo.com/us/en/solutions/ht505302>

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## 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 VX.

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

- ThinkAgile VX series Appliances/Integrated Systems:  
<https://datacentersupport.lenovo.com/solutions/ht505725-lenovo-support-plan-thinkagile-vx-appliances>
- ThinkAgile VX series Certified Nodes:  
<https://datacentersupport.lenovo.com/solutions/ht510302-lenovo-support-plan-thinkagile-vx-certified-nodes>

### Obtaining the VMware logs

For more information about collecting VMware logs:

- [Collecting vSAN support logs](#)
- [Collecting logs using the vSphere Client](#)
- [Collecting logs using the vSphere Web Client](#)





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## Appendix B. 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](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 Integrator**

You can use the Lenovo XClarity Integrator web interface 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 [Collecting service data](#).

- **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](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\\_ffdcommand.html](http://sysmgt.lenovofiles.com/help/topic/com.lenovo.systems.management.xcc.doc/nn1ia_r_ffdcommand.html).

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## Appendix C. 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/supportphonenumberlist> for your region support details.



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## **Appendix D. Trademarks**

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VMware is trademark of the VMware, Inc.

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