Requirements

Keystone

NetApp
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Requirements

Virtual infrastructure requirements

There are a few virtual infrastructure configurations that are required for installing Keystone Collector on your VMware vSphere systems.

Prerequisites for the Keystone Collector server VM:

- Operating system: VMware vCentre server and ESXi 6.5 or later
- Core: 1 CPU
- RAM: 2 GB RAM
- Disk space: 20 GB vDisk

Other requirements

Ensure that the following generic requirements are met:

Networking Requirements

The networking requirements of Keystone Collector are listed in the following table.

Keystone Collector requires internet connectivity. You can provide internet connectivity by direct routing through default Gateway (via NAT), or through HTTP Proxy. Both variants are described here.

Source	Destination	Service	Protocol and Ports	Category	Purpose
Keystone Collector (for Keystone ONTAP)	Active IQ Unified Manager (Unified Manager)	HTTPS	TCP 443	Mandatory (if using Keystone ONTAP)	Keystone Collector usage metrics collection for ONTAP
Keystone Collector (for Keystone StorageGRID)	StorageGRID Admin Nodes	HTTPS	TCP 443	Mandatory (if using Keystone StorageGRID)	Keystone Collector usage metrics collection for StorageGRID
Keystone Collector (generic)	Internet (as per URL requirements given later)	HTTPS	TCP 80, TCP 443	Mandatory (internet connectivity)	Keystone Collector software, OS updates, and metrics upload

Keystone Collector (generic)	Customer HTTP Proxy	HTTP Proxy	Customer Proxy Port	Mandatory (internet connectivity)	Keystone Collector software, OS updates, and metrics upload
Keystone Collector (generic)	Customer DNS Servers	DNS	TCP/UDP 53	Mandatory	DNS resolution
Keystone Collector (generic)	Customer NTP Servers	NTP	UDP 123	Mandatory	Time synchronization
Keystone Collector (for Keystone ONTAP)	Unified Manager	MYSQL	TCP 3306	Optional Functionality	Performance metrics collection for Keystone Collector
Keystone Collector (generic)	Customer Monitoring System	HTTPS	TCP 7777	Optional Functionality	Keystone Collector health reporting
Customer's Operations Workstations	Keystone Collector	SSH	TCP 22	Management	Access to the Keystone Collector Management
NetApp ONTAP Cluster and Node Management Addresses	Keystone Collector	HTTP_8000, PING	TCP 8000, ICMP Echo Request/Reply	Optional Functionality	Webserver for ONTAP firmware updates

URL access

Keystone Collector needs access to the following internet hosts:

Address	Reason
https://keystone.netapp.com	Keystone Collector software updates and usage reporting
https://support.netapp.com	NetApp HQ for billing information and AutoSupport delivery

Linux system requirements

Preparing your Linux system with the required software ensures precise installation and data collection by Keystone Collector.

Ensure that your Linux and Keystone Collector server VM have these configurations.

Linux server:

- Operating system: CentOS 7 or Red Hat Enterprise Linux 8.6 or later
- Chronyd time synchronized
- Access to the standard Linux software repositories

The same server should also have the following third-party packages:

- podman (POD Manager)
- sos
- chrony
- python 3 (3.6.8 to 3.9.13)

Keystone Collector server VM:

- Core: 2 CPUs
- RAM: 4 GB RAM
- Disk space: 50 GB vDisk

Other requirements

Ensure that the following generic requirements are met:

Networking Requirements

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Keystone Collector requires internet connectivity. You can provide internet connectivity by direct routing through default Gateway (via NAT), or through HTTP Proxy. Both variants are described here.

Source	Destination	Service	Protocol and Ports	Category	Purpose
Keystone Collector (for Keystone ONTAP)	Active IQ Unified Manager (Unified Manager)	HTTPS	TCP 443	Mandatory (if using Keystone ONTAP)	Keystone Collector usage metrics collection for ONTAP

Keystone Collector (for Keystone StorageGRID)	StorageGRID Admin Nodes	HTTPS	TCP 443	Mandatory (if using Keystone StorageGRID)	Keystone Collector usage metrics collection for StorageGRID
Keystone Collector (generic)	Internet (as per URL requirements given later)	HTTPS	TCP 80, TCP 443	Mandatory (internet connectivity)	Keystone Collector software, OS updates, and metrics upload
Keystone Collector (generic)	Customer HTTP Proxy	HTTP Proxy	Customer Proxy Port	Mandatory (internet connectivity)	Keystone Collector software, OS updates, and metrics upload
Keystone Collector (generic)	Customer DNS Servers	DNS	TCP/UDP 53	Mandatory	DNS resolution
Keystone Collector (generic)	Customer NTP Servers	NTP	UDP 123	Mandatory	Time synchronization
Keystone Collector (for Keystone ONTAP)	Unified Manager	MYSQL	TCP 3306	Optional Functionality	Performance metrics collection for Keystone Collector
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URL access

Keystone Collector needs access to the following internet hosts:

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Requirements for ONTAP and StorageGRID

You should complete a few additional prerequisites for ONTAP and StorageGRID. Ensure that you have completed these specific prerequisites in addition to the Linux/VMware vSphere system requirements. Click the required tab to learn more.

ONTAP

Software versions

1. ONTAP 9.8 or later
2. Active IQ Unified Manager (Unified Manager) 9.10 or later

Before you begin

1. Ensure that Unified Manager 9.10 or later is configured. For information about installing Unified Manager, see these links:
   - Installing Unified Manager on VMware vSphere systems
   - Installing Unified Manager on Linux systems
2. Ensure that the ONTAP cluster has been added to Unified Manager. For information about adding clusters, see Adding clusters.
3. Create Unified Manager users with specific roles for usage and performance data collection. Perform these steps. For information about user roles, see Definitions of user roles.
   a. Log into the Unified Manager web UI with the default application administrator user credentials that are generated during installation. See Accessing the Unified Manager web UI.
   b. Create a service account for Keystone Collector with `Operator` user role. The Keystone Collector service APIs use this service account to communicate with Unified Manager and collect usage data. See Adding users.
   c. Create a `Database` user account, with the `Report Schema` role. This user is required for performance data collection. See Creating a database user.
4. Enable API Gateway in Unified Manager. Keystone Collector makes use of the API Gateway feature to communicate with ONTAP clusters. You can enable API Gateway either from the web UI, or by running a few commands through Unified Manager CLI.

   Web UI

   To enable API Gateway from the Unified Manager web UI, log into the Unified Manager web UI and enable API Gateway. For information, see Enabling API Gateway.

   CLI

   To enable API Gateway through Unified Manager CLI, follow these steps:

   a. On the Unified Manager server, begin an SSH session and log into Unified Manager CLI.
   `um cli login -u <umadmin>`
   For information about CLI commands, see Supported Unified Manager CLI commands.
   b. Verify whether API Gateway is already enabled.
   `um option list api.gateway.enabled`
   A `true` value indicates that the API Gateway is enabled.
   c. If the value returned is `false`, run this command:
   `um option set api.gateway.enabled=true`
   d. Restart the Unified Manager server:
      - Linux: Restarting Unified Manager.
      - VMware vSphere: Restarting the Unified Manager virtual machine.

StorageGRID

The following configurations are required for installing Keystone Collector on StorageGRID.

- StorageGRID `11.6.0` or later should be installed. For information about upgrading StorageGRID, see Upgrade StorageGRID software: Overview.
- A StorageGRID local admin user account should be created for usage data collection. This service account is used by the Keystone Collector service for communicating with StorageGRID through administrator node APIs.

  Steps

  1. Log into the Grid Manager. See Sign in to the Grid Manager.
  2. Create a local admin group with `Access mode: Read-only`. See Create an admin group.
  3. Add the following permissions:
     - Tenant Accounts
     - Maintenance
     - Metrics Query
  4. Create a Keystone service account user and associate it with the admin group. See Manage users.

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