NetApp

Requirements for installing Unified Manager

Active IQ Unified Manager 9.8

NetApp
April 16, 2024

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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	150 GB, where the capacity is allocated as follows: • 50 GB allotted to the root partition • 100 GB of free disk space allotted to the `/opt/netapp/data` directory, which is mounted on an LVM drive or on a separate local disk attached to the target system ⓘ For separately mounted `/opt` and `/var/log` directories, ensure that `/opt` has 15 GB and `/var/log` has 16 GB of free space. The `/tmp` directory should have at least 10 GB of free space.

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.

Linux software and installation requirements

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

Operating system software

The Linux system must have the following versions of the operating system and supporting software installed:

- Red Hat Enterprise Linux or CentOS version 7.x and 8.x, based on x86_64 architecture

See the Interoperability Matrix for the complete and most current list of supported Red Hat Enterprise Linux and CentOS versions.

mysupport.netapp.com/matrix

Third-party software

Unified Manager is deployed on a WildFly web server. WildFly17 is bundled and configured with Unified Manager.

The following third-party packages are required, but not included with Unified Manager. These packages are automatically installed by the `yum` installer during installation, provided you have configured the repositories as mentioned in the following sections.

- MySQL Community Edition version 8.0.21 (from the MySQL repository). Make sure that you have removed any previously installed version of MySQL 5.7. The installer of Unified Manager has been restricted to support only up to MySQL Community Edition 8.0.21, due to an interoperability issue. You must **not** upgrade MySQL to a release greater than 8.0.21.

- OpenJDK version 11.0.7 (from the Red Hat Extra Enterprise Linux Server repository)

- Python 3.6.x

- p7zip version 16.02 or later (from the Red Hat Extra Packages for Enterprise Linux repository)

> ⓘ You must shut down a running instance of Unified Manager before upgrading any third-party software. After the third-party software installation is complete, you can restart Unified Manager.

User authorization requirements

Installation of Unified Manager on a Linux system can be performed by the root user or by non-root users by using the `sudo` command.

Installation requirements

The best practices for installing Red Hat Enterprise Linux or CentOS and the associated repositories on your system are listed below. Systems installed or configured differently, or deployed off premise (in the cloud), might require additional steps, and Unified Manager might not run properly in such deployments.

- You must install Red Hat Enterprise Linux or CentOS according to Red Hat best practices, and you should select the following default options, which requires selecting the "Server with GUI" base environment.

- While installing Unified Manager on Red Hat Enterprise Linux or CentOS, the system must have access to the appropriate repository so that the installation program can access and install all the required software dependencies.

- For the `yum` installer to find dependent software in the Red Hat Enterprise Linux repositories, you must have registered the system during the Red Hat Enterprise Linux installation or afterwards by using a valid Red Hat subscription.

  See the Red Hat documentation for information about the Red Hat Subscription Manager.

- You must enable the Extra Packages for Enterprise Linux (EPEL) repository to successfully install the required third-party utilities on your system.

  If the EPEL repository is not configured on your system, you must manually download and configure the

repository.

- If the correct version of MySQL is not installed, you must enable the MySQL repository to successfully install MySQL software on your system.

  If the MySQL repository is not configured on your system, you must manually download and configure the repository.

If your system does not have internet access, and the repositories are not mirrored from an internet-connected system to the unconnected system, you should follow the installation instructions to determine the external software dependencies of your system. Then you can download the required software to the internet-connected system, and copy the `.rpm` files to the system on which you plan to install Unified Manager. To download the artifacts and packages, you must use the `yum install` command. You must ensure that the two systems are running the same operating system version and that the subscription license is for the appropriate Red Hat Enterprise Linux or CentOS version.

> (i) You must not install the required third-party software from repositories other than the repositories that are listed here. Software installed from the Red Hat repositories is designed explicitly for Red Hat Enterprise Linux, and conforms to Red Hat best practices (directory layouts, permissions, and so on). Software from other locations might not follow these guidelines, which might cause the Unified Manager installation to fail, or might cause issues with future upgrades.

Port 443 requirement

Generic images of Red Hat Enterprise Linux and CentOS might block external access to port 443. Due to this restriction, you might be unable to connect to the Administrator web UI after installing Unified Manager. Running the following command allows access to port 443 for all external users and applications on a generic Red Hat Enterprise Linux or CentOS system.

```
# firewall-cmd --zone=public --add-port=443/tcp --permanent; firewall-cmd --reload
```

You must install Red Hat Enterprise Linux and CentOS with the "Server with GUI" base environment. It provides the commands used by Unified Manager installation instructions. Other base environments might require you to install additional commands to validate or complete the installation. If the `firewall-cmd` is not available on your system, you must install it by running the following command:

```
# sudo yum install firewalld
```

Contact your IT department before running the commands to see if your security policies require a different procedure.

> (i) THP (Transparent Huge Pages) should be disabled on CentOS and Red Hat systems. When enabled, in some cases it can cause Unified Manager to be shut down when certain processes consume too much memory and are terminated.

Supported browsers

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

The Interoperability Matrix has the list of supported browser versions.

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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.
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.

Interface	Protocol	Port	Description
MySQL database	MySQL	3306	Used to enable OnCommand Workflow Automation and OnCommand API Services access to Unified Manager.
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 *Configuring Active IQ Unified Manager*.

Configuring Active IQ Unified Manager

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.
Storage system	NDMP	10000/TCP	Used for certain Snapshot restore operations.

Destination	Protocol	Port	Description
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
Host fully qualified domain name	
Host IP address	

System on which software is deployed	Your value
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	
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	
Active Directory password or LDAP bind password	
Authentication server base distinguished name	
Identity provider (IdP) URL	

Setting	Your value
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	
ONTAP administrator user name ⓘ The administrator must have been assigned the "admin" role.	
ONTAP administrator password	
Protocol	HTTPS