



# **Requirements for installing Unified Manager**

## **Active IQ Unified Manager 9.9**

NetApp  
April 05, 2024

This PDF was generated from <https://docs.netapp.com/us-en/active-iq-unified-manager-99/install-vapp/concept-virtual-infrastructure-or-hardware-system-requirements.html> on April 05, 2024. Always check docs.netapp.com for the latest.

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# Requirements for installing Unified Manager

Before you begin the installation process, ensure that the server on which you want to install Unified Manager meets the specific software, hardware, CPU, and memory requirements.

NetApp does not support any modification of the Unified Manager application code. If you need to apply any security measures to the Unified Manager server, you should make those changes to the operating system on which Unified Manager is installed.

For more details about applying security measures to the Unified Manager server, see the Knowledge Base article.

[Supportability for Security Measures applied to Active IQ Unified Manager for Clustered Data ONTAP](#)

## Related information

[NetApp Interoperability Matrix Tool](#)

## Virtual infrastructure and hardware system requirements

Installing Unified Manager on virtual infrastructure or a physical system should meet the minimum requirements for memory, CPU, and disk space.

The following table displays the values that are recommended for memory, CPU, and disk space resources. These values have been qualified so that Unified Manager meets acceptable performance levels.

Hardware configuration	Recommended settings
RAM	12 GB (minimum requirement 8 GB)
Processors	4 CPUs
CPU cycle capacity	9572 MHz total (minimum requirement 9572 MHz)
Free disk space	<ul style="list-style-type: none"><li>• 5 GB (thin provisioned)</li><li>• 152 GB (thick provisioned)</li></ul>

Unified Manager can be installed on systems with a small amount of memory, but the recommended 12 GB of RAM ensures that enough memory is available for optimal performance, and so that the system can accommodate additional clusters and storage objects as your configuration grows. You should not set any memory limits on the VM where Unified Manager is deployed, and should not enable any features (for example, ballooning) that hinder the software from utilizing the allocated memory on the system.

Additionally, there is a limit to the number of nodes that a single instance of Unified Manager can monitor before you install a second instance of Unified Manager. For more information, see the *Best Practices Guide*.

[Technical Report 4621: Unified Manager Best Practices Guide](#)

Memory-page swapping negatively impacts the performance of the system and the management application.

Competing for CPU resources that are unavailable because of overall host utilization can degrade performance.

## Requirement for dedicated use

The physical or virtual system on which you install Unified Manager should be used exclusively for Unified Manager and should not be shared with other applications. Other applications might consume system resources and can drastically reduce the performance of Unified Manager.

## Space requirements for backups

If you plan to use the Unified Manager backup and restore feature, allocate additional capacity so that the “data” directory or disk has 150 GB of space. A backup can be written to a local destination or to a remote destination. The best practice is to identify a remote location that is external to the Unified Manager host system that has a minimum of 150 GB of space.

## Requirements for host connectivity

The physical system or virtual system on which you install Unified Manager should be configured in such a way that you can successfully `ping` the host name from the host itself. In case of IPv6 configuration, you should verify that `ping6` to the host name is successful to ensure that the Unified Manager installation succeeds.

You can use the host name (or the host IP address) to access the product web UI. If you configured a static IP address for your network during deployment, then you designated a name for the network host. If you configured the network using DHCP, you should obtain the host name from the DNS.

If you plan to allow users to access Unified Manager by using the short name instead of using the fully qualified domain name (FQDN) or IP address, then your network configuration has to resolve this short name to a valid FQDN.

## VMware software and installation requirements

The VMware vSphere system on which you install Unified Manager requires specific versions of the operating system and supporting software.

### Operating system software

The following versions of VMware ESXi are supported:

- ESXi 6.5, 6.7, and 7.0.



For information about the versions of the virtual machine hardware that these versions of ESXi servers can support, refer to the VMware documentation.

The following versions of vSphere are supported:

- VMware vCenter Server 6.5, 6.7, and 7.0.

See the Interoperability Matrix for the complete and most current list of supported ESXi versions.

[mysupport.netapp.com/matrix](https://mysupport.netapp.com/matrix)

The VMware ESXi server time should be the same as the NTP server time for the virtual appliance to function correctly. Synchronizing the VMware ESXi server time with the NTP server time prevents a time failure.

## Installation requirements

VMware High Availability for the Unified Manager virtual appliance is supported.

If you deploy an NFS datastore on a storage system that is running ONTAP software, use the NetApp NFS Plug-in for VMware VAAI to use thick provisioning.

If deployment fails using your High Availability-enabled environment because of insufficient resources, you might need to modify the Cluster Features Virtual Machine Options by disabling the VM Restart Priority, and leaving the Host Isolation Response powered on.

## Supported browsers

To access the Unified Manager web UI, use a supported browser.

The Interoperability Matrix has the list of supported browser versions.

[mysupport.netapp.com/matrix](https://mysupport.netapp.com/matrix)

For all browsers, disabling pop-up blockers ensures that software features are displayed properly.

If you plan to configure Unified Manager for SAML authentication, so that an identity provider (IdP) can authenticate users, you should check the list of browsers supported by the IdP as well.

## Protocol and port requirements

The required ports and protocols enable communication between the Unified Manager server and the managed storage systems, servers, and other components.

### Connections to the Unified Manager server

In typical installations you do not have to specify port numbers when connecting to the Unified Manager web UI, because default ports are always used. For example, because Unified Manager always attempts to run on its default port, you can enter `https://<host>` instead of `https://<host>:443`.

The Unified Manager server uses specific protocols to access the following interfaces:

Interface	Protocol	Port	Description
Unified Manager web UI	HTTP	80	Used to access the Unified Manager web UI; automatically redirects to the secure port 443.

Interface	Protocol	Port	Description
Unified Manager web UI and programs using APIs	HTTPS	443	Used to securely access the Unified Manager web UI or to make API calls; API calls can only be made using HTTPS.
Maintenance console	SSH/SFTP	22	Used to access the maintenance console and retrieve support bundles.
Linux command line	SSH/SFTP	22	Used to access the Red Hat Enterprise Linux or CentOS command line and retrieve support bundles.
Syslog	UDP	514	Used to access subscription-based EMS messages from ONTAP systems and to create events based on the messages.
REST	HTTPS	9443	Used to access realtime REST API-based EMS events from authenticated ONTAP systems.



The ports used for HTTP and HTTPS communication (ports 80 and 443) can be changed using the Unified Manager maintenance console. For more information, see [Using the maintenance console](#).

## Connections from the Unified Manager server

You should configure your firewall to open ports that enable communication between the Unified Manager server and managed storage systems, servers, and other components. If a port is not open, communication fails.

Depending on your environment, you can choose to modify the ports and protocols used by the Unified Manager server to connect to specific destinations.

The Unified Manager server connects using the following protocols and ports to the managed storage systems, servers, and other components:

Destination	Protocol	Port	Description
Storage system	HTTPS	443/TCP	Used to monitor and manage storage systems.

Destination	Protocol	Port	Description
Storage system	NDMP	10000/TCP	Used for certain Snapshot restore operations.
AutoSupport server	HTTPS	443	Used to send AutoSupport information. Requires Internet access to perform this function.
Authentication server	LDAP	389	Used to make authentication requests, and user and group lookup requests.
	LDAPS	636	Used for secure LDAP communication.
Mail server	SMTP	25	Used to send alert notification emails.
SNMP trap sender	SNMPv1 or SNMPv3	162/UDP	Used to send alert notification SNMP traps.
External data provider server	TCP	2003	Used to send performance data to an external data provider, such as Graphite.
NTP server	NTP	123/UDP	Used to synchronize the time on the Unified Manager server with an external NTP time server. (VMware systems only)

## Completing the worksheet

Before you install and configure Unified Manager, you should have specific information about your environment readily available. You can record the information in the worksheet.

### Unified Manager installation information

The details required to install Unified Manager.

System on which software is deployed	Your value
ESXi server IP address	

System on which software is deployed	Your value
Host fully qualified domain name	
Host IP address	
Network mask	
Gateway IP address	
Primary DNS address	
Secondary DNS address	
Search domains	
Maintenance user name	
Maintenance user password	

## Unified Manager configuration information

The details to configure Unified Manager after installation. Some values are optional depending on your configuration.


Setting	Your value
Maintenance user email address	
NTP server	
SMTP server host name or IP address	
SMTP user name	
SMTP password	
SMTP port	25 (Default value)
Email from which alert notifications are sent	
Authentication server host name or IP address	
Active Directory administrator name or LDAP bind distinguished name	



Setting	Your value
Active Directory password or LDAP bind password	
Authentication server base distinguished name	
Identity provider (IdP) URL	
Identity provider (IdP) metadata	
SNMP trap destination host IP addresses	
SNMP port	

## Cluster information

The details for the storage systems that you manage using Unified Manager.

Cluster 1 of N	Your value
Host name or cluster-management IP address	
<div>  <p>The administrator must have been assigned the “admin” role.</p> </div> ONTAP administrator user name	
ONTAP administrator password	
Protocol	HTTPS

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