



Monitoring NetApp Appliances

NetApp Base Pack PowerPack version 102, revision 1

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Introduction

Overview

This manual describes how to discover a NetApp appliance in the ScienceLogic platform. To discover a NetApp Appliance, you must perform the following general steps:

- Perform the tasks listed in the [Prerequisites](#) section.
- [Configure a NetApp Credential.](#)
- [Discover the NetApp Appliance.](#)

The ScienceLogic platform can monitor NetApp 7-mode devices and NetApp C-mode devices:

- For NetApp 7-mode devices, the platform will create component device records that represent each aggregate, volume, and LUN in the NetApp system.
- For NetApp C-mode devices, the platform will create component device records that represent each Admin Vserver, Node Vserver, Data Vserver, aggregate, volume, and LUN in the NetApp system.

The [Viewing Components of the NetApp Appliance](#) section describes where these component devices can be viewed in the user interface.

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Discovering NetApp Devices

Overview

The following sections describe how to configure and discover NetApp appliances for monitoring in the ScienceLogic platform using the *NetApp Base Pack PowerPack*:

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Prerequisites

Before you discover your NetApp appliances in your ScienceLogic system, you must perform the following configuration tasks on each NetApp Appliance you want to discover:

- Configure a user account on the NetApp device that the platform will use to connect to the NetApp API. The user account must be assigned a role that includes the following allowed capabilities:
 - login-http-admin
 - api-system-get-*
 - api-aggr-list-info

- api-lun-list-info
- api-volume-list-info
- api-perf-object-get-instances
- api-storage-shelf-environment-list-info
- api-net-config-get-active
- api-vfiler-list-info
- api-disk-list-info
- api-snapshot-list-info

NOTE: For Clustered Data ONTAP 8.3 or later, the documentation for customizing the role of a user account is located in the *Clustered Data ONTAP 8.3 System Administration Guide for Cluster Administrators* in the section titled “Customizing an access-control role to restrict user access to specific commands”. To view the guide, go to https://library.netapp.com/ecm/ecm_get_file/ECMP1636037. You can download additional NetApp documentation from the NetApp Support Portal at <http://mysupport.netapp.com>.

If you are discovering a Clustered Data ONTAP system, the user account you use for the ScienceLogic credential should be given the built-in "readonly" role and access to the "optapi" application. For example:

```
security login create [username] -application ontapi -role readonly -vserver
[clustername]
```

- Determine whether connections to the API on your NetApp device require SSL.
- If you are discovering a NetApp v8 system, you must enable the NetApp multistore license. To do this, execute the following command on your NetApp appliance:

```
options licensed_feature.multistore.enable on
```

Configuring a NetApp Credential

To use the Dynamic Applications in the NetApp Base Pack PowerPack, you must first define two or more NetApp credentials in the ScienceLogic platform. These credentials allow the platform to communicate with the NetApp appliances. The NetApp Base Pack PowerPack includes templates for the NetApp credentials.

The NetApp Base Pack PowerPack includes the following example credentials:

- **NetApp 7-mode.** This Basic/Snippet type credential allows you to retrieve data from a NetApp 7-Mode appliance.
- **NetApp w/SSL Option.** This SOAP/XML type credential allows you to retrieve data from a NetApp C-Mode device that uses SSL. In production, most NetApp C-Mode devices use SSL.
- **NetApp w/SSL Option Off.** This SOAP/XML type credential allows you to retrieve data from a NetApp C-Mode device that does not use SSL.
- **NetApp w/SSL/TLS Option.** This SOAP/XML type credential allows you to retrieve data from a NetApp C-Mode device that uses TLS.

NOTE: The user account configured for the credential must be assigned a role that includes "login-http-admin" and "api-system-get-*" as allowed capabilities.

In addition, during discovery you will use an SNMP credential to retrieve basic device data from the NetApp devices. You must determine the SNMP Community String for your NetApp devices and then decide whether you need to create a new SNMP credential or can use an existing SNMP credential.

- If your NetApp devices use the same community string as other SNMP devices in your network, you can use an existing SNMP credential during discovery.
- If your NetApp devices use a different SNMP community string than the other SNMP devices in your network, you must create a new SNMP credential for the NetApp devices.

Creating a Credential for 7-Mode

To modify the example credentials for use with your NetApp 7-Mode appliances, perform the following steps:

1. Go to the **Credential Management** page (System > Manage > Credentials).

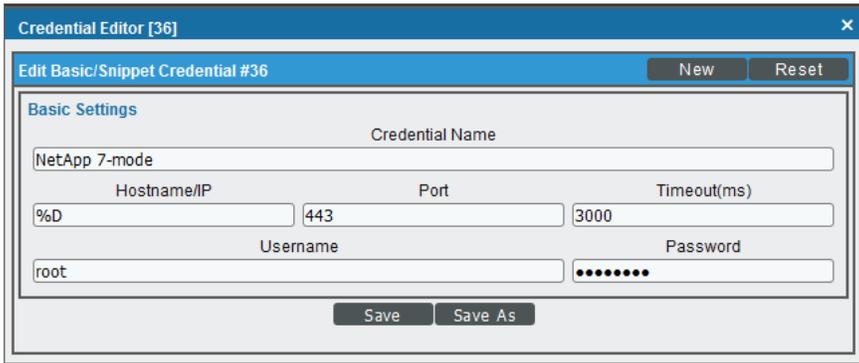
Credential Management | Credentials Found [8]

| Profile Name | Organization | RO Use | RW Use | Da Use | Type | Credential User | Host | Port | Timeout (ms) | ID | Last Edited | Edited By |
|----------------------------|--------------|--------|--------|--------|--------------|-----------------|------|------|--------------|----|---------------------|-----------|
| 1. NetApp 7-mode | [all orgs] | -- | -- | -- | BasicSnippet | root | %D | 443 | 3000 | 36 | 2015-10-21 17:48:44 | em7admin |
| 2. NetApp Flexpod | [all orgs] | -- | -- | 173 | SOAP/XML | Host cmode_ro | %D | 443 | 10000 | 72 | 2015-10-21 17:58:15 | dabed |
| 3. NetApp Flexpod | [all orgs] | 38 | -- | -- | SNMP | -- | -- | 161 | 1500 | 74 | 2015-10-21 17:59:19 | dabed |
| 4. NetApp lab 001 (7mode) | [all orgs] | -- | -- | -- | BasicSnippet | root | %D | 443 | 3000 | 75 | 2015-10-26 09:19:39 | dabed |
| 5. NetApp Simulators | [all orgs] | -- | -- | 354 | SOAP/XML | Host admin | %D | 443 | 10000 | 81 | 2015-10-21 17:57:52 | dabed |
| 6. NetApp Simulators | [all orgs] | 56 | -- | -- | SNMP | -- | -- | 161 | 1500 | 73 | 2015-10-21 17:59:00 | dabed |
| 7. NetApp w/SSL Option | [all orgs] | -- | -- | -- | SOAP/XML | Host root | %D | 443 | 3000 | 38 | 2015-10-21 17:48:44 | em7admin |
| 8. NetApp w/SSL Option Off | [all orgs] | -- | -- | -- | SOAP/XML | Host root | %D | 443 | 10000 | 37 | 2015-10-21 17:48:44 | em7admin |

[Select Action] [Go]

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2. Click the wrench icon () for the **NetApp 7-mode**. The **Credential Editor** modal window appears:



3. Supply values in the following fields:
 - **Credential Name**. Enter a new name for the credential.
 - **Username**. Enter the username that the platform will use to connect to the NetApp appliance.
 - **Password**. Enter the password for the username you entered in the **HTTP Auth User** field.

NOTE: The user account configured for the credential must be assigned a role that includes "login-http-admin" and "api-system-get-*" as allowed capabilities.

4. Click the [**Save As**] button.

Creating a Credential for C-Mode

To modify the example credentials for use with your NetApp C-Mode appliances, perform the following steps:

1. Go to the **Credential Management** page (System > Manage > Credentials).

2. On the **Credential Management** page:

| Profile Name | Organization | RO Use | RW Use | DA Use | Type | Credential User | Host | Port | Timeout (ms) | ID | Last Edited | Edited By |
|----------------------------|--------------|--------|--------|--------|--------------|-----------------|------|------|--------------|----|---------------------|-----------|
| 1. NetApp 7-mode | [all orgs] | -- | -- | -- | BasicSnippet | root | %D | 443 | 3000 | 24 | 2016-07-20 12:56:35 | em7admin |
| 2. NetApp w/SSL Option | [all orgs] | -- | -- | -- | SOAP/XML Hos | root | %D | 443 | 3000 | 26 | 2016-07-20 12:56:35 | em7admin |
| 3. NetApp w/SSL Option Off | [all orgs] | -- | -- | -- | SOAP/XML Hos | root | %D | 443 | 10000 | 25 | 2016-07-20 12:56:35 | em7admin |
| 4. NetApp w/SSL/TLS Option | [all orgs] | -- | -- | -- | SOAP/XML Hos | CHANGEME | %D | 443 | 3000 | 72 | 2016-07-20 12:56:35 | em7admin |

- If you want the platform to use SSL when connecting to the NetApp device, click the wrench icon (🔧) for the **NetApp w/SSL Option** credential.
- If you do not want the platform to use SSL or TLS when connecting to the NetApp device, click the wrench icon (🔧) for the **NetApp w/SSL Option Off** credential.
- If you want the platform to use TLS when connecting to the NetApp device, click the wrench icon (🔧) for the **NetApp w/SSL/TLS Option** credential.

The **Credential Editor** modal window appears:

3. Supply values in the following fields:

- **Profile Name.** Type a new name for the credential.
- **HTTP Auth User.** Type the username that the platform will use to connect to the NetApp appliance.
- **HTTP Auth Password.** Type the password for the username you entered in the **HTTP Auth User** field.
- **Embed Value [%1].** Type "True" if you want the platform to use SSL or TLS when connecting to the NetApp device. Type "False" if you do not want the platform to use SSL or TLS when connecting to the NetApp device.
- **Embed Value [%2].** Type "TLSv1.0" if you want the platform to use TLS when connecting to the NetApp device. Otherwise, keep this field blank.

NOTE: The user account configured for the credential must be assigned a role that includes "login-http-admin" and "api-system-get-*" as allowed capabilities.

4. Click the [Save As] button.

Creating an SNMP Credential

SNMP Credentials (called "community strings" in earlier versions of SNMP) allow the ScienceLogic platform to access SNMP data on a managed device. The platform uses SNMP credentials to perform discovery, run auto-discovery, and gather information from SNMP Dynamic Applications.

To create an SNMP credential:

1. Go to the **Credential Management** page (System > Manage > Credentials).

| Profile Name | Organization | RO Use | RW Use | DA Use | Type | Credential User | Host | Port | Timeout (ms) | ID | Last |
|------------------------------------|--------------|--------|--------|--------|---------------|--------------------|-------------------|------|--------------|----|---------------------|
| 1. Amazon Web Services Credential | System | -- | -- | -- | SOAP/XML Host | AWS Account Access | example.com | 80 | 2000 | 1 | 2015-05-16 |
| 2. Azure Credential - SOAP/XML | [all orgs] | -- | -- | -- | SOAP/XML Host | +AD_USER+ | login.windows.net | 443 | 60000 | 60 | 2015-05-14 |
| 3. Azure Credential - SSH/Key | [all orgs] | -- | -- | -- | SSH/Key | <SUBSCRIPTION_ID_H | | 22 | 160000 | 59 | 2015-05-14 |
| 4. Cisco SNMPv2 - Example | [all orgs] | -- | -- | -- | SNMP | | | 161 | 1500 | 3 | 2015-05-14 |
| 5. Cisco SNMPv3 - Example | [all orgs] | -- | -- | -- | SNMP | [USER_GOES_HERE] | | 161 | 1500 | 2 | 2015-05-14 |
| 6. Cisco - ACI | [all orgs] | -- | -- | 126 | Basic/Snippet | admin | 173.36.219.46 | 443 | 0 | 62 | 2015-05-14 15:05:24 |
| 7. Cisco - ACI Credential | [all orgs] | -- | -- | -- | Basic/Snippet | admin | 198.18.133.200 | 443 | 0 | 61 | 2015-05-14 14:32:20 |
| 8. Cloudkick - Example | [all orgs] | -- | -- | -- | Basic/Snippet | [SECURITY KEY GOES | 127.0.0.1 | 443 | 5000 | 9 | 2015-05-14 11:25:31 |
| 9. CUCM PerfmonService 8.0 Example | [all orgs] | -- | -- | -- | SOAP/XML Host | | %D | 8443 | 2000 | 4 | 2015-05-14 11:25:12 |
| 10. EM7 Central Database | [all orgs] | -- | -- | -- | Database | root | localhost | 7706 | 0 | 51 | 2015-05-14 11:28:41 |
| 11. EM7 Collector Database | [all orgs] | -- | -- | -- | Database | root | %D | 7707 | 0 | 14 | 2015-05-14 11:25:43 |
| 12. EM7 DB | [all orgs] | -- | -- | -- | Database | root | %D | 7706 | 0 | 35 | 2015-05-14 11:28:32 |
| 13. EM7 DB - DB Info | [all orgs] | -- | -- | -- | SOAP/XML Host | root | %D | 80 | 3000 | 38 | 2015-05-14 11:28:32 |
| 14. EM7 DB - My.cnf | [all orgs] | -- | -- | -- | SOAP/XML Host | root | %D | 80 | 3000 | 37 | 2015-05-14 11:28:32 |
| 15. EM7 DB - Sys.cnf | [all orgs] | -- | -- | -- | SOAP/XML Host | root | %D | 80 | 3000 | 36 | 2015-05-14 11:28:32 |
| 16. EM7 Default V2 | [all orgs] | -- | -- | -- | SNMP | | | 161 | 1500 | 10 | 2015-05-14 11:25:42 |
| 17. EM7 Default V3 | [all orgs] | -- | -- | -- | SNMP | em7defaultv3 | | 161 | 500 | 11 | 2015-05-14 11:25:42 |
| 18. EMC - Example | [all orgs] | -- | -- | -- | Basic/Snippet | root | %D | 443 | 10000 | 15 | 2015-05-14 11:25:47 |
| 19. GOGrid - Example | [all orgs] | -- | -- | -- | Basic/Snippet | [SECURITY KEY GOES | 127.0.0.1 | 443 | 5000 | 16 | 2015-05-14 11:25:51 |
| 20. IPSLA Example | [all orgs] | -- | -- | -- | SNMP | | | 161 | 1500 | 5 | 2015-05-14 11:25:14 |
| 21. LifeSize - Endpoint SNMP | [all orgs] | -- | -- | -- | SNMP | control | | 161 | 3000 | 18 | 2015-05-14 11:25:58 |
| 22. LifeSize - Endpoint SSH/CLI | [all orgs] | -- | -- | -- | Basic/Snippet | auto | %D | 22 | 3 | 17 | 2015-05-14 11:25:58 |
| 23. Local API | [all orgs] | -- | -- | -- | Basic/Snippet | em7admin | 10.0.0.180 | 80 | 5000 | 22 | 2015-05-14 11:28:11 |
| 24. NetApp 7-mode | [all orgs] | -- | -- | -- | Basic/Snippet | root | %D | 443 | 3000 | 24 | 2015-05-14 11:28:20 |
| 25. NetApp w/SSL Option | [all orgs] | -- | -- | -- | SOAP/XML Host | root | %D | 443 | 3000 | 26 | 2015-05-14 11:28:20 |
| 26. NetApp w/SSL Option Off | [all orgs] | -- | -- | -- | SOAP/XML Host | root | %D | 443 | 10000 | 25 | 2015-05-14 11:28:20 |
| 27. Nexus netconf | [all orgs] | -- | -- | -- | Basic/Snippet | | %D | 22 | 10000 | 6 | 2015-05-14 11:25:16 |
| 28. Nexus snmp | [all orgs] | -- | -- | -- | SNMP | | | 161 | 10000 | 7 | 2015-05-14 11:25:16 |
| 29. Polycom - Advanced | [all orgs] | -- | -- | -- | SOAP/XML Host | admin | %D | 80 | 20000 | 28 | 2015-05-14 11:28:24 |
| 30. Polycom - CDR | [all orgs] | -- | -- | -- | SOAP/XML Host | admin | %D | 80 | 20000 | 31 | 2015-05-14 11:28:24 |
| 31. Polycom - Interface | [all orgs] | -- | -- | -- | SOAP/XML Host | admin | %D | 80 | 20000 | 29 | 2015-05-14 11:28:24 |

2. Click the **[Actions]** button and select *Create SNMP Credential*. The **Credential Editor** page appears.

The screenshot shows the 'Credential Editor' window with the title 'Create New SNMP Credential'. It features a 'Reset' button in the top right. The form is organized into three main sections: 'Basic Settings', 'SNMP V1/V2 Settings', and 'SNMP V3 Settings'. The 'Basic Settings' section contains input fields for 'Profile Name', a dropdown for 'SNMP Version' (currently showing '[SNMP V2]'), 'Port' (161), 'Timeout(ms)' (1500), and 'Retries' (1). The 'SNMP V1/V2 Settings' section has two input fields for 'SNMP Community (Read-Only)' and 'SNMP Community (Read/Write)'. The 'SNMP V3 Settings' section includes 'Security Name' and 'Security Passphrase' input fields, a dropdown for 'Authentication Protocol' (set to '[MD5]'), a dropdown for 'Security Level' (set to '[Authentication Only]'), an input for 'SNMP v3 Engine ID', 'Context Name' input, a dropdown for 'Privacy Protocol' (set to '[DES]'), and a 'Privacy Protocol Pass Phrase' input. A 'Save' button is located at the bottom center of the form.

3. Supply values in the following fields:

- **Profile Name**. Name of the credential. Can be any combination of alphanumeric characters. This field is required.
- **SNMP Version**. SNMP version. Choices are *SNMP V1*, *SNMP V2*, and *SNMP V3*. The default value is *SNMP V2*. This field is required.
- **Port**. The port the platform will use to communicate with the external device or application. The default value is *161*. This field is required.
- **Timeout (ms)**. Time, in milliseconds, after which the platform will stop trying to communicate with the SNMP device. The default value is *1500*. This field is required.
- **Retries**. Number of times the platform will try to authenticate and communicate with the external device. The default value is *1*. This field is required.

SNMP V1/V2 Settings

These fields appear if you selected *SNMP V1* or *SNMP V2* in the **SNMP Version** field. Otherwise, these fields are grayed out.

- **SNMP Community (Read Only)**. The SNMP community string (password) required for read-only access of SNMP data on the remote device or application. For *SNMP V1* and *SNMP V2* credentials, you must supply a community string, either in this field or in the **SNMP Community (Read/Write)** field.
- **SNMP Community (Read/Write)**. The SNMP community string (password) required for read and write access of SNMP data on the remote device or application. For *SNMP V1* and *SNMP V2* credentials, you must supply a community string, either in this field or in the **SNMP Community (Read Only)** field.

SNMP V3 Settings

These fields appear if you selected SNMP V3 in the **SNMP Version** field. Otherwise, these fields are grayed out.

- **Security Name.** Name for SNMP authentication. This field is required.
 - **Security Passphrase.** Password to authenticate the credential. This value must contain at least 8 characters. This value is required if you use a **Security Level** that includes authentication.
 - **Authentication Protocol.** Select an authentication algorithm for the credential. Choices are MD5 or SHA. The default value is MD5. This field is required.
 - **Security Level.** Specifies the combination of security features for the credentials. This field is required. Choices are:
 - *No Authentication / No Encryption.*
 - *Authentication Only.* This is the default value.
 - *Authentication and Encryption.*
 - **SNMP v3 Engine ID.** The unique engine ID for the SNMP agent you want to communicate with. (SNMPv3 authentication and encryption keys are generated based on the associated passwords and the engine ID.) This field is optional.
 - **Context Name.** A context is a mechanism within SNMPv3 (and AgentX) that allows you to use parallel versions of the same MIB objects. For example, one version of a MIB might be associated with SNMP Version 2 and another version of the same MIB might be associated with SNMP Version 3. For SNMP Version 3, specify the context name in this field. This field is optional.
 - **Privacy Protocol.** The privacy service encryption and decryption algorithm. Choices are DES or AES. The default value is DES. This field is required.
 - **Privacy Protocol Passphrase.** Privacy password for the credential. This field is optional.
4. Click the **[Save]** button to save the new SNMP credential.
 5. Repeat steps 1-4 for each SNMP-enabled device in your network that you want to monitor with the ScienceLogic platform.

NOTE: When you define a SNMP Credential, the ScienceLogic platform automatically aligns the credential with all organizations of which you are a member.

Discovering a NetApp Appliance

To create and run a discovery session that will discover a NetApp appliance, perform the following steps:

1. Go to the **Discovery Control Panel** page (System > Manage > Discovery).

- Click the **[Create]** button to create a new discovery session. The **Discovery Session Editor** window appears:

The screenshot shows the 'Discovery Session Editor' window with the following sections:

- Identification Information:** Name: NetApp 9.1 CMode Sim; Description: (empty).
- IP and Credentials:**
 - IP Address/Hostname Discovery List:** 10.2.5.25
 - SNMP Credentials:** List includes EM7 Default V3, IPSLA Example, LifeSize: Endpoint SNMP, [NetApp - Cmode Sim SNMP], NetApp Flexpod, Nexus snmp, SNMP Public V1, SNMP Public V2, VMware_vCenter55 snmp.
 - Other Credentials:** List includes Dell EMC: Isilon SOAP, Dell EMC: Isilon SOAP ADMIN, Dell EMC: Isilon SOAP Example, EM7 DB - DB Info, EM7 DB - My.cnf, EM7 DB - Silo.conf, [Netapp - Cmode Sim], NetApp Flexpod, NetApp Sim.
- Detection and Scanning:**
 - Initial Scan Level: [System Default (recommended)]
 - Scan Throttle: [System Default (recommended)]
 - Port Scan All IPs: [System Default (recommended)]
 - Port Scan Timeout: [System Default (recommended)]
 - Detection Method & Port: [Default Method], UDP: 161 SNMP, TCP: 1 - tcpmux, TCP: 2 - compressnet, TCP: 3 - compressnet, TCP: 5 - rje, TCP: 7 - echo, TCP: 9 - discard, TCP: 11 - systat, TCP: 13 - daytime, TCP: 17 - qotd, TCP: 18 - msp.
 - Interface Inventory Timeout (ms): 600000
 - Maximum Allowed Interfaces: 10000
 - Bypass Interface Inventory:
- Basic Settings:**
 - Discover Non-SNMP:
 - Model Devices:
 - DHCP:
 - Duplication Protection:
 - Collection Server PID: 5
 - Organization: [NetApp - Cmode 9.1 Sim]
 - Add Devices to Device Group(s): None Servers
 - Apply Device Template: [Choose a Template]

Buttons at the bottom: Save, Save As, Log All (checked).

- Enter values in the following fields:
 - IP Address Discovery List.** Enter the IP address for the NetApp appliance. This can be the IP address for a single filer appliance or the IP address for a cluster.
 - SNMP Credential.** Select an SNMP credential to use with the NetApp appliance.
 - Other Credentials.** Select the credential that you configured in the [previous section](#).
- You can enter values in the other fields on this page, but are not required to and can simply accept the default values. For more information about the other fields on this page, see the **Discovery & Credentials** manual.
- Click the **[Save]** button and then close the **Discovery Session Editor** window.
- The discovery session you created will appear at the top of the **Discovery Control Panel** page. Click its lightning-bolt icon (⚡) to run the discovery session.
- The **Discovery Session** window will be displayed.
- When the NetApp appliance is discovered, click its device icon (🖨️) to view the **Device Properties** page for the NetApp appliance.

Verifying Discovery and Dynamic Applications

To verify that the ScienceLogic platform has automatically aligned the correct Dynamic Applications during discovery:

NOTE: It can take several minutes after discovery for Dynamic Applications to appear in the **Dynamic Application Collections** page. If the specified *NetApp Cache*, *NetApp Cache Stats*, *NetApp Aggregate Discovery*, and *NetApp Topology Cache* Dynamic Applications do not appear in this page, try clicking the **[Reset]** button.

1. From the **Device Properties** page for the NetApp appliance, click the **[Collections]** tab. The **Dynamic Application Collections** page appears.
2. If the NetApp appliance is a C-Mode device, the following Dynamic Applications should be displayed in the list of Dynamic Applications aligned to the NetApp appliance:

The screenshot shows the 'Dynamic Application Collections' page for a NetApp device. The top navigation bar includes tabs for Close, Properties, Thresholds, Collections (selected), Monitors, and Schedule. Below this are sub-tabs for Logs, Toolbox, Interfaces, Relationships, Tickets, Redirects, Notes, and Attributes. The main content area is divided into two sections: a metadata section and a table of dynamic applications.

Metadata Section:

| | | | |
|-----------------|--|-------------------|----------------------------------|
| Device Name | KNT_ONTAP_91.qa.sciencelogic.local | Managed Type | Physical Device |
| IP Address / ID | 10.2.5.25 201 | Category | Storage Array |
| Class | NetApp | Sub-Class | Cluster |
| Organization | Netapp 9x Cmode | Uptime | 24 days, 04:01:45 |
| Collection Mode | Active | Collection Time | 2017-08-31 16:55:00 |
| Description | NetApp Release 9.1: Thu Dec 22 23:05:58 UTC 2016 | Group / Collector | CUG_Automation KNT-ISO1-CU2-55 |
| Device Hostname | | | |

Dynamic Application™ Collections Table:

| | ID | Poll Frequency | Type | Credential | |
|---|------|----------------|-----------------------|-------------------------|----------|
| + Cisco IPSLA Configuration | 722 | 60 mins | Snippet Configuration | Default SNMP Credential | [Action] |
| + Host Resource: Configuration | 17 | 15 mins | Snippet Configuration | Default SNMP Credential | [Action] |
| + NetApp: Cache C-Mode | 2143 | 15 mins | Snippet Configuration | NetApp 9.1 Sim | [Action] |
| + NetApp: Cache vServer Node C-Mode | 2179 | 15 mins | Snippet Configuration | NetApp 9.1 Sim | [Action] |
| + NetApp: Cluster Configuration C-Mode | 2177 | 15 mins | Snippet Configuration | NetApp 9.1 Sim | [Action] |
| + NetApp: Cluster Logical Interface Config C-Mode | 2092 | 15 mins | Snippet Configuration | NetApp 9.1 Sim | [Action] |
| + NetApp: Cluster Logical Interface Stats C-Mode | 2180 | 5 mins | Snippet Performance | NetApp 9.1 Sim | [Action] |
| + NetApp: Cluster Performance C-Mode | 2178 | 5 mins | Snippet Performance | NetApp 9.1 Sim | [Action] |
| + NetApp: Disk Count C-Mode | 2175 | 15 mins | Snippet Configuration | NetApp 9.1 Sim | [Action] |
| + NetApp: Hardware Count C-Mode | 2156 | 1440 mins | Snippet Configuration | NetApp 9.1 Sim | [Action] |
| + NetApp: System C-Mode | 2154 | 1440 mins | Snippet Configuration | NetApp 9.1 Sim | [Action] |
| + NetApp: Topology Cache C-Mode | 2140 | 15 mins | Snippet Configuration | NetApp 9.1 Sim | [Action] |
| + NetApp: Volume LUN Config Cache C-Mode | 2176 | 5 mins | Snippet Configuration | NetApp 9.1 Sim | [Action] |
| + NetApp: vServer Data Discovery C-Mode | 2167 | 5 mins | Snippet Configuration | NetApp 9.1 Sim | [Action] |
| + NetApp: vServer Node Discovery C-Mode | 2157 | 5 mins | Snippet Configuration | NetApp 9.1 Sim | [Action] |

At the bottom of the table, there is a '[Select Action]' dropdown menu and a 'Go' button. Below the table is a 'Save' button.

- NetApp: Cache C-Mode
- NetApp: Cache vServer Node C-Mode
- NetApp: Cluster Configuration C-Mode

- NetApp: Cluster Logical Interface Config C-Mode
- NetApp: Cluster Logical Interface Stats C-Mode
- NetApp: Cluster Performance C-Mode
- NetApp: Disk Count C-Mode
- NetApp: Hardware Count C-Mode
- NetApp: System C-Mode
- NetApp: Topology Cache C-Mode
- NetApp: Volume LUN Config Cache C-Mode
- NetApp: vServer Data Discovery C-Mode
- NetApp vServer Node Discovery C-Mode

3. If the NetApp appliance is a 7-Mode device, the following Dynamic Applications should be displayed in the list of Dynamic Applications aligned to the NetApp appliance:

The screenshot displays the NetApp management console interface. At the top, there are tabs for Close, Properties, Thresholds, Collections, Monitors, Schedule, and Logs. Below these are sub-tabs for Toolbox, Interfaces, Relationships, Tickets, Redirects, Notes, Attributes, and Attributes. The main content area shows details for a device named 'lab-netapp-001.qa.sciencelogic.local'. It includes fields for IP Address / ID (10.0.0.31 | 1714), Class (NetApp), Organization (System), Collection Mode (Active), and Description (NetApp Release 7.3.5.1: Sat Jan 29 12:45:56 PST 2011). Other fields include Managed Type (Physical Device), Category (Storage.SAN), Sub-Class (Filer), Uptime (95 days, 01:37:04), Collection Time (2015-10-27 14:25:00), and Group / Collector (CUG | em7_a0). A NetApp logo and device icon are also visible.

Below the device details is a table titled 'Dynamic Application™ Collections'. The table has columns for Dynamic Application, ID, Poll Frequency, Type, and Credential. The table lists various dynamic applications for a 7-Mode device, including Aggregate Discovery, Cache, Cache Queue Stats, CIFS Stats, Cluster Configuration C-Mode, Cluster Performance C-Mode, Disk Config 7-Mode, Disk Stats 7-Mode, Ethernet Interface Config 7-Mode, FCP Stats 7-Mode, Hardware Config 7-Mode, iSCSI Stats 7-Mode, Network Stats 7-Mode, NFSv3 Stats 7-Mode, NFSv4 Stats 7-Mode, NVRAM Stats 7-Mode, Processor Stats 7-Mode, RAID Stats 7-Mode, Readahead Stats 7-Mode, System 7-Mode, System Stats 7-Mode, Temperature 7-Mode, Topology Cache 7-Mode, Traditional Volume Discovery 7-Mode, vFiler Config 7-Mode, vFiler Stats 7-Mode, and WAFL Stats 7-Mode. Each row includes a checkbox for selection and a 'Go' button for actions.

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- NetApp: Aggregate Discovery 7-Mode
- NetApp: Cache 7-Mode
- NetApp: Cache Queue Stats 7-Mode
- NetApp: CIFS Stats 7-Mode
- NetApp: Cluster Configuration C-Mode

- *NetApp: Cluster Performance C-Mode*
- *NetApp: Disk Config 7-Mode*
- *NetApp: Disk Stats 7-Mode*
- *NetApp: Ethernet Interface Config 7-Mode*
- *NetApp: FCP Stats 7-Mode*
- *NetApp: Hardware Config 7-Mode*
- *NetApp: iSCSI Stats 7-Mode*
- *NetApp: Network Stats 7-Mode*
- *NetApp: NFSv3 Stats 7-Mode*
- *NetApp: NFSv4 Stats 7-Mode*
- *NetApp: NVRAM Stats 7-Mode*
- *NetApp: Processor Stats 7-Mode*
- *NetApp: RAID Stats 7-Mode*
- *NetApp: Readahead Stats 7-Mode*
- *NetApp: System 7-Mode*
- *NetApp: System Stats 7-Mode*
- *NetApp: Temperature 7-Mode*
- *NetApp: Topology Cache 7-Mode*
- *NetApp: Traditional Volume Discovery 7-Mode*
- *NetApp: vFiler Config 7-Mode*
- *NetApp: vFiler Stats 7-Mode*
- *NetApp: WAFL Stats 7-Mode*

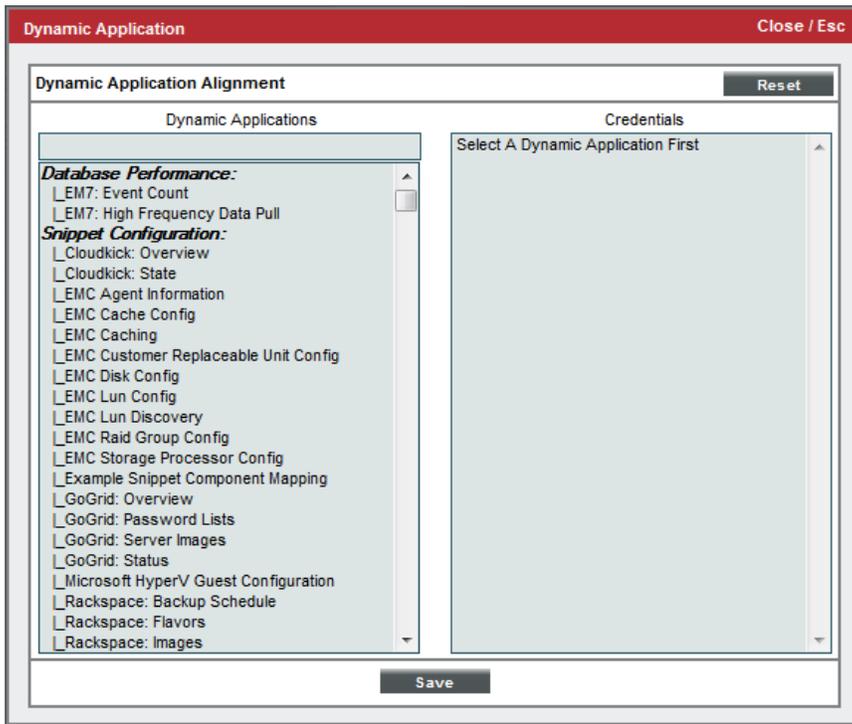
4. If one or more of these Dynamic Applications are not automatically aligned with each NetApp device, follow the instructions in the section on [Manually Aligning the Dynamic Applications](#).

Manually Aligning the Dynamic Applications

If the Dynamic Applications have not been automatically aligned, you can align them manually:

1. From the **Device Properties** page for the NetApp appliance, click the **[Collections]** tab. The **Dynamic Application Collections** page appears.

- Click the **[Action]** button and then click *Add Dynamic Application*. The **Dynamic Application Alignment** page appears:



- In the **Dynamic Applications** field, select the Dynamic Application you want to align.
- In the **Credentials** field, select the credential *you created for this NetApp appliance*.
- Click the **[Save]** button.
- Repeat steps 2-5 for the remaining Dynamic Applications to align with the C-mode or 7-Mode NetApp appliance.
- After aligning the Dynamic Applications, click the **[Reset]** button and then click the plus icon (+) for the Dynamic Application. If collection for the Dynamic Application was successful, the graph icons (📊) for the Dynamic Application are enabled:

| Collection Object | Cid | Found | Collecting | Edited By | |
|-------------------|---------|-------|------------|-----------|---|
| Aggregate Name | s_21634 | yes | yes | -- | 📊 |
| Discovery Object | s_21635 | no | yes | -- | 📊 |

- Click a graph icon (📊) to view the collected data. The **Configuration Report** page will display the number of components of each type and the total number of components managed by the NetApp appliance.

Chapter

3

Viewing NetApp Devices

3

Overview

When the ScienceLogic platform performs collection for a NetApp appliance, the platform will create component devices for the components in the NetApp system and align other Dynamic Applications to those component devices. Some of the Dynamic Applications aligned to the component devices will also be used to create additional component devices. All component devices appear in the **Device Manager** page just like devices discovered using the ScienceLogic discovery process.

Viewing Component Devices in the Device Manager Page

All component devices appear in the **Device Manager** page just like devices discovered using the ScienceLogic discovery process.

To view the component devices associated with a NetApp device:

1. Go to the **Device Manager** page (Registry > Devices > Device Manager).

| Device Name | IP Address | Device Category | Device Class Sub-class | DID | Organization | Current State | Collection Group | Collection State | SNMP Credential | SNMP Version |
|----------------------------|------------|-----------------|--------------------------|------|----------------|---------------|------------------|------------------|-----------------|--------------|
| /vol1/CMODE_SCSI/CMODE_... | -- | Storage LUN | NetApp LUN C-Mode | 2699 | NetApp - Cmode | Healthy | CUG1 | Active | NetApp Flexpod | V2 |
| /vol1/EM7/lun0 | -- | Storage LUN | NetApp LUN | 2746 | NetApp - 7mode | Healthy | CUG1 | Active | -- | -- |
| /vol1/FC_BOOT_SILO01/C1E | -- | Storage LUN | NetApp LUN C-Mode | 2693 | NetApp - Cmode | Healthy | CUG1 | Active | NetApp Flexpod | V2 |
| /vol1/FC_BOOT_SILO01/C1E | -- | Storage LUN | NetApp LUN C-Mode | 2698 | NetApp - Cmode | Healthy | CUG1 | Active | NetApp Flexpod | V2 |
| /vol1/FC_BOOT_SILO01/C1E | -- | Storage LUN | NetApp LUN C-Mode | 2692 | NetApp - Cmode | Healthy | CUG1 | Active | NetApp Flexpod | V2 |
| /vol1/FC_BOOT_SILO01/Rst | -- | Storage LUN | NetApp LUN C-Mode | 2696 | NetApp - Cmode | Healthy | CUG1 | Active | NetApp Flexpod | V2 |
| /vol1/FC_BOOT_SILO01/Rst | -- | Storage LUN | NetApp LUN C-Mode | 2694 | NetApp - Cmode | Healthy | CUG1 | Active | NetApp Flexpod | V2 |
| /vol1/FC_BOOT_SILO01/Rst | -- | Storage LUN | NetApp LUN C-Mode | 2700 | NetApp - Cmode | Healthy | CUG1 | Active | NetApp Flexpod | V2 |
| /vol1/FC_BOOT_SILO01/Rst | -- | Storage LUN | NetApp LUN C-Mode | 2691 | NetApp - Cmode | Healthy | CUG1 | Active | NetApp Flexpod | V2 |
| /vol1/FC_BOOT_SILO01/Rst | -- | Storage LUN | NetApp LUN C-Mode | 2702 | NetApp - Cmode | Healthy | CUG1 | Active | NetApp Flexpod | V2 |
| /vol1/FC_BOOT_SILO02/C2E | -- | Storage LUN | NetApp LUN C-Mode | 2683 | NetApp - Cmode | Healthy | CUG1 | Active | NetApp Flexpod | V2 |
| /vol1/FC_BOOT_SILO02/C2E | -- | Storage LUN | NetApp LUN C-Mode | 2689 | NetApp - Cmode | Healthy | CUG1 | Active | NetApp Flexpod | V2 |
| /vol1/FC_BOOT_SILO02/C2E | -- | Storage LUN | NetApp LUN C-Mode | 2684 | NetApp - Cmode | Healthy | CUG1 | Active | NetApp Flexpod | V2 |
| /vol1/FC_BOOT_SILO02/C2E | -- | Storage LUN | NetApp LUN C-Mode | 2687 | NetApp - Cmode | Healthy | CUG1 | Active | NetApp Flexpod | V2 |
| /vol1/FC_BOOT_SILO02/C2E | -- | Storage LUN | NetApp LUN C-Mode | 2685 | NetApp - Cmode | Healthy | CUG1 | Active | NetApp Flexpod | V2 |
| /vol1/FC_BOOT_SILO02/C2E | -- | Storage LUN | NetApp LUN C-Mode | 2686 | NetApp - Cmode | Healthy | CUG1 | Active | NetApp Flexpod | V2 |
| /vol1/FC_BOOT_SILO02/Rst | -- | Storage LUN | NetApp LUN C-Mode | 2682 | NetApp - Cmode | Healthy | CUG1 | Active | NetApp Flexpod | V2 |
| /vol1/FC_BOOT_SILO02/Rst | -- | Storage LUN | NetApp LUN C-Mode | 2690 | NetApp - Cmode | Healthy | CUG1 | Active | NetApp Flexpod | V2 |
| /vol1/FC_BOOT_SILO02/Rst | -- | Storage LUN | NetApp LUN C-Mode | 2688 | NetApp - Cmode | Healthy | CUG1 | Active | NetApp Flexpod | V2 |

2. In the **Device Class | Sub-Class** column, enter *NetApp*.
3. The **Device Manager** page displays a list of all NetApp devices, both those with IP address and component devices.

Viewing Component Devices in the Device Components Page

The **Device Components** page (Registry > Devices > Device Components) displays a list of all root devices and component devices discovered by the ScienceLogic platform. The **Device Components** page displays all root devices and component devices in an indented view, so you can easily view the hierarchy and relationships between child devices, parent devices, and root devices.

To view the component devices associated with a NetApp appliance:

1. Go to the **Device Components** page (Registry > Devices > Device Components).

| Device Name | IP Address | Device Category | Device Class Sub-class | DID | Organization | Current State | Collection Group | Collection State |
|---|------------|-----------------|--------------------------|-----|--------------|---------------|------------------|------------------|
| 1. - DataONTAPSim_82_01 qa sciencelogic 10.2.5.110 Array NetApp Cluster 2703 NetApp - Cmode 8.2.2P1 Sim Major CUG1 Active | | | | | | | | |
| 1. - DataONTAPSim_82_01-01 -- Controller NetApp Node SVM 2707 NetApp - Cmode 8.2.2P1 Sim Major CUG1 Active | | | | | | | | |
| 1. agrg0 -- Pool NetApp Aggregate C-Mode 2721 NetApp - Cmode 8.2.2P1 Sim Healthy CUG1 Active | | | | | | | | |
| 2. DataONTAPSim_82_01-01/vol/vol0 -- Volume NetApp Volume C-Mode 2716 NetApp - Cmode 8.2.2P1 Sim Major CUG1 Active | | | | | | | | |
| 3. data_aggr1 -- Pool NetApp Aggregate C-Mode 2719 NetApp - Cmode 8.2.2P1 Sim Healthy CUG1 Active | | | | | | | | |
| 4. data_aggr2 -- Pool NetApp Aggregate C-Mode 2720 NetApp - Cmode 8.2.2P1 Sim Healthy CUG1 Active | | | | | | | | |
| 5. data_aggr3 -- Pool NetApp Aggregate C-Mode 2718 NetApp - Cmode 8.2.2P1 Sim Healthy CUG1 Active | | | | | | | | |
| 2. - vsserver1_newname -- Server NetApp Data SVM 2706 NetApp - Cmode 8.2.2P1 Sim Healthy CUG1 Active | | | | | | | | |
| 1. vsserver1_newname/vol/vs1_sm_des -- Volume NetApp Volume C-Mode 2729 NetApp - Cmode 8.2.2P1 Sim Minor CUG1 Active | | | | | | | | |
| 2. vsserver1_newname/vol/vs1_server_vol -- Volume NetApp Volume C-Mode 2728 NetApp - Cmode 8.2.2P1 Sim Minor CUG1 Active | | | | | | | | |
| 3. vsserver1_newname/vol/vs1_root -- Volume NetApp Volume C-Mode 2727 NetApp - Cmode 8.2.2P1 Sim Minor CUG1 Active | | | | | | | | |
| 3. vsserver2 -- Server NetApp Data SVM 2708 NetApp - Cmode 8.2.2P1 Sim Healthy CUG1 Active | | | | | | | | |

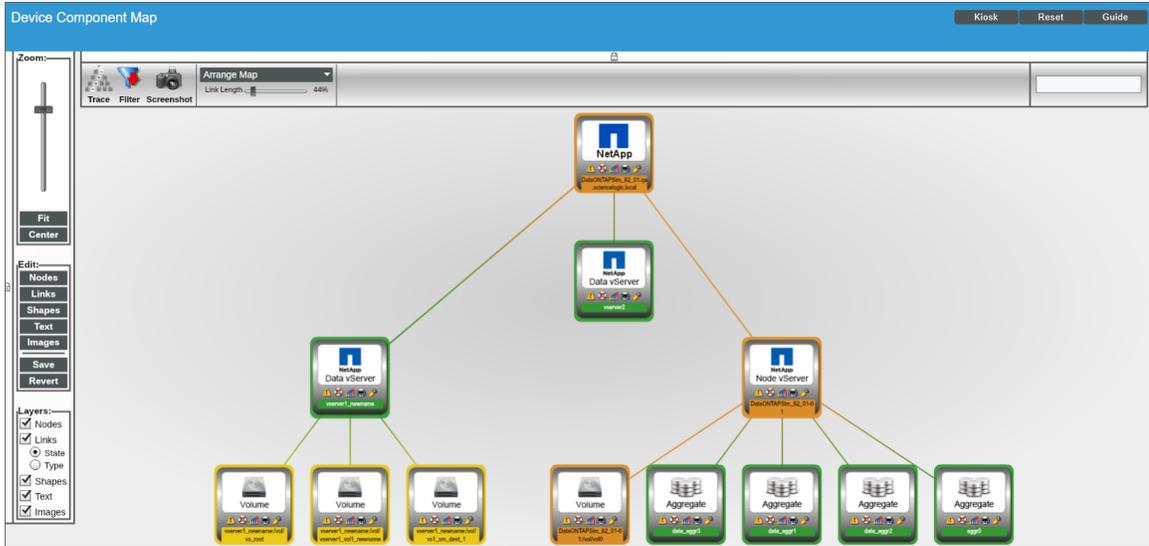
2. Find the NetApp appliance you are interested in and click its plus icon (+).

Viewing Component Devices in the Component Map

The **Component Map** page (Views > Device Maps > Components) allows you to view devices by root node and view the relationships between root nodes, parent components, and child components in a map. This makes it easy to visualize and manage root nodes and their components. The ScienceLogic platform automatically updates the **Component Map** as new component devices are discovered. The platform also updates each map with the latest status and event information.

To view the map for a NetApp appliance:

1. Go to **Component Map** page (Views > Device Maps > Components), and click the map from the list in the left NavBar.



2. A map of the NetApp devices and its components appears.
3. To learn more about the **Component Map** page, see the **Views** manual.

Relationships with Other Types of Component Devices

The ScienceLogic platform can automatically build relationships between NetApp component devices and other associated devices. If you discover a vCenter device using the Dynamic Applications in the VMware: vSphere Base Pack PowerPack, the platform will automatically create relationships between NetApp LUNs and VMware Datastores, where appropriate.

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