User Guide for CSPC Collection Platform Software

March 2024

CSPC 2.11

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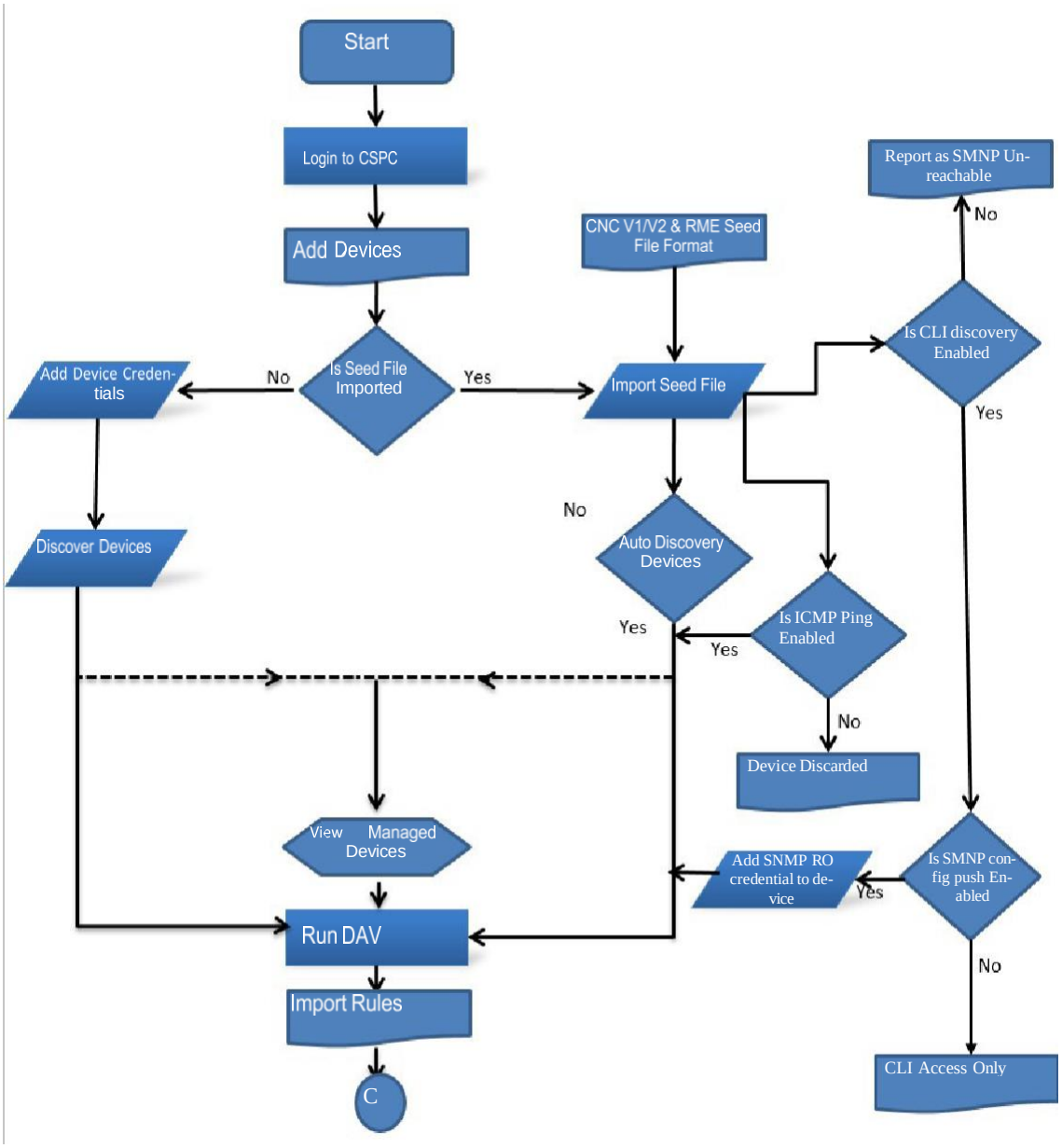
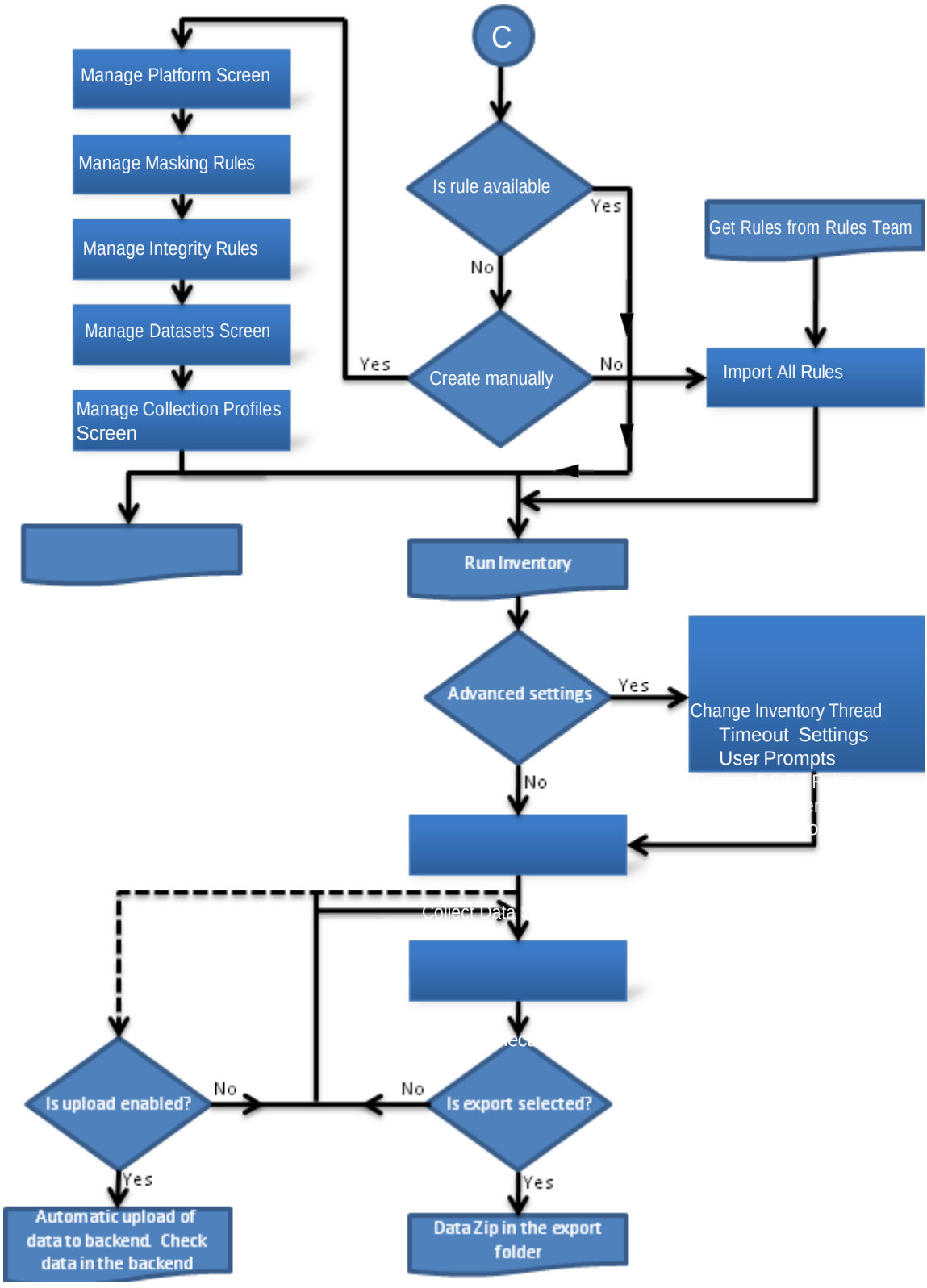



C
Manage Platform Screen
Manage Masking Rules
Manage Integrity Rules
Manage Datasets Screen
Manage Collection Profiles Screen
Is rule available
Yes
No
Get Rules from Rules Team
Yes
Create manually
No
Import All Rules
Run Inventory
Advanced settings
Yes
Change Inventory Thread
Timeout Settings
User Prompts
No
Collect Data
Is upload enabled?
No
No
Is export selected?
Yes
Yes
Automatic upload of data to backend Check data in the backend
Data Zip in the export folder

Introduction

Introduction to CSPC Collection Platform Software

The Cisco Common Service Platform Collector (CSPC) is an SNMP-based tool that discovers and collects information from the Cisco devices installed on your network. The CSPC software provides an extensive collection mechanism to gather various aspects of customer device data. Information gathered by the collector is used by several Cisco Service offers, such as Smart Net Total Care, Partner Support Service, and Business Critical Services. The data is used to provide inventory reports, product alerts, configuration best practices, technical service coverage, lifecycle information, and many other detailed reports and analytics for both the hardware and operating system (OS) software.

This User Guide explains how to use CSPC software version 2.11. Refer to **CSPC Release Notes** for program updates, important notes, image location and other information.

CSPC 2.10 and earlier releases are no longer supported. If you experience problems with an earlier release you are recommended to update the collector software version to latest available.

Who Should Use This Guide?

This guide is written for Network and Security Administrators and Cisco Network Engineers who want to collect information on heterogeneous networks comprised of network devices such as routers, switches, firewalls, wireless devices, intrusion prevention systems, and so forth.

You should be familiar with network fundamentals, connectivity, network device configuration and administrative tasks you want to perform over your network.

About this Guide

The *CSPC User Guide* covers all available functionality in CSPC user interface.

CSPC EOL Versions

ALL CSPC < 2.11 have reached EDoS. Upgrade your collectors!

For continued effective delivery of services, customers are required to be on the supported versions of the collectors. You are running into issues; you may be required to update the collector software version before TAC helps in diagnosing the problem.

Figure 2-1 CSPC EOL Info

EOL Date	EOL Version	EoSWM Date	LDoS Date
Dec, 2012	CSPC 2.0.3	Jan, 2013	Apr, 2013
July, 2013	CSPC 2.1	Aug, 2013	Nov, 2013
April, 2014	CSPC 2.2	May, 2014	Aug, 2014
June, 2015	CSPC 2.3	July, 2015	Oct, 2015
March 3, 2016	CSPC 2.4	April 3, 2016	July 3, 2016
March 20, 2017	CSPC 2.5	April 20, 2017	July 20, 2017
May 9, 2018	CSPC 2.6	June 9, 2018	Oct 10, 2018
September 25, 2020	CSPC 2.7	October 25,2020	January 25, 2021
September 30, 2021	CSPC 2.8	Oct 30, 2021	January 30, 2022
March 31, 2023	CSPC 2.9	March 31, 2023	March 31, 2023
June 30, 2024	CSPC 2.10	July 30, 2024	Oct 30, 2024

Accessing the CSPC Collector

CSPC 2.11 is a web based application and can be accessed by using a URL.

Note Supported browsers are Microsoft Internet Explorer 11, Chrome 85, and Mozilla Firefox 80. It is recommended to use Mozilla Firefox.

Follow the steps given below to access the CSPC application:

Step 1 In a web browser, open the URL:

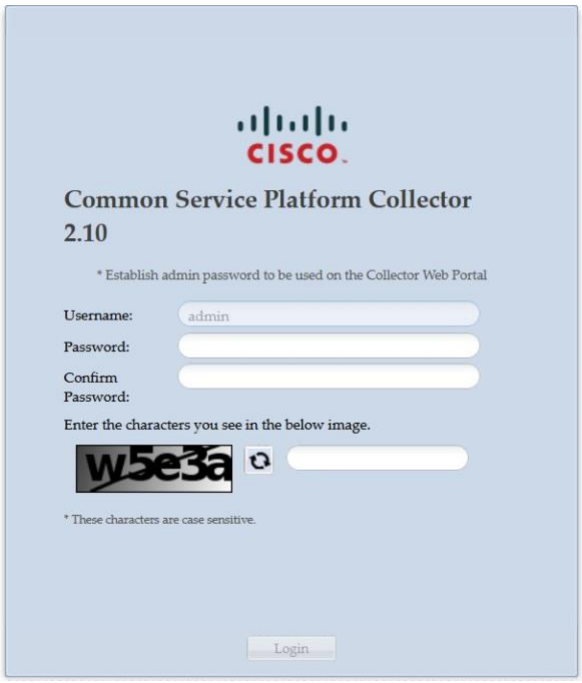
https://<cspc-server-ip>:8001/cspcgxt

Note

- CSPC-server-ip in the above URL is the IP address of the machine on which CSPC is installed.
- Certificate Error showing the website's security certificate message is displayed when you access the above URL. Click **Continue** to this website link or Upload the SSL Certificate to proceed for login. Refer Uploading Valid SSL Certificate
- You can use the default username and default username is **admin**. You have set the password for the first login.
- User account password will expire in 3 to 12 months and default is 6 months. Maximum password reset time is 12 months.
- All the failed logins are detected and audited
- Number of failed user password entries that can be tried before that user account or IP address is locked and default values is 5 times
- Number of minutes that a user's account or IP address remains inaccessible after being locked in response to several invalid login attempts within the amount of time specified by the Lockout Reset Duration attribute and default values is 60 minutes.
- Time frame within which invalid login attempts must occur in order to lock the user account and default value is 5 minutes.

Step 2 Setup the password for admin user and enter characters in the image, this is only for first login and screen appears as shown below.

Figure 2-2 Setup Password



Recommendations on Password Usage

Password Creation

- All passwords, passphrases, and PINs ("passwords") must comply with the Password Construction Standard.
- Users must not use the same password for Cisco accounts and for other non-Cisco access (for example, users must not use the same password (CEC) for Cisco accounts as for other non-Cisco access (for example, personal accounts, option trading, banking). Users must not store Cisco account passwords in external locations such as cloud service providers (for example, personal banking, email, and social media).
- Accounts used for administration with system-level privileges granted through group memberships or programs such as "Sudo", must have a unique password from all other accounts held by that user to access system-level privileges.

Password Change

- All user-level passwords (CSPC UI, SSH and CLI) must be changed at minimum every six months.
- All system-level passwords (privileged administration accounts or user-level accounts with privileged administration access) must be changed at minimum every 90 days.
- All production system-level passwords must be part of the Corporate Information Security administered global password management database
- If a password is guessed or cracked during period or random scans, the password must be changed to comply with this policy.

Password Protection

- Passwords must not be shared with anyone, including administrative assistants, managers, coworkers, and family members. All passwords must be classified Cisco Restricted data and handled according to the Data Protection Standard.
- Systems, applications, devices, and services must not store or transmit passwords in clear text or in any easily reversible form.
- Passwords must not be inserted into email messages, support cases, or other forms of electronic communication.
- Do not write passwords down and store them anywhere in your office. Do not store passwords in an unencrypted file on a computing device, mobile phone, or tablet.
- Do not use the "Remember Password" feature of applications (for example, web browsers) on non-trusted devices.
- Users must report any suspected password compromise and reset all passwords immediately.

Password Retrieval

- Password retrieval questions must be entered at the time of first log-in
- At least three security questions to be answered out of 20
- Lost passwords cannot be retrieved without answering the security questions

Default Password

- Number of default user/Password shall be limited to bare minimum, depending on the application need.
- All default password if/when needed shall be dynamic. In other words, attempt shall be made to make the default passwords installation specific so that it cannot be used to compromise more than one system
- Default user ID and password shall also follow Cisco InfoSec policy as defined above
- Strong passwords and passphrases must meet the following requirements:
- Contain at least eight alphanumeric characters.
- Contain both upper and lower case letters.
- Contain at least one number (for example, 0-9).
- Contain at least one special character (for example: !$%^&*()_+|~-=\`{}[]:";'<>?,/).
- In CLI Prefix all these characters (! $ & ( ) | \ ; ' >) with escape character (for example: \!).
- In CLI these characters (" < ' ?) are not accepted.

Not Permitted Characters

The following characters are not permitted because they may conflict with some Cisco applications:

- Special 8-bit characters (for example, £, Á ë, ô, Ñ, ¿, ß)
- Spaces

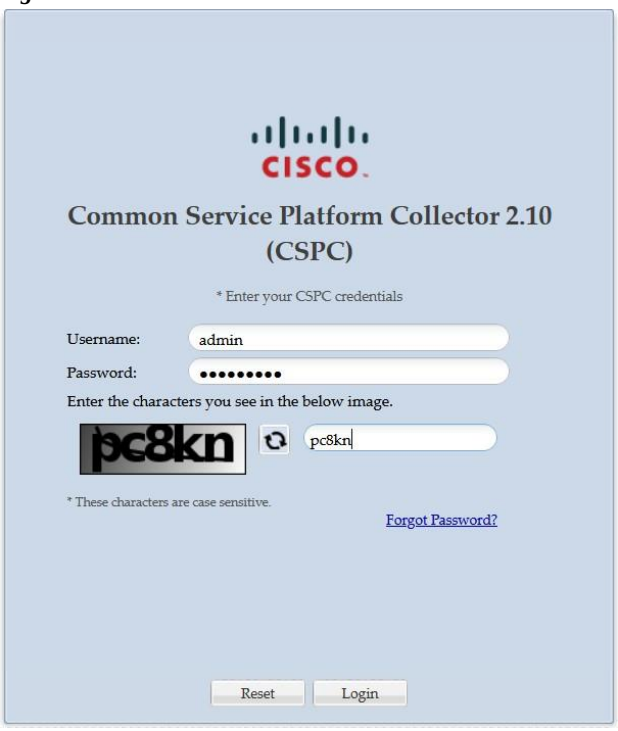
Not Permitted Password or Passphrase

The following password or passphrase characteristics are not permitted:

- Match previous ten password or passphrases.
- Contain less than eight characters.
- Can be found in a dictionary, including foreign language, or exist in a language slang, dialect, or jargon
- Contain personal information such as birth dates, addresses, phone numbers, or names of family members, pets, friends, and fantasy characters
- Contain work-related information such as building names, system commands, sites, companies, hardware, or software
- Contain the words cisco, sanjose, sanfran or a derivation
- Contain number patterns such as aaabbb, qwerty, zyxwvuts, or 123321
- Contain common words spelled backward, or preceded or followed by a number (for example, terces, secret1 or 1secret).

Step 3 Enter the credential and characters in the image, click **Login**.

Figure 2-3 CSPC Collector



Step 4 Answer the questions and click **OK** button to save the password reset questions.

Figure 2-4 Password Reset Questions

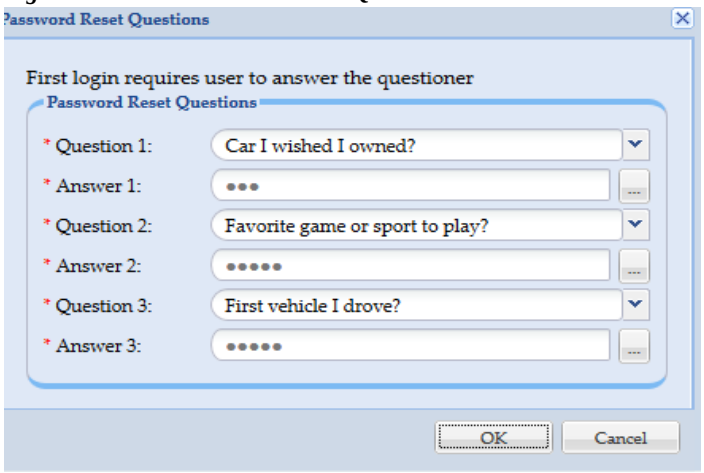
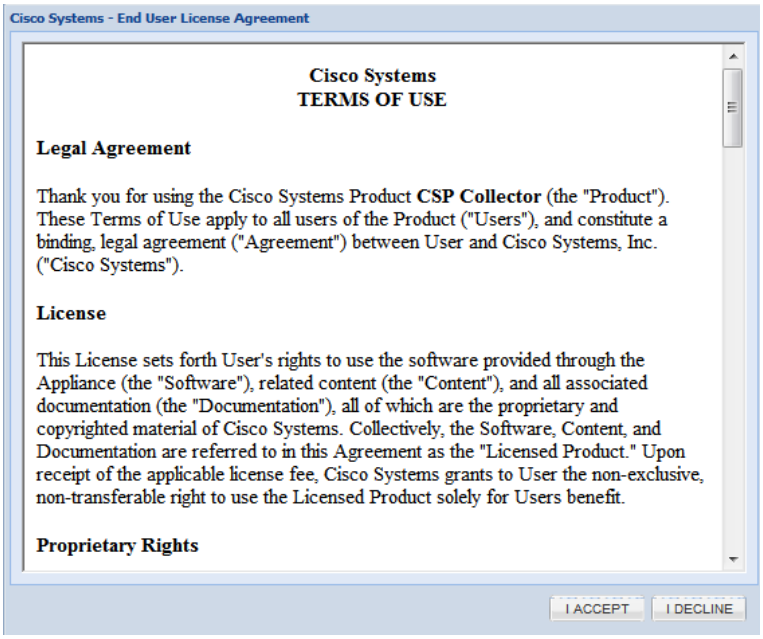


Figure 2-5 End User License Agreement



Step 5 Click **Accept** button to accept the terms of use.

Step 6 Enter the required fields to configure CSPC to collect devices. Click **Next**.

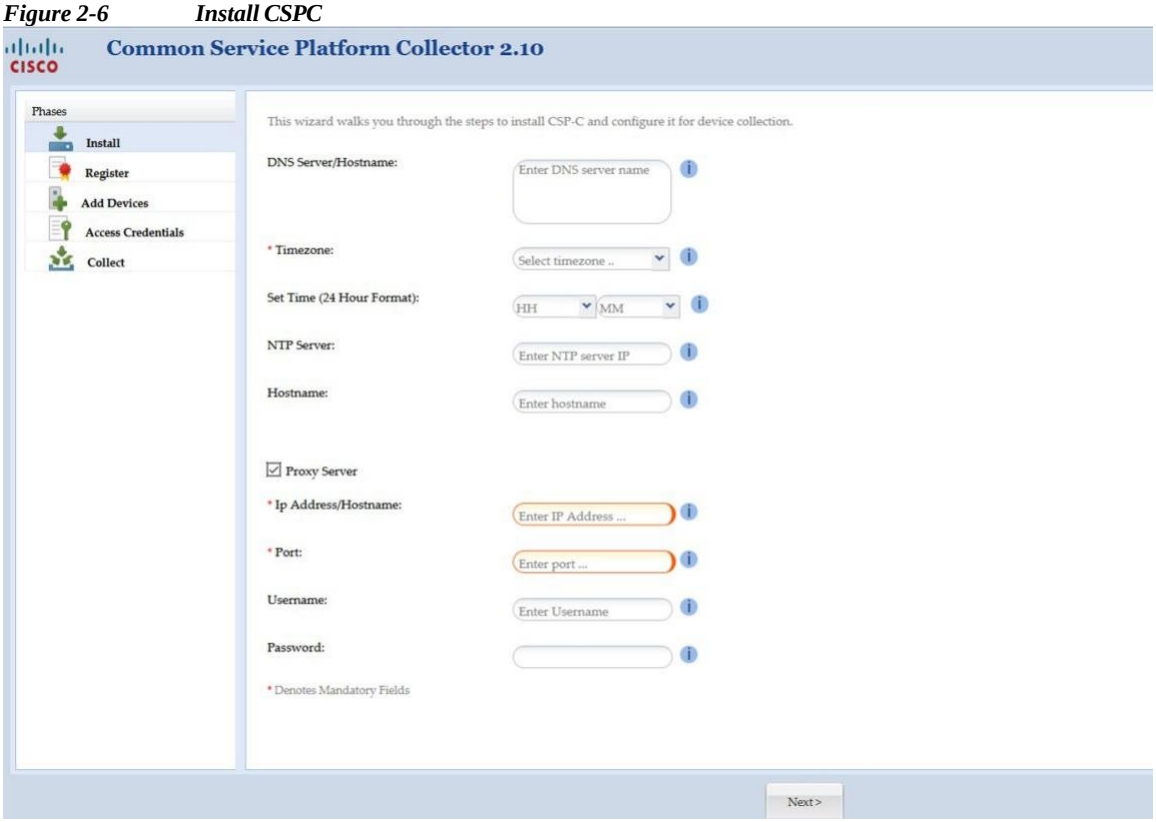
Table 2-1 Wizard Parameters

Parameter	Description
DNS Server	IP Address of DNS Server
NTP Server	IP Address of NTP Server
Time zone	Time zone of the collector
Set Time	Sets the appliance time, and time should match the actual time of the selected time zone
Host Name	Name of the host

Parameter	Description
IP Address/Host Name	IP Address or Host Name of Proxy Server
Port	Port number of Proxy Server
Username	Credentials of Proxy Server
Password	

Note Proxy server is optional. It takes 30 second to configure.

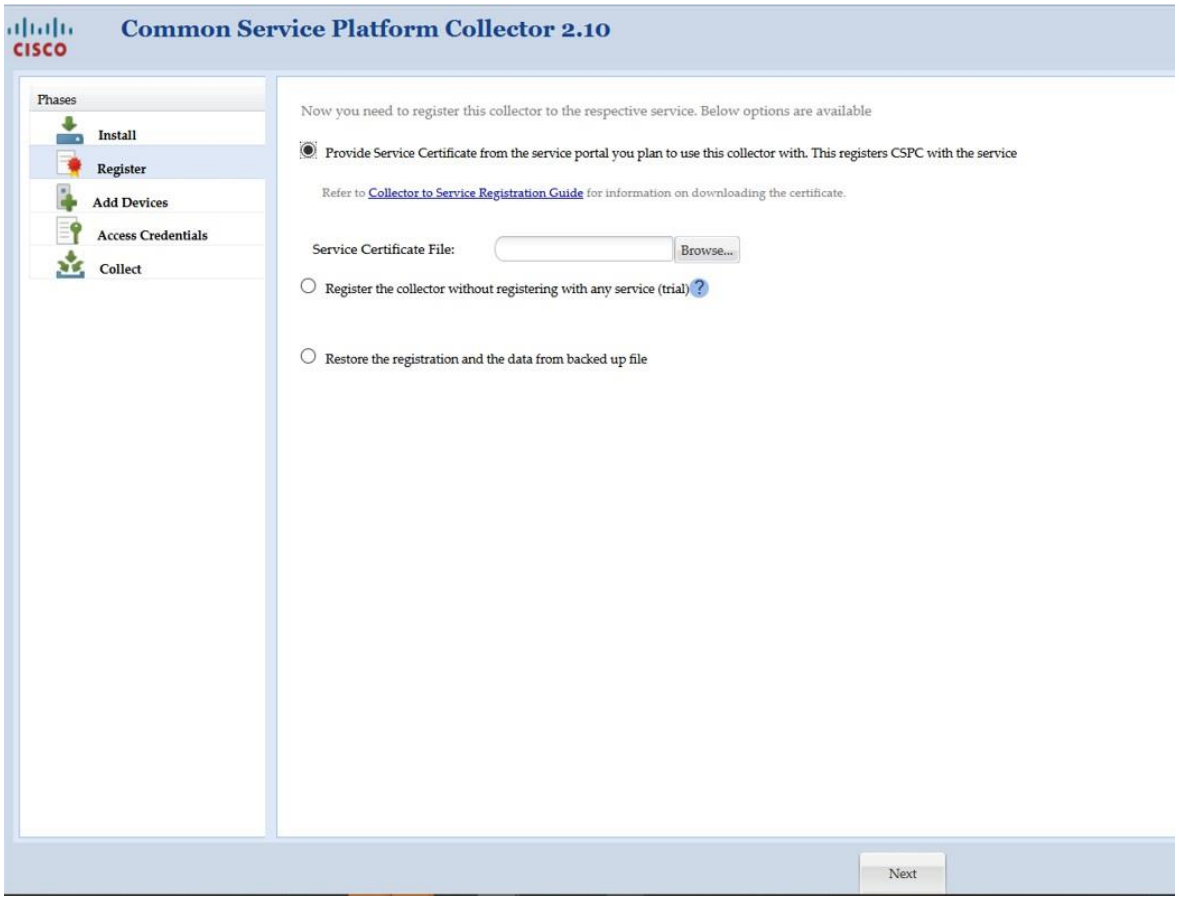
Figure 2-6 Install CSPC



Step 7 You can register using one of following:

- Browser to upload the **Service Certificate File**.

Figure 2-7 Service Certificate File



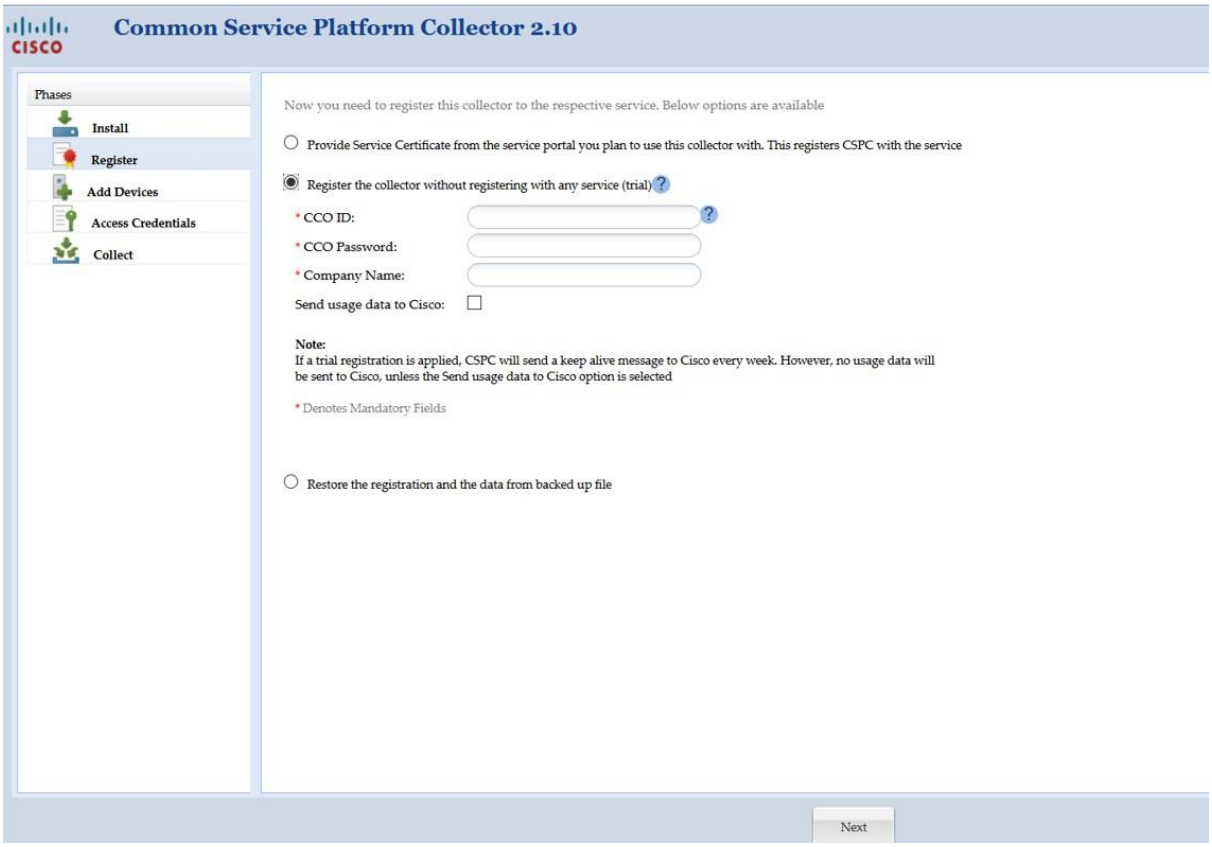
OR

- Enter COO Credentials to get trail license. Select **Send Usage Data to Cisco** only if required and click **Next**

Note

- You can download the CSPC and install using trail license, but CSPC needs to register with Cisco before start using it. You can configure CSPC using the wizard as the first option.
- If you like to login to Cisco pages and get benefits, then you have create Cisco.com ID (CCO ID) this is the user ID

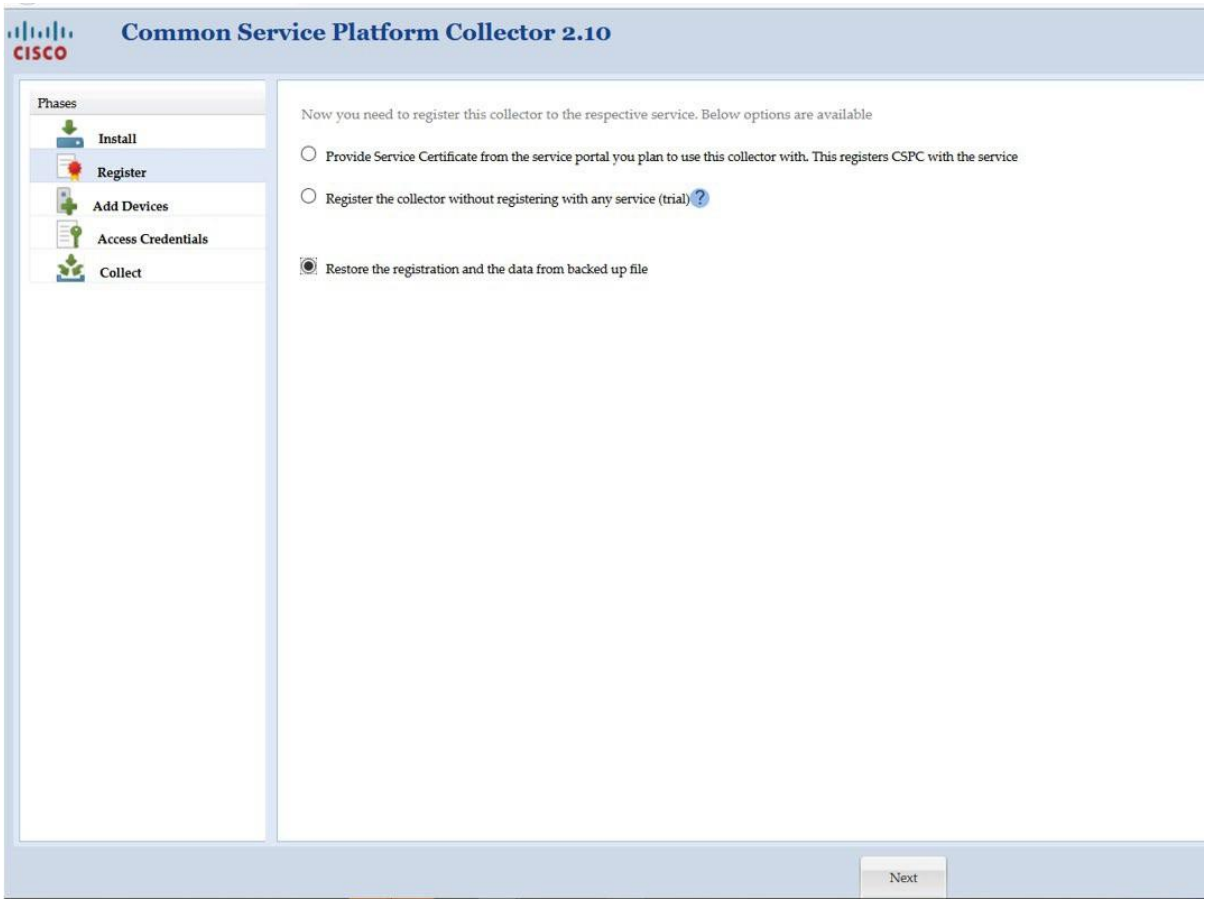
Figure 2-8 COO Credential



OR

- To restore the backup select **Restore the registration and the data from backed up file**.

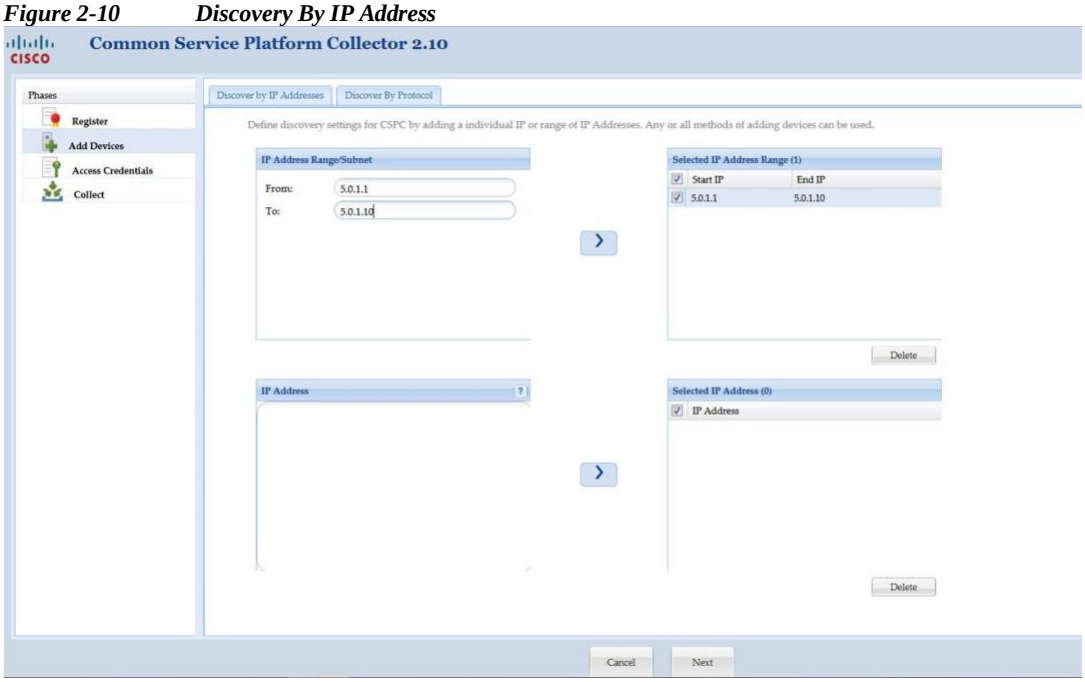
Figure 2-9 Restore Backup



Step 8 You can add device using one of following and click **Add Device**:

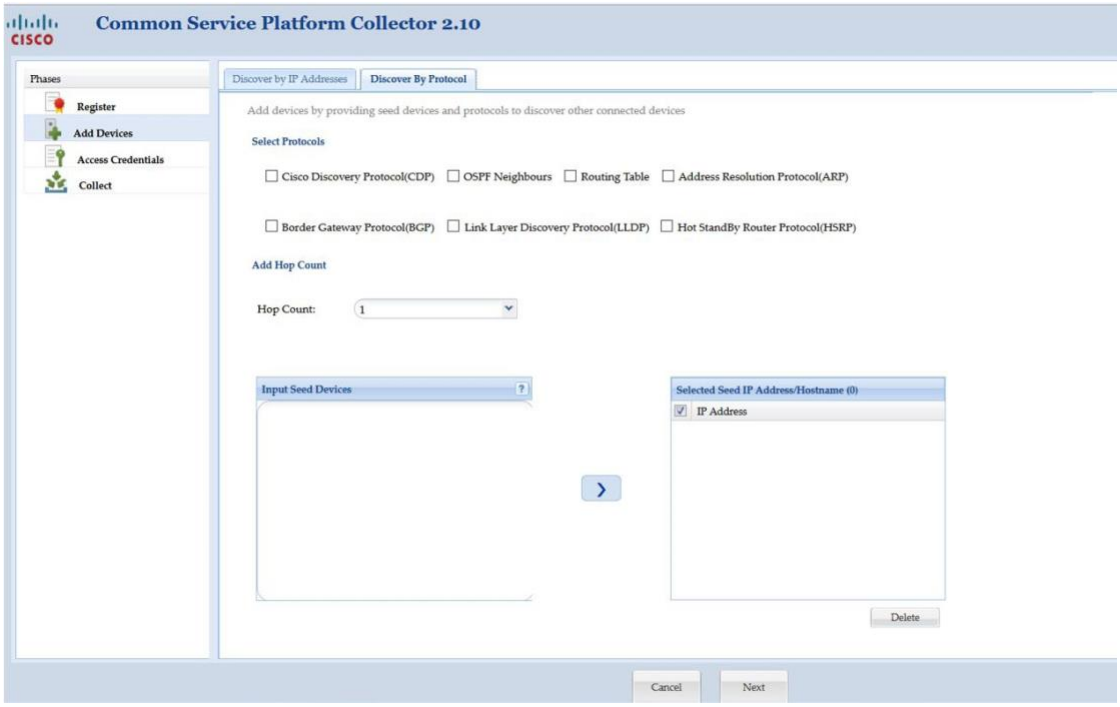
- Enter **IP Address** and use > to select the IP Address or range of IP Address.

Figure 2-10 Discovery By IP Address



- Select the required **Protocol(s)**, **HOP Count,** and **Seed IP Address**. Use > to select seed IP Address.

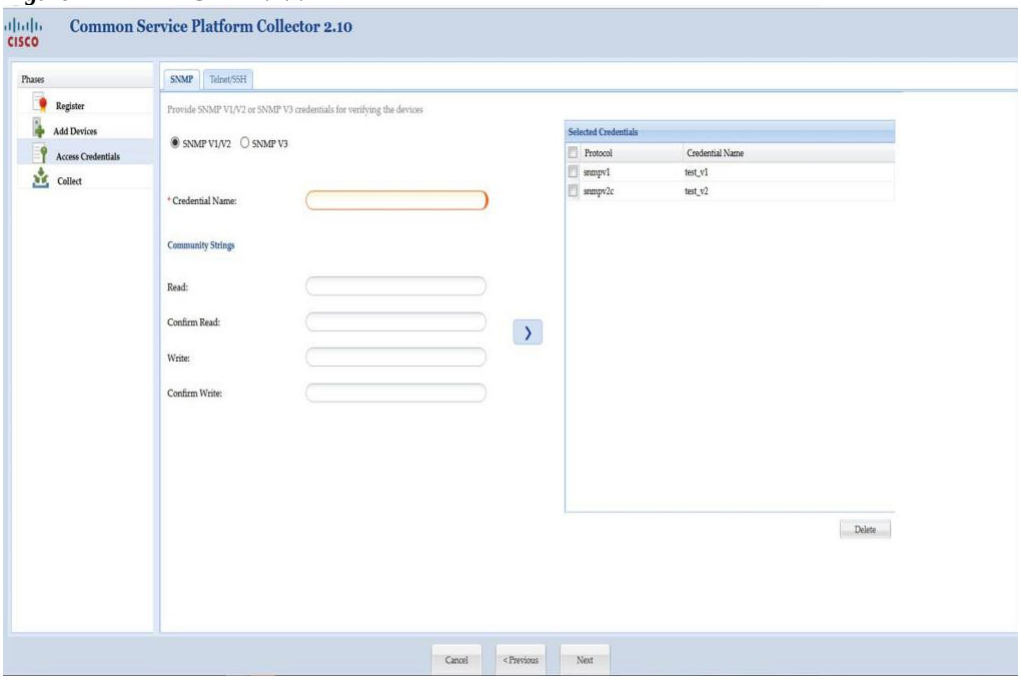
Figure 2-11 Discovery By Protocol



Step 9 You can add credential using one of following and click **Add Credential**:

- If you select **SNMPV1/V2** enter **Credential Name**, **Read**, and **Write Community String**. Use > to select credential.

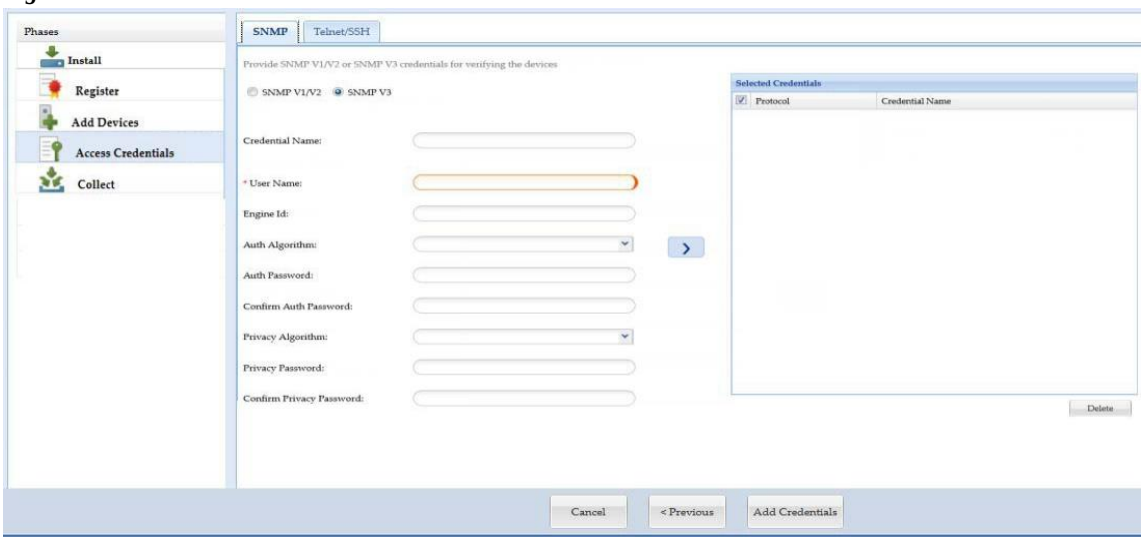
Figure 2-12 SNMPV1/V2



If you select **SNMPV3** enter **Credential Name**, **User Name**, **Engine ID**, **Auth Algorithm**,**Password, Privacy Algorithm**, **Password**. Use > to select credential.

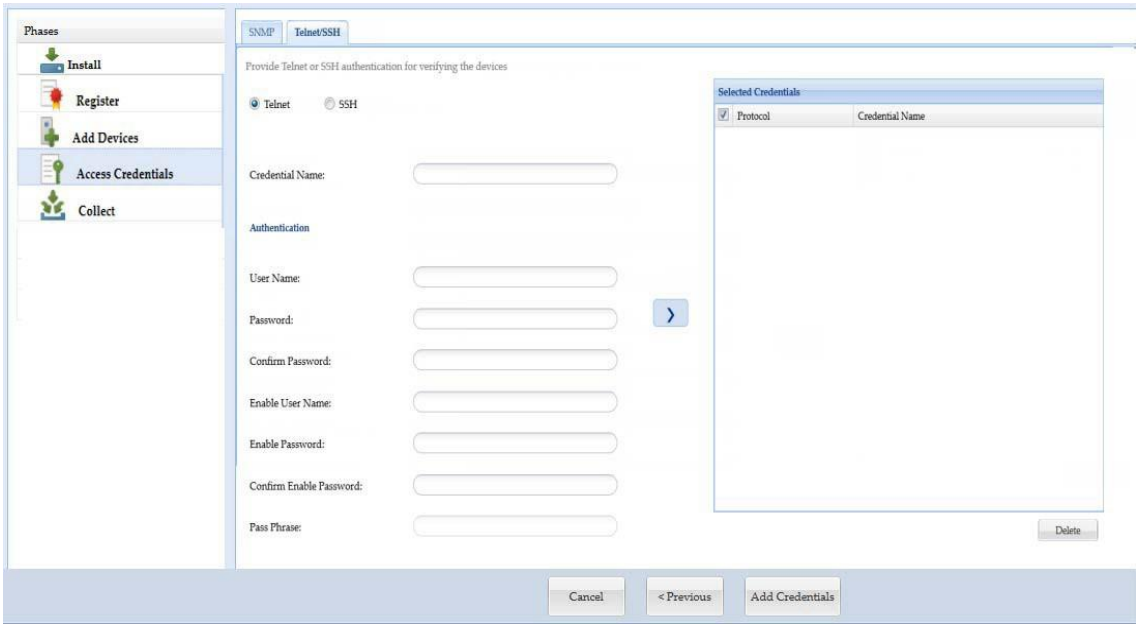
Note It is recommended to use unique SNMP V3 engine ID and ID should not be null. Reference: RFC - 2571.

Figure 2-13 SNMPV3



- If you select **Telnet** enter **Credential Name**, **User Name**, **Password**, **Enable User Name**, **Enable Password**, and **Pass Phase**. Use > to select credential
- If you select **SSH** enter **Telnet** enter **Credential Name**, **User Name**, **Password**, **Enable User Name**, **Enable Password**, and **Pass Phase**. Use > to select credential

Figure 2-14 Telnet and SSH



Step 10 Select **Start Collection now** and click **Collect Now** to start collection instantly or click **Schedule Periodic Collection** and click **Schedule** to collect at a later time. You can schedule Start and End Date/Time or select the Recurrence pattern as Minutely, Daily, Weekly, Monthly, or Yearly as shown in Figure 2-16.

Figure 2-15 Collect Now

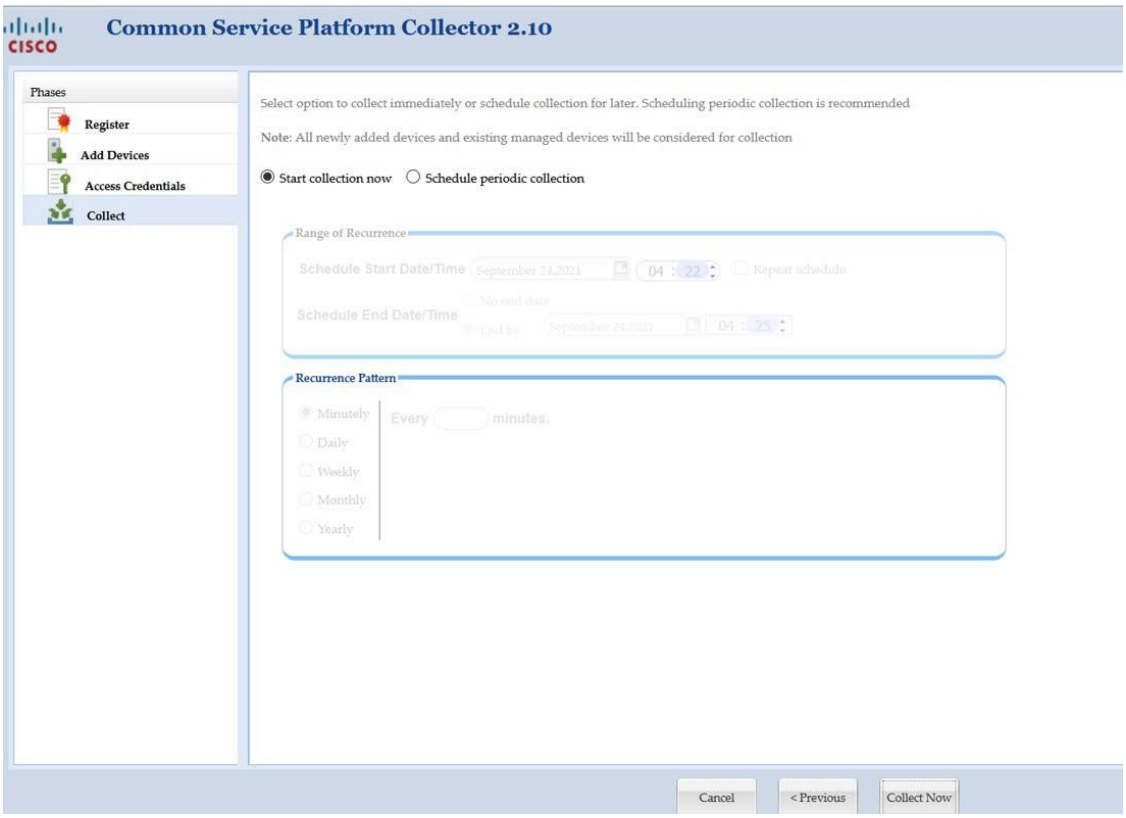
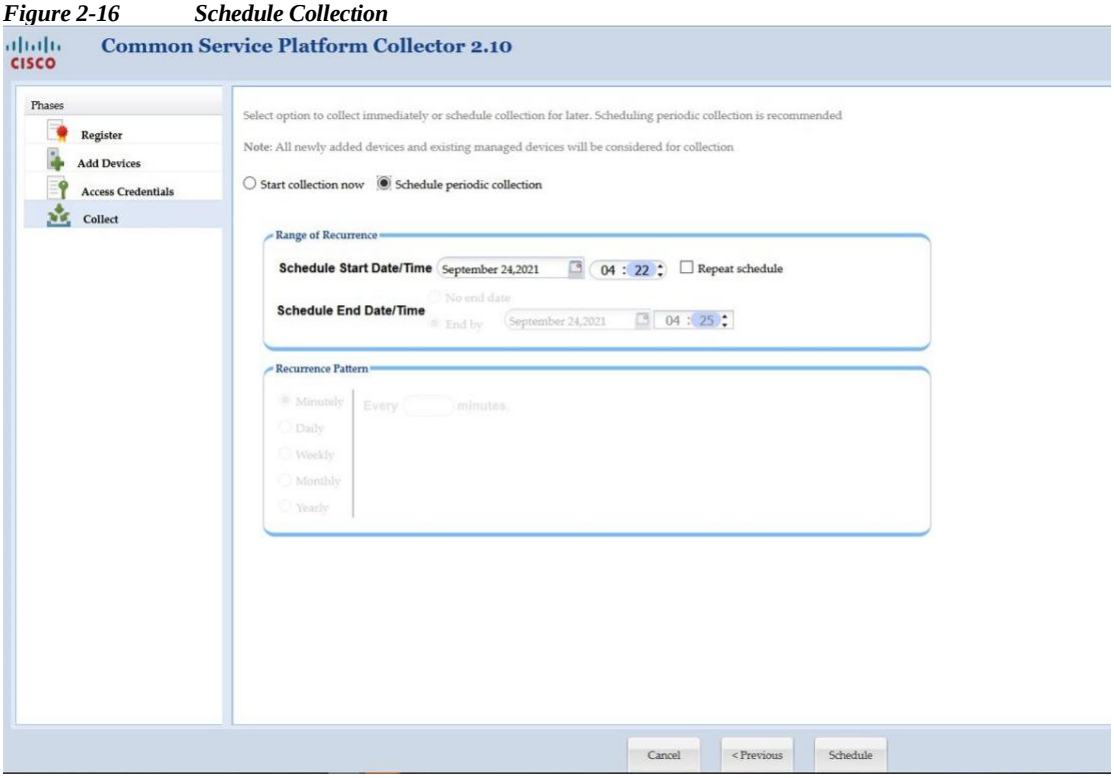


Figure 2-16 Schedule Collection



After logging in to the CSPC Collector, Dashboard screen is displayed

Note If the session is idle for 15 minutes or more, the user is logged out of the application.

Go back to CSPC Flow Chart

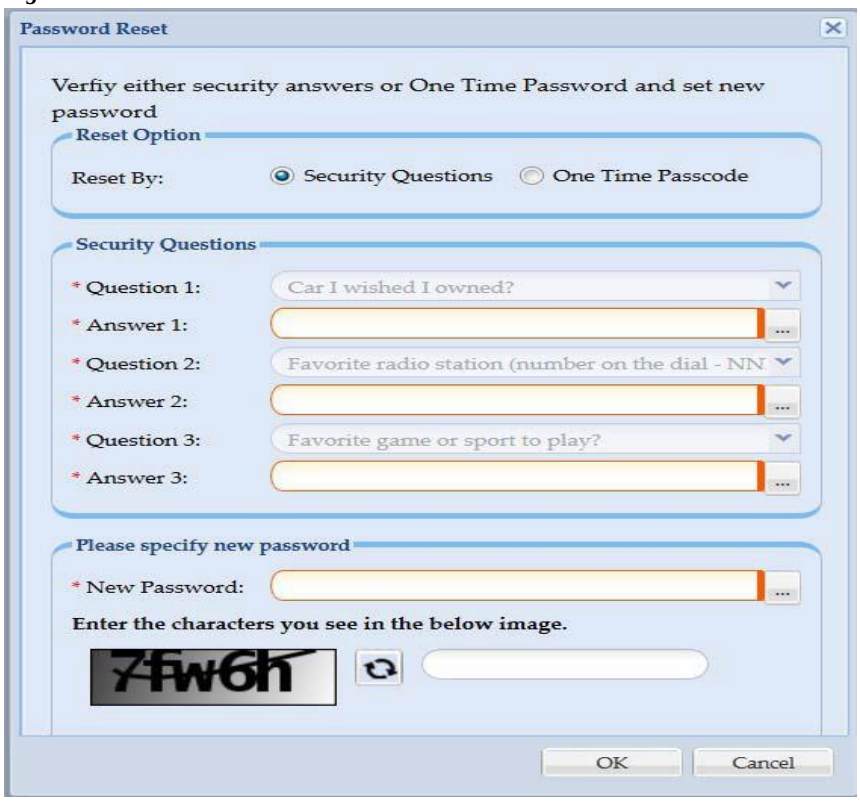
Forgot Password

If you forget password, click **Forgot Password?** link on the login screen. A dialog box as shown below is displayed.

If you select security question option. Answer the set of questions and enter a new password in the **New Password** text box. Enter the characters in the image.

Click **OK** button and the password is reset.

Figure 2-17 Password Reset



If you select One Time Passcode option. Click **Generate OTP** and click **I have OTP** and enter the OTP that was sent to the registered mail ID set in Email Settings and enter a new password in the **New Password** text box. Enter the characters in the image.

Click **OK** button and the password is reset.

Figure 2-18 OTP Generation

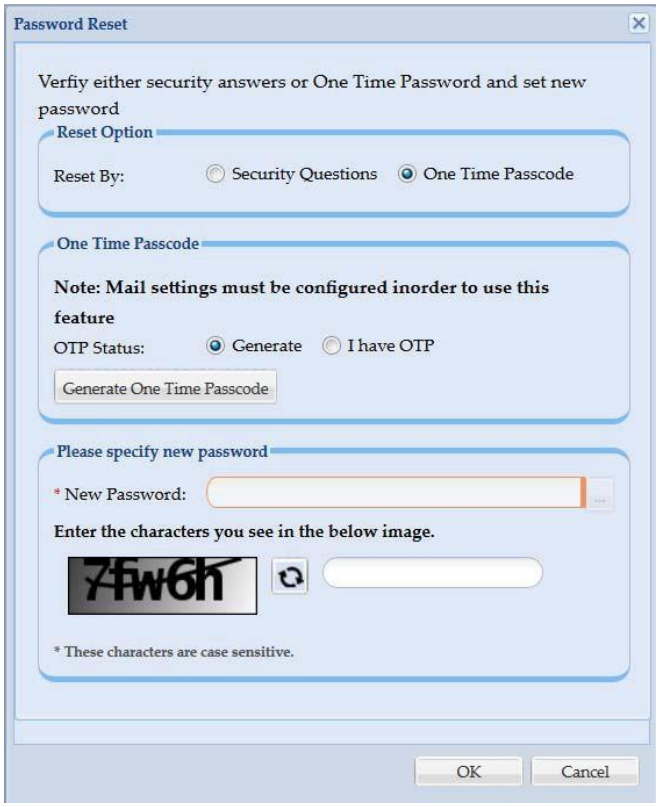
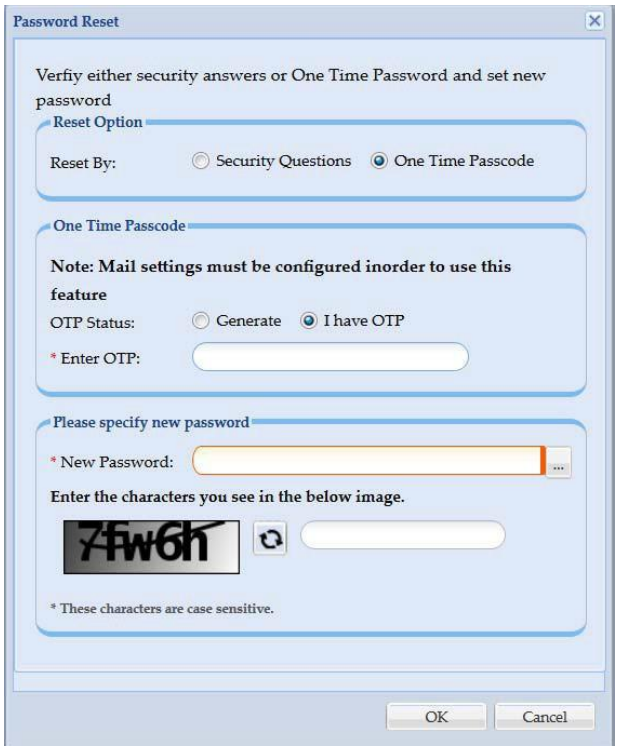


Figure 2-19 OTP Input



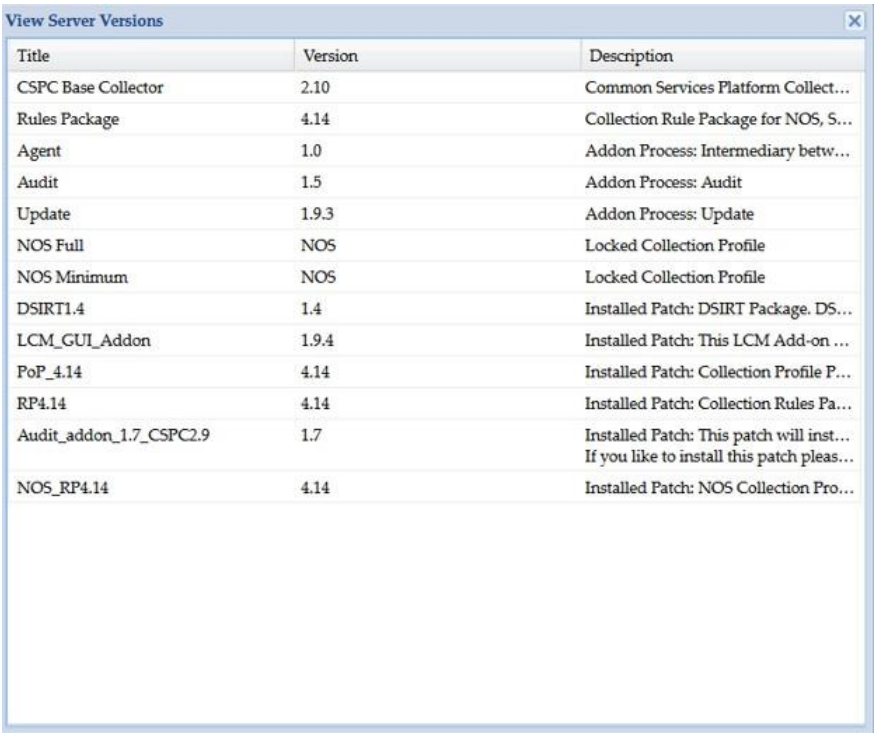
Server And Package Versions

You can view the version of CSPC base collector, add-ons and other optional packages installed on CSPC on View Server Versions screen.

Once you are logged into CSPC, click **Help** menu > **About > View Versions**.

A screen showing the version information as shown in Figure 2-20 is displayed.

Figure 2-20 View Server Version



Note For NOS Audit Addon details will be displayed on the above screen.

CSPC Dashboard

Dashboard

The dashboard is the primary screen of the CSP Collector. This screen is completely customizable for each user. After the layout is specified, it can be saved, and the next time you log in, you can see the customized layout.

Use the Dashboard to access menu options, Device Explorer Tree, Server Activity Log Messages, and the graphs. The dashboard consists of a menu bar (*User*, *Settings*, *Management*, *Reports*, *Administration*, and *Help*), Quick menu bar helps to get easy access to important features, and the two tabs (Dashboard and Applications). A search option is provided for easy navigation to CSPC Application. CSPC Notification communicator on the right corner detects various types of events such as, Job Completion that includes discovery, collection, DAV, upload, and so on. Customer name with certificate name is shown. Once the event is detected CSPC sends an event completion notification to UI and one or more email recipients as configured. Each event can have its own set of recipients. History of events is not maintained. Also, you can view the Server Activity Log Messages. **Disable Secure Browsing for CSPC** disable the Encryption of Communication between browser and server only if require as this might make the application vulnerable to security issues.

The node explorer on the left side of the screen displays all the managed devices by CSPC. Right clicking on any device opens a popup menu displaying selected device properties. Server Activity Log Messages window displays the status messages on both discovery and data collection.

Figure 3-1 CSPC Dashboard (NOS/ CSPT)

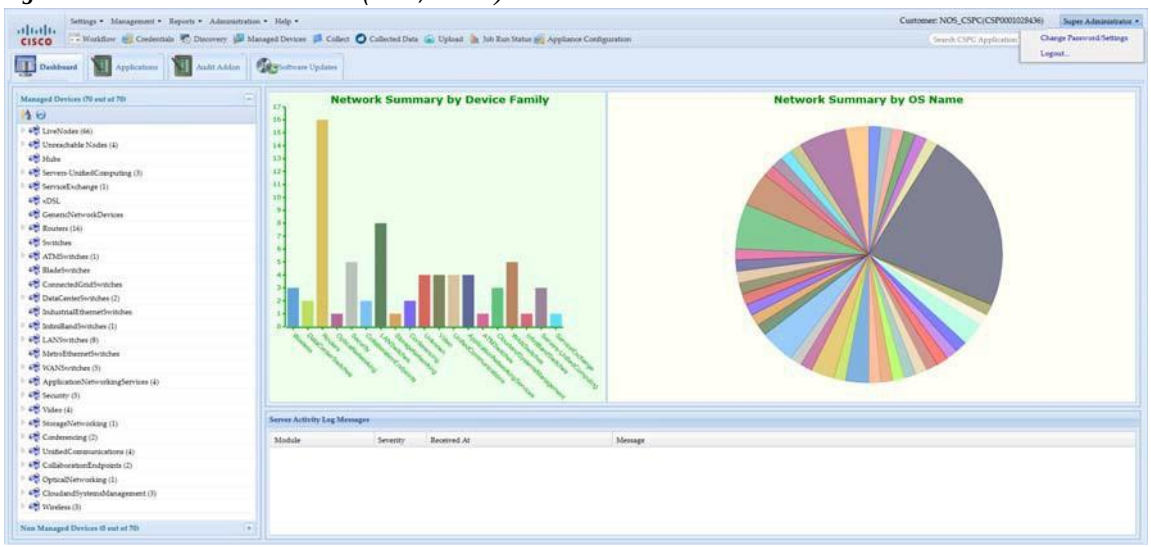
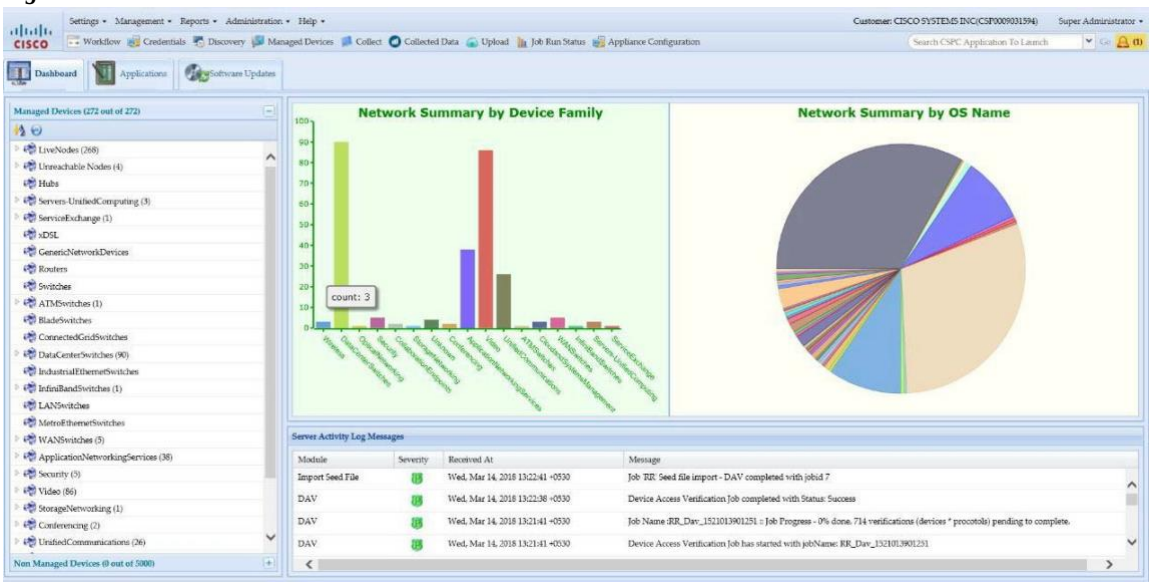
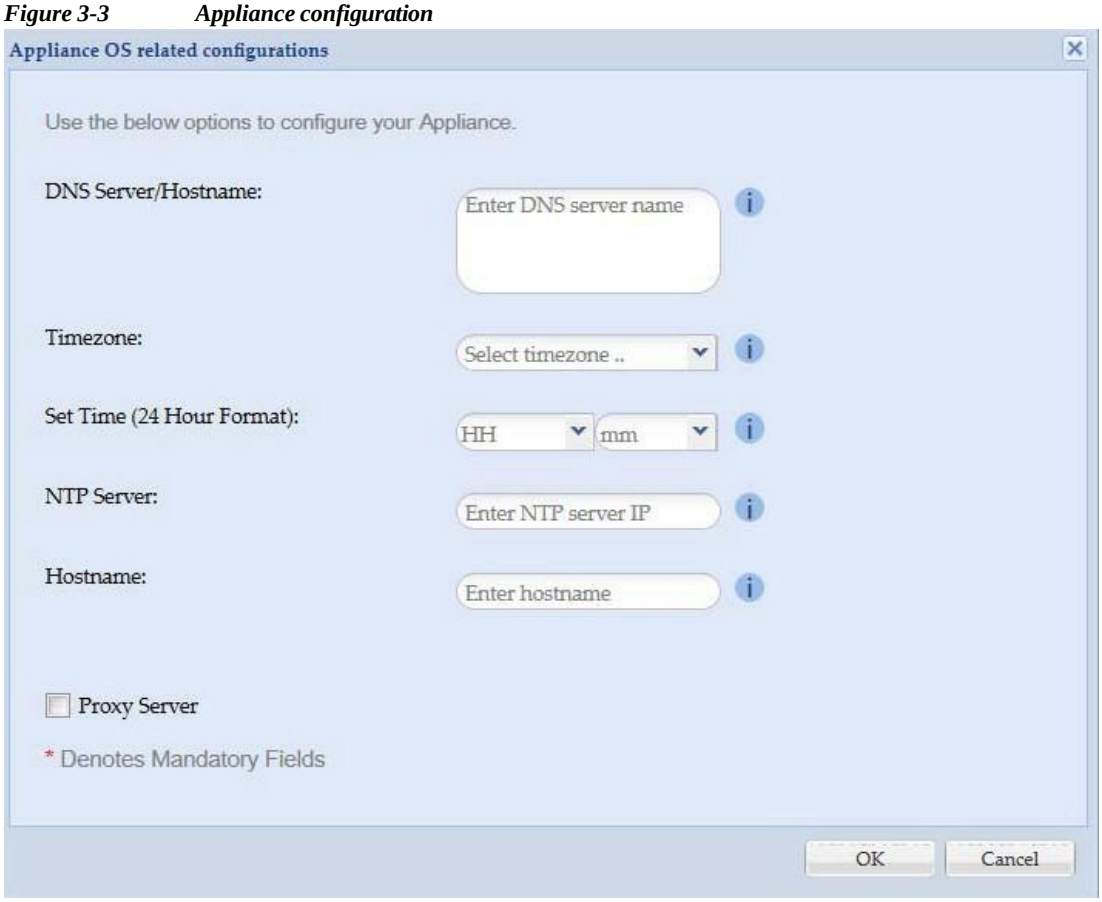


Figure 3-2 CSPC Dashboard



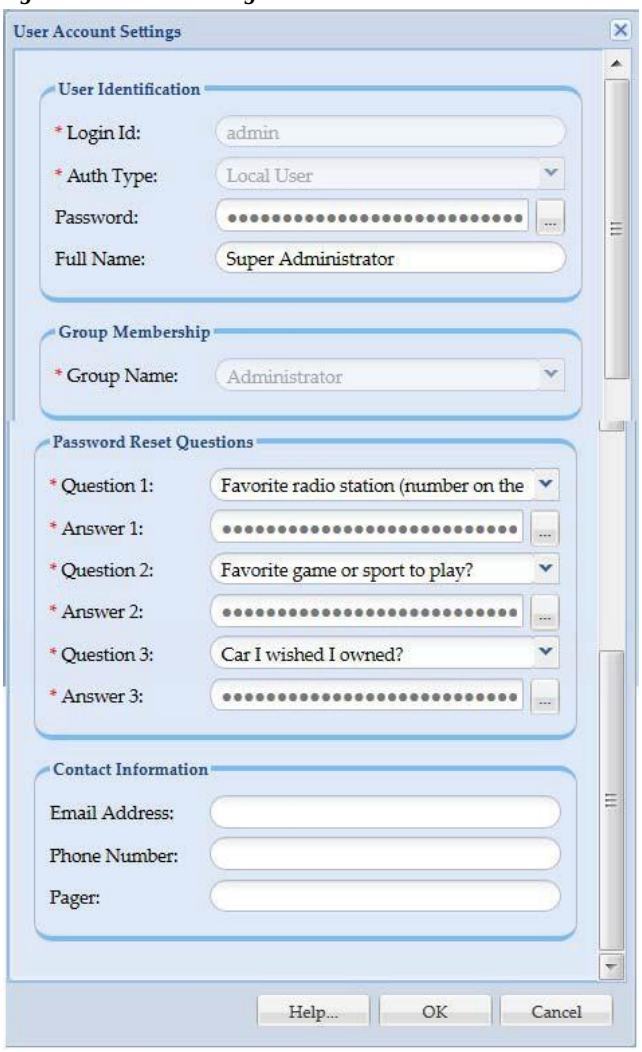
Appliance configuration tab helps you in modifying and configure OS related configurations that was done during installation wizard also see Figure 2-6.

Figure 3-3 Appliance configuration



To Change the password click **Change Password/setting** form drop down on top right of dashboard. Change all the required fields and click **OK.**

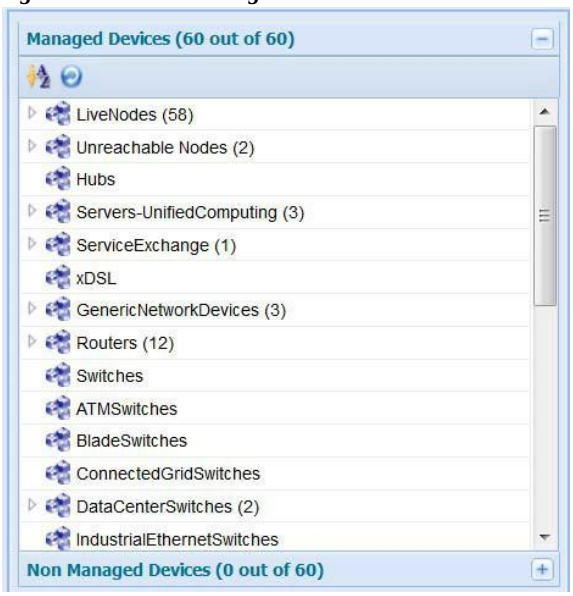
Figure 3-4 Change Password



Managed Devices

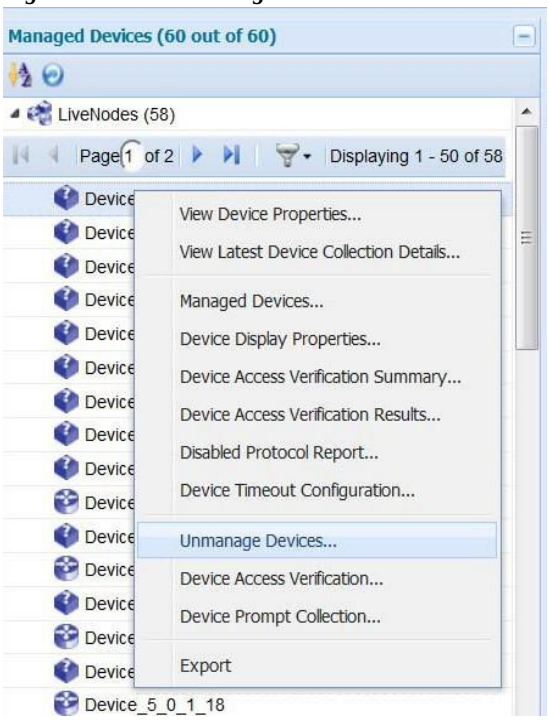
The *Managed Devices* displays the list of the managed network devices, for which data collection is being performed by CSPC. Click on the arrow key next to the device name to expand the list. In the Managed Device Tree at a given time, only up to 50 devices are shown under each network device in the list. Click next button icon in the pagination bar to see more devices.

Figure 3-5 Managed Device Tree



If you right click on any device, a menu as shown in Figure 3-6 is displayed.

Figure 3-6 Managed Devices Menu



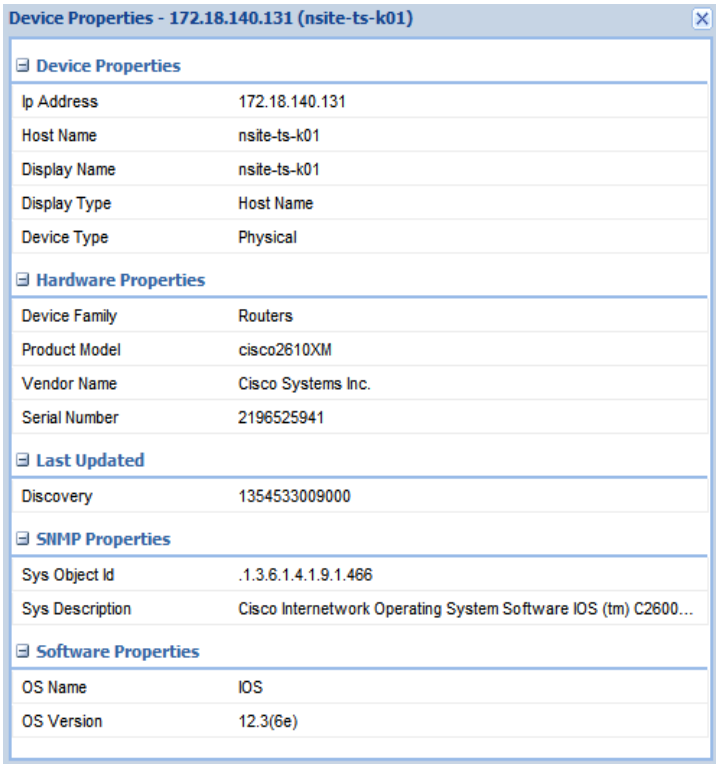
Menu option shows the following options:

- View Device Properties
- View Latest Collection Details
- View Managed Devices
- Device Access Verification Summary
- Device Access Verification Summary
- View Access Verification Results
- Disabled Protocol Report
- Device Timeout Configuration
- Unmanage Devices
- Verify Device Access
- Device Prompt Collection
- Export

View Device Properties

To view the Device Properties, double-click any device or right click and select View Device Properties option. Device Properties screen as shown in Figure 3-7 is displayed.

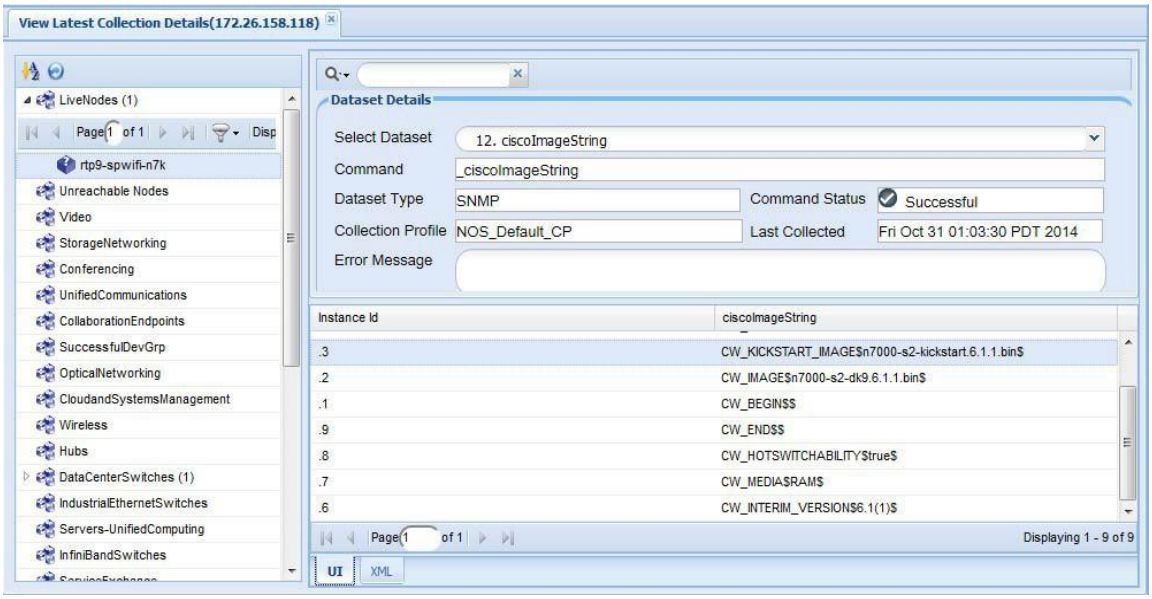
Figure 3-7 Device Properties



View Latest Collection Details

To view the Latest Collection details right click any collection and select Latest Collection Details option. Latest Collection Details screen as shown in Figure 3-8 is displayed. You have select Dataset name from the drop down to view the details such as Command, Dataset Type, Command Status, Collection Profile, Last Collected, and Error Message. UI Commands have both UI and XML tabs and CLI commands have only CLI tab at the bottom of the page. You can also use search to open the dataset details.

Figure 3-8 Latest Collection Details



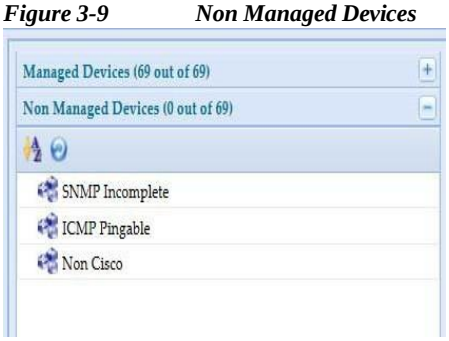
Export

To download the Managed Devices DAV Results file, right click on the folder or the device as shown in Figure 3-6 and select Export option. `ManagedDevicesCredentials.csv` file is downloaded to your system. You can view this file in Microsoft Excel or any similar application.

Non Managed Devices

The Non *Managed Devices* displays the list of the non managed network devices, for which data collection is being performed by CSPC. Click on the arrow key next to the device name to expand the list.

Figure 3-9 Non Managed Devices



CSPC Workflow

This is a powerful feature that helps you to discovery, add credentials, and collect device in one go. There are two types to add devices such as, Discovery by IP Address or Discovery by Protocol. You canaccess credential using SNMP V1/V2 ,V3, Telnet, or SSH and collect now or schedule it later.

To start the workflow, follow the steps below:

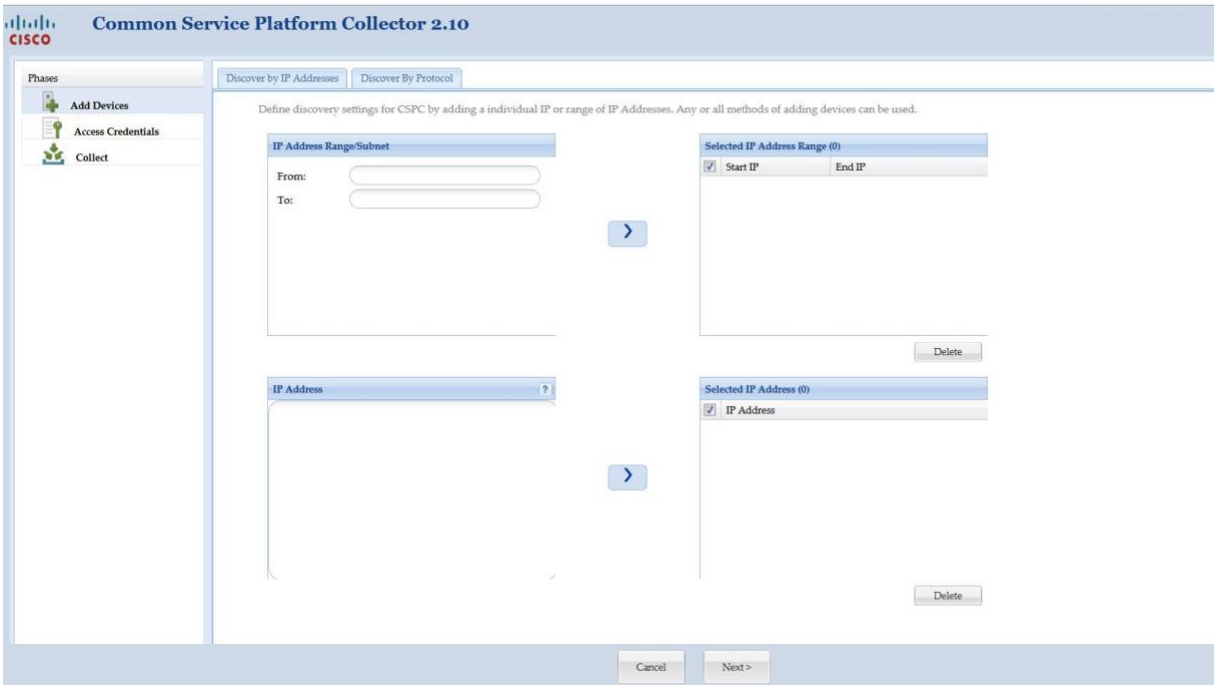
Step 1 Click **Workflow** from menu bar.

Figure 4-1 Workflow Menu

Step 2 You can add device using one of following and click **Next**:

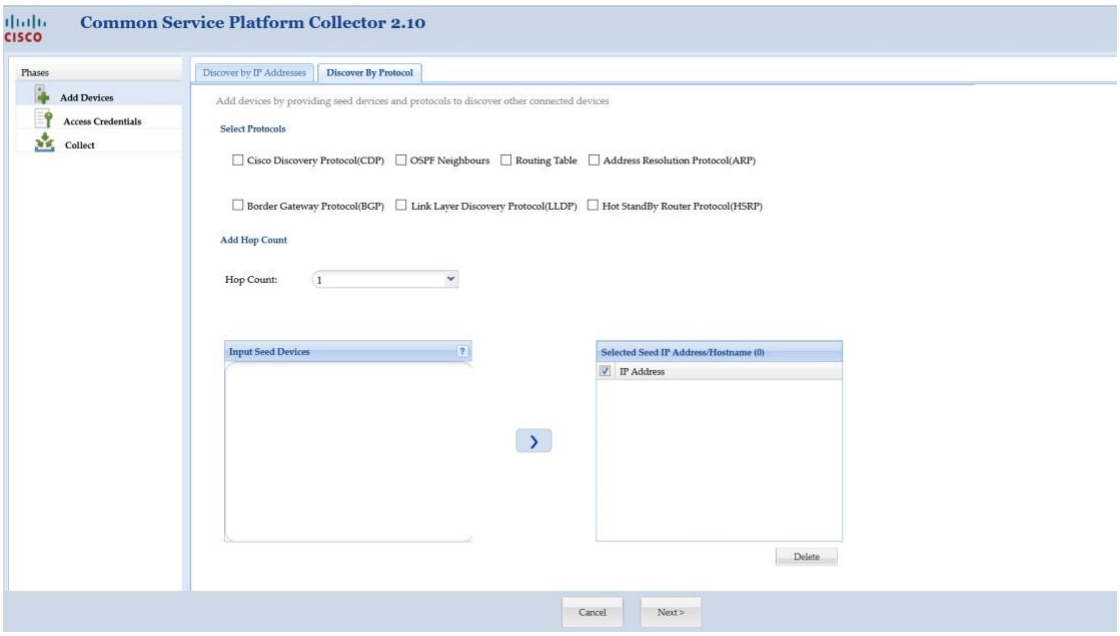
- Enter **IP Address** and use > to select the IP Address. You can also give range of IP Address.

Figure 4-2 Discovery By IP Address



- Select the required **Protocol(s)**, **HOP Coun**t, and **Seed IP Address**. Use > to select seed IP Address.

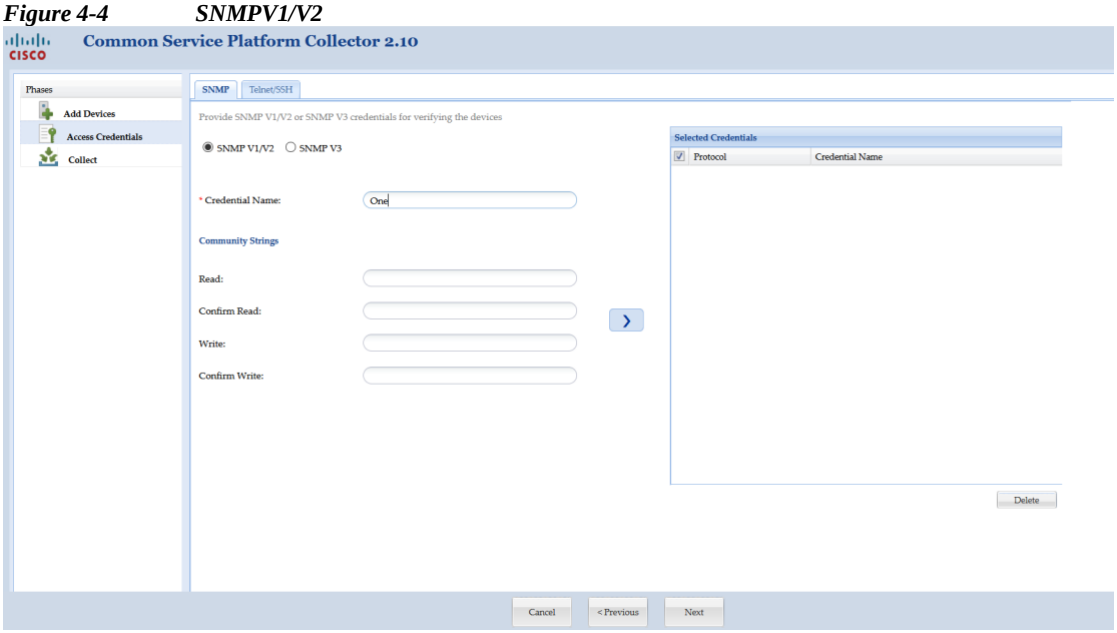
Figure 4-3 Discovery By Protocol



Step 3 You can add credential using one of following and click **Add Credential**:

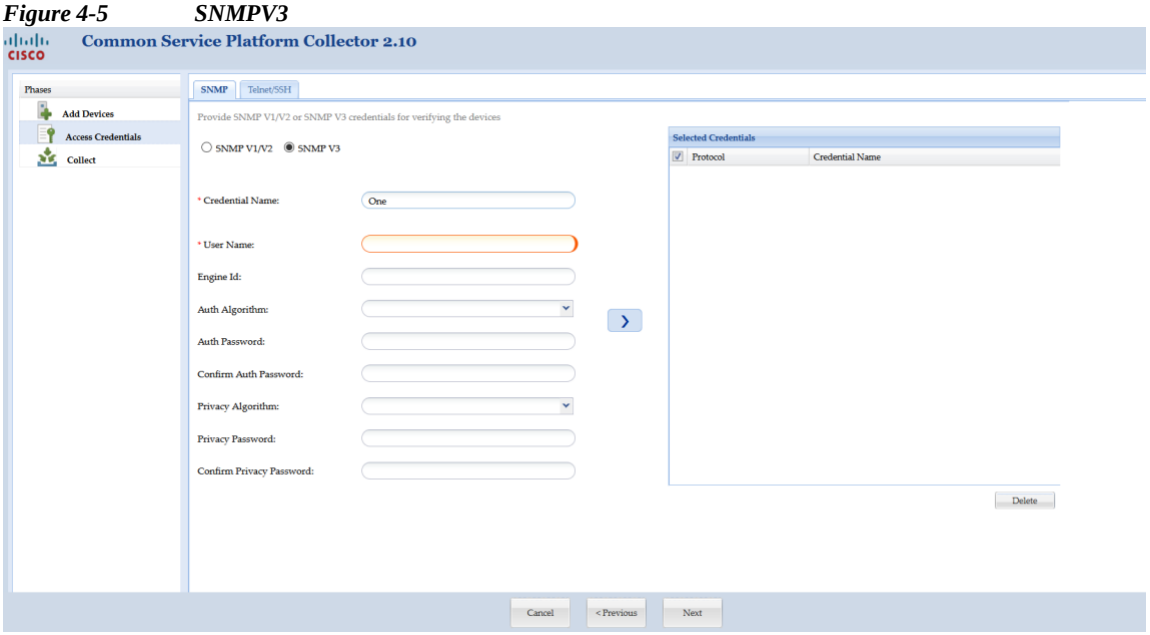
- If you select **SNMPV1/V2** enter **Credential Name**, **Read**, and **Write Community String**. Use > to select credential.

Figure 4-4 SNMPV1/V2



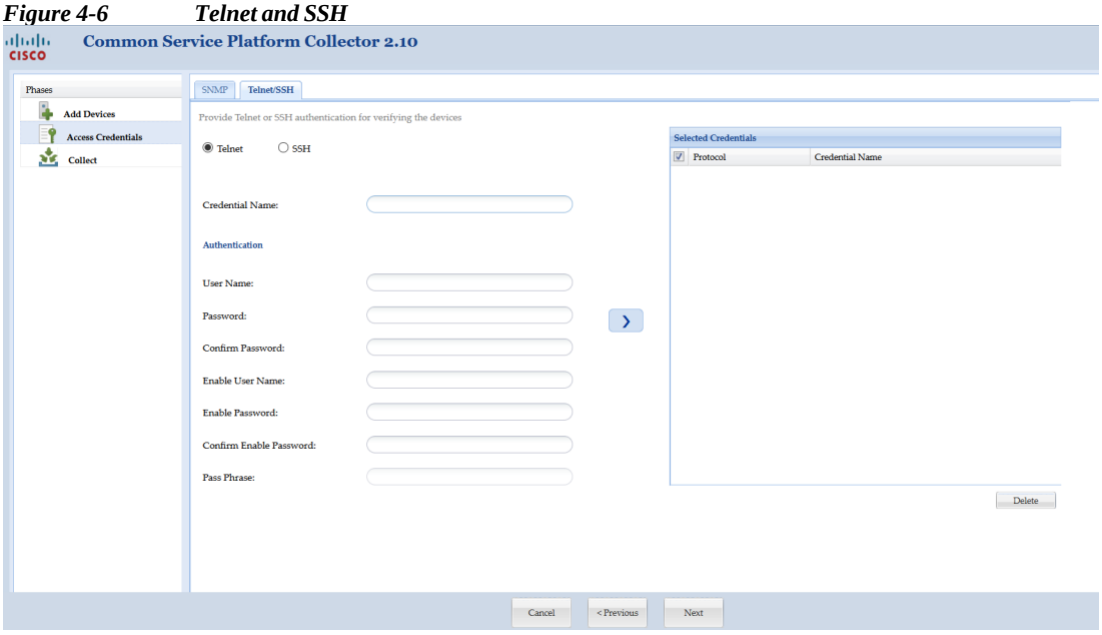
- If you select **SNMPV3** enter **Credential Name**, **User Name**, **Engine ID**, **Auth Algorithm**, **Password**, **Privacy Algorithm**, **Password**. Use > to select credential.

Figure 4-5 SNMPV3



- If you select **Telnet** enter **Credential Name**, **User Name**, **Password**, **Enable User Name**, **Enable Password**, and **Pass Phase.**Use > to select credential
- If you select **SSH** enter **Credential Name**, **User Name**, **Password, Enable User Name**, **Enable Password**, and **Pass Phase**.Use > to select credential

Figure 4-6 Telnet and SSH



Step 4 Select **Start Collection now** and click **Collect Now** to start collection instantly or click **Schedule Periodic Collection** and click **Schedule** to collect at a later time. You can schedule Start and End Date/Time or select the Recurrence pattern as Minutely, Daily, Weekly, Monthly, or Yearly as shown in Figure 4-8.

Figure 4-7 Collect Now

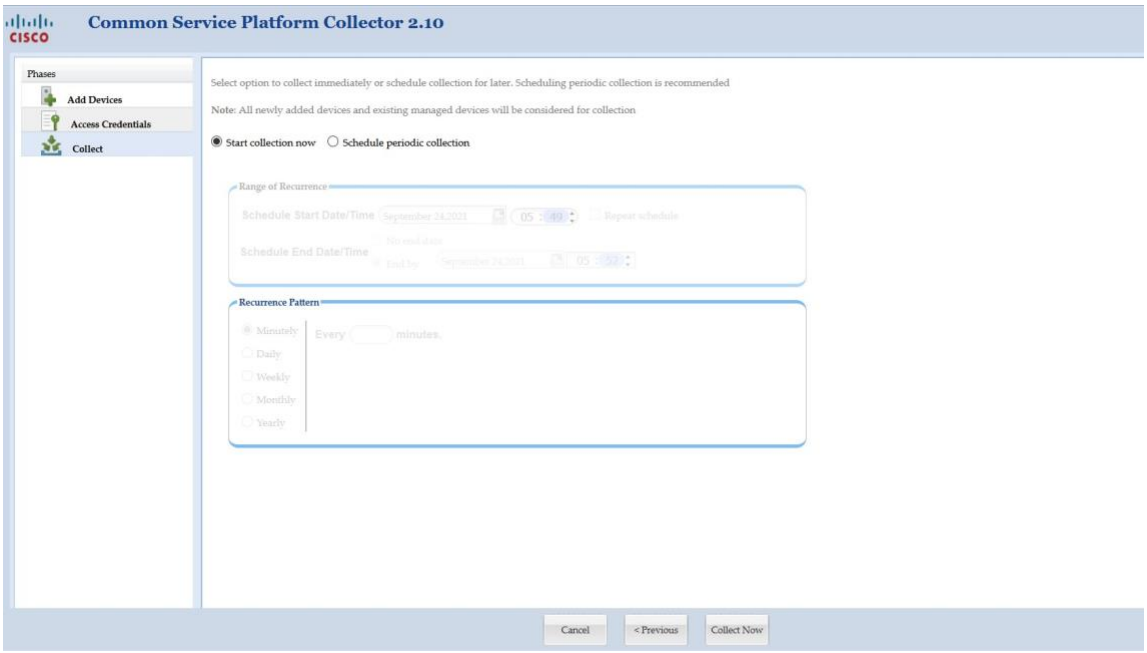
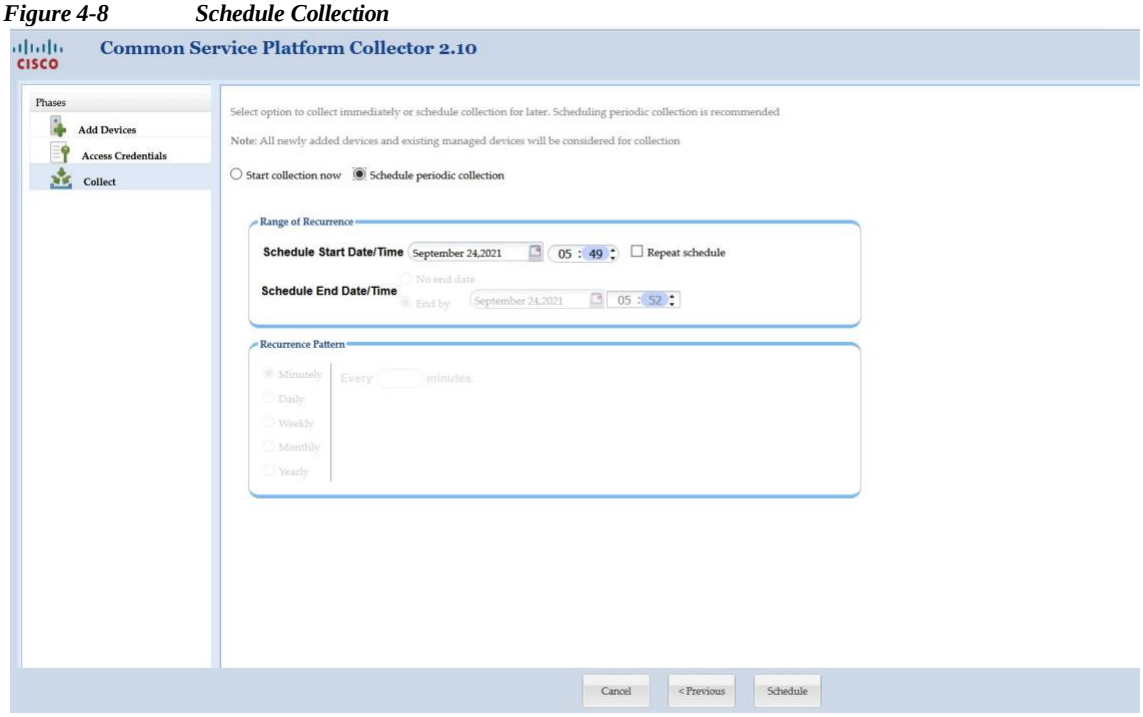


Figure 4-8 Schedule Collection

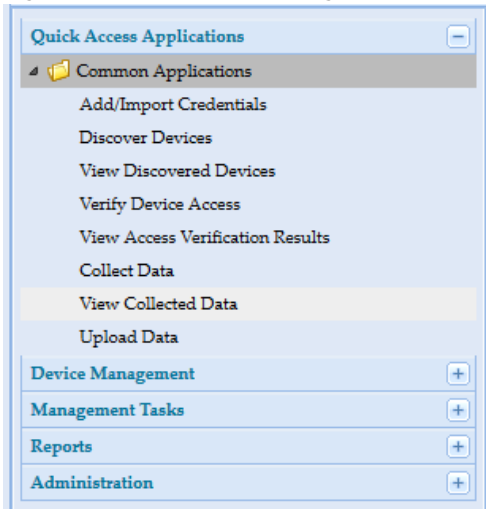


Quick Access Applications - Device Management

Common Application

You can use the Common Application tab to access tools with which you can specify, collect, and store software and hardware information about the network devices.

Figure 5-1 Device Management



This section describes the Common Application tools in the following topics:

- Add/Import Credentials
- Discover Devices
- View Managed Devices
- Verify Device Access
- Collect Data
- View Collected Data
- Upload Data

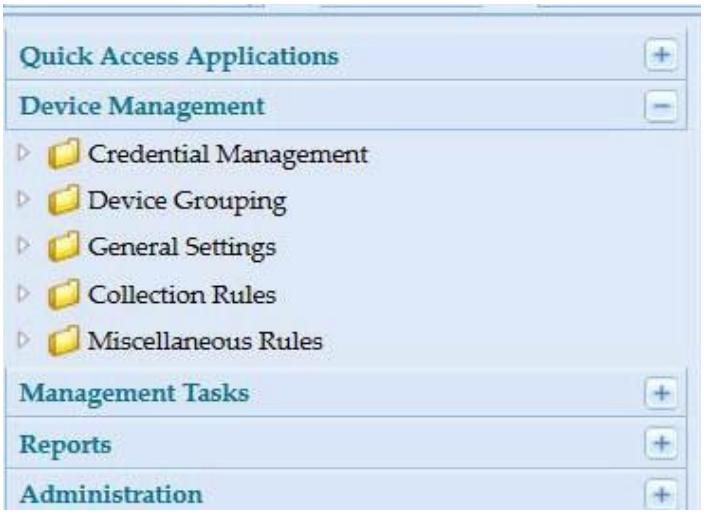
Use the links for navigation..

Applications - Device Management

Device Management

You can use the Device Management tab to access tools with which you can specify, collect, and store software and hardware information about the network devices.

Figure 6-1 Device Management



This section describes the Device Management tools in the following topics:

- Credential Management
- Device Grouping
- General Settings
- Collection Rules
- Miscellaneous Rules

Credential Management

Use the Credential Management sub tab of the Device Management tab to set up device or module credentials and manage seed file.

This section describes the Credential Management options in the following topics:

- Add/Import Credentials
- Manage Sub Module Credentials
- Manage Seed File
- Imported Seed file
- Do Not Manage Device List

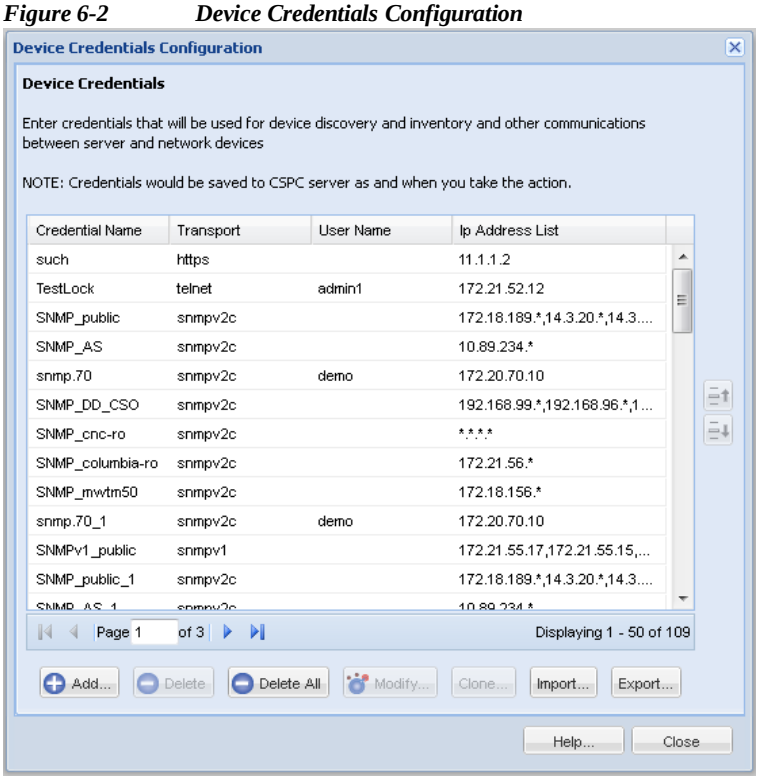
Add/Import Credentials

In order to discover network devices and collect the data from the devices, you need to enter the credentials first. Device credentials set up in the CSPC is used for two purposes. The SNMP credentials are used only for initial discovery of the devices.

The remaining credentials like Telnet, SSH, HTTP, HTTPS, WMI, TL1, IIOP and SNMP are used for data collection from the discovered devices.

Use the Device Credentials Configuration wizard to add the credentials. Follow the wizard to choose your parameters for the credentials.

Figure 6-2 Device Credentials Configuration



You can add, modify, delete, or clone an existing credential. To remove all the credentials from CSPC server, click **Delete All** button.

You can import credentials from applications like:

- Cisco Works DCR XML File (.xml)
- Pari Networks Credential Repository (.xml)
- Cisco Works DCR CSV File (.csv)
- CNC CSV File (.csv)
- Simplified CSV File (.csv)

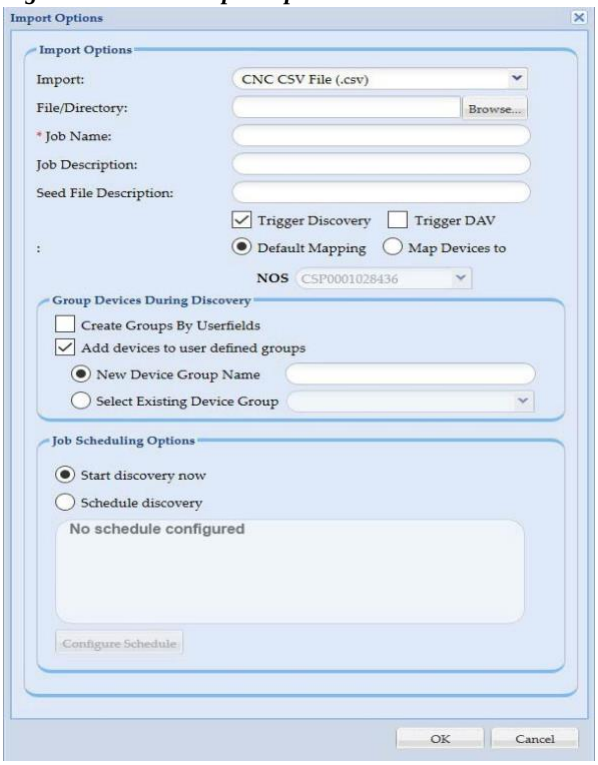
Importing a Seed File

Seed file can be imported as a job. Any error or information messages for each device entry from the seed file being imported are captured as part of job log details. You can view the job log to check these messages.

When importing a seed file, save the original seed file by providing it a name. This helps users to get these files from database when required.

Create a new device group or select an existing device group to get the discovered devices added to them, as part of import seed file discovery process. Discovery and DAV are optional and are only applicable for DCR CSV and CNC CSV formats. DAV can be triggered only when Discovery option is checked. You can map the devices to default entitlement or to the entitlements in the drop down, using Map Devices option. Trigger DAV is enabled only for NOS and CSPT services. Create a group device during Discovery.

Figure 6-3 Import Option



Note Default mapping and Map Devices to options is available to NOS services

Follow the steps given below to import a seed file:

Step 1 In the Device Credentials Configuration window, click **Import** button

Step 2 From the Import drop down box, select any of the following files:

- Cisco Works DCR XML File (.xml)
- Pari Networks Credential Repository (.xml)
- Cisco Works DCR CSV File (.csv)
- CNC CSV File (.csv)
- Simplified CSV File (.csv)

Step 3 Click Browse button and select the seed file that you want to import

Step 4 Enter the job name, job description and seed file description in the respective fields

Note Step 5 and 6 are applicable only if you select CNC or CSV file format.

Step 5 Choose **Default Mapping** or **Map Devices To**. If **Map Devices To** is selected, then select the entitlement from drop down

Step 6 Choose **Create Groups By User Fields** or/and **Add device Add devices to user defined groups**. Select and enter **New Device Group Name** or **Select Existing Device Group** from the drop down.

Note Job Name is a mandatory field.

Step 7 Click **OK** button. Seed file is imported.

Export

Export option is provided to export the existing credentials.

Figure 6-4 Export Options

Follow the steps given below to export the contents:

Step 1 In the Device Credentials Configuration window, click **Export** button

Step 2 You are prompted to verify the password.

Step 3 Enter the password that you used to login to CSPC

Step 4 From the Export Format drop down box, select any of the following formats:

- Pari Networks Credential Repository (.xml)
- CNC CSV File (.csv)

Step 5 Press **OK** button

Step 6 Save the file on your system

Note

- All devices in seed file imported by you are considered as managed devices even if the devices are unreachable at the time of CSPC discovery.
- You can export seed file with Unreachable devices and the status of unreachable devices is shown as *Valid_Unreachable:Status* in this seed file *ManageDevicesCredentials.cvs*

Trigger Discovery And DAV Jobs

While importing the seed file you can also trigger the Discovery and DAV jobs. To do so, follow the steps given below:

Step 1 Enter the details for importing seed file as given above

Step 2 From the Import drop down box, select any of the following two options:

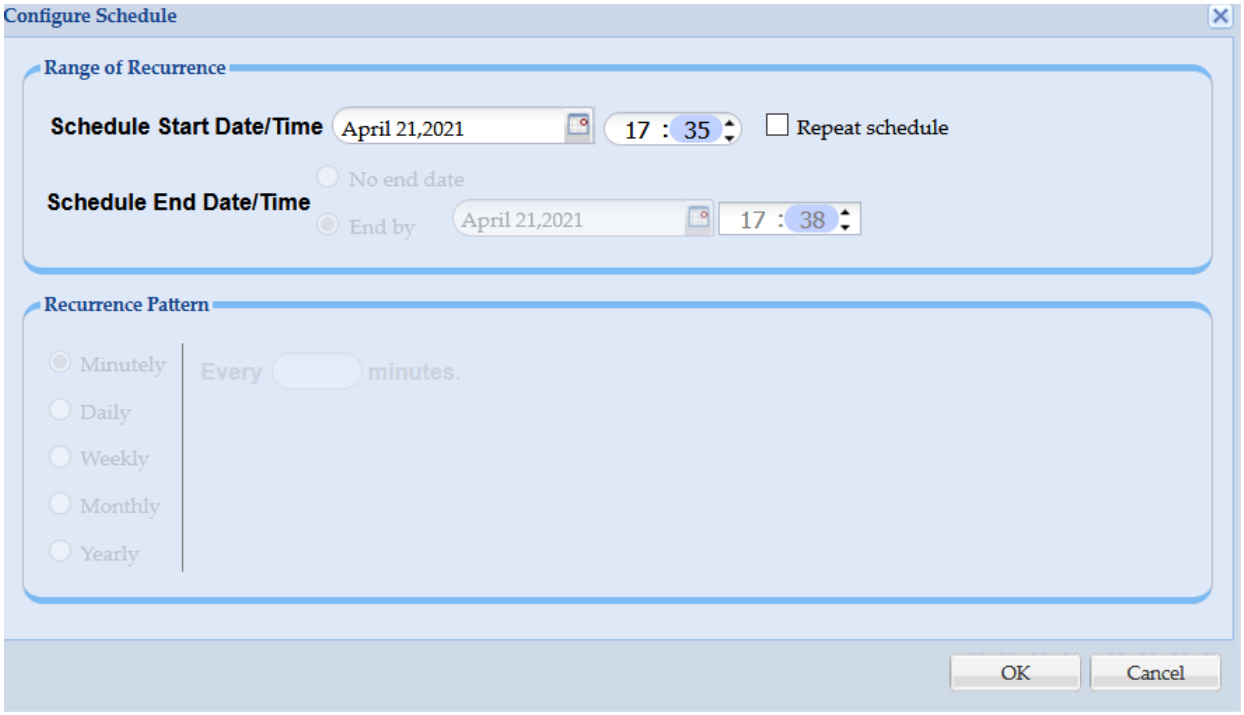
- Cisco Works DCR CSV File (.csv)
- CNC CSV File (.csv)

Step 3 Check **Trigger Discovery** and/or **Trigger DAV** check boxes

Step 4 You can start Discovery now or to Schedule Discovery at a later time, select **Schedule Discovery** option and then click **Configure Schedule** button.

Step 5 You can schedule Start and End Date/Time or select the Recurrence pattern as Minutely, Daily, Weekly, Monthly, or Yearly as shown in Figure 6-5.

Figure 6-5 Configure Schedule



Step 6 Enter the device group name in Device Group Name field

Step 7 Or click Select Device Group Name radio button and select the device group name from the drop down box

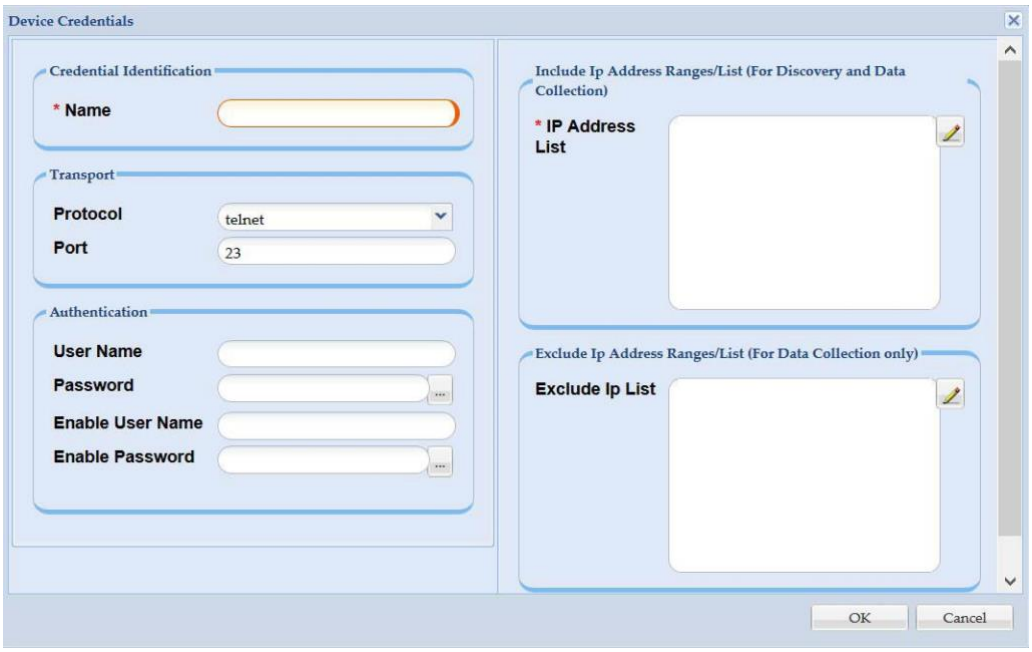
Step 8 Click **OK** button

Go back to CSPC Flow Chart

Adding Credentials

To add credentials, click **Add** from the Device Credentials screen.

Figure 6-6 Add Credentials



Follow the steps given below to add the credentials:

Step 1 Enter the following information for creating a new Credential:

- Name of the credential (user selected name to identify the credential)

Note The best practice is to set the credential name to "SNMP_Profile_1" or a generic name that you prefer.

- Transport protocol (CSPC supports various protocols for data collection that includes Telnet, SSHv1,SSHv2, HTTP, HTTPS, SNMPv1, SNMPv2c, SNMPv3, WMI, TL1, LDAP, LDAPS, SQL and IIOP)
- Specify the port number for SSH, Telnet, SQL, LDAP, LDAPs. Default port number for SSH is 22, Telnet is 23, LDAP is 389, LDAPS is 636, and SQL is 1433. This port number is considered during DAV, collection, apply IPS request, and connecting via jump server
- Authentication (depending on the protocol selected use the following authentication mechanisms:
  - Provide User Name, Password, Enable User Name and Enable Password for Telnet, SSH, HTTP, HTTPS, and TLI protocols
  - Provide User Name and Certificate (With/Without Pass Phrase) for SSH protocol certificate based authentication
  - Provide User Name, Password for WMI, LDAP, LDAPs, IIOP protocol
  - Provide User Name, Password for SQL protocol along with the Database details.
  - For SNMP V1 and V2, provide the READ and WRITE community strings
  - For SNMP V3 provide information on User Name, Engine ID, Authentication Algorithm to use and Authentication Password along with Privacy Algorithm and Privacy Password

- Include IP Address Range and Exclude IP Address Range.

  The *Include IP Address Range* option allows you to enter either a set of IP Addresses or a wildcard IP Addresses like 10.*.*.*, notifying any IP Address starting with *10*. The Exclude IP Address Range works only for data collection.

  You can enter IP addresses by clicking IP Address List Editor, and give multiple IP addresses with comma separated in IP Address List field.

Step 2 Click **OK**.

You can also edit an existing credential by clicking **Modify**. Click **Delete** to delete a selected credential. Click **Clone** to create a copy of the selected credential for modification.

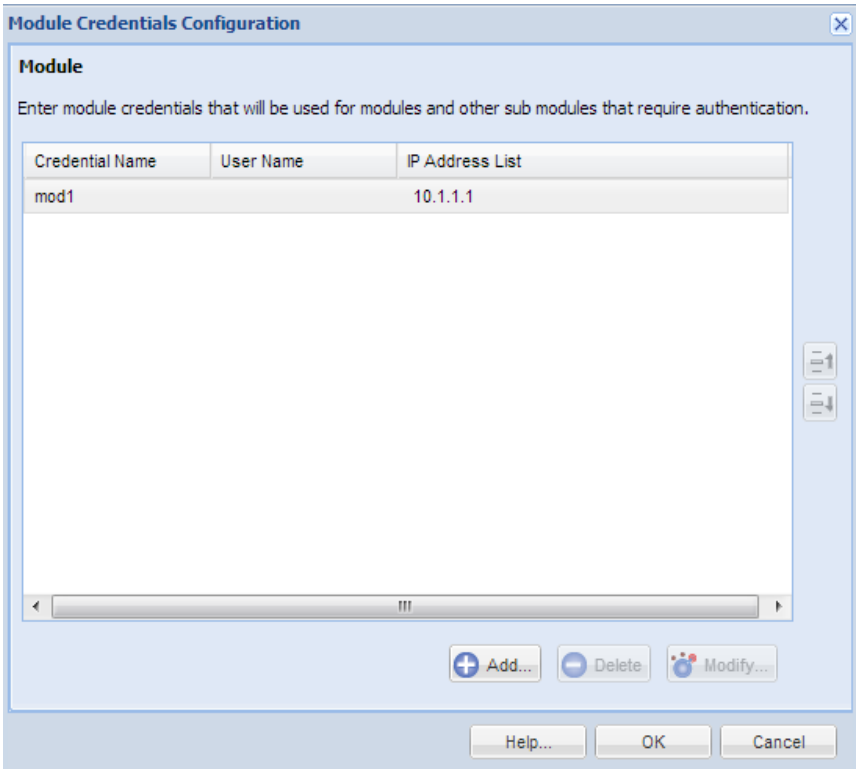
Go back to CSPC Flow Chart

Manage Sub Module Credentials

In order to collect the data from the modules you need to enter the credentials first. Module credentials are used to collect data from modules or sub modules that require additional authentication.

Use the Module Credentials wizard to add credentials. Follow the wizard to choose your parameters for credentials.

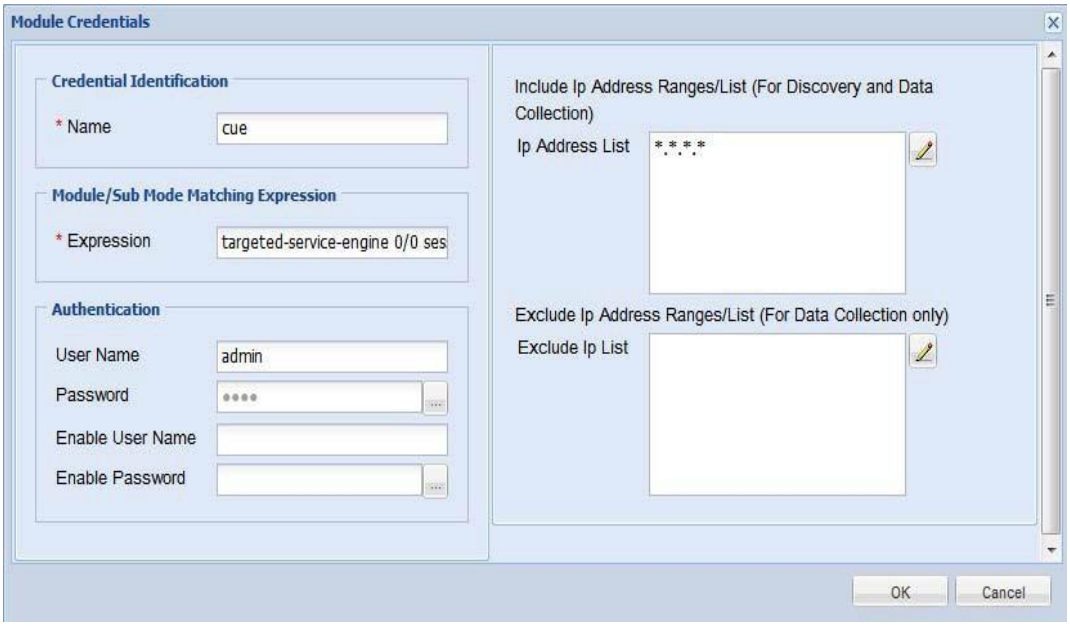
Figure 6-7 Module Credentials Main Window



You can add, modify, or delete an existing credential. Vertical scroll bars are provided to move to either the previous or the next credential set in the table.

To add credentials, click **Add** from the Module Credentials screen as shown in Figure 6-8.

Figure 6-8 Module Credentials



Follow the steps given below to add the module credentials:

Step 1 Enter the following information for creating a new Credential:

- Name of the credential (user selected name to identify the credential)
- Module/Sub Mode Matching expression (expression used to match whether to use this credential on the module or not)
  - Authentication (depending on the protocol selected use the following authentication mechanisms:
    - Provide User Name, Password, Enable User Name and Enable Password to access the module
- Include IP Address Range and Exclude IP Address Range.

  The *Include IP Address Range* option allows you to enter either a set of IP Addresses or a wildcard IP Addresses like 10.*.*.*, notifying any IP Address starting with *10*. The Exclude IP Address Range works only for data collection.

  You can enter IP addresses by clicking IP Address List Editor.

Step 2 Click **OK**.

You can also edit an existing credential by clicking **Modify**. Click **Delete** to delete a credential.

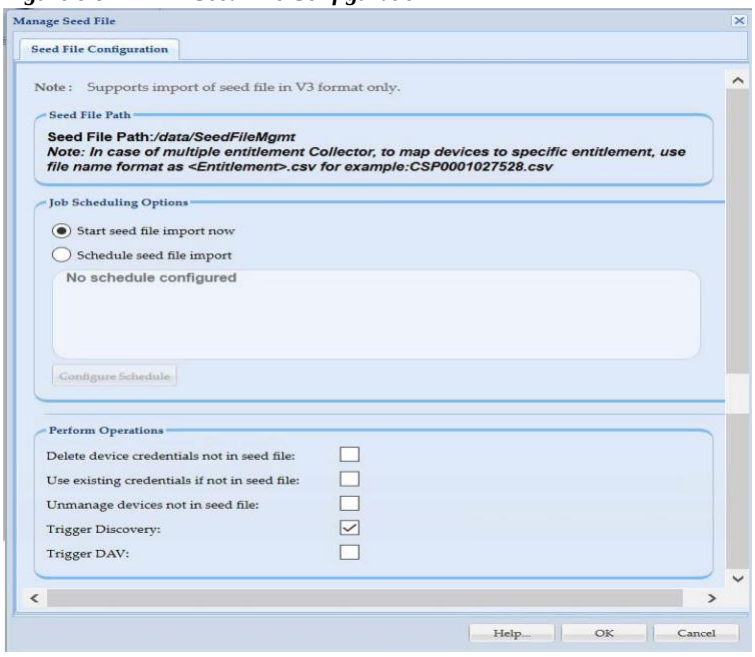
Go back to CSPC Flow Chart

Manage Seed File

You can import the seed file with the latest credentials and devices by placing the seed file manually in the default path. It determines what devices will be removed, updated, or added then perform the necessary actions. Devices not present in the seed file that is in CSPC will be deleted.

Note In case of Multiple entitlement collector, to map devices to specific entitlement use file name format as <entitlement>.csv example: CSP0001027528.csv

Figure 6-9 Seed File Configuration



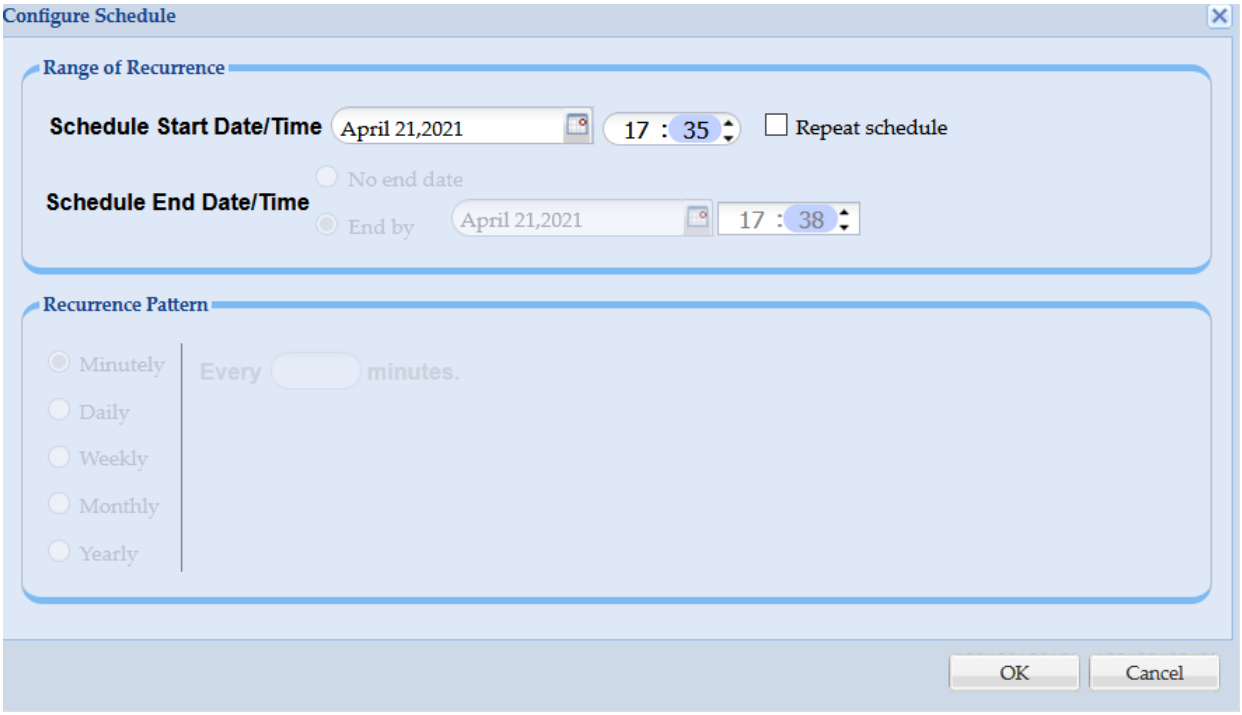
To import the seed file, perform these steps:

Step 1 Place the CNC V3 format seed file in the default location as shown on the screen. It is mandatory to place the seed file in the location as shown on the screen and read permission should be allowed to the file for CSPC users.

Step 2 You can start Seed File Import now or to Schedule Seed File Import at a later time, select **Schedule Seed File Import** option and then click **Configure Schedule** button.

Step 3 You can schedule Start and End Date/Time or select the Recurrence pattern as Minutely, Daily, Weekly, Monthly, or Yearly as shown in Figure 6-10.

Figure 6-10 Configure Schedule



Step 4 Check the required operation. click **OK**

Figure 6-11 Operations

Options	Description
Delete device credentials not in seed file	This removes only the device credentials which are not in seed file
Use existing credentials if not in seed file	If credentials are not present in the seed file, then CSPC uses the existing ones.
Unmanage devices not in seed file	This Unmanages the devices not in the seed file
Trigger Discovery	This Triggers Device Discover. By default, Trigger Discovery is selected.
Trigger DAV	This Triggers Device Access Verification

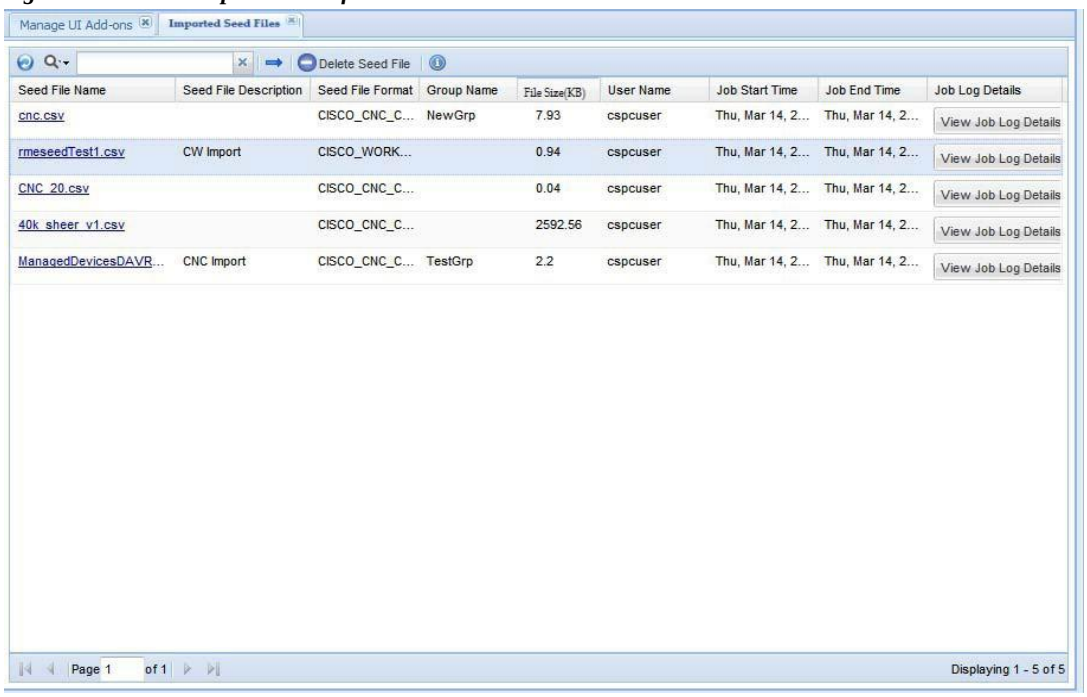
Imported Seed file

When you import a seed file, the information is captured in the imported seed file screen. Each row on the screen corresponds to one Import.

Seed file name field acts as a hyperlink as shown in Figure 6-12, on clicking this link you can download (or export) original seed file saved in the system. Screen captures all the details related to that import, like the file format, user info, file size and so on, along with the job log details of that import run.

You can also delete single or multiple rows from the screen.

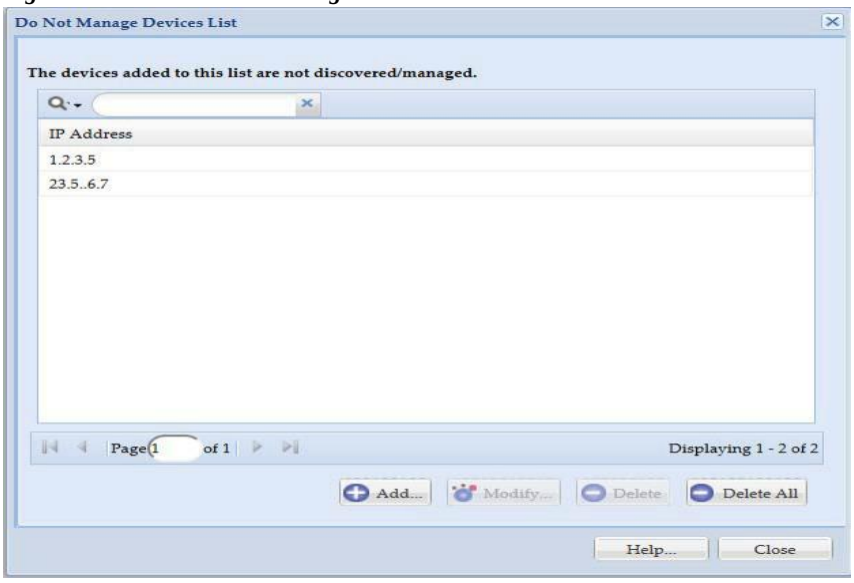
Figure 6-12 Imported Seed file



Do Not Manage Device List

This provides you with an option to select a set of devices that should not be managed by the collector. If a device is added to Do Not Manage Device List then that device will not be discovered and will not be added to CSPC.

Figure 6-13 Do Not Manage Devices List



Click **Add** to add the device IP address.

As specified in the above screen, these three devices with IP Addresses *10.*.*.**, *1.1.1.1*, and *10.1.2.43* are not inventoried even though they are all discovered devices.

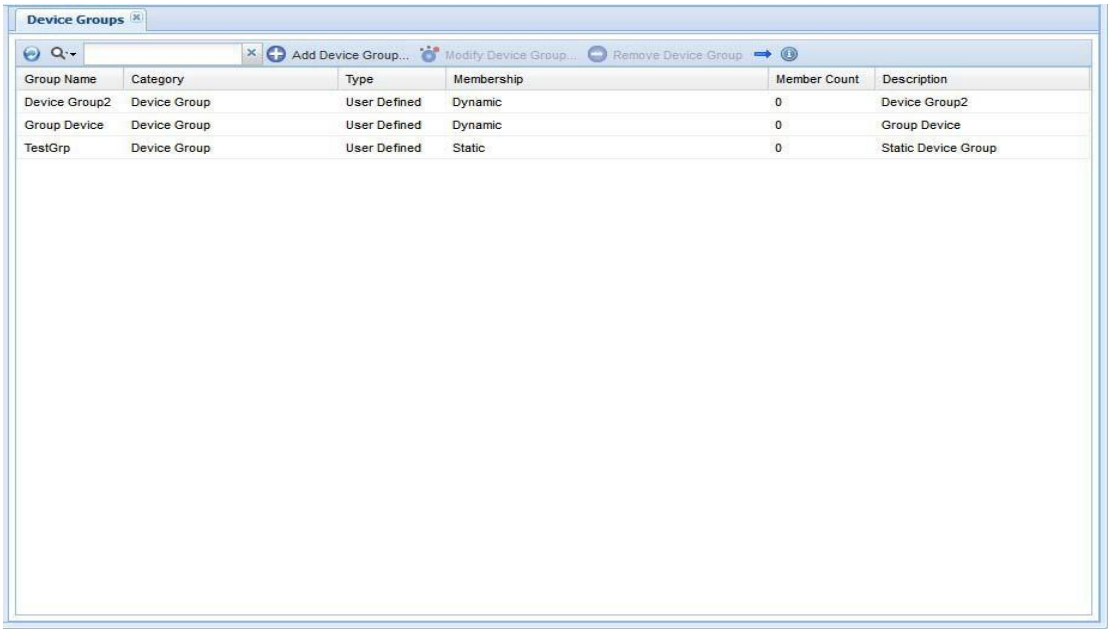
Device Grouping

Use the Device Groups sub tab of the Device Management tab to create and manage device groups.

Device Groups

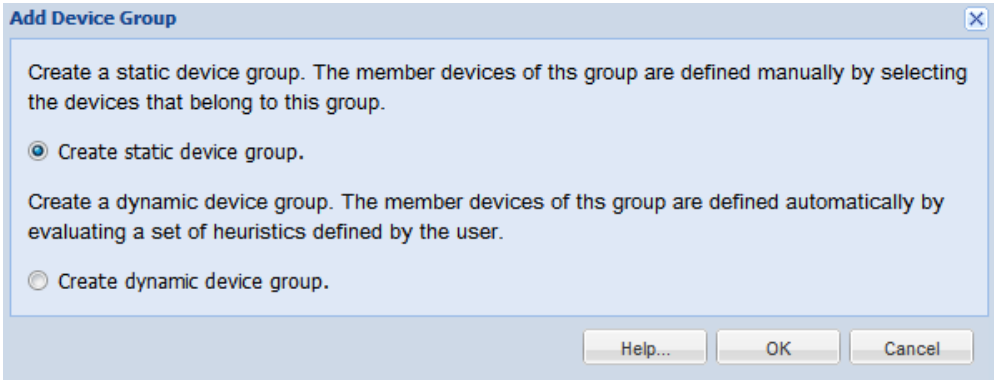
Device Groups option is used for Adding, Modifying or Deleting device groups. There are certain default system generated groups in CSPC. In addition, if you want to create device groups, then you can use these settings. Device groups can be Static or Dynamic. In static device groups you have to manually select the devices that are part of a given group. In dynamic group you will define a criterion and all devices that match the criterion (either currently managed or not) will automatically appear in this group.

Figure 6-14 Device Groups Main Window



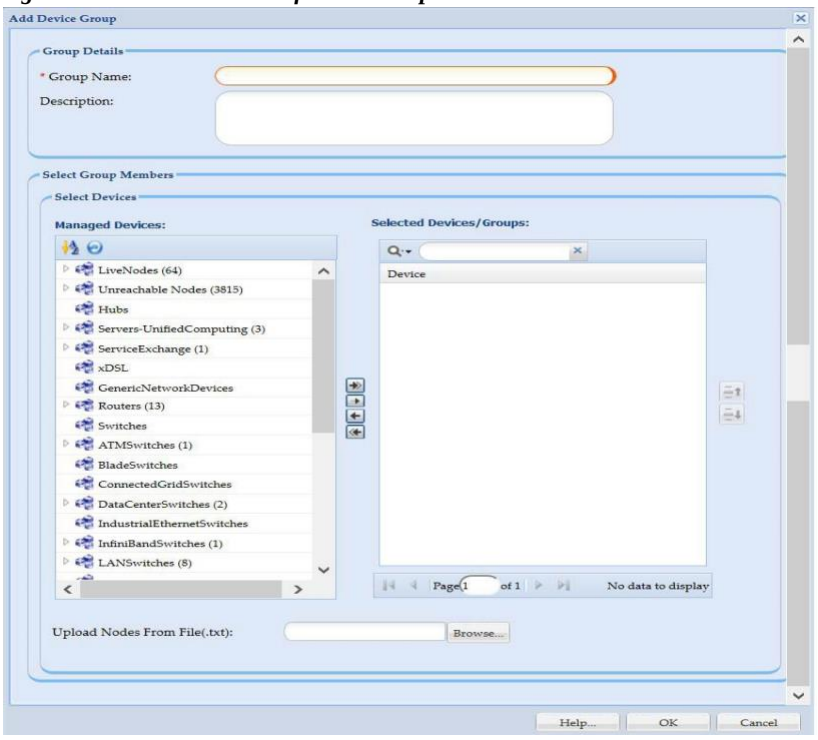
When you select *Add Device Group* you choose whether to create a static group or dynamic group.

Figure 6-15 Add Device Group



Creation of static group is defined below.

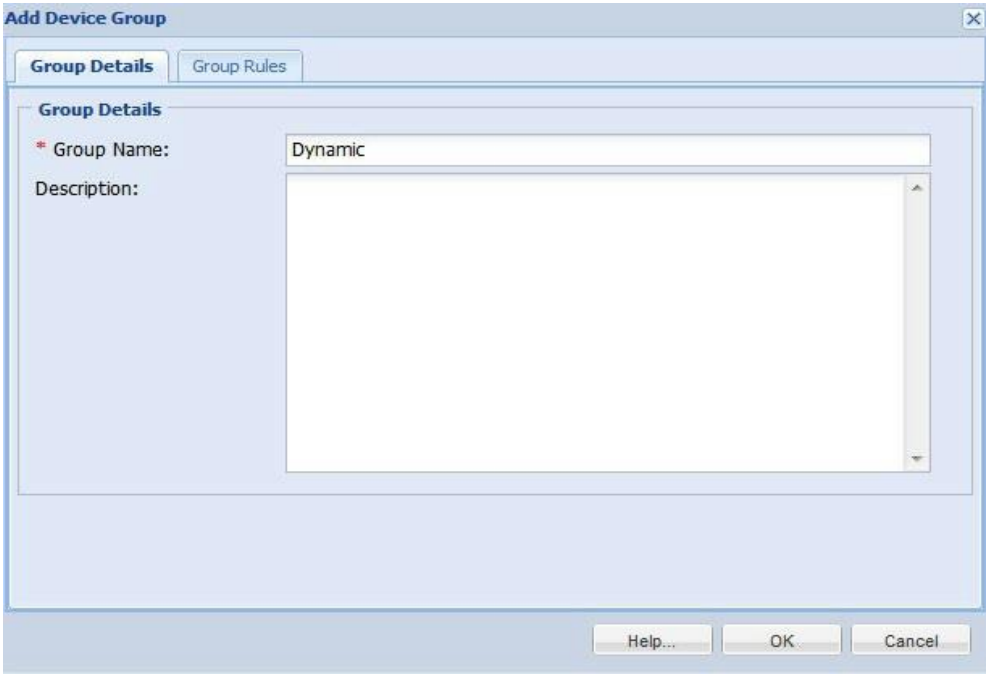
Figure 6-16 Creation of Static Groups



Enter the group name and description, and select group members by moving the devices/groups to the selected list. Once the devices/groups are selected or click browse to upload .txt file containing the devices/groups, click **OK** to create the static device group.

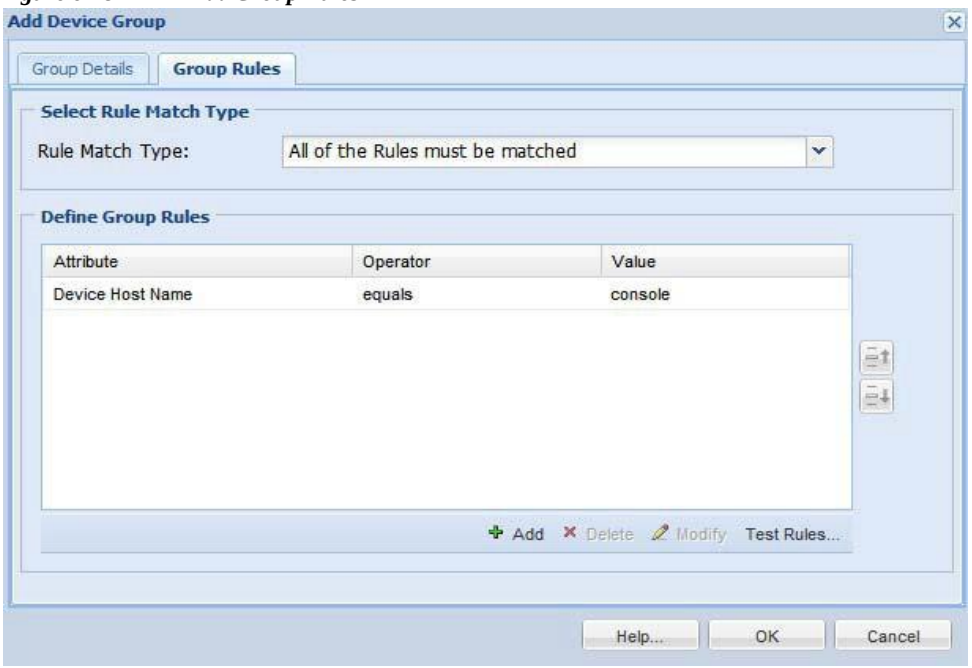
Similarly, when you select the *Dynamic Group* option while creating new device groups you can define the heuristics used to identify which devices belong to that specific group. This is shown in Figure 6-17.

Figure 6-17 Add a Dynamic Group



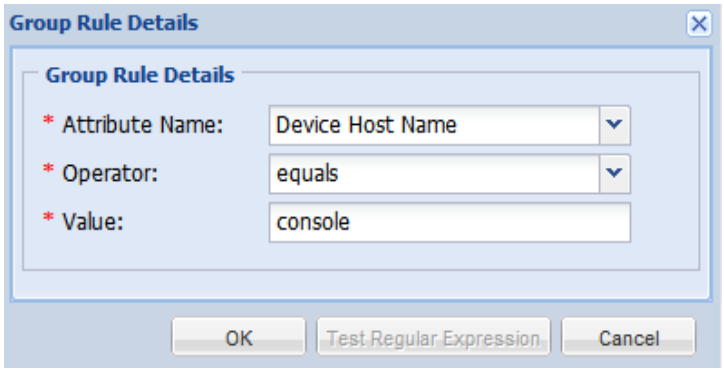
Once you define the group name and description you are ready to define the Group Rules, as shown below.

Figure 6-18 Add Group Rules



Define the conditions or rules that must be matched or not matched based on the attributes and values. Add these conditions by clicking **Add**.

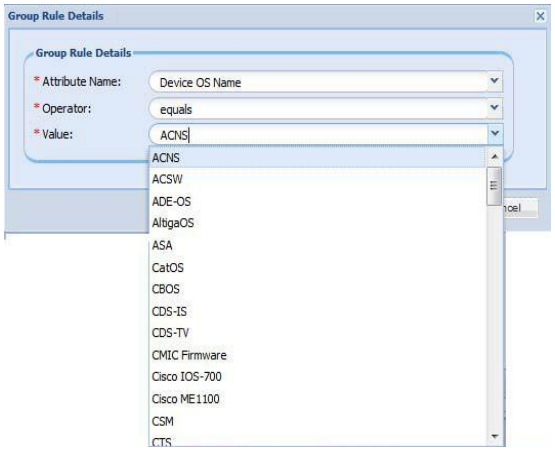
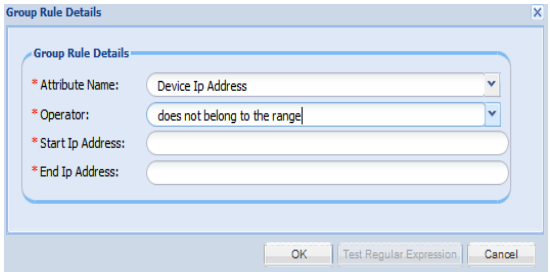
Figure 6-19 Group Rule Details

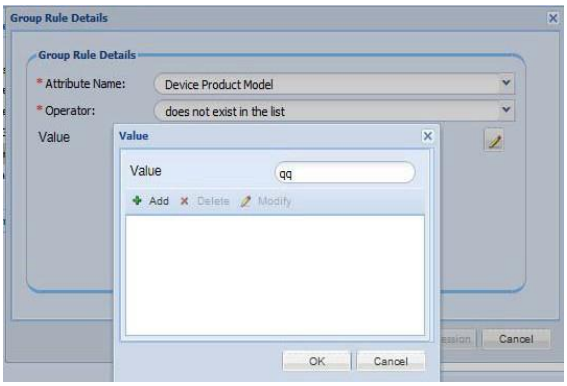
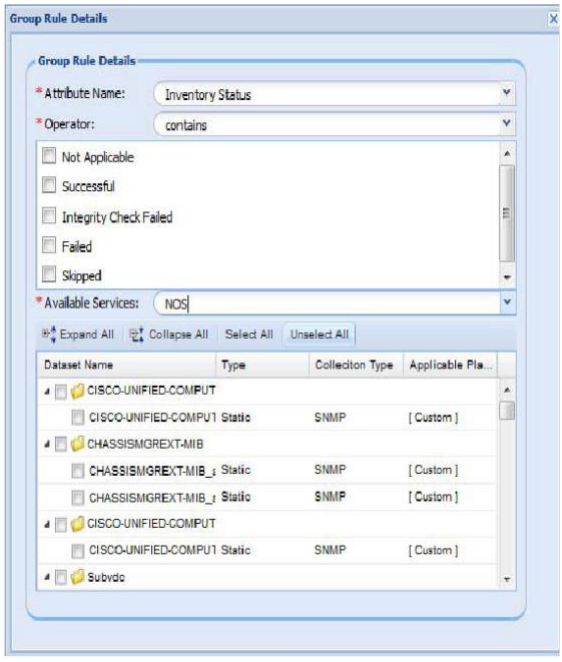


Select any of the Attributes like Device Host Name, Device IP Address, Device OS Name, Device OS Version, Device Vendor Name, Device Product Module, Device Family, Device OS Type, Device Technology, UserField1,UserField1, or UserField1 and use one of the Operator like equals, contains in the list and so on, and provide a Value. You can create any number of rules.

Newly discovered devices are matched for these conditions automatically and are added to the dynamic groups.

Table 6-1 Special Cases in Group Rule

Special Cases	Figures
If you select **Device OS Name** as **Attribute Name**, then you need to select the value form the drop down	
If you select **Device Ip Address** as **Attribute Name** and **Operator** as **does not belong to the range**, then you need to enter **Start Ip Address** and **End Ip Address**	

Special Cases	Figures
For any of the **Attribute Name** if you select **does not exist in the list** as **Operator**, then you need to add the **Value** manually using the edit icon on the screen.	
If you select **Inventory Status or Config Status** as **Attribute Name** and **Operator** as **contains** or **does not contain**. Select the required status on the screen and Select the **Available Services** from the drop down. Only for **Inventory Status NOS** lists all the dataset name and you can select for the list. Inventory status provides you granular information. It is recommended to create the rule based on inventory status if you want to create a group based on dataset specific.	

General Settings

Use the General Settings sub tab of the Device Management tab to set Application, Discovery, Inventory, and Advance Job.

This section describes the General Settings options in the following topics:

- Application Settings
- Discovery Settings
- Access Verification Settings
- Inventory Settings
- Advanced Job Settings

Application Settings

Application settings is used to set device inventory data collection preferences like Device prompt, Submode and Data export settings.

General Settings:

IP Host Mask Settings: If device IP Address and Hostname data privacy is enabled, customer device IP address and Hostname that is sent back to Cisco will be replaced by a set of user defined IP address and Hostname.
In *IP Address Mask* field, you can define the IP address range that is used to replace the real IP addressof the customer, and define a prefix in *Hostname Mask* field that is used to replace the real customer hostname.

Figure 6-20 General Settings

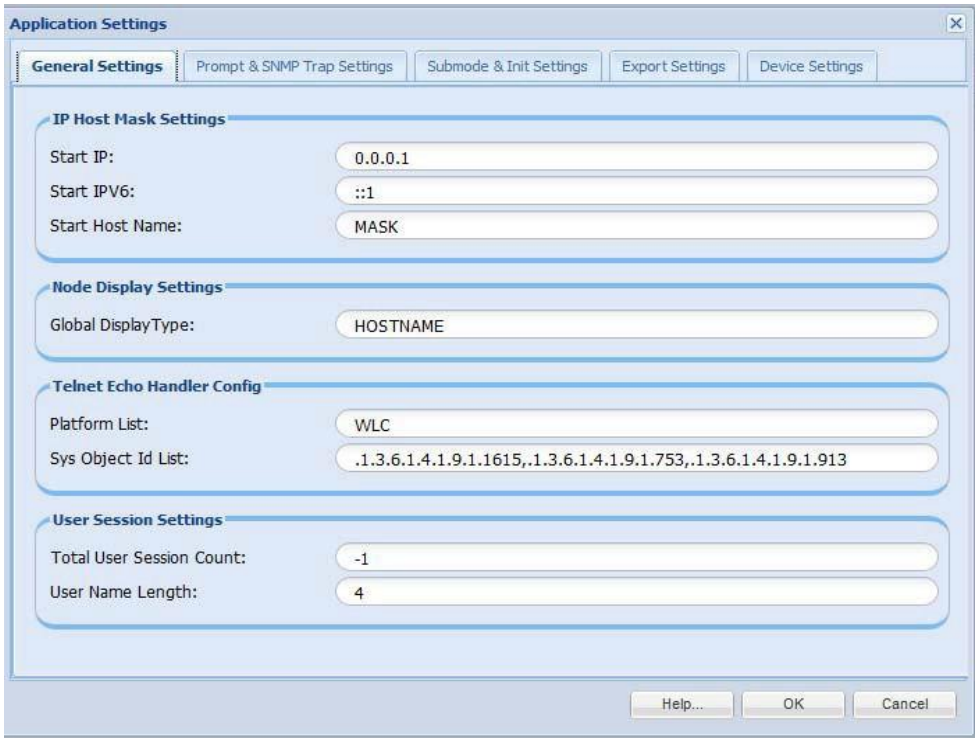


Table 6-2 General Settings

Field Name	Description
Start IP	IP to be used as start value while masking IPv4 data. IP will be incremented from this value for each of the IP's to be masked
Start IPv6	IP to be used as start value while masking IPv6 data. IP will be incremented from this value for each of the IP's to be masked
Start Hostname	Prefix used for masking hostnames
Global Display Type	Device attribute to be shown for distinct devices
Platform List	List of platforms for Telnet echo is enabled.
SysObject ID List	SystemObject ID for the Telnet echo enabled devices
Total User Session Count	Maximum number of unique CSPC user sessions

Prompt Settings:

Figure 6-21 Prompt Settings

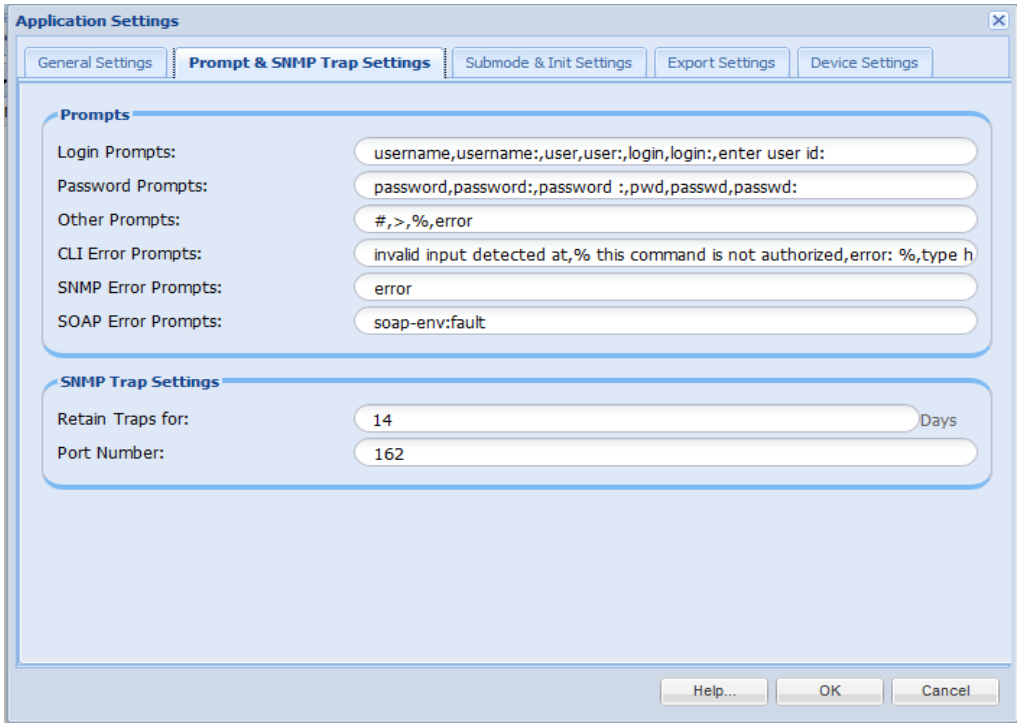


Table 6-3 Prompt Settings

Field Name	Description
Prompts	
Login Prompts	Used for extra Login prompts that needs to be handled by CSPC
Password Prompts	Used for extra Password prompts that needs to be handled by CSPC
Other Prompts	Used for other prompts that needs to be handled by CSPC
CLI Error Prompts	Used for extra CLI error prompts that needs to be handled by CSPC
SNMP Error Prompts	Used for extra SNMP error prompts that needs to be handled by CSPC
SOAP Error Prompts	Used for extra SOPA error prompts that needs to be handled by CSPC
SNMP Trap Settings	
Retain Traps for	Mention the number of days to retain traps.
Port Number	Configure the port to receive the SNMP trap messages. Default port is 162. **Note** If you configure a new in-bound port to listen the SNMP Trap messages, then you need to manually update the corresponding IP table rules and NAT router settings.

Submode and Init Settings:

Figure 6-22 Submode And Init Settings

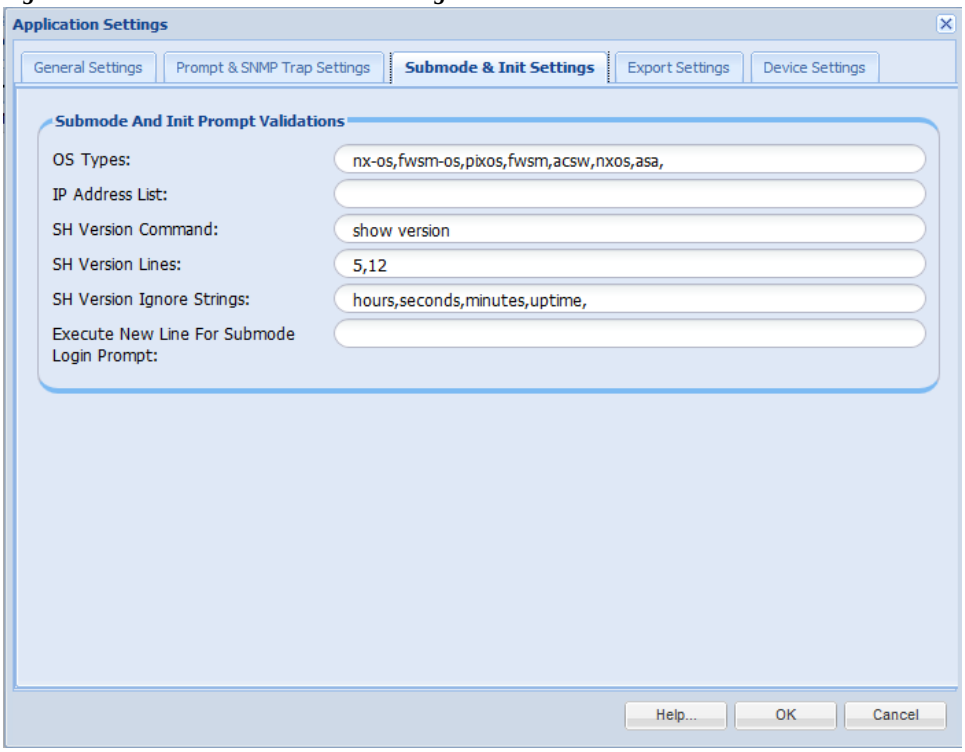


Table 6-4 Submode and Init Settings

Field Name	Description
OS Type	Type of OS
IP Address List	List of IP addresses
SH Version Command	If show version needs to be executed while in submode
SH Version Lines	Number of lines in show version that need to be taken
SH Version Ignore Strings	Whether to consider or ignore show version settings
Execute New Line for Submode Login Prompt	Whether new line has to be executed at the end of submode login prompt

Export Settings:

Figure 6-23 Export Settings

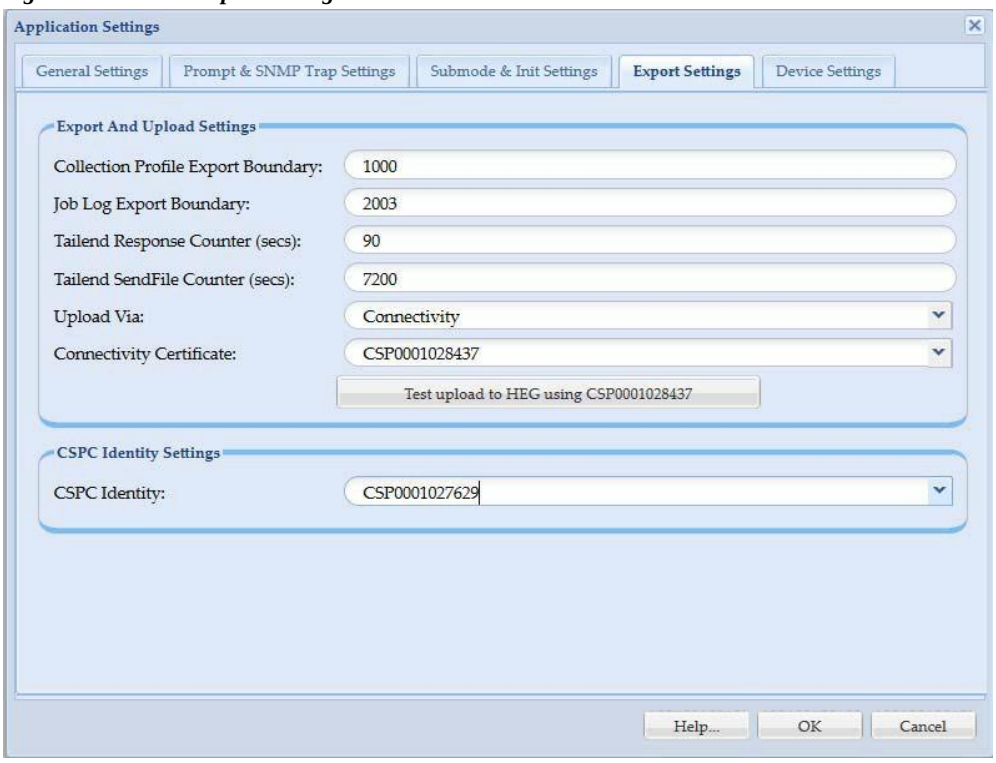


Table 6-5 Export Settings

Field Name	Description
Collection Profile Export Boundary	Number of devices processed in batch during VSEM export. Default values are as follows: • Large - 100 devices • Medium - 50 devices • Small or ultra-small - 25 devices
Job Log Export boundary	Job log export boundary
TailEnd Response Counter	Response counter for TailEnd is maximum wait time for entitlement registration and limit is 90 seconds
TailEnd SeedFile Counter	Seed file counter for TailEnd is maximum wait time for connectivity file upload.
Connectivity Certificate	Certificate used for connection
Upload Via	Set the Upload via option to either of these: • Transport Gateway (Only for NOS services) • Connectivity upload supports AES 256 encryption with strong RSA key length of 2048bits. • Disabled

Field Name	Description
CSPC Identity	Select the valid CSPC certificate
Test Upload button	Check the connectivity using a certificate

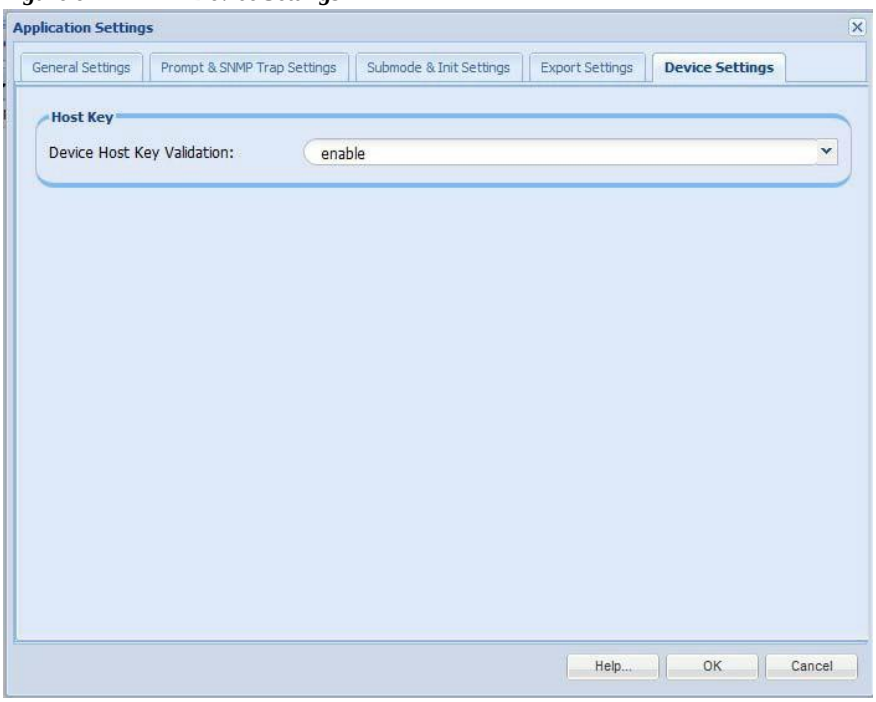
Note

- If Connectivity certificate changes, the new certificate is applied to connectivity. This takes 5-7 minutes to restart connectivity and apply the new certificate.
- Connectivity certificate gets modified based on the preference of the applied certificates. For Example, NOS uses connectivity for upload. All other services use Websocket. Since Web socket has higher preference, though you add NOS as connectivity certificate, it changes to the one that has higher preference like PSS, SNTC or SC.

Device Settings:

This enables or disables the key on the device during SSH communication. If it is disabled, then same key is being used repeatedly or else it generates new key.

Figure 6-24 Device Settings



Discovery Settings

In Discovery Settings you can set preferences of device discovery. You can set values for Discovery timeout, Include platform, and Exclude platform.

In Preference tab, enter the values as shown in Table 6-6.

Figure 6-25 Discovery Settings

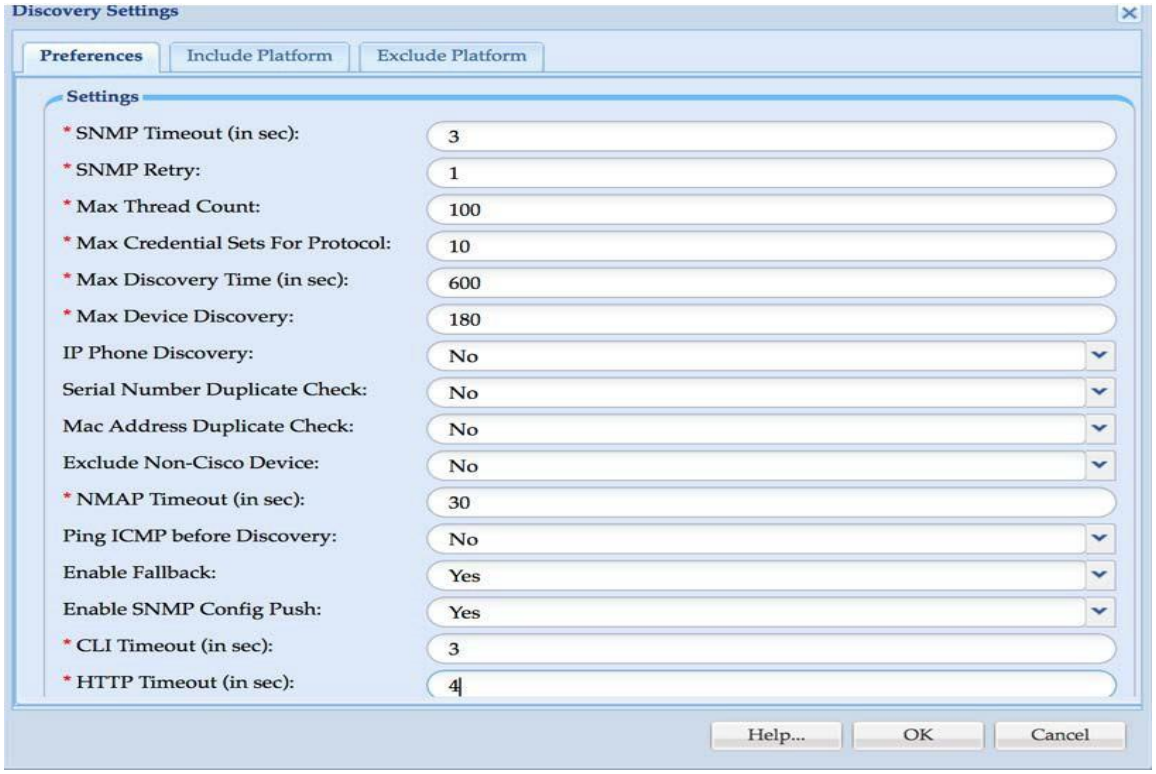


Table 6-6 Discovery Timeout

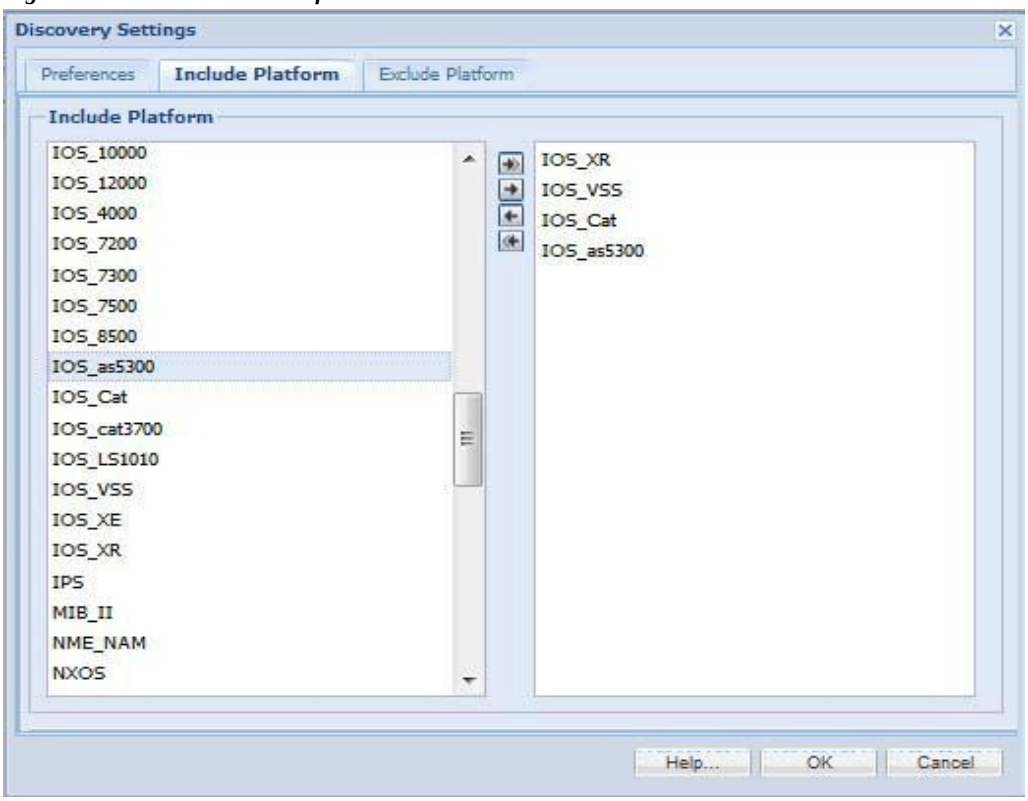
Field Name	Description
SNMP Timeout (in sec)	SNMP connection timeout value in seconds. Default value is 3 seconds
SNMP Retry	SNMP connection retry count. Default value is 1
Max Thread Count	Thread pool size for each discovery job. Default value is 100.
Max Credential Sets For Protocol	Maximum number of Credential Sets to use for each protocol. Default value is 10.
Max Discovery Time (in sec)	Maximum discovery time in seconds per device. Default value is 600 seconds. Valid values 0 or >= 60. Zero no window time will be enforced. If value is set between 0 and 60, default value 600 will be used.
Max Device Discovery	Maximum discovery time in seconds for a single device. Default value is 180 seconds. Valid values: 5 seconds and above. If value is < 5, then 5 is enforced.

Field Name	Description
IP Phone Discovery	Option to enable/disable IP Phone discovery.
Serial Number Duplicate Check	Checks for the duplicate´s serial numbers. If not enabled, then serial number will not be polled for the device.
Mac Address Duplicate Check	Checks for the duplicate MAC Address.
Exclude Non-Cisco Device	If enabled excludes all the non-cisco devices from discovery
Ping ICMP before Discovery	Option is to enable/disable. If enabled pings the device before Discovery.
Enable Fallback	If discovery of selected protocols fails, and if fall back is selected discovery is tried for other protocols as per discovery properties file. `$CSPCHOME/resources/discovery/properties/discovery-cso-startup.properties` For properties name: `PRIMARY_COMM_PROTOCOL` This is applicable only for known discovery and rediscovery.
Enable SNMP Config Push	If enable fallback option is selected and discovery happens using CLI protocols (telnet, SSHv1, and SSHv2), then SNMP Config push for RO string is applied.
CLI Timeout	CLI connection timeout value in seconds. Default value is 3 seconds.
HTTP Timeout	HTTP connection timeout value in seconds. Default value is 4 seconds

Include Platform (optional):

As to any platform that is specified in *include platform* list, only those specific platform devices will be discovered, and all other devices will be discarded.

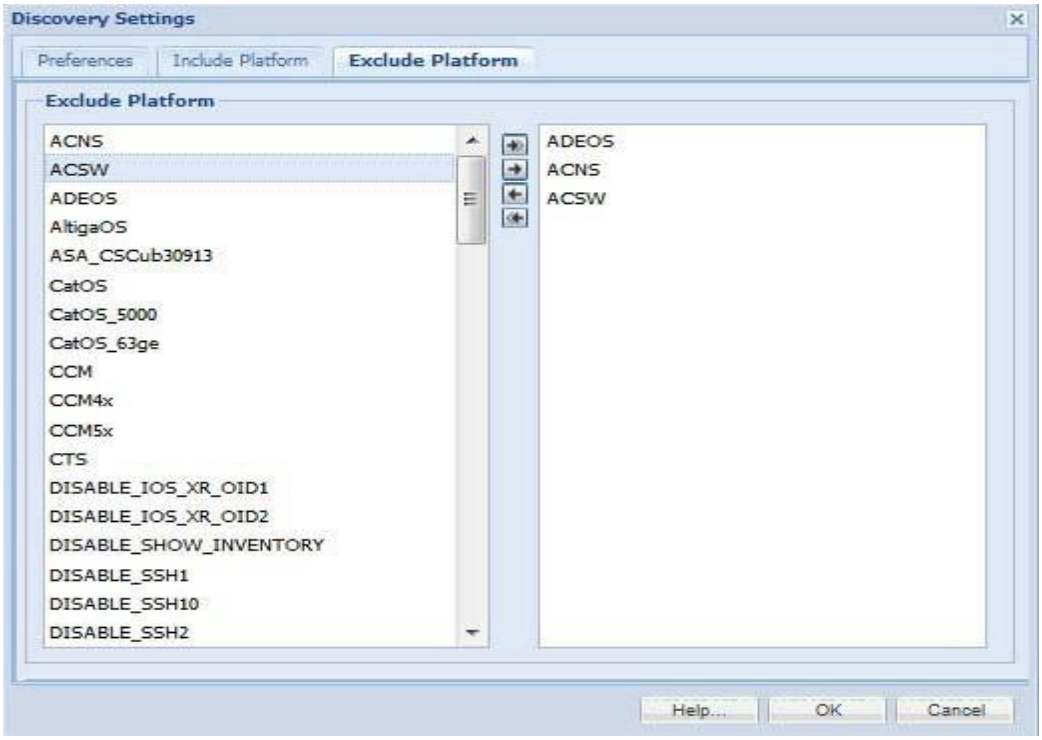
Figure 6-26 Include Platform



Exclude Platform (optional):

Any platform is specified in exclude platform list, all devices belonging to that platform will be ignored.

Figure 6-27 Exclude Platform

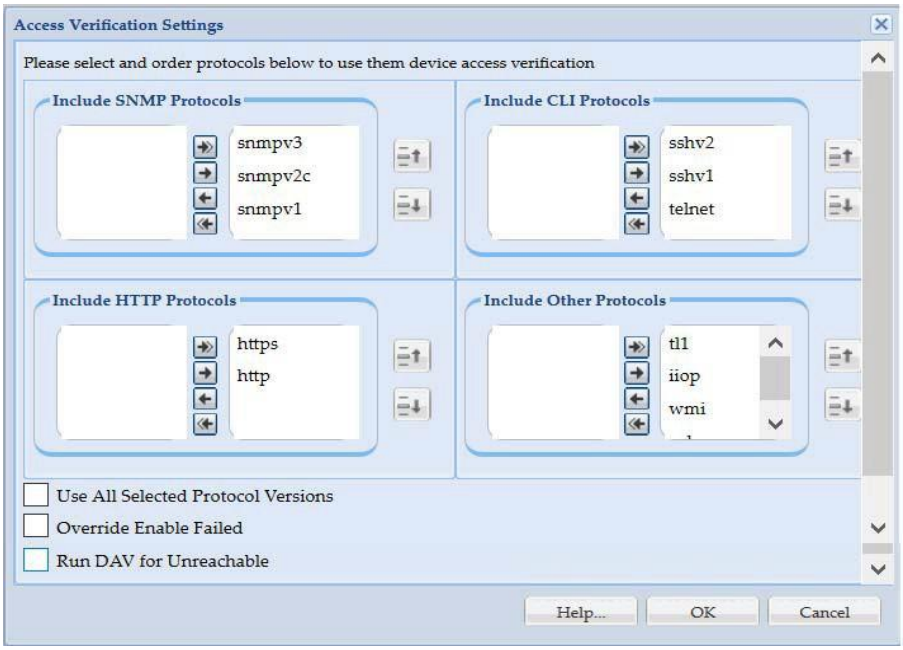


Access Verification Settings

This setting is used to select and order protocols to use them in device access verification. This is global settings that is used in DAV.

Select the protocols order to be used for access verification using side arrows and reorder them using the up and down arrows. To avoid failure, you can use the option **Use All Selected Protocol Versions** and to override the failed protocol select the option **Override Enable Failed**. If Use all selected protocol version is selected, then all the selected protocol are used even if the first protocol passes. If Override enable failed is selected, then status is shown as enabled by default even if device do not enter enable mode. If **Run DAV for Unreachable** is selected, then DAV job is trigged for all the unmanaged devices.

Figure 6-28 Access Verification Settings



Inventory Settings

Inventory Settings allows you to set some advanced collection settings.

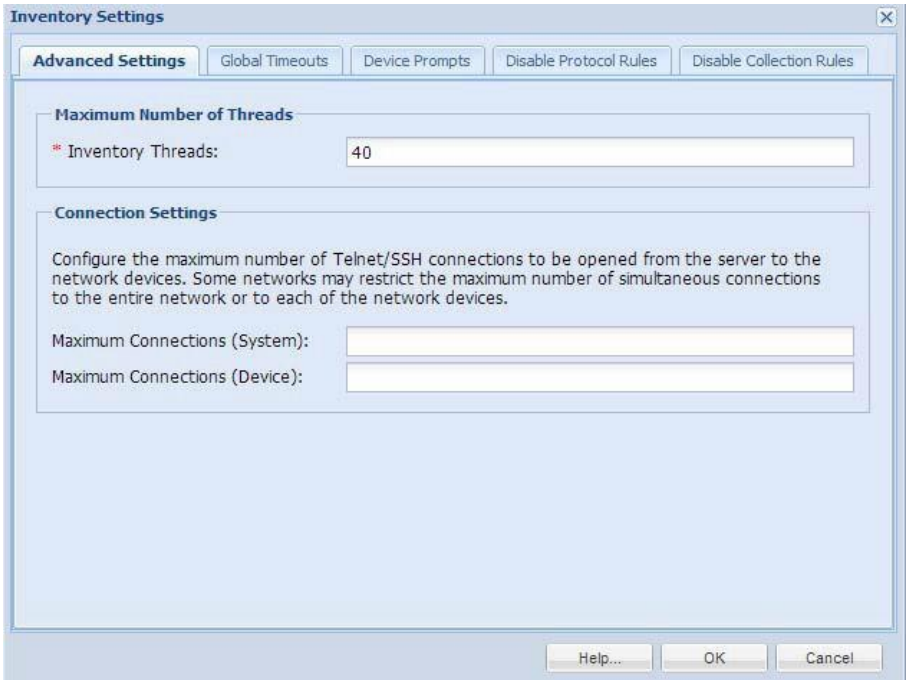
These include setting up inventory threads, device connectivity options, time out options, device prompts, disable protocol rules and disable collection rules.

Advanced Settings:

The *Advanced Settings* tab of Inventory Settings screen provides the following options:

- Inventory Threads: To set up the maximum number of inventory threads you would like the collector to use. By default, the value for Microsoft Windows is 40 and for Linux it varies from 40 - 100 based on the hardware configuration. Maximum value that can be set is for both Microsoft Windows and Linux is 200.
- Connection Settings: To set up the maximum number of connections a device can have, or the maximum number of connections per the whole collector. These settings apply only for Telnet or SSH credentials. In some networks, authentication servers provide a limit on the number of connections of either an application or a device, so this needs to be set. By default, there is only one connection per device, and no connection limit for the whole collector.

Figure 6-29 Inventory Settings



Note Inventory Thread count vary based on system configurations. It is 100 for large OVA

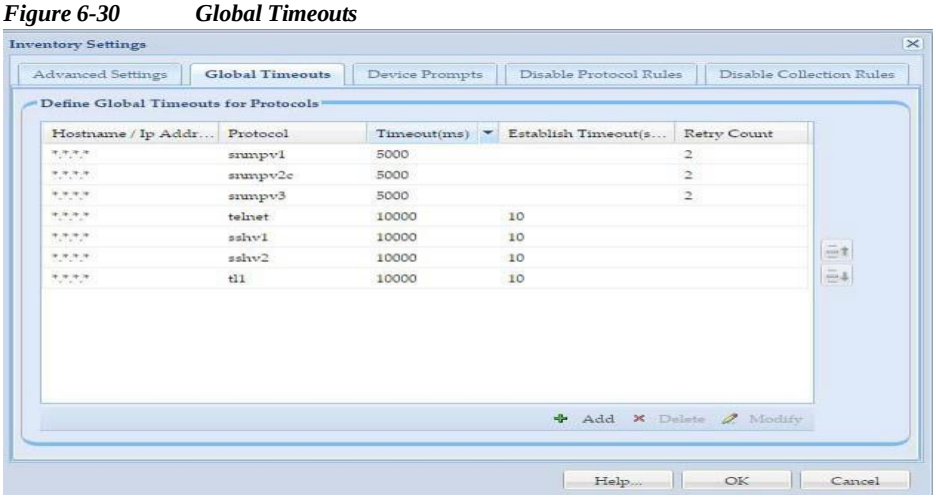
Go back to CSPC Flow Chart

Global Timeouts:

The *Global Timeouts* tab allows you to select the time out options for a given IP address or a range of IP addresses. This is where you can specify a time out option for any given protocol like Telnet, SSH, SNMP or HTTP and so on.

Vertical scroll bars are provided to move to either the previous or the next timeout option on the window. Use up and down arrow to prioritize the custom timeouts set by user.

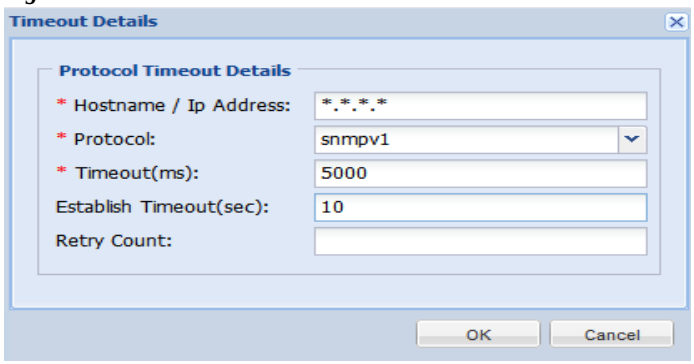
Figure 6-30 Global Timeouts



You can enter these timeouts by clicking **Add** button. On Timeout Details screen, you can enter the following details:

- Hostname / IP Address: You can select the IP Address Expression like 10.*.*.* (to represent all IP Addresses that start with a 10)
- Protocol: Select the protocol (Telnet, SSHv1 or SSHv2, HTTP, HTTPS, TL1, SNMPv1, SNMPv2 or SNMPv3 or WMI, IIOP)
- Timeout (ms): Type timeout in milliseconds (ranging from 1000 milliseconds (1 second) to 600000 milliseconds (10 minutes))
- Establish Timeout (sec): Time taken to establish a connection for a device. By default, it is 10seconds.
- Retry Count: You can select the “retry” count as well

Figure 6-31 Global Timeout



Use the ***Modify*** button to modify the global time out value. Use the ***Delete*** button to delete a time out value.

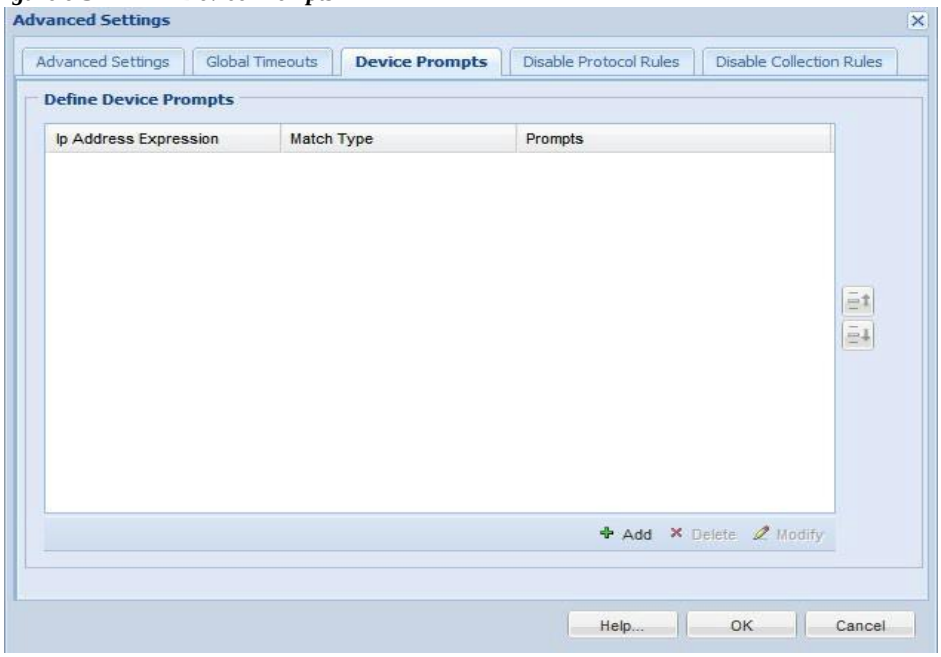
Go back to CSPC Flow Chart

Device Prompts:

The *Device Prompts* tab allows you to select specific prompt options for any given device or device group. Device prompts are used when the data collection is done on a device or device group where the prompts are changed (through an authentication server for security reasons). When the device prompts change, the collector must be able to process those prompts in order to perform data collection successfully.

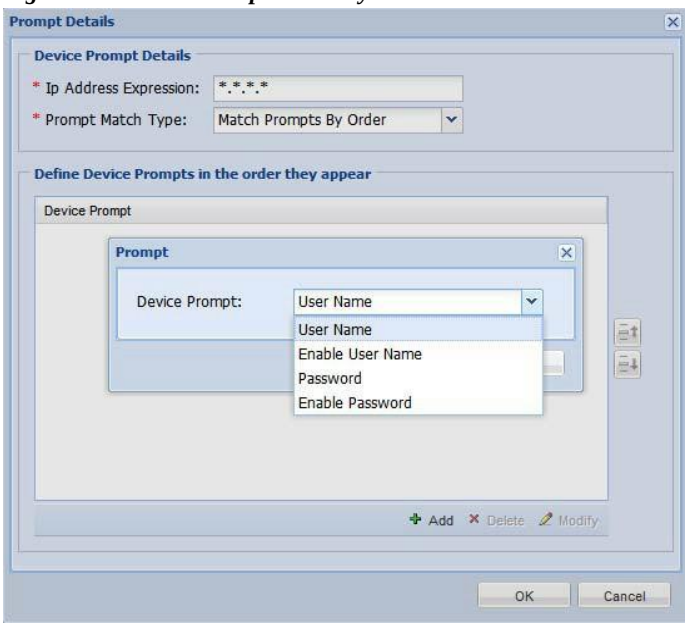
There are two ways of setting up these options; the first one is based on matching prompts by order and the second one on matching a specific string/regular expression.

Figure 6-32 Device Prompts



Both *Order* and *Regular Expression* are explained below.

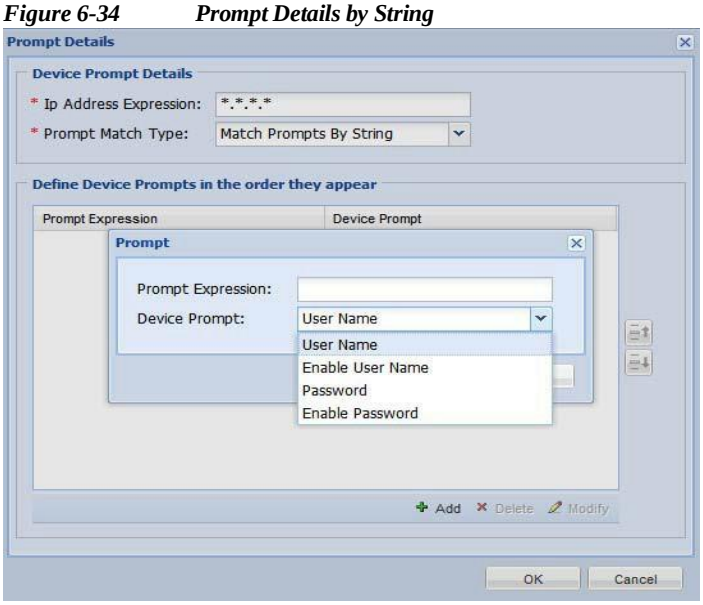
Figure 6-33 Prompt Details by Order



In the first method the device or a device group is expecting the collector to send the credential information in a particular order. For example, if the device expects to see the Password and Enable User Name and Enable Password in that order, you can change those as shown in Figure 6-33.

Similarly, if the prompts are to be matched by prompting a string, you can select that as shown in Figure 6-34.

Figure 6-34 Prompt Details by String



In this example for the device with IP Address 1.1.1.1 the User Name must have an expression of *user:* as the device prompt.

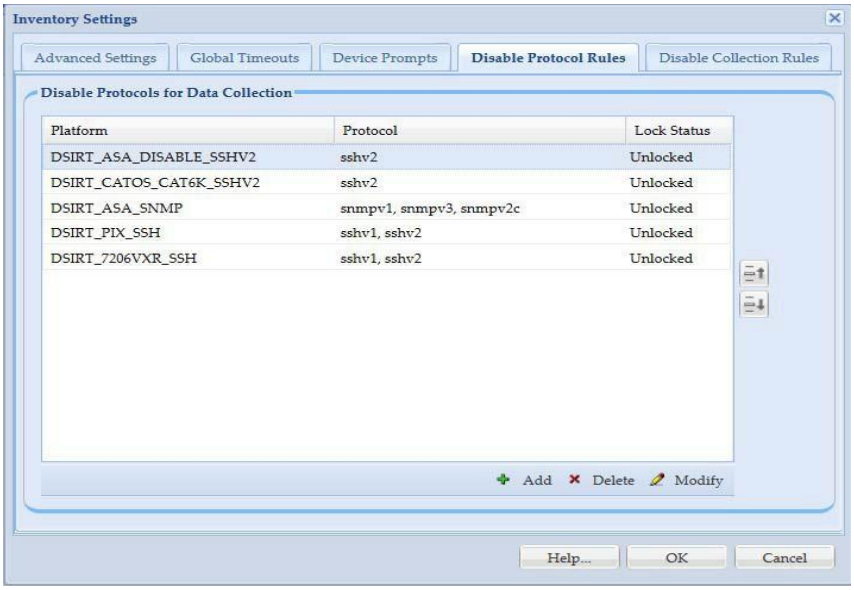
Use the ***Modify*** button to modify any prompts value. Use the ***Delete*** button to delete any prompts.

Go back to CSPC Flow Chart

Disable Protocol Rules:

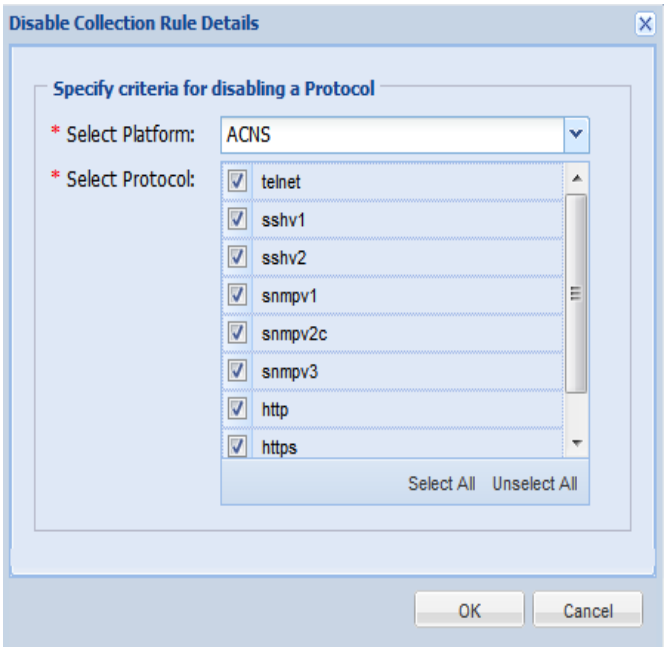
The *Disable Protocol Rules* tab allows you to configure the protocols that need to be disabled for a specific platform. Inventory and Device Access Verification will not run for the disabled protocol for the specified platform. This helps in enabling/disabling protocols without modifying the datasets. All DSIRT protocols rules are locked.

Figure 6-35 Device Protocol Rules



You can add, modify, or delete an existing disable protocol rule. Vertical scroll bars are provided to move to either the previous or the next rule in the table. To add disable protocol rule, click **Add** in the Disable Protocol Rules screen.

Figure 6-36 Disable Protocol Rule Details



Follow the steps given below to create a new disable protocol rule:

Step 1 Enter the following information:

- **Select Platform**: Select a platform for which protocol needs to be disabled from the combo list. All the configured platforms, both system and custom defined are displayed here
- **Select Protocols**: Select the protocol that has to be disabled for the above selected platform. All the supported protocols (Telnet, SSHv1,SSHv2, HTTP, HTTPS, SNMPv1, SNMPv2c, SNMPv3, WMI, TL1, LDAP, LDAPS, SQL and IIOP) will be displayed here

Step 2 You can also select or unselect all the protocols using Select All/Unselect All buttons

Step 3 Click **OK** to add the configured rule to CSPC

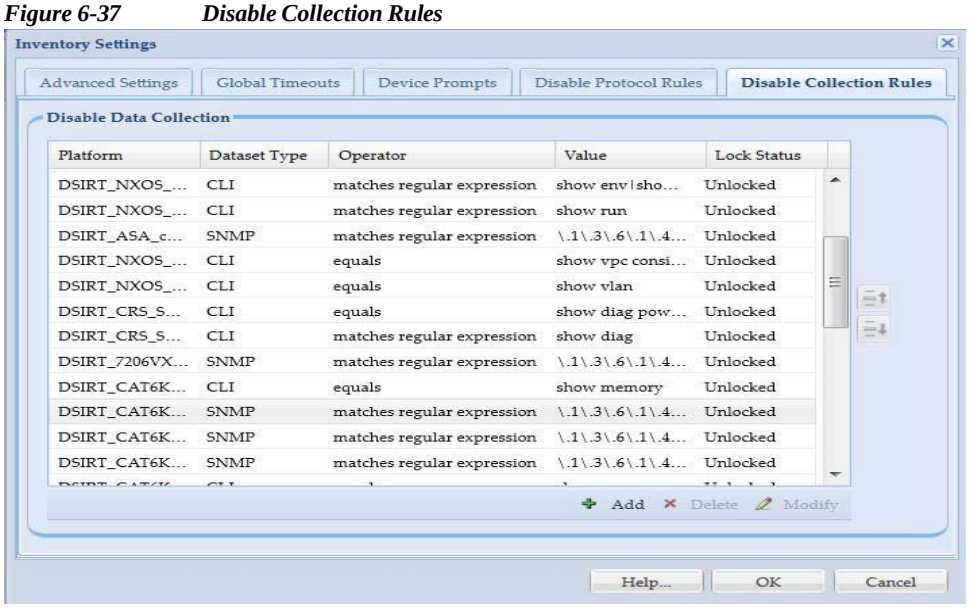
Disable Collection Rules:

The *Disable Collection Rules* tab will allow you to disable specific commands/OIDs on a specific platform. Inventory will not run for the disabled command/OIDs.

If in a given dataset, there are multiple OIDs then inventory will run for dataset and results will be displayed for OIDs which are not disabled, but collection will not happen for disabled OID.

All DSIRT collection rules are locked.

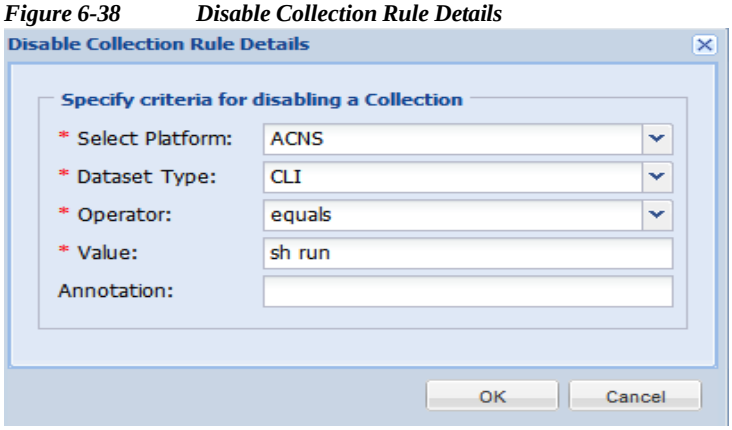
Figure 6-37 Disable Collection Rules



You can add, modify, or delete an existing disable collection rule. Vertical scroll bars are provided to move to either the previous or the next rule in the table.

To add disable collection rule, click **Add** on the Disable Collection Rules screen.

Figure 6-38 Disable Collection Rule Details



Follow the steps given below to create a new disable collection rule:

Step 1 Enter the following information:

- **Select Platform**: Select a platform for which protocol needs to be disabled from the combo list. All the configured platforms, both system and custom defined will be displayed here
- **Select Dataset Type**: Supported Dataset types are CLI or SNMP
- **Operator**: Operator can be any of equals, does not equals, matches regular expression, does not match regular expression
- **Value**: The exact CLI command or OID to be disabled
- **Annotation**: You can add a note here

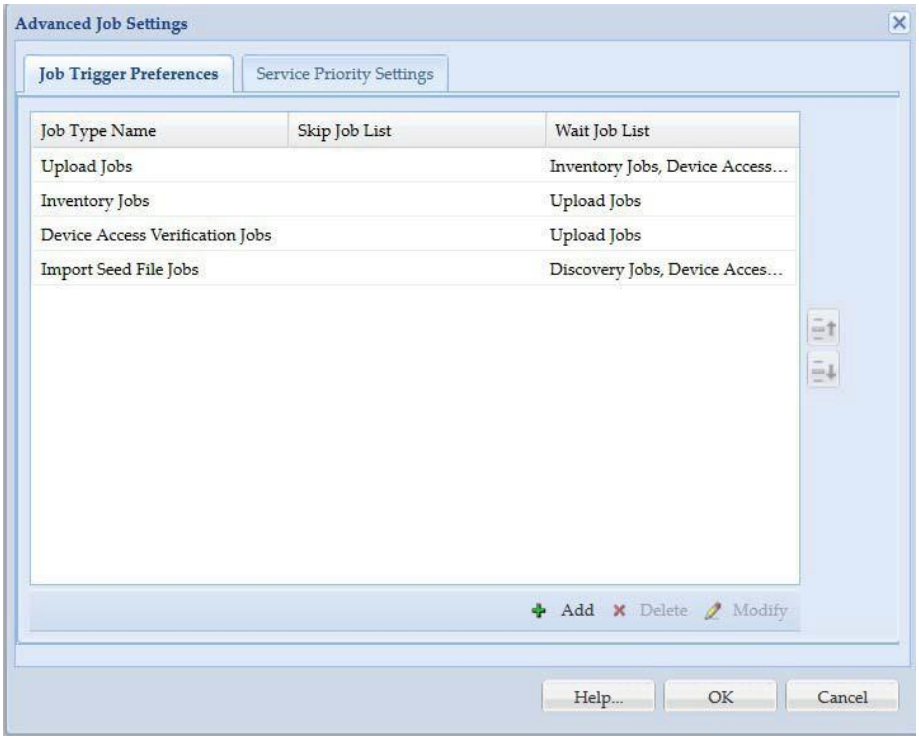
Step 2 Click **OK** to add the configured rule to CSPC

Go back to CSPC Flow Chart

Advanced Job Settings

This setting provides with an option to configure various jobs. You can define preferences for triggering a job, as well as define what jobs can be skipped and what jobs needs to wait based on a trigger preference. You can add new job trigger preferences by selecting *Add* button in the Advanced Job Settings window.

Figure 6-39 Advanced Job Settings

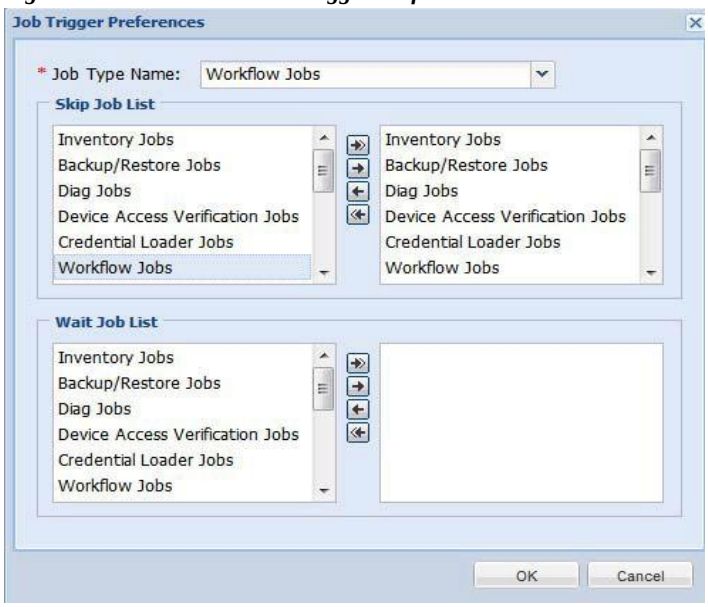


You can add jobs to Wait Job List and Skip Job List:

Wait Job List: Any job specified in Job Type Name will start only after the job specified in Wait Job list completes.

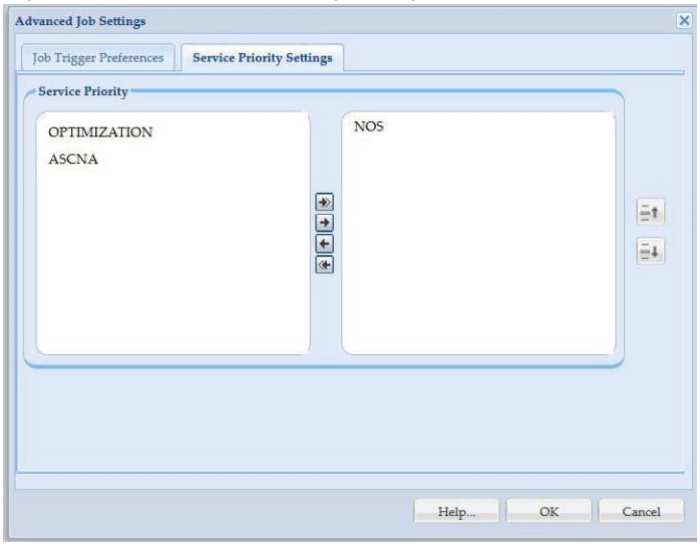
Skip Job List: Any job specified in Job Type Name will not start if any job specified in Skip Job is running.

Figure 6-40 Add a Job Trigger Preferences



To set the service priority list click **Service Priority Settings** and **use** arrows to add the services to the services priority list and set the priority using up and down arrows.

Figure 6-41 Service Priority Settings



Collection Rules

You can use the Collection Rules sub tab of the Device Management tab to set up data collection profiles, create new datasets, manage data integrity and masking rules.

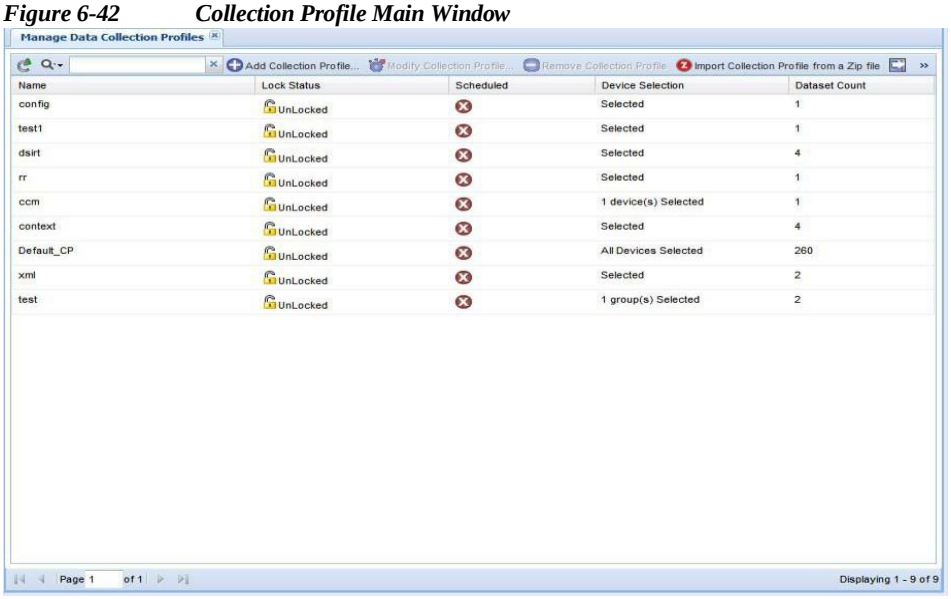
This section describes the Collection Rules options in the following topics:

- Manage Data Collection Profiles
- Manage MulitService Collection Profiles
- Manage Upload Profiles
- Manage Datasets
- Manage Platform Definitions
- Manage Data Integrity Rules
- Manage Data Masking Rules
- Manage Syslog Source Files

Manage Data Collection Profiles

Collection profile defines what data to collect, from what devices that data needs to be collected and how often the data needs to be collected.

Figure 6-42 Collection Profile Main Window



Note Based on service entitlement(s) CP are added.

If there are no collection profiles created, CSPC does not collect any data from any device.

New data collection profiles can be created by clicking *Add Collection Profile* from Manage Data Collection Profiles window.

You can also import collection profiles from a zip file stored locally on your system. To do so, click *Import Collection Profile from Zip File* button and select the zip file with collection profiles.

To add a new data collection profile, follow the steps given below:

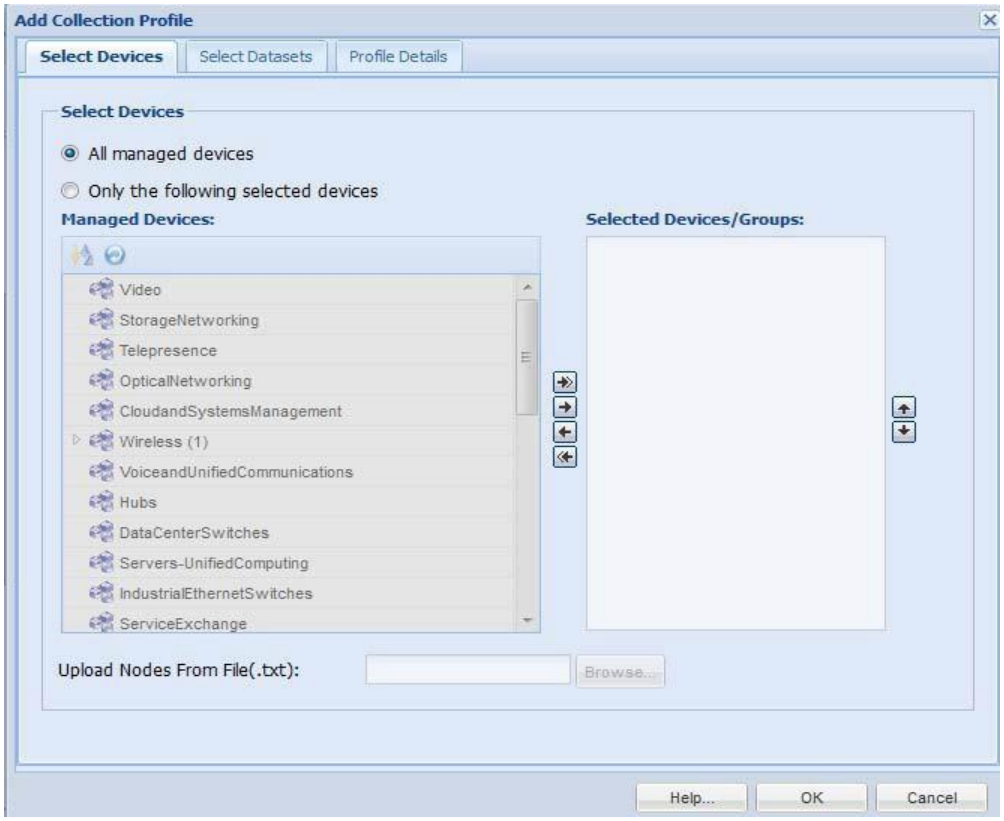
Step 1 Select the Devices

Step 2 Select Datasets

Step 3 Select Profile details

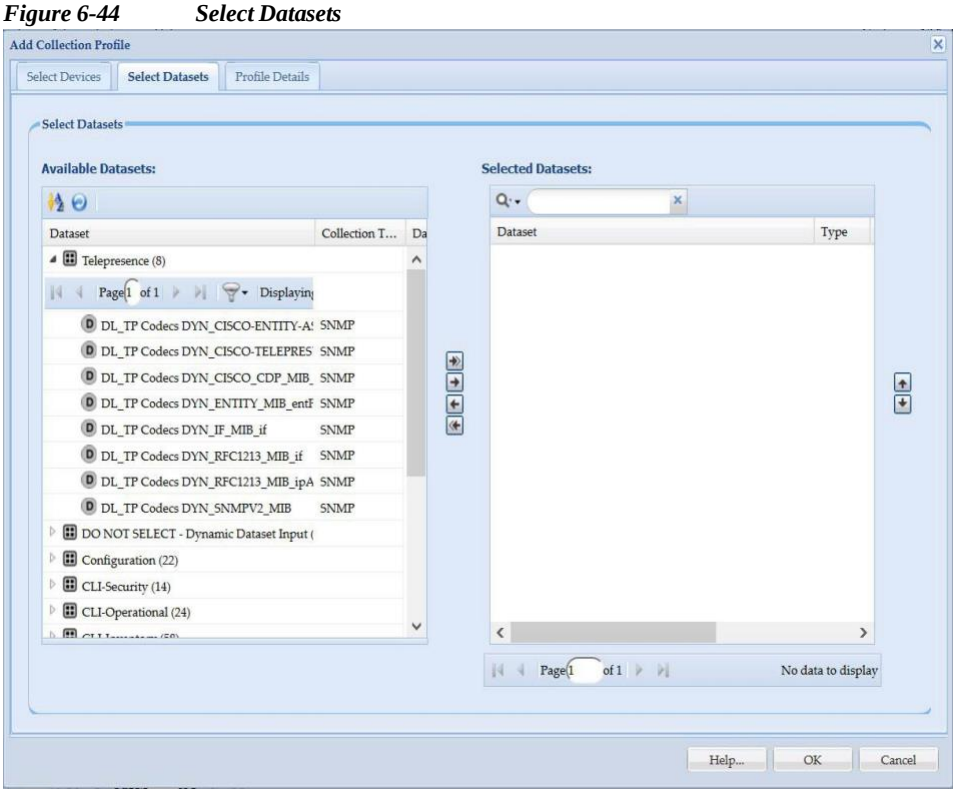
Step 4 Click **OK**

Figure 6-43 Select Devices for a Collection Profile



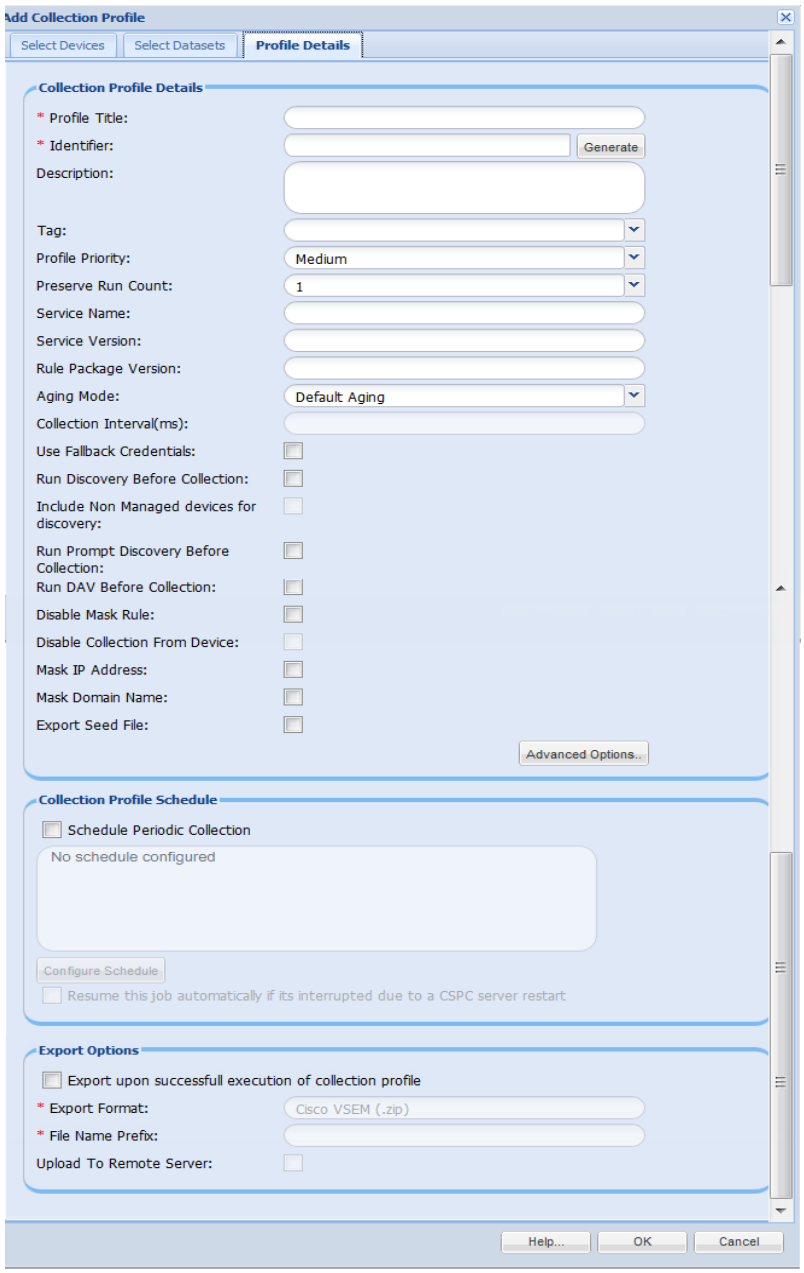
To start the collection, select a device or a set of devices or import the .txt file which has IP address of devices and each IP should be enter in the consecutive line, from which the data is to be collected as shown in the above figure. Once you select the devices, the second step in creating a profile is to select some datasets. A dataset in CSPC is an output of a command (CLI), a SNMP request, a SOAP/XML request, or a File. *Datasets* are explained in the *Manage Datasets* chapter.

Figure 6-44 Select Datasets



Use arrows to add the datasets to the Selected datasets list and to move the selected datasets use up and down arrows, click **OK**. Once the required Datasets are selected, select the profile options that define how often you want to collect the data, as shown below.

Figure 6-45 Profile Details



This provides an option to select the priority of the profile itself, and how many versions of this profile run data need to be preserved and finally how often the profile is executed to collect data. You need to provide a title that identifies this profile as well as an identifier (which is used by the XML APIs to uniquely identify this profile). If no identifier is provided, the system generates an automatic identifier for this profile.

Tag is an information that get appends to VSEM file, select the option from drop-down or enter the tag manually to tag the profile.

Each profile is set up with a specific priority. Higher priority profiles always take precedence when there is a contention for resources.

You can specify the *Service Name* and *Service Version* for the profile created. Service version is for the specific service program that collects and uploads the data. Service name is mandatory to creating collections profiles. Without service name collection profiles can be created, but it will get upload as it is necessary to be mapped to any of services that you have uploaded.

Specify the *Rule package version.*

Select the data *Aging Mode* from drop-down:

If you select *Default Aging*, then it takes time interval that is already available. This option is enabled by default and uses the aging interval specified in the dataset.

If you select *Disable Aging*, then data aging is disabled. This option disables data aging, and the collection happens directly from the device.

If you select *Custom Aging*, then you have to define the Collection Interval in milliseconds. This option refers to CP level data aging (milliseconds) and this will override the aging defined in the dataset, also enables *Disable Collection From Device* option to use.

Use *Disable Collection From Device* option to disable collection from devices. If enabled, it does not collect missing/aging expired dataset data directly from the devices. The data for those datasets will be shown as 'Skipped' in the CP summary report. If disabled, it collects missing/aging expired dataset data from the device.

The *Use Fallback Credentials* option is provided in case the credential that is being used for data collection fails (typically if you are using the Discovery Credentials for the data collection as well, it might not work on all the devices). CSPC picks up the next credential that passed Device Access Verification as a fall back credential to collect the data.

Use the *Run Discovery before Collection* option to rediscover the devices before running the inventory.

Use Include Non Managed devices for discovery option to discovery the non managed devices.

The *Run Prompt Discovery before Collection* option is used to collect the prompts before running the inventory.

Use the *Run DAV before Collection* option to verify the credentials before running the inventory.

Use *Disable Mask Rule* option not to mask the data collection as per the rules set.

Use the *Mask IP Address* option to mask the IP addresses collected from the customer before uploading them to Cisco.

Use the *Mask Domain Name* option to mask the domain names collected from the customer before uploading them to Cisco.

Mask IP Address and *Mask Domain Name* options are for data privacy and their usage depends on customer needs. You can specify the mask settings in *Advanced Settings* option under *Settings* menu.

Use the *Export Seed File* option, if you want to upload all the original seed files saved in the system along with the Collection profile. You can also export Unreachable devices. This option is disabled if masking/DPA is enabled.

Use *Export Options* if you would like to export the collection profile data after the successful execution of the collection profile. You can export the data to the following format:

- Cisco VSEM(.zip)

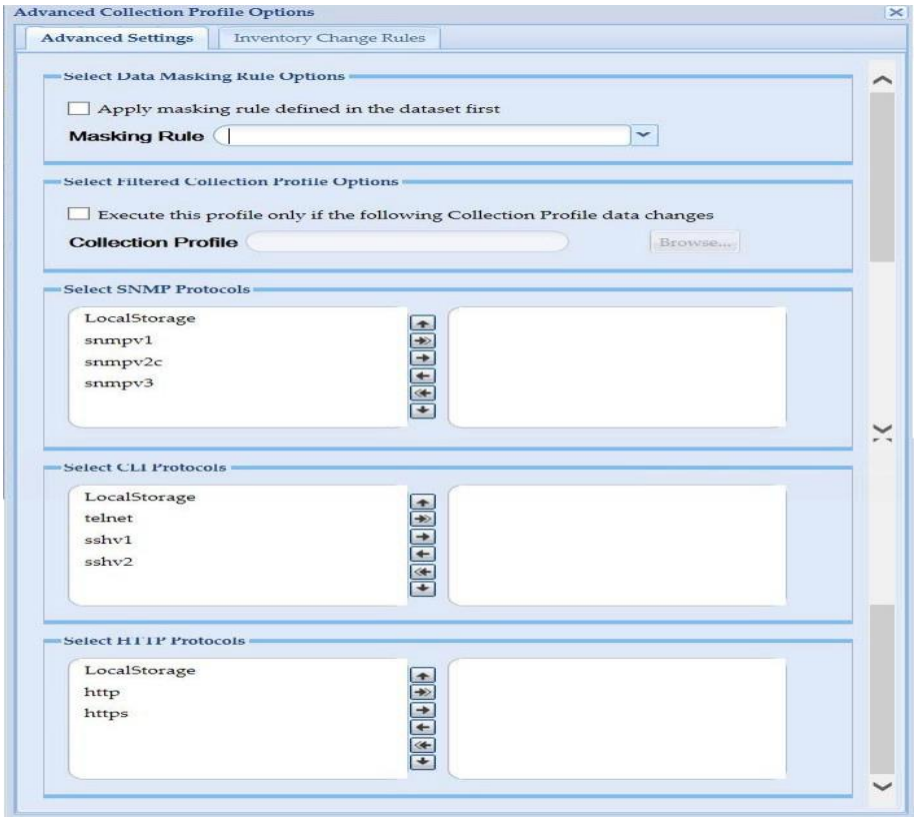
Check the Upload to Remote Server checkbox, if you would like to upload the collection profile details to the remote server. If the Upload to Remote Server box is left unchecked the collection profile data is not uploaded to remote server.

Once these steps are finished, click **OK** and the Data Collection Profile is created and ready for use.

When a Collection Profile is scheduled to run at later time, 'Resume this job automatically if it's interrupted due to a CSPC Server restart' option will be available. If the CSPC restarts for any reason while Collection Profile is running, CSPC will resume the job upon restart.

When you click *Advanced Options* in Profile Details window, following windows is displayed.

Figure 6-46 Advanced Collection Profile Options



Advanced Collection Profile Options window shows the available, SNMP, CLI and HTTP protocols. You can select the desired protocol from the list and add it by clicking arrow or select all by clicking on the double arrow .

You can move the protocol up or down by using the arrow keys next to the selected box. The protocol on top in the selected box takes precedence and is run first as compared to the ones below it.

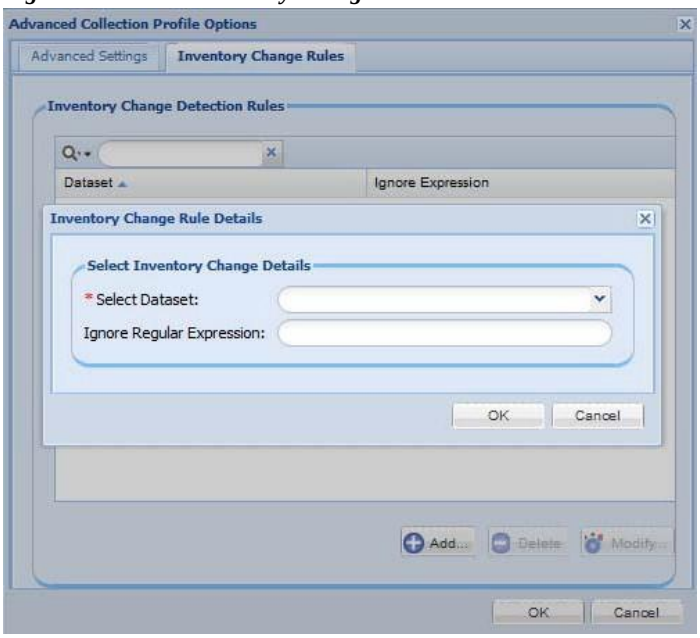
If you select *LocalStorage*, then whenever you execute for a particular device or dataset it will first check if it exists in the local database, if it is not found then based on the protocol order selected it will go to the next one.

You can also set a filter to execute the profile only if a certain collection profile changes. To set the filter, select the check box next to *Execute this profile only if the following collection profile data changes*, click **Browse** button and select the collection profile.

To apply mask rule select *Apply masking rule defined in the dataset first* and select the Masking rule from drop-down.

Click Inventory Change Rules to add of modify the Rule. Select Dataset and enter Ignore Regular Expression and click OK

Figure 6-47 Inventory Change Rule Details



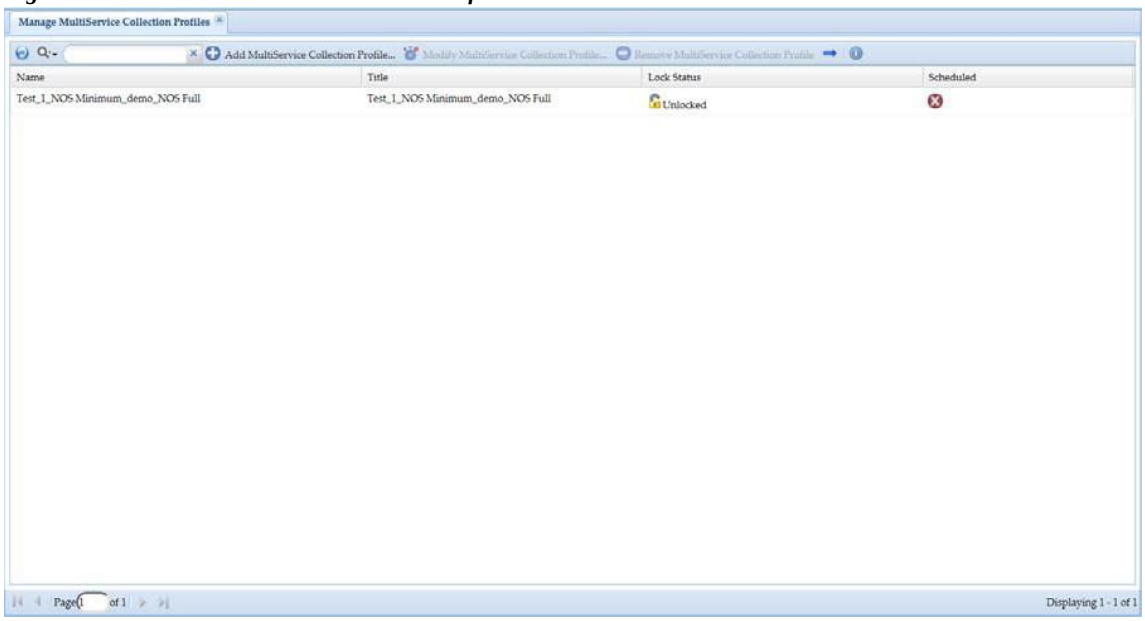
Click **OK** button to save the selection.

Go back to CSPC Flow Chart

Manage MulitService Collection Profiles

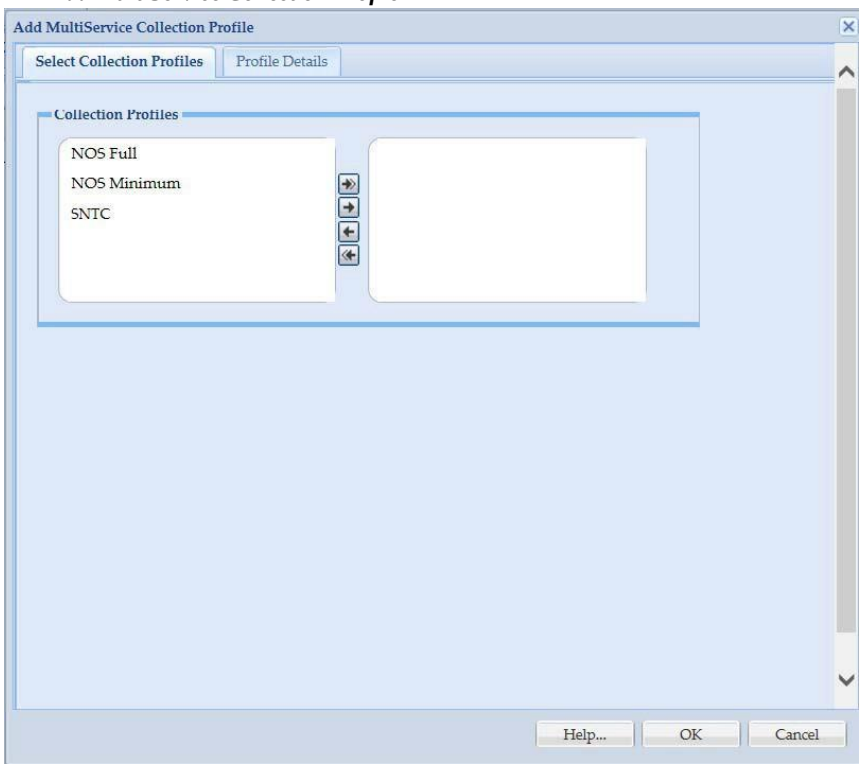
Manage Multi Service Collection Profiles is used to define, and configure the Multi Service Collection Profile. Collection profiles that are executed together and you can Add, Modify, or Delete a collection profile. It combines devices and datasets from all the selected collection profiles and collects data in one single inventory job. If any of collection profile has run Discovery, DAV, Prompt before collection, and if any other settings are enabled then those settings are considered for multi service collection profile.

Figure 6-48 MulitService Collection Profiles



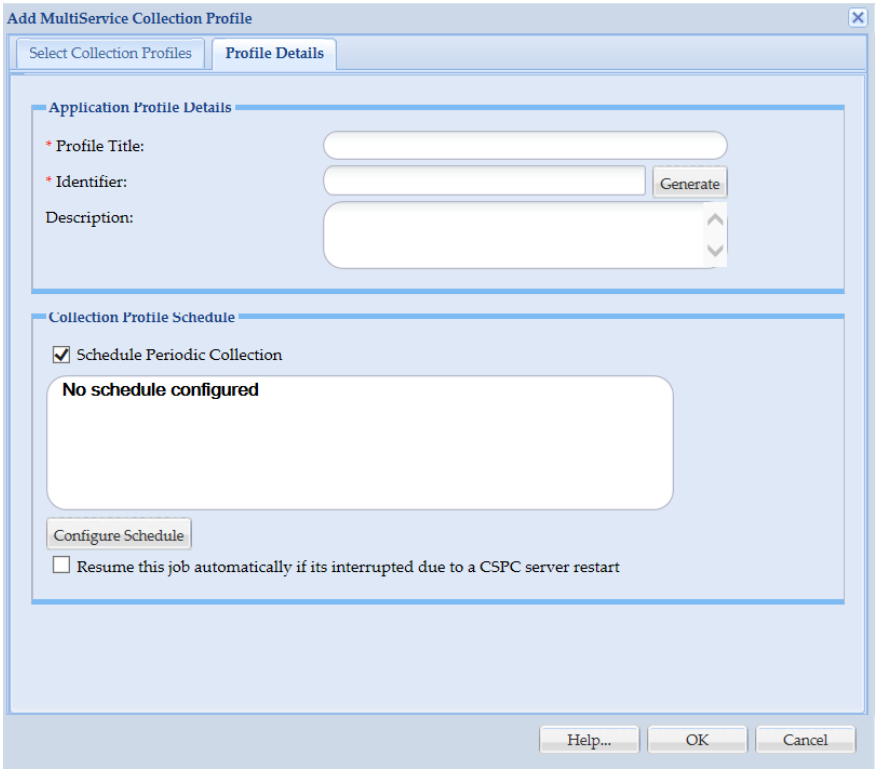
In collection profile dialog box, select the collection profile using arrows.

Figure 6-49 Add MultiService Collection Profile



In Profile details dialog box, enter the Profile name and generate the identifier. You can schedule the collections periodically or run the collections now. To run collection, refer Collect Data.

Figure 6-50 Profile Details

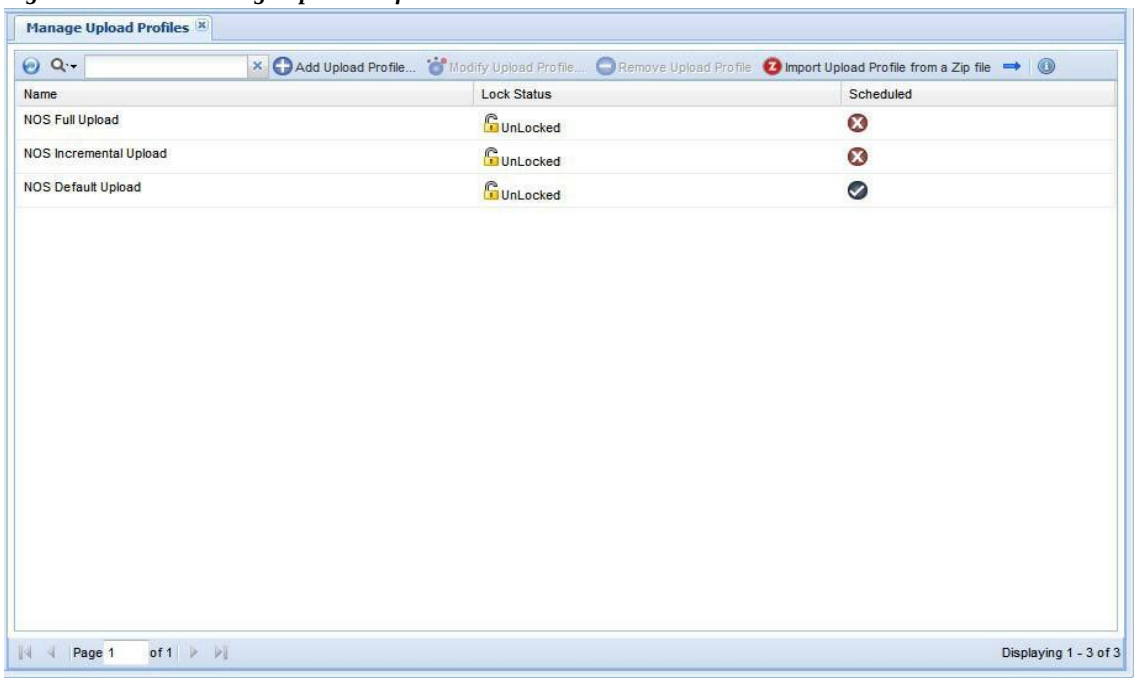


Manage Upload Profiles

In Manage Upload Profiles, you can specify the type of data which includes syslogs, inventory, and DAV that needs to be uploaded locally or to the backend.

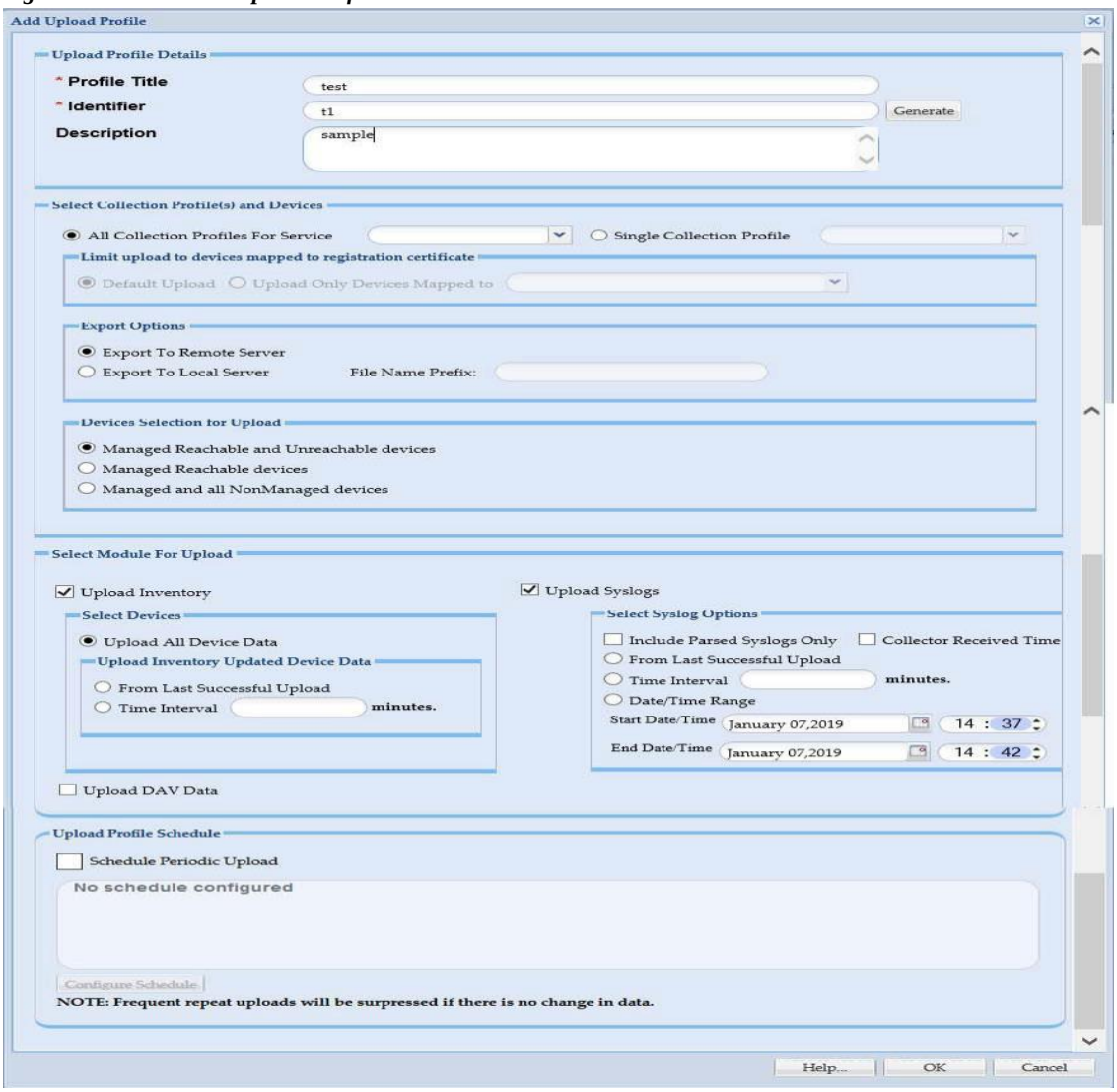
Note Default upload profiles are created for NOS service when a nos configurer gets installed. Below screen is only for NOS.

Figure 6-51 Manage Upload Profile



You can import an upload profile from zip file stored on your system. To do so, click **Upload Profile from a Zip file** icon on Manage Upload Profiles screen. In Upload File dialog box, browse to the fileand click **Submit** button to start uploading the file.

Figure 6-52 Add Upload Profile



You can choose **All Collection Profiles For Service** or **Single Collection Profile** and select corresponding registration certificate from drop down.

You can upload devices to the default registration certificate using **Default Upload** or to a registration certificate from drop down using **Upload only devices mapped to**.

Select the required type of devices to upload such as

- Managed Reachable and Unreachable devices (Default)
- Managed Reachable devices
- Managed and all Non Managed devices (this option uploads all the devices in CSPC).

If **Upload Inventory** is selected, then you can **Upload All Device Data** (Full Inventory upload) or collected data with in specified time interval by specifying the **Time Interval** in minutes or choosing an option **From Last Successful Upload**. (Incremental Inventory upload).

If **Upload Syslogs** is selected, then you can upload Syslogs by choosing an option **From Last Successful Upload** or by providing **Date/Time Range** or specifying **Time Interval** in minutes.

Selecting **Include Parsed Syslogs Only** if this option not selected, then by default all the syslogs are considered and If **Collector Received Time** is selected, then the time selected is form collector else it is default system time

To upload DAV data, select the **Upload DAV Data.**

You can also schedule periodic uploads of the data using Configure Schedule option. This data can be exported to remote server or to a server locally.

Figure 6-53 Upload Warning Message

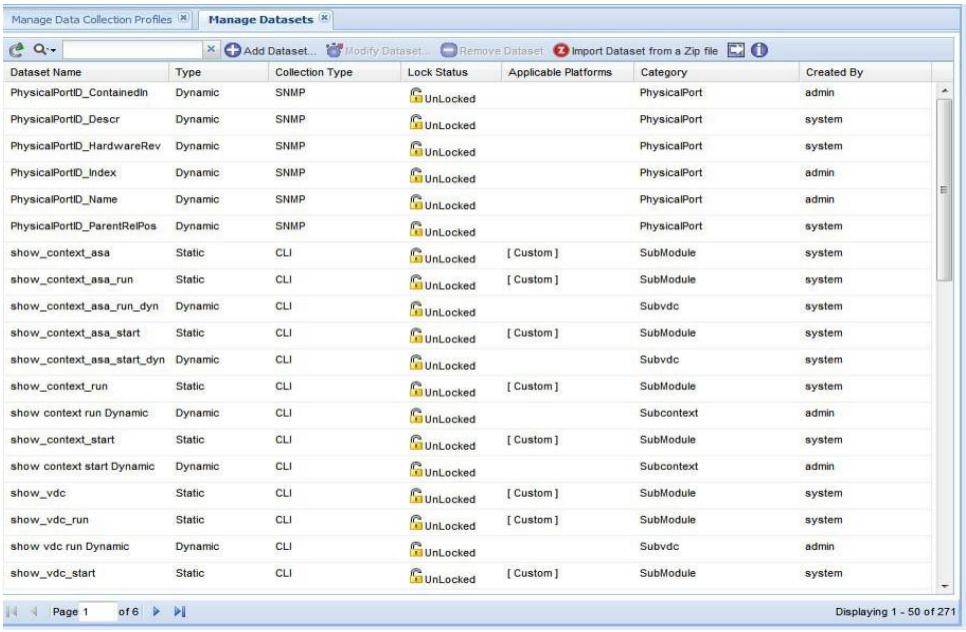
Note Frequent repeated uploads will be suppressed if there is no change in data. If no change in the collected data from the previous successful upload, then upload data will be suppressed by bundling only limited requiredfiles.

Manage Datasets

Manage Datasets is used for creating a new data collection point. Datasets are the building blocks of CSPC Collection Profile. Datasets contain the platform definitions, data/masking rules. You can either Add, Modify or Delete a dataset.

A Data Set in CSPC is an output of a command (CLI), SNMP request (SNMP) or XML output (SOAP/XML).

Figure 6-54 Manage Datasets



Select *Add* Dataset option when you are ready to create a new data set. You can create Static and Dynamic datasets.

You can also import datasets from a zip file. To do so, click "Import Dataset from a zip file" button on the Manage Datasets window and select to the zip file to import.

Static Dataset

Collection mechanism specified in the static dataset is defined as a command or SNMP request

Follow the steps given below to add a new static data set:

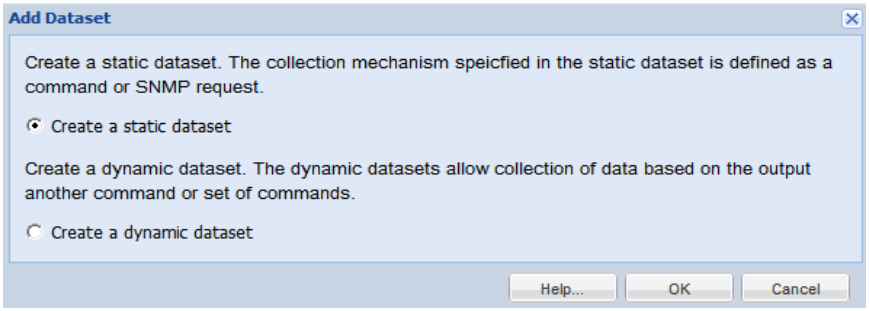
Step 1 Provide data set details

Step 2 Provide data set platforms

Step 3 Click **OK**

Select **Create static dataset** option and then click **OK** button to create a static dataset as shown in the figure below.

Figure 6-55 Add Dataset



Add/Modify Dataset is used for creating/modifying a Dataset. Dataset can be added either as locked or unlocked.

The following are the steps to add a dataset.

Step 1 Provide the following dataset details:

Title: Name of the Dataset. This is a mandatory field

Identifier: This can be user defined. If this is not defined by user, this will be generated by System

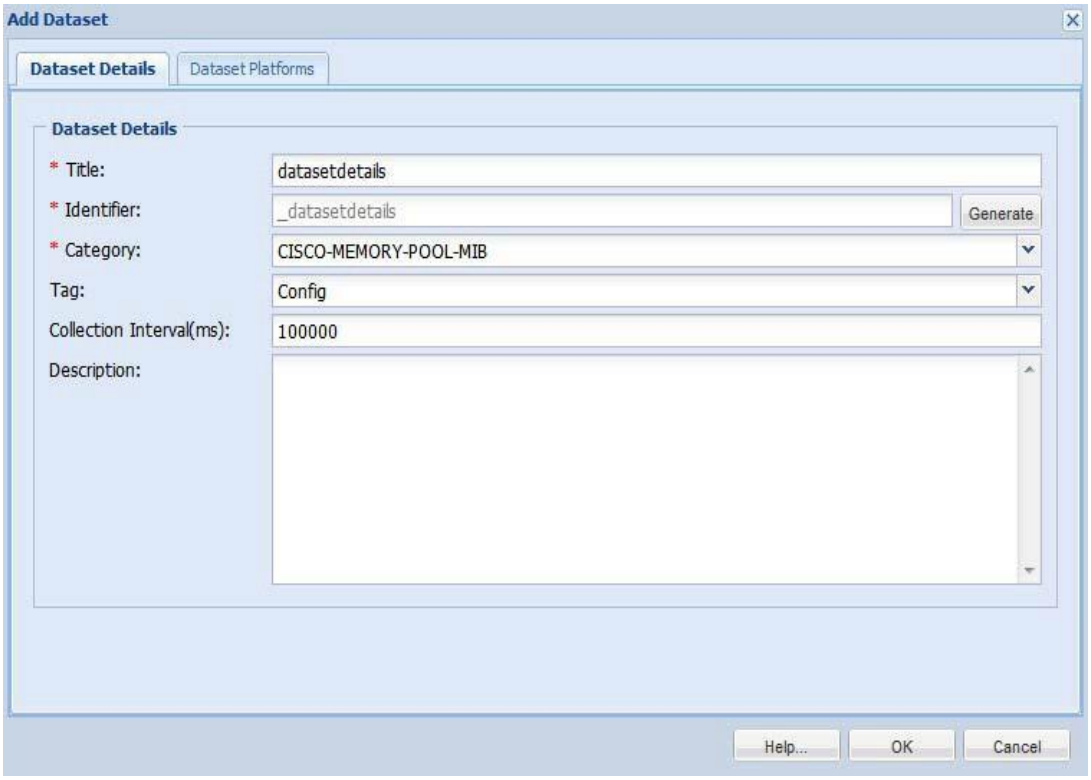
Category: This is a mandatory field. This is custom defined by user. If you enter a category that does not exist, a new category is created

Collection Interval: You can specify the collection intervals in milliseconds

Tag: Select the tag from the drop down list

Description: Description for the Dataset

Figure 6-56 Provide Dataset Details



Step 2 Once this information is provided, you can now select the applicable platforms for this dataset and the collection method using the following options:

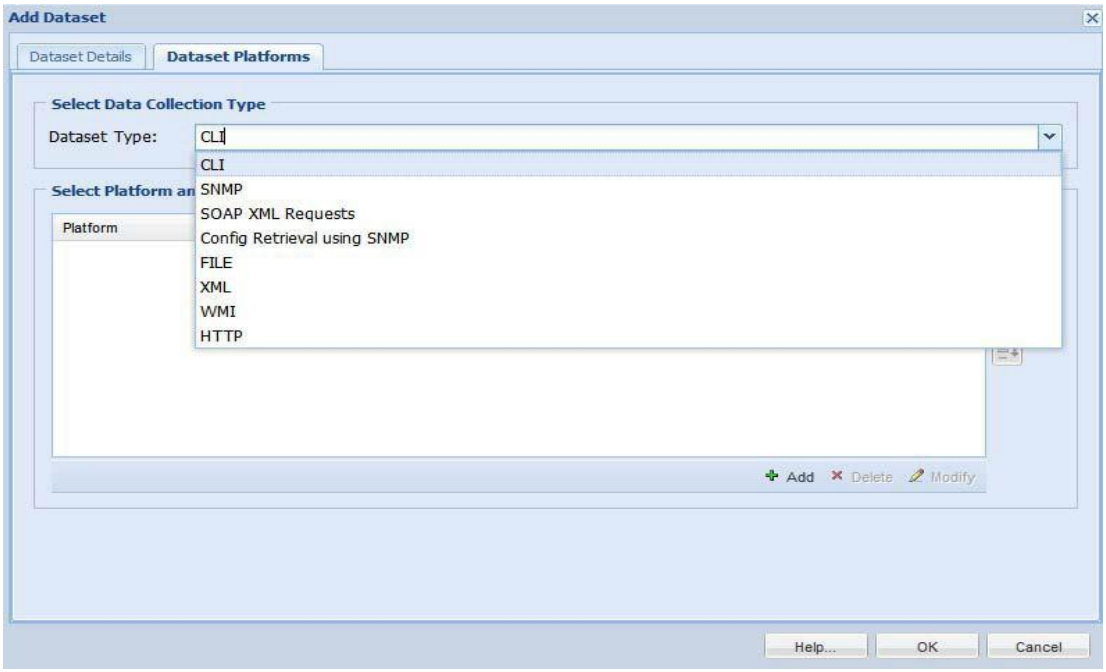
Dataset Type:

- CLI
- SNMP
- SOAP XML Requests
- Config Retrieval using SNMP
- FILE
- XML
- WMI
- HTTP
- TL1
- IIOP
- SQL
- LDAP

CLI:

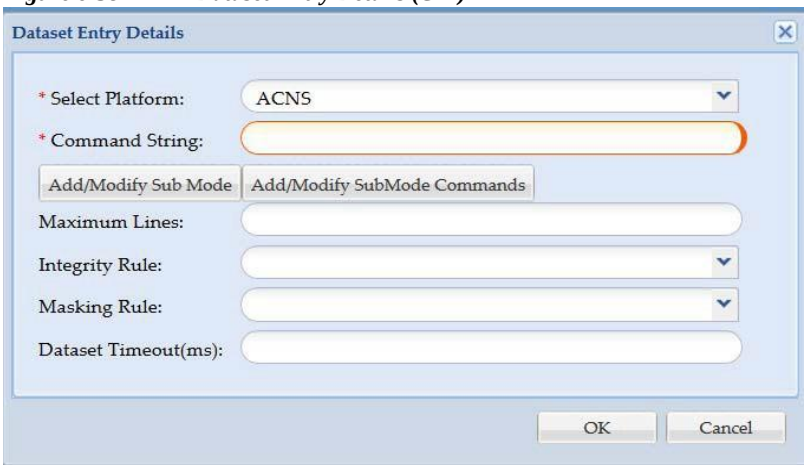
CLI is selected in this example. CLIs are the datasets which contains commands to execute on the device.

Figure 6-57 Dataset Platform Options (select CLI)



Select a specific platform for which this dataset is applicable. The list of platforms is pretty extensive, and you can select a platform based on a matching operating system, matching device group or any other format. You can also create your own platform definitions as explained in the *Manage Platform Definitions* chapter.

Figure 6-58 Dataset Entry Details (CLI)



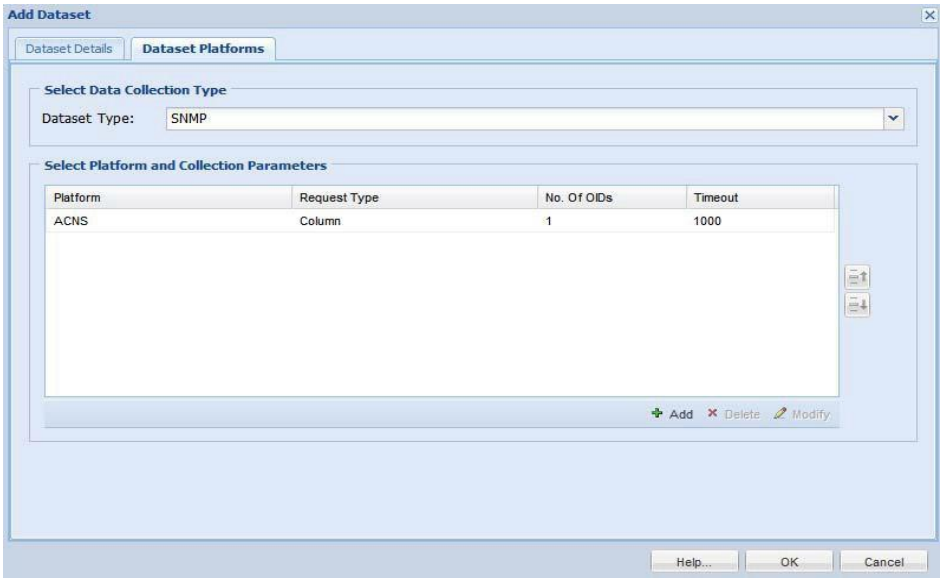
Once the platform is selected, enter a command string (as you are creating a dataset based on CLI) for NATed Appliances you need to use this format as explained in Optional Parameter for NATed Appliances, page C-1, and enter other details such as:

- Sub mode is list of commands to enter and exit sub mode context
- Sub mode command is used to include all the commands that are required to executed in the sub mode context
- Maximum Lines (some command outputs might run in to thousands of lines, using this option provides a way to curtail that information to the selected number of lines)
- Integrity Rule (helps to determine if the command output returned from the device is a proper output on successful execution of the command or the output returned is an error message. You can define your own integrity rules. Integrity Rules are discussed further in *Applications->Device Management->Data Collection Settings* tab),
- Masking Rule (what specific fields in the command output needs to be masked)
- Dataset time out (how much time collector should wait for the data output).

SNMP:

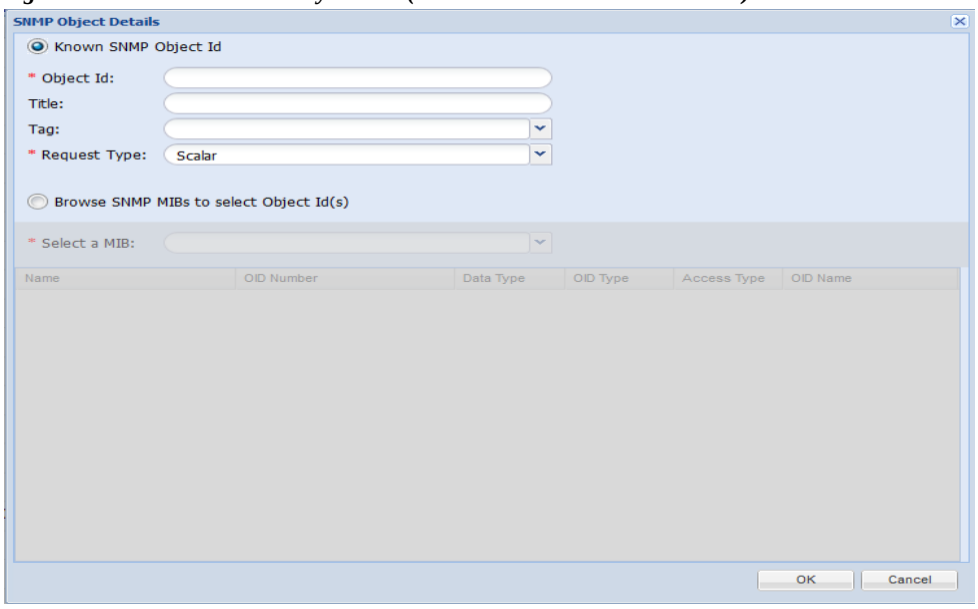
Select SNMP option from Dataset Type and click **Add** button.

Figure 6-59 Dataset Platforms Options (select SNMP)



The following screen shots show adding an SNMP data set. Once you select *SNMP* in the Dataset Platform Options, add the MIB variables as shown in Figure 6-60. All the MIBs that are preloaded are shown, and you can pick which MIB and which variables you would like to add to your dataset.

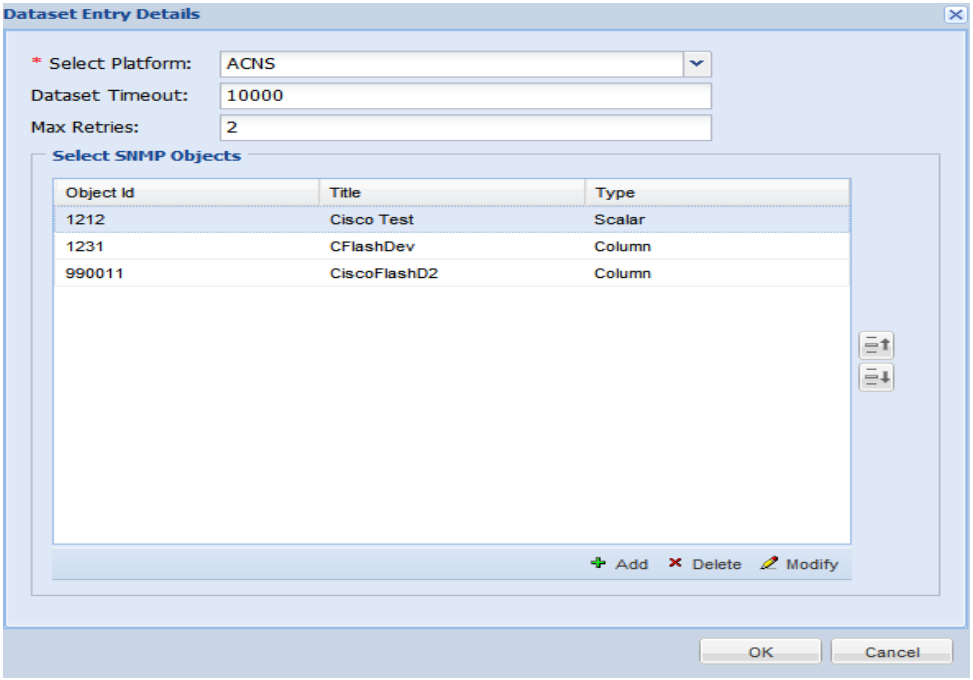
Figure 6-60 Dataset Entry Details (SNMP - Select the MIB Variables)



Once the selection is finished, click **OK.**

SNMP variables are added to your new data set as shown below.

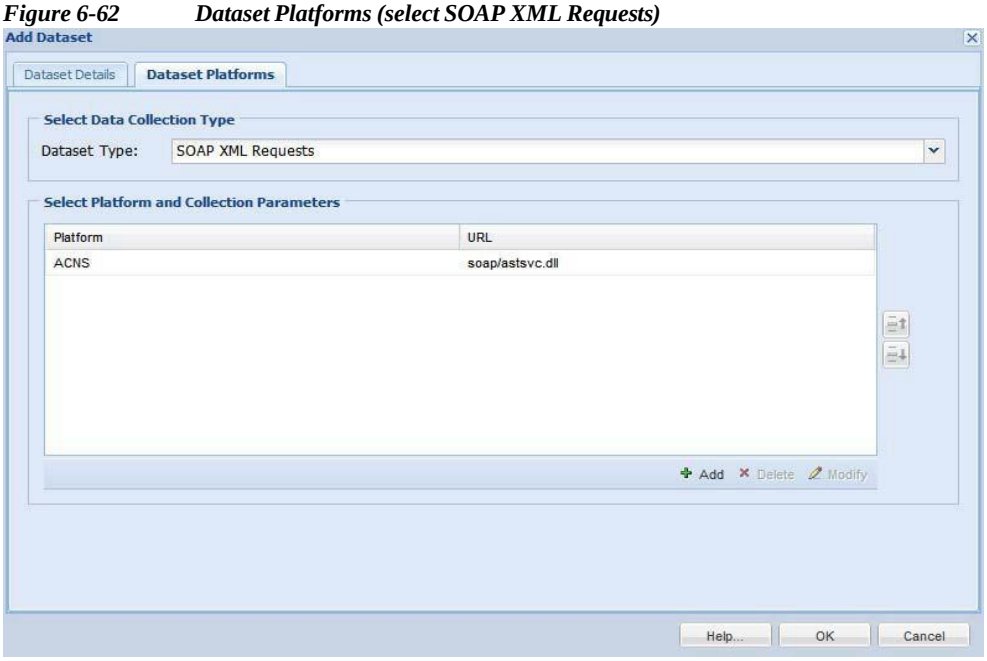
Figure 6-61 Dataset Entry Details - SNMP



SOAP XML Request:

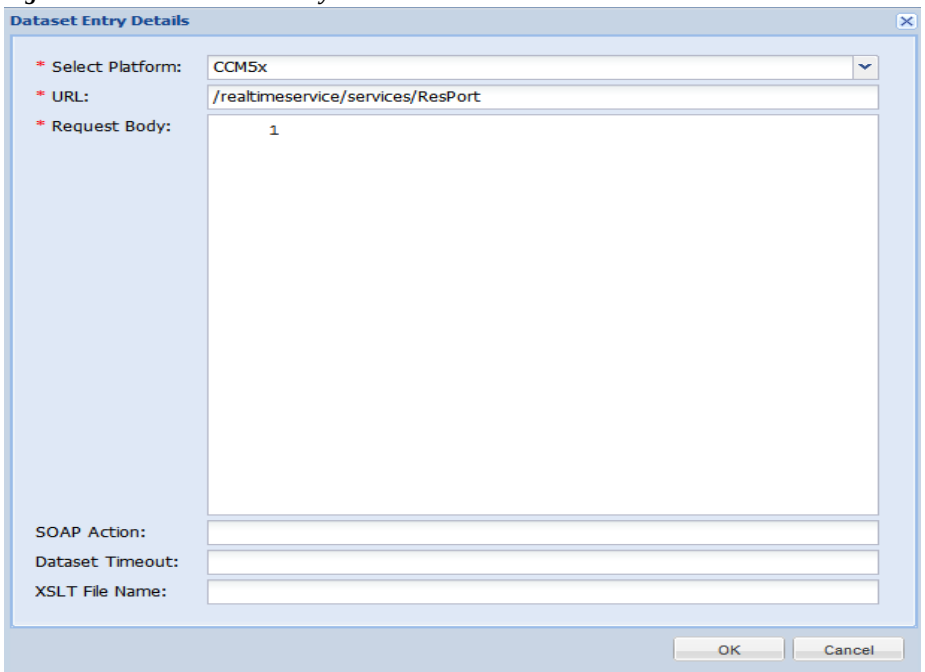
Select SOAP XML Request option from Dataset Type and click **Add** button.

Figure 6-62 Dataset Platforms (select SOAP XML Requests)



Enter the details for *SOAP XML* as defined below. Once all the data is entered you are ready to add a new SOAP *XML* dataset.

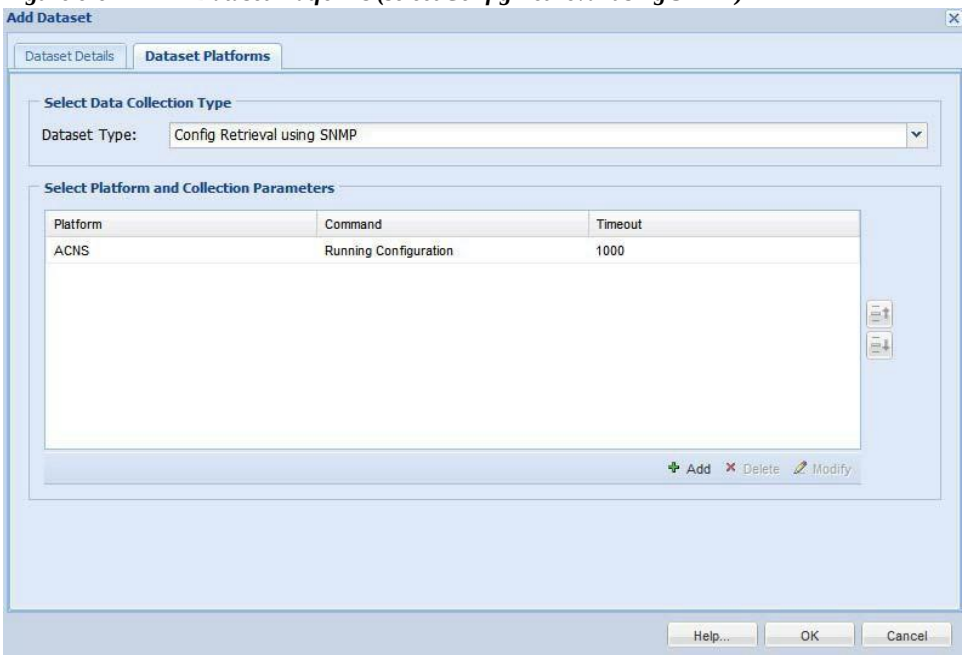
Figure 6-63 Dataset Entry Details - SOAP XML



Config Retrieval using SNMP:

Once you select Config Retrieval option, and click **Add** button you can start collecting the configuration (either running or startup) using SNMP. Once you select the type of data set you would like to create based on the protocol selected, click **Add** button to enter the details for the data set.

Figure 6-64 Dataset Platforms (select Config Retrieval using SNMP)



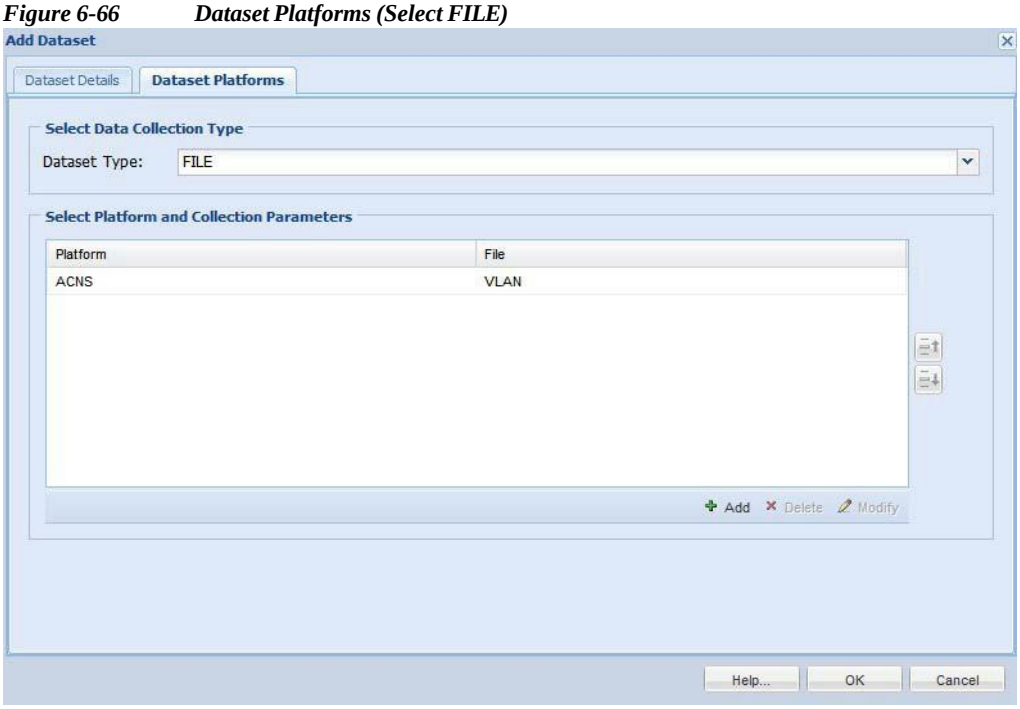
Enter the details for SNMP *ConfigRetrieval*. Once all the data is entered you are ready to add a new *ConfigRetrieval* using SNMP.

Figure 6-65 Config Retrieval using SNMP Details

FILE:

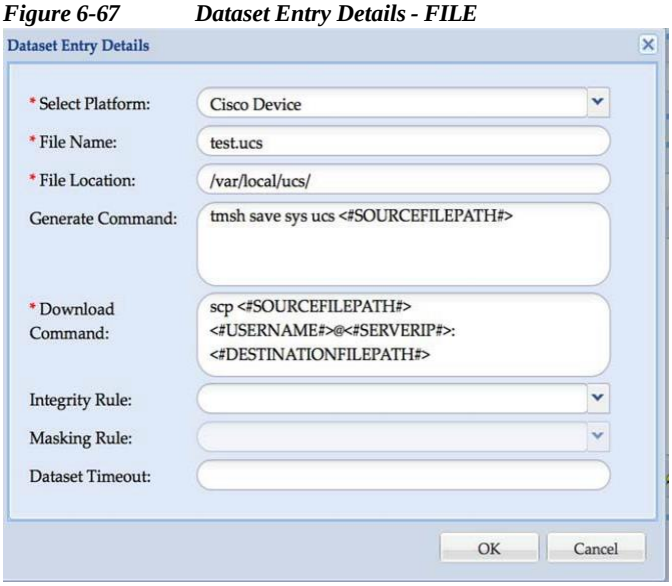
When you select FILE option, and click **Add** button, you can start collecting the data based on either a *predefined file* or *user defined file.*

Figure 6-66 Dataset Platforms (Select FILE)



Select the Platform and enter the details for File name, File location and Download Command. If required enter Generate Command and dataset timeout. Also, you can select Integrity Rule and MaskingRule. Once all the data is entered you are ready to add a new FILE dataset.

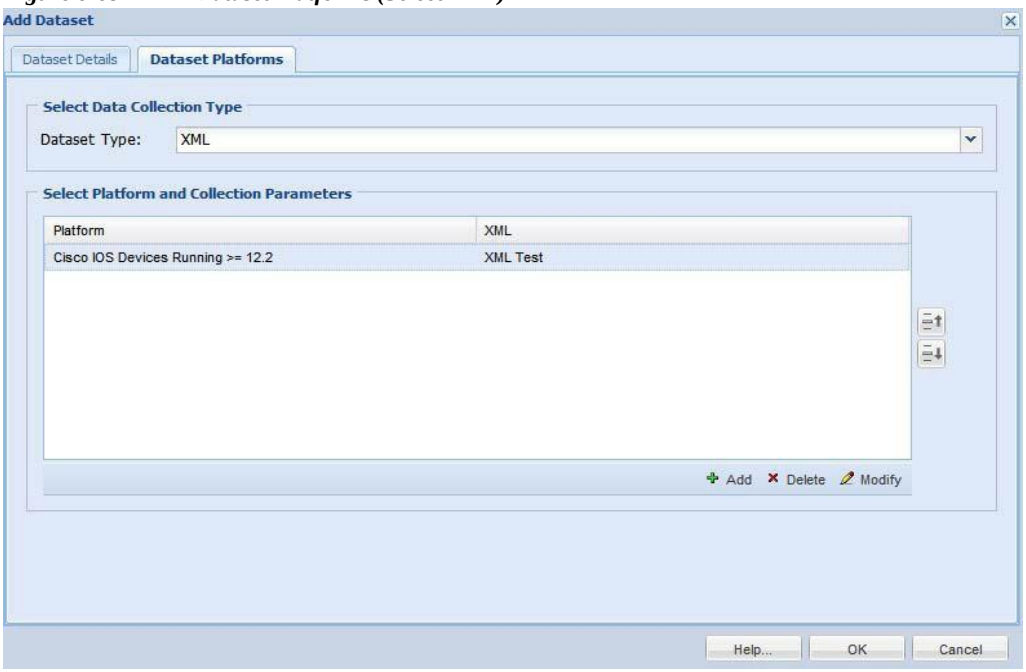
Figure 6-67 Dataset Entry Details - FILE



XML:

Once you select XML Dataset option and click **Add** button, you can start collecting data in XML format for supported platforms. Once you select the type of data set you would like to create based on the protocol selected, click **Add** button to enter the details for the data set.

Figure 6-68 Dataset Platforms (Select XML)



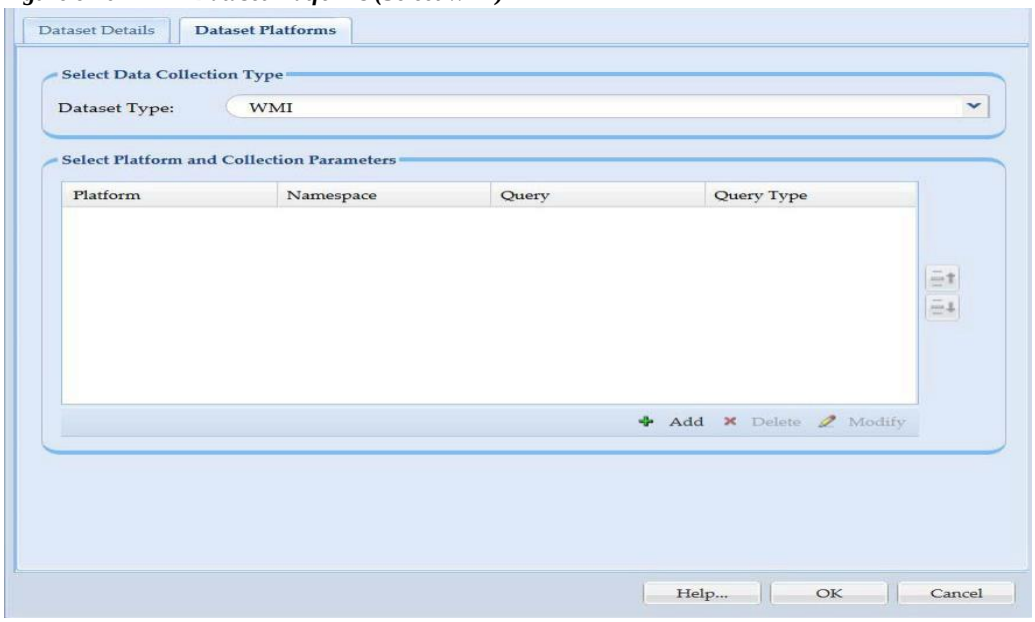
Enter the details for XML selection. Once all the data is entered you are ready to add a new XML dataset.

Figure 6-69 Data Entry Details - XML

WMI:

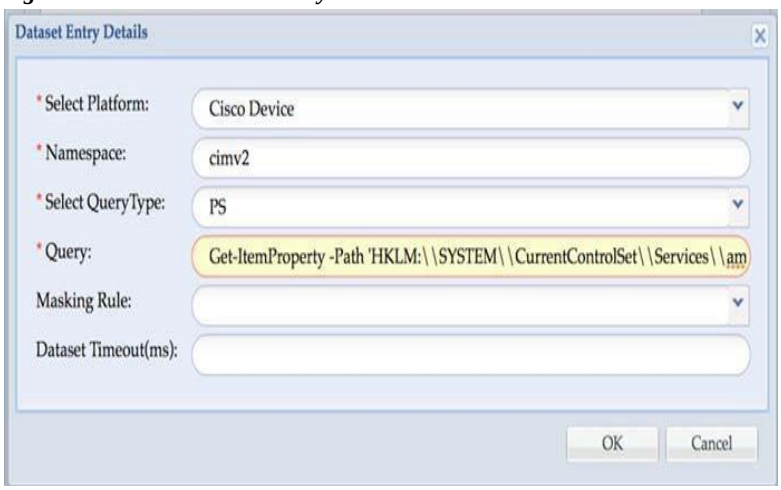
Once you select WMI Dataset option and click **Add** button, you can start collecting WMI data for supported platforms. Select the platform, enter Name space, select Query type, enter the Query. Select the masking rule and enter the Dataset Timeout (ms) Click **OK** button to add the data.

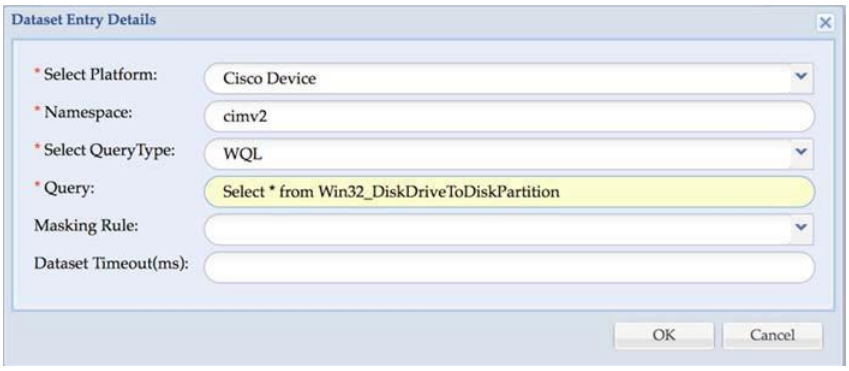
Figure 6-70 Dataset Platforms (Select WMI)



Enter the details for WMI selection. Once all the data is entered you are ready to add a new WMI dataset.

Figure 6-71 Dataset Entry Details - WMI

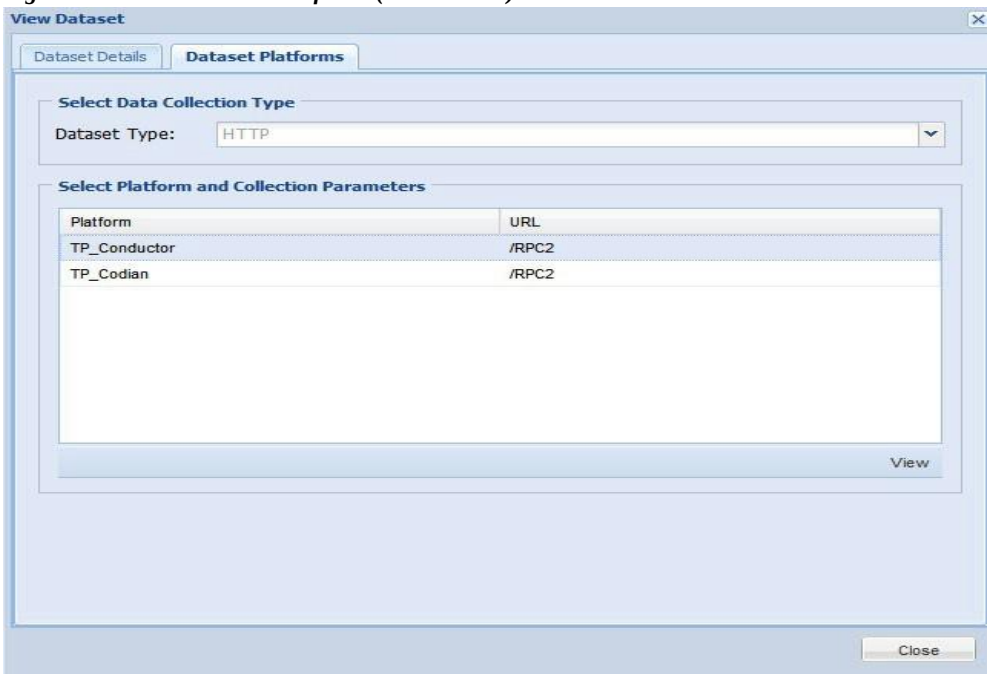




HTTP:

Once you select HTTP option and click **Add** button, Select the platform, and specify the URL. These are mandatory fields. Once done you can start collecting the data.

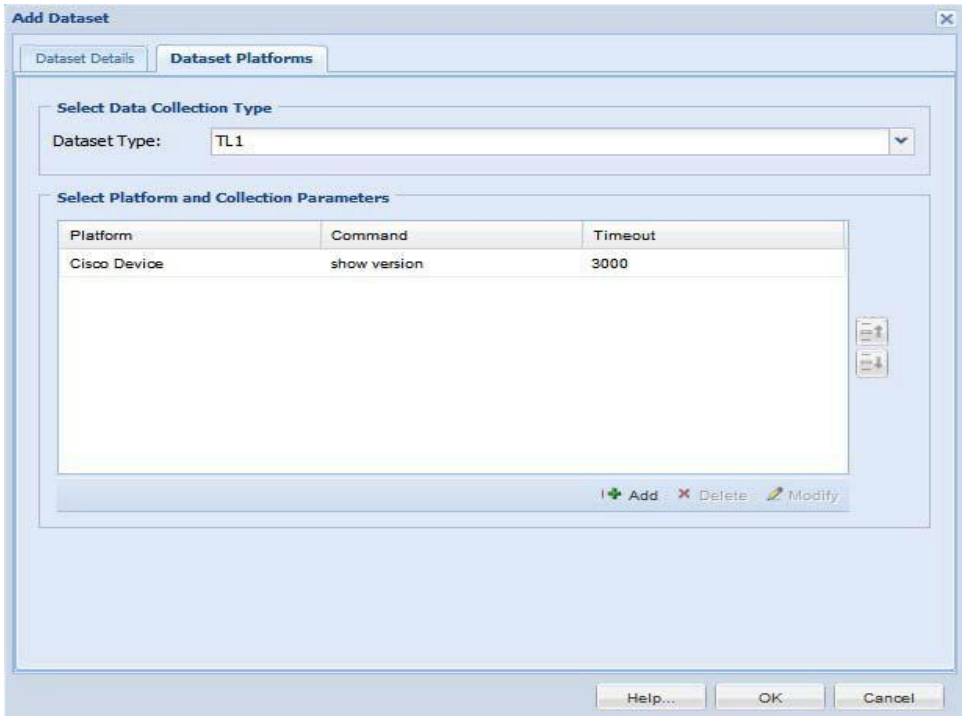
Figure 6-72 Dataset Platforms (Select HTTP)



TL1:

Once you select TL1 option and click **Add** button, Select the platform and the Command string. These are mandatory fields. You can also enter Maximum Lines, Integrity Rule, Masking Rule, Dataset Timeout. Click **OK** button to add the data.

Figure 6-73 Dataset Platforms (Select TL1)



IIOP:

Once you select IIOP option and click **Add** button, Select the platform. This is a mandatory field. You can also enter Dataset Timeout and choose APIs or All APIs. Click **OK** button to add the data.

Figure 6-74 Dataset Platforms (Select IIOP)

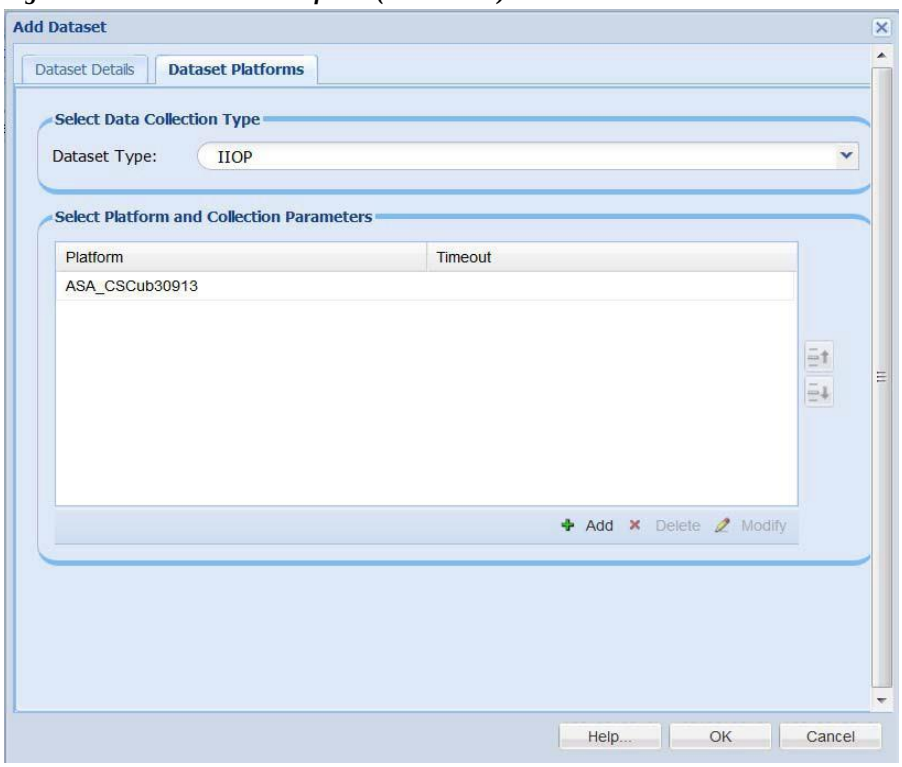
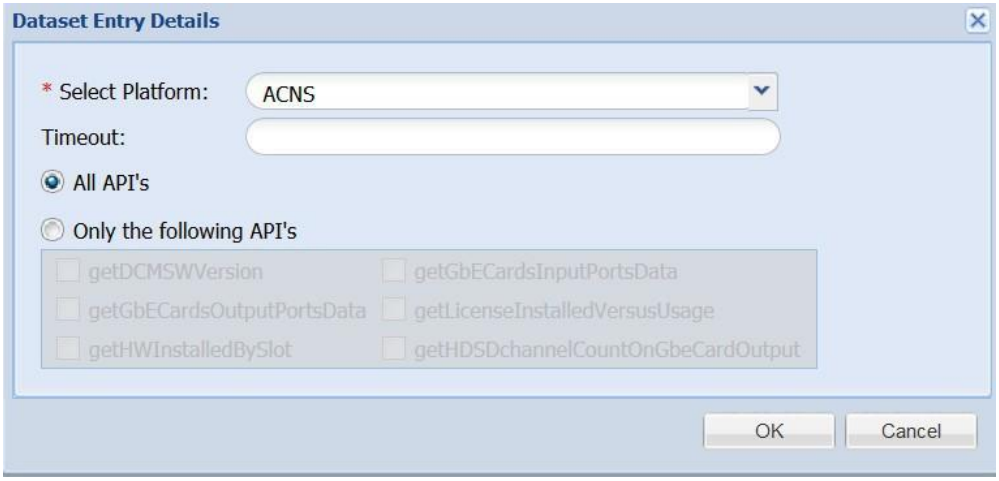


Figure 6-75 Dataset Entry Details



SQL:

Once you select SQL option and click **Add** button, Select the platform enter the Query. Select the masking rule and enter the Dataset Timeout (ms) Click **OK** button to add the data.

Figure 6-76 Dataset Platforms (Select SQL)

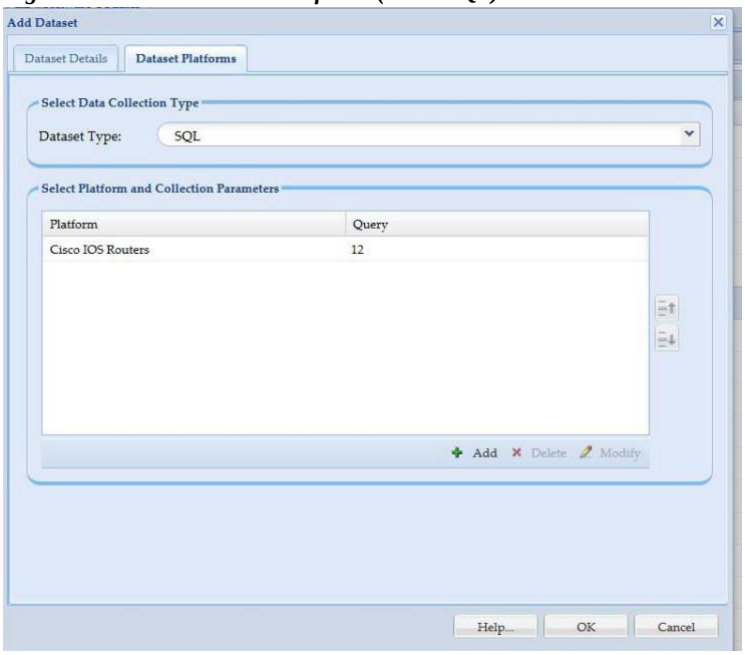
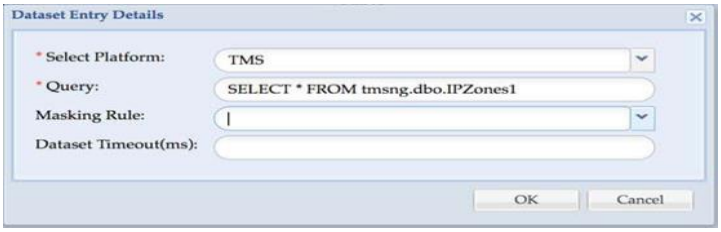


Figure 6-77 Dataset Entry Details



Go back to CSPC Flow Chart

LDAP:

Once you select LDAP option and click **Add** button, Select Platform, enter Search base, Select Search scope, enter Search filter and if required enter Attributes To Return, select Masking Rule, and Dataset Timeout (ms). Click **OK** button to add the data.

Figure 6-78 LDAP

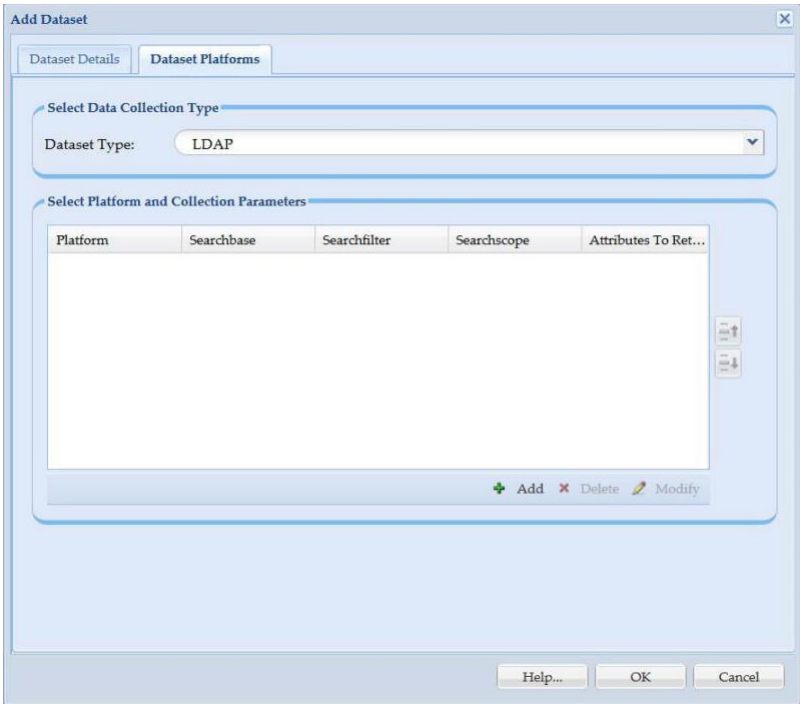


Figure 6-79 Data Entry Details

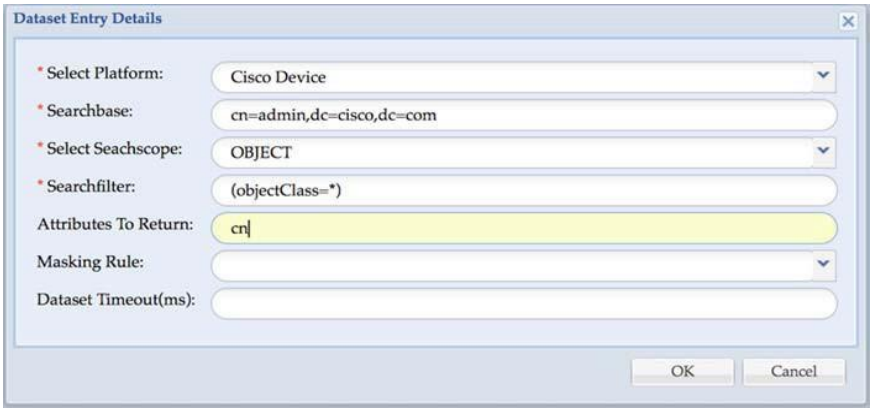


Table 6-7 LADP Parameters

Field	Description
Search Base	The base for the search. It must be a valid distinguished name and it is mandatory otherwise a validation error is thrown.
Search Filter	The filter to use for this search and it is mandatory filed. For an invalid search filter, a validation error is thrown.

Field	Description
Search Scope	The search scope is OBJECT, ONELEVEL, or SUBTREE and it is a mandatory field.
Attributes to Return	The attributes to use for this search and it is optional. If nothing is provided, then it fetches all available attributes.

Dynamic Dataset

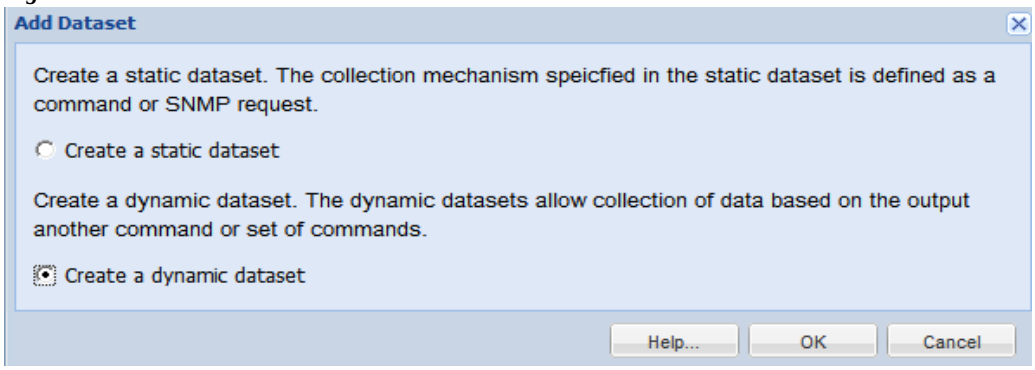
Dynamic datasets allow the collection of data based on the output of another command or set of commands.

To create a dynamic dataset, follow the steps given below:

Step 1 In **Collection Rules**, click **Manage Datasets**

Step 2 Click **Add Dataset** button

Figure 6-80 Add Dataset



Step 3 Select **Create Dynamic Dataset** and click **OK**

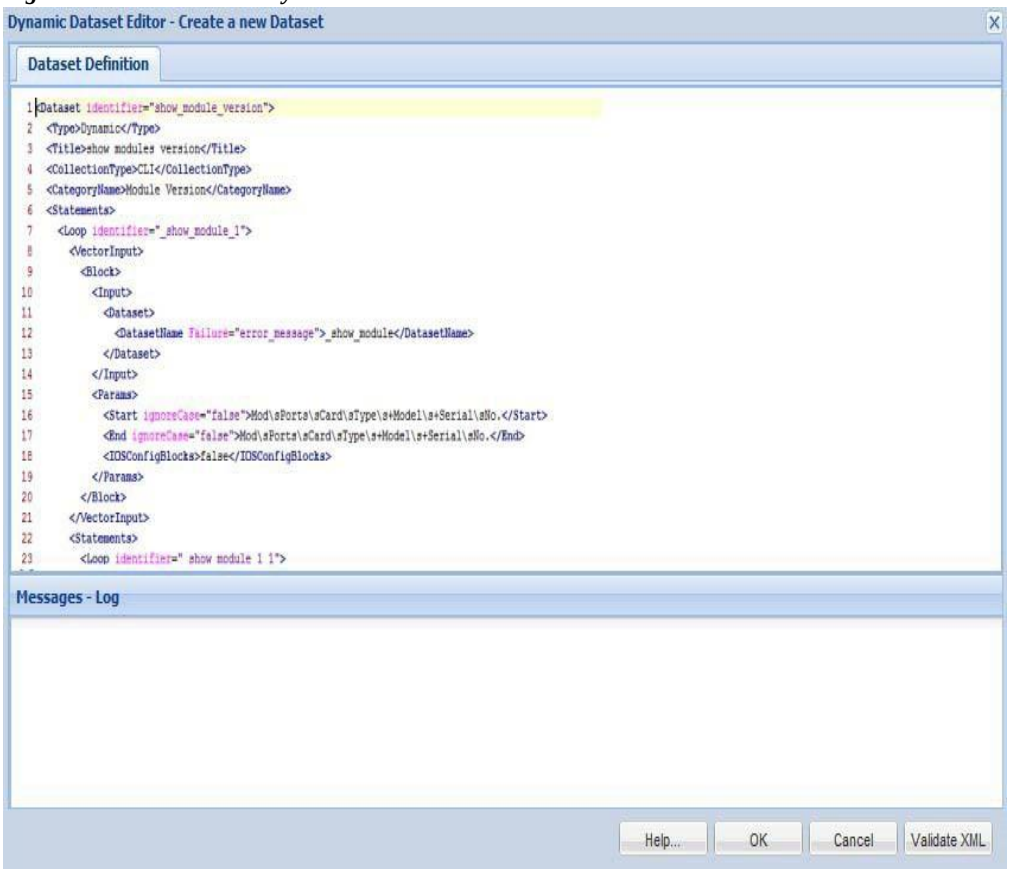
Step 4 In Dataset Definition box, specify the dynamic dataset

XML.XML file uses the Pari API XML Schema

Step 5 Click **OK**

Dynamic Dataset is created and added to Manage Datasets.

Figure 6-81 Create Dynamic Datasets

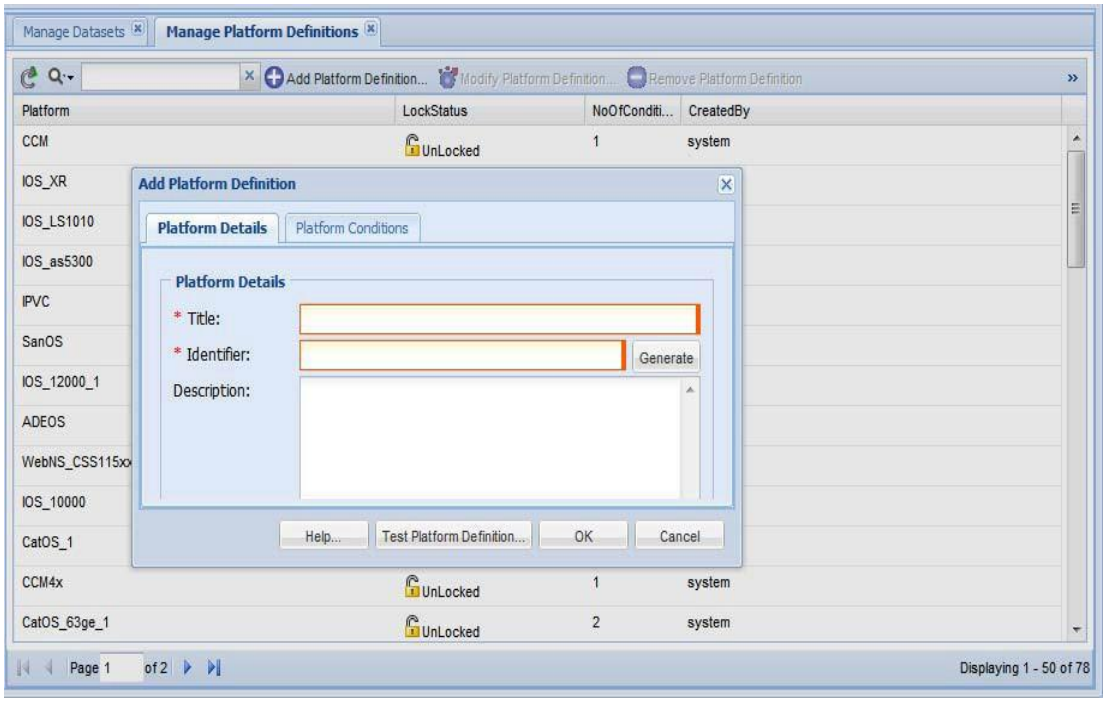


Manage Platform Definitions

Manage Platform Definitions lets you select a group of devices that match a specific condition. You can select what data is to be collected from this group of devices using *Manage Datasets*. When a new device is discovered that matches this specific condition, it automatically becomes part of this platform. Hence, the same data that is collected for other devices in this platform definition is collected from the new device.

Creating new platform definitions is shown below:

Figure 6-82 Create Platform Definitions

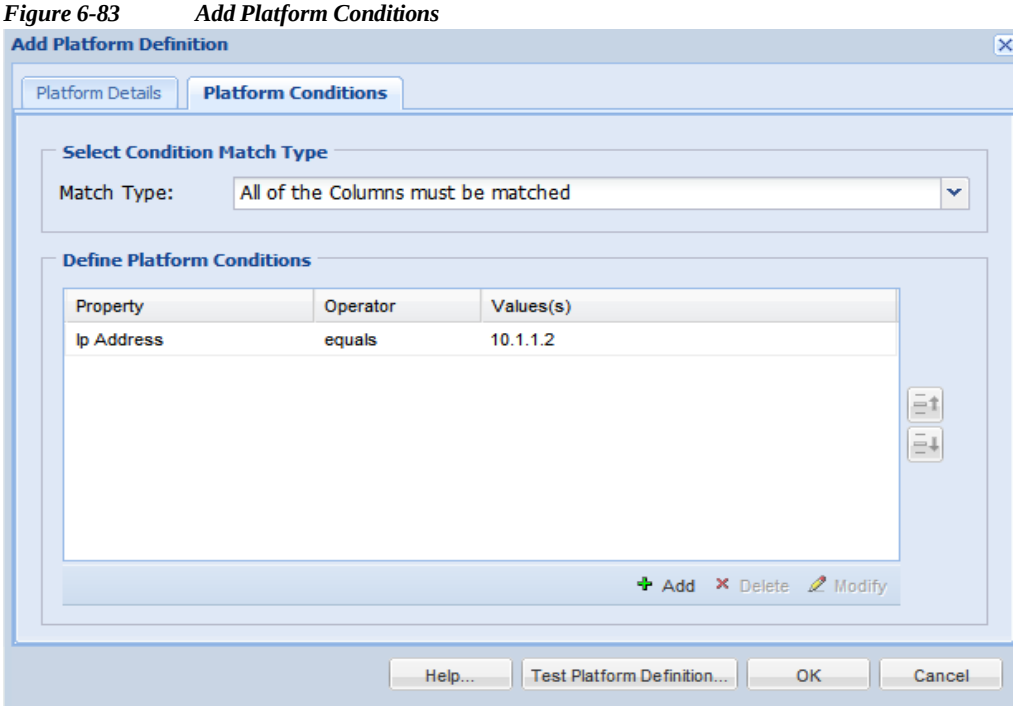


Step 1 Click Add Platform Definition button

Step 2 As shown in Figure 6-82, enter the Title, Identifier and Description for the new platform definition

Step 3 Once the base data is entered, enter the conditions that make up this platform definition as shown below

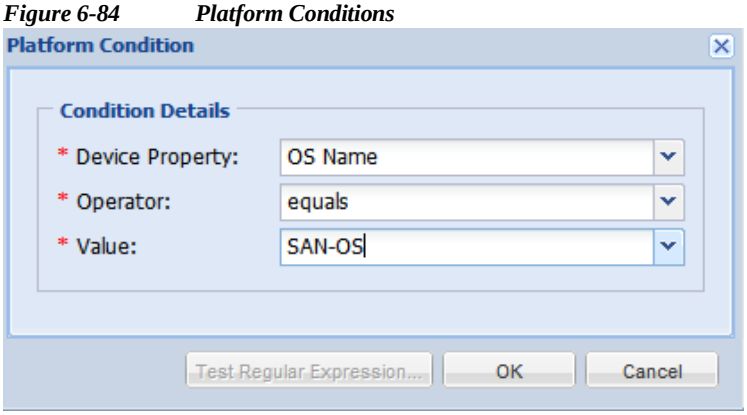
Figure 6-83 Add Platform Conditions



Step 4 Select whether all the conditions that you are defining need to match in order for a device to be part of this platform definition or some of the condition matching is sufficient.

Step 5 Click **Add** to start adding the conditions.

Figure 6-84 Platform Conditions



Step 6 When entering the conditions, you have the following options:

- You can select OS Name, OS Version, Product Model or SNMP Sys Object ID., and SNMP Sys Description
- Depending on the Device Property the *Value* field is changed (either OS Name selected from the list, or values provided for version, model, or sys object id) an *Operator* can be used to match these two
- The operator provides 6 different options: *equals, does not equal, in the list, not in the list, does not match regular expression and matches regular expression*.

Go back to CSPC Flow Chart

Step 7 Once the platform definition is created, use *Test Platform Definition* to check if any platforms match this definition, as shown below.

Figure 6-85 Test Platform Definitions

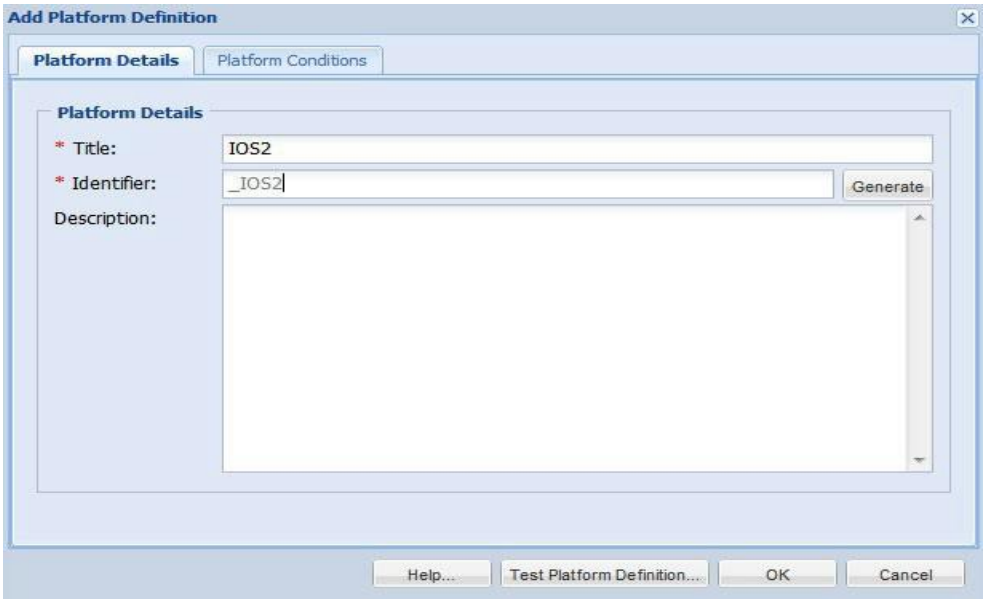


Figure 6-86 Test Customer Platform Definition

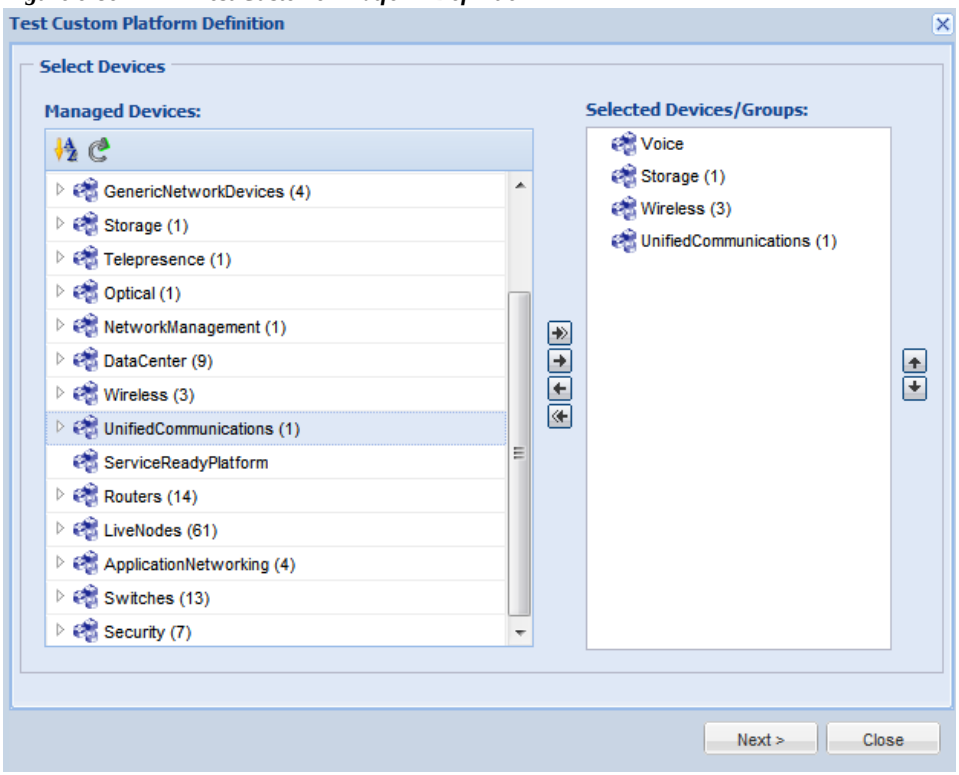
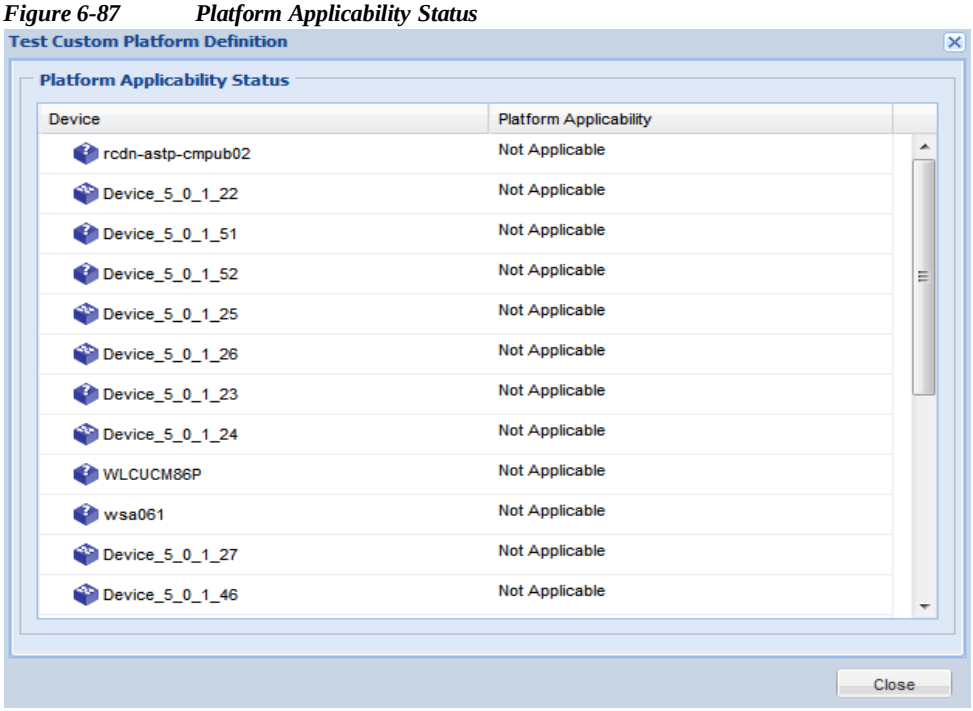
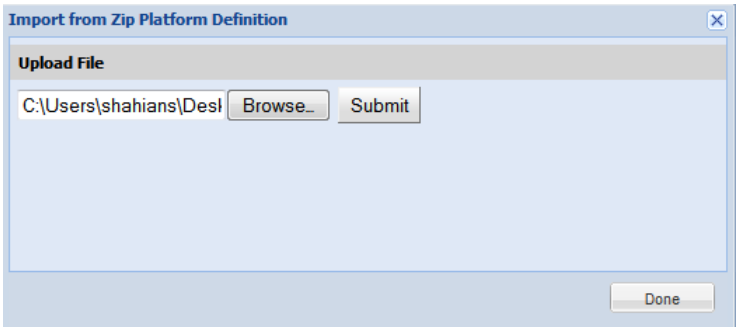


Figure 6-87 Platform Applicability Status



You can also import platform definition from a zip file stored locally on your system. To do so, right-click in the Manage Platform Definitions window and select "Import Platform Definition from Zip File" option, browse to the zip file with platform definition on your system as shown in Figure 6-88 and click **Submit**.

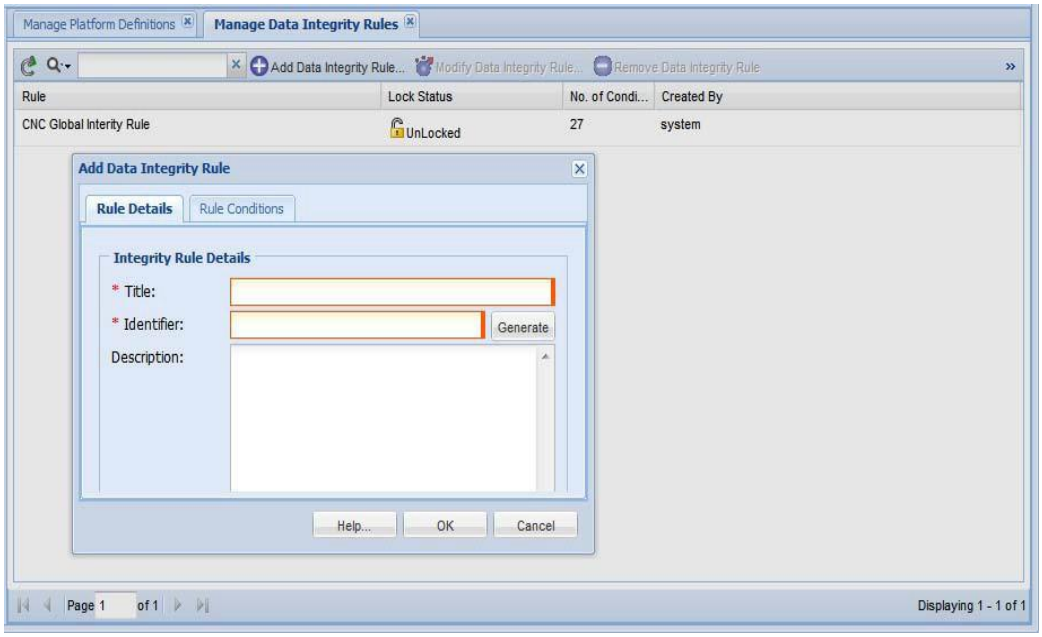
Figure 6-88 Import from zip file



Manage Data Integrity Rules

Data Integrity Rules are defined to identify whether a command execution returned a correct response or an error message. You can create new data integrity rules as shown below:

Figure 6-89 Create a New Data Integrity Rule

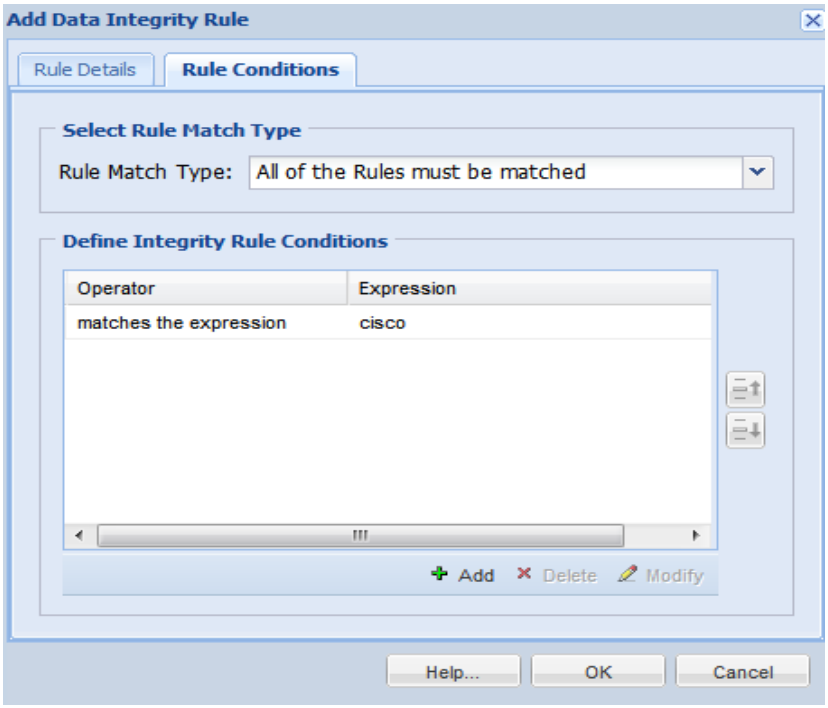


Step 1 Click **Add Data Integrity Rules**.

Step 2 Enter the **Title**, **Identifier** and **Description** for the new data integrity rule

Step 3 Once the base data is entered, enter the rule conditions that make up this rule as shown below

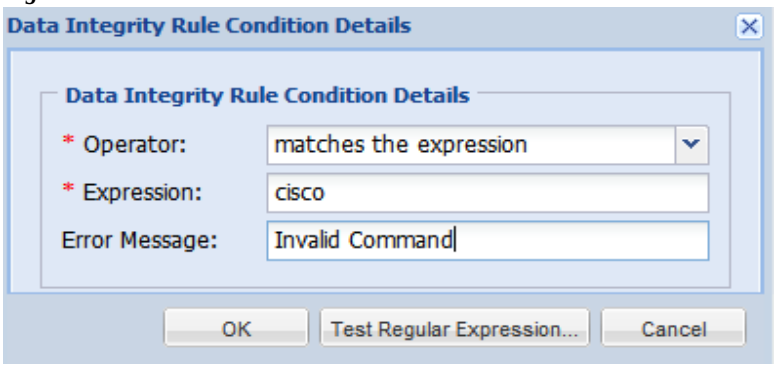
Figure 6-90 Rule Conditions for Data Integrity Rules



Step 4 Select whether all the conditions that you are defining need to match in order for a device to be part of this integrity rules or if some of the condition matching is sufficient.

Step 5 Click **Add** to start adding the conditions.

Figure 6-91 Rule Conditions



Step 6 When entering the conditions, select the operator (*matches the expression* or *does not match the expression*), the regular expression value and what error message to display.

You can also import platform definition from a zip file stored locally on your system. To do so, right-click in the Manage Data Integrity Rules window and select “Import Data Integrity Rules from a Zip File” option, browse to the zip file with Integrity rules on your system and click **Submit**.

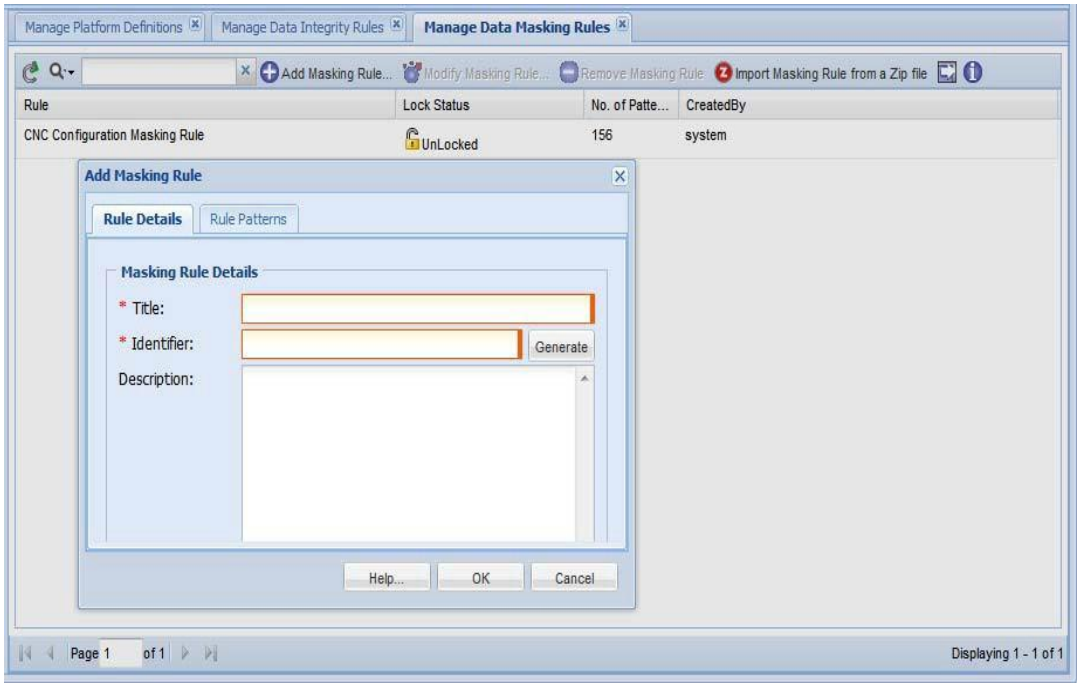
Go back to CSPC Flow Chart

Manage Data Masking Rules

Masking options are provided to mask certain sensitive information such as User Names/Passwords in the configuration files before exporting them to higher level applications. You can create data masking rules that tell the collector what data to mask before exporting it.

Create a new masking rules as shown below:

Figure 6-92 Create New Data Masking Rule

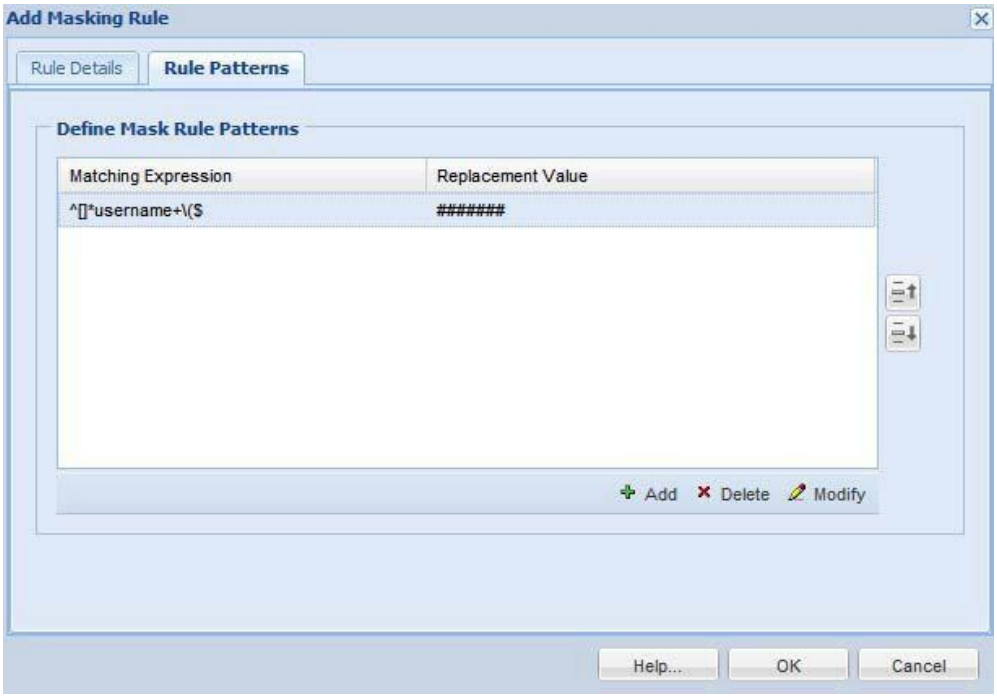


Step 1 Click Add Masking Rules button

Step 2 In the Add Masking Rules window, enter Title, Identifier and Description for the new masking rule

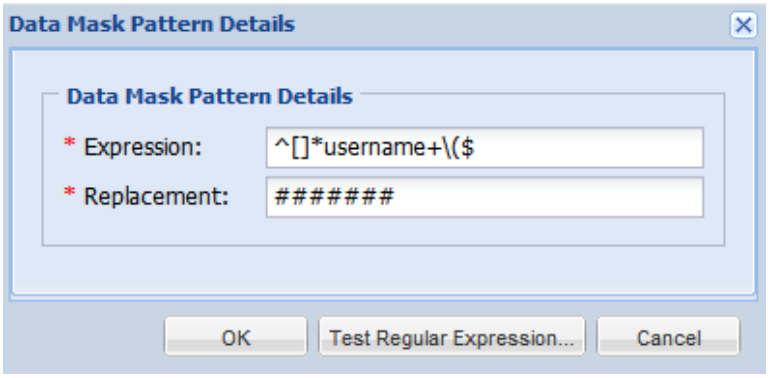
Step 3 Once the base data is entered, enter the rule patterns that make up this rule as shown below

Figure 6-93 Rule Patterns for Data Masking Rules



Step 4 Click **Add** to start adding the conditions.

Figure 6-94 Rule Pattern Conditions



Step 5 As defined here whenever there is a Username followed by Password in the configuration files they are replaced by the string *xxxxxx*.

You can also import masking rules from a zip file stored locally on your system. To do so, right-click in the Manage Data Masking Rules window and select “Import Masking Rules from Zip File” option, browse to the zip file with masking rules on your system and click **Submit** button.

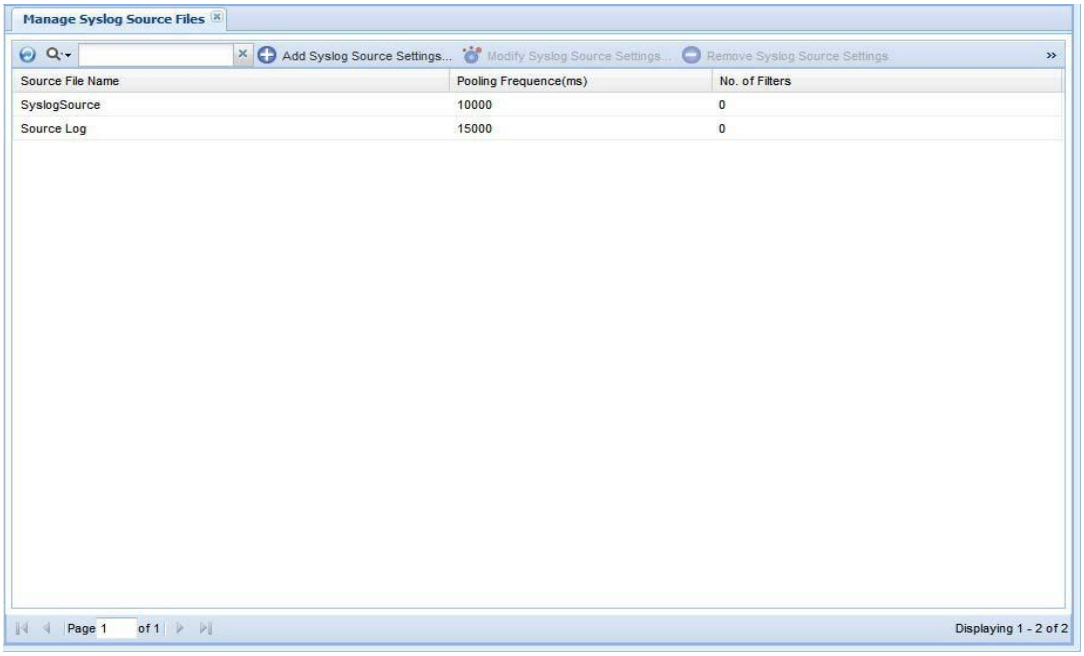
Go back to CSPC Flow Chart

Manage Syslog Source Files

Syslog Source Files options are provided to define the syslog collection from devices. You can add new settings for syslog sources.

Note This feature is only for NOS services

Figure 6-95 Manage Syslog Source Files



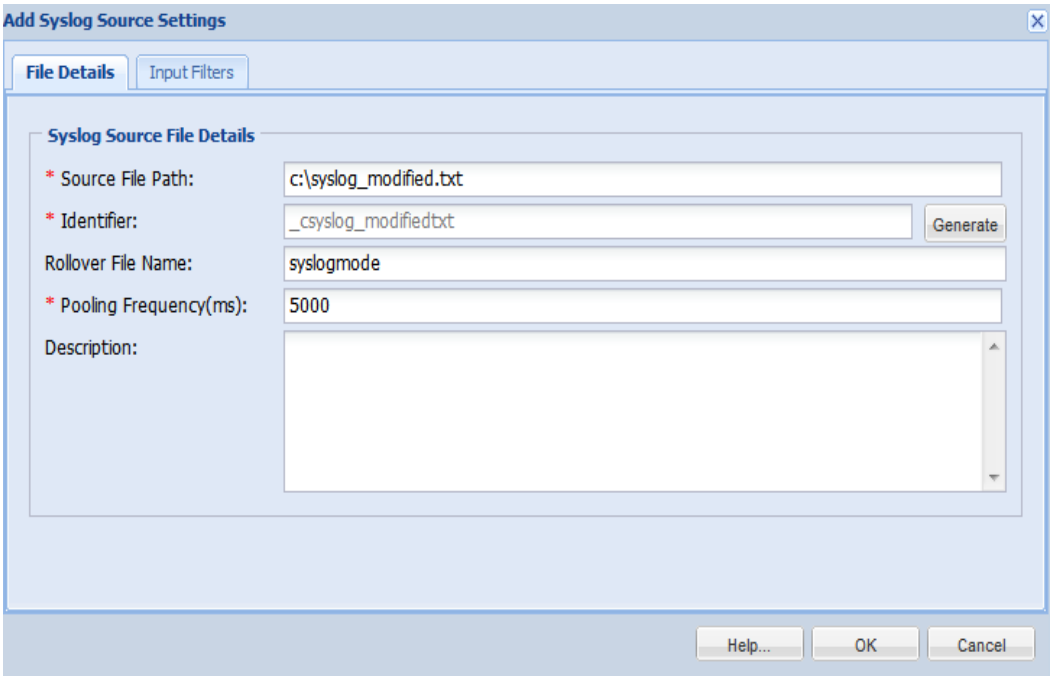
Create new syslog source file by selecting the **Add** button.

Add Syslog Source option is provided to add a new Syslog source. There are two tabs in adding the syslog sources.

First tab is **File Details** as shown in Figure 6-96. You need to provide the following information on this screen:

- **Source File Path**: The path where the Syslog source is located.
- **Identifier**: It can be either user defined, or system generated.
- **Roll Over File Name**: This is the name of the file that needs to be spooled in case the primary filed rolled over.
- **Polling Frequency**: This is the polling frequency to poll the Syslog messages. The value will be in between 5000 to 3600000 milliseconds.
- **Description**: Description of the file.

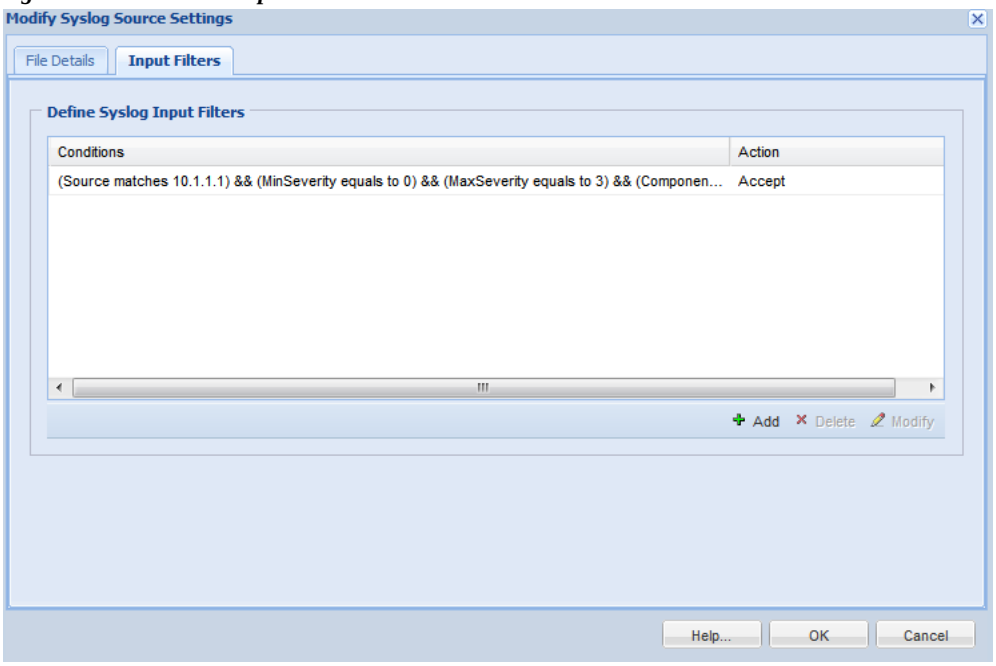
Figure 6-96 Add Syslog Source



Second tab is **Input Filters**; when you select the Add button, Input Filter Details window will pop up. You need to provide the following information for this screen:

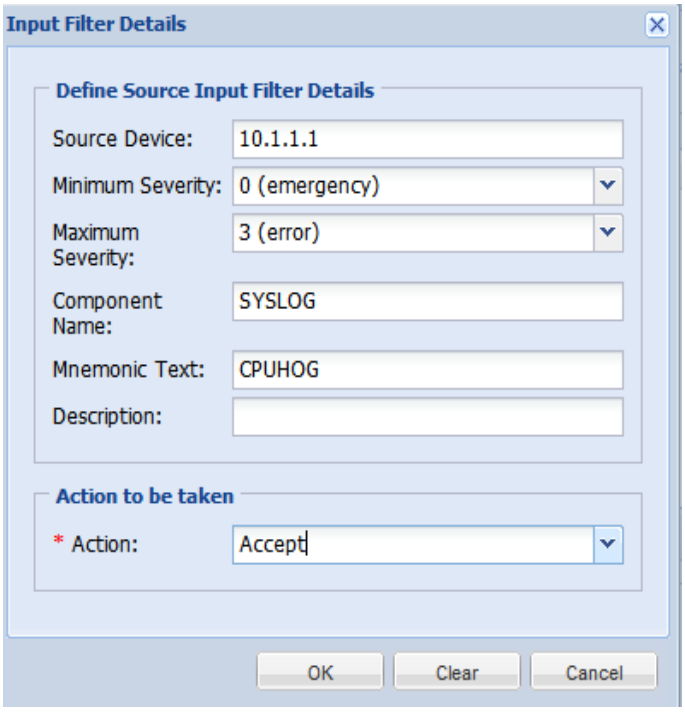
- **Source Device**: Device from which messages to be spooled.
- **Minimum Severity**: Minimum Severity that needs to be displayed.
- **Maximum Severity**: Maximum Severity that needs to be displayed.
- **Component Name**: Name of the component in the message.
- **Mnemonic Text**: Mnemonic text in the message.
- **Description**: Description in the message.
- **Action to be taken**: It can either be Accept or Drop the syslog.

Figure 6-97 Add Input Filter



Click **Add** button, a screen as shown in Figure 7-23 is displayed. Enter the details as shown below.

Figure 6-98 Add Input Filter Details



Miscellaneous Rules

Use the Miscellaneous Rule sub tab of the Device Management tab to set up rules, profiles and manage workflow.

This section describes the Miscellaneous Rules options in the following topics:

- Export All Rules
- Import All Rules
- Import DSIRT Files
- Manage Application Discovery Profiles
- Manage SNMP Trap Profiles
- Manage Jump Server
- Credential Lock Settings
- Manage WorkFlow

Export All Rules

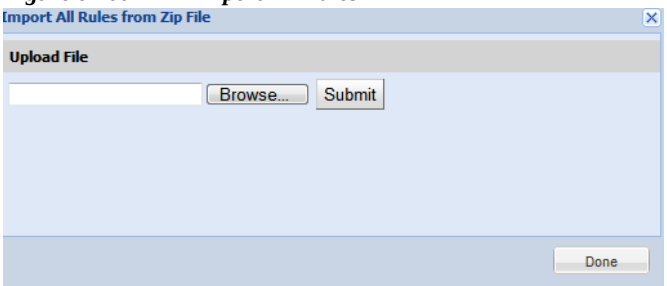
Use Export All Rules option under Data Collection Settings to Export all rules. Click Yes to export all rules and zip file is downloaded.

Figure 6-99 Export All Rules

Import All Rules

Use Import All Rules option under Data Collection Settings to import all rules. In the dialog box that is displayed click Browse button, select the rules file in zip format and click OK to start importing all rules.

Figure 6-100 Import All Rules



Import DSIRT Files

In Import DSIRT Files, you can select a DSIRT (Device Software Issues Reporting Tool) file and import it in the tool.

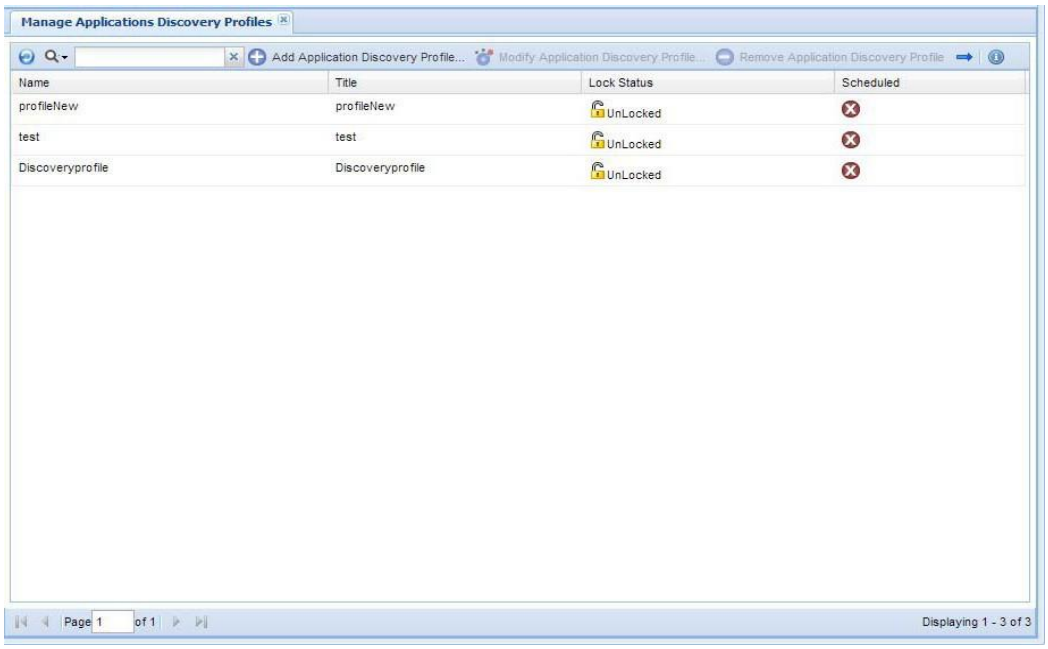
Figure 6-101 Import DSIRT Files

Go back to CSPC Flow Chart

Manage Application Discovery Profiles

In Manage Application Discovery profiles you can add or edit an application discovery profile, define the devices that collect data and how often the data needs to be collected. Application discovery detects what applications are installed/running on devices (typically compute server) by collecting information from devices.

Figure 6-102 Manage Application Discovery Profiles



New application discovery profiles can be created by clicking *Add Application Discovery Profile* icon from Manage Application Discovery Profiles window.

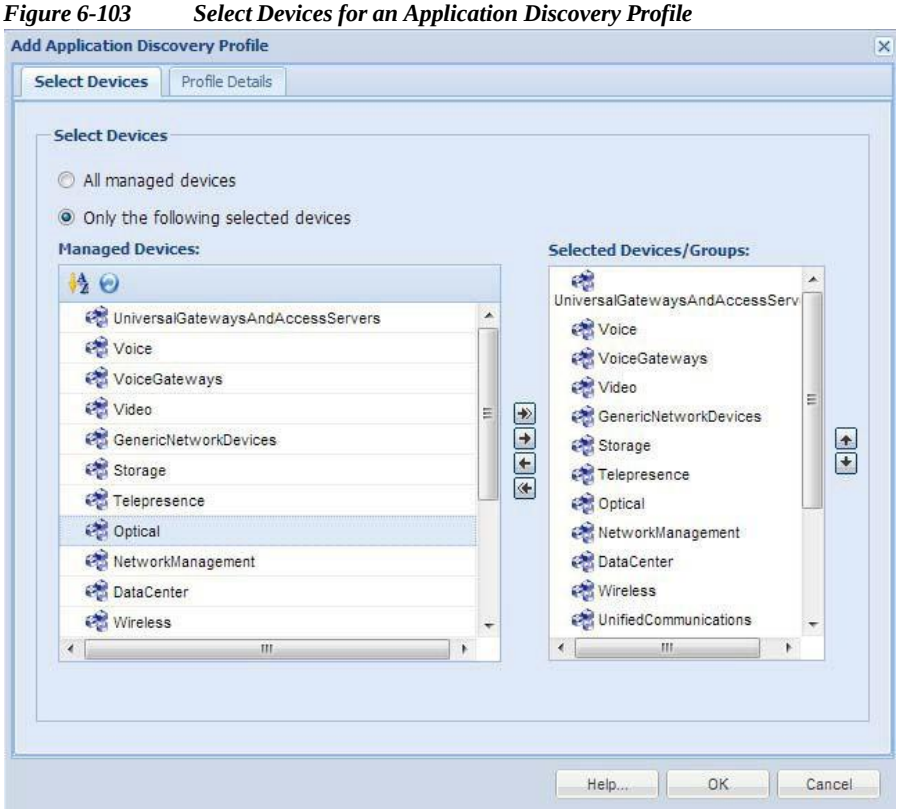
To add a new application discovery profile, follow the steps given below:

Step 1 Select the Devices

Step 2 Select Profile details

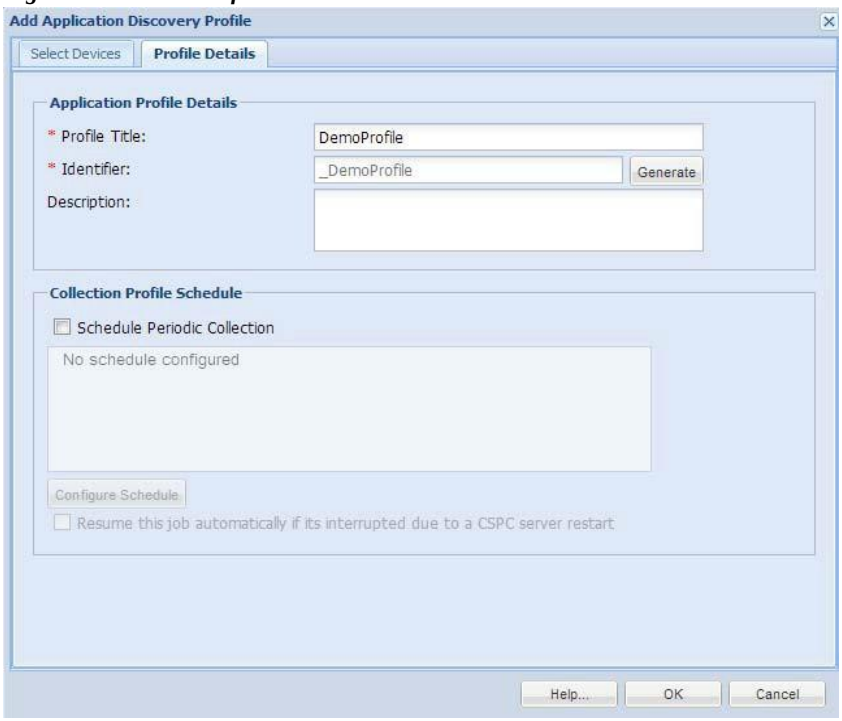
Step 3 Click **OK**.

Figure 6-103 Select Devices for an Application Discovery Profile



To start the collection, select a device or a set of devices from which the data is to be collected as shown in Figure 6-103. Once you select the devices, select the profile options that define how often you want to collect the data, as shown in Figure 6-104.

Figure 6-104 Profile Details



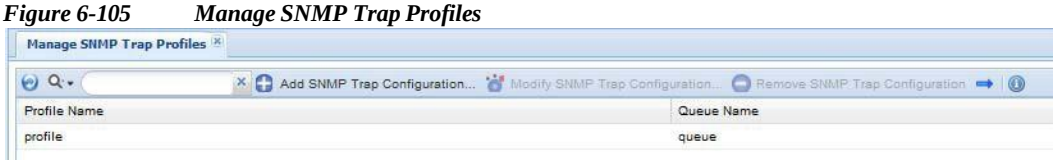
If you schedule a job for periodic collection, the job can be resumed even if the CSPC server is restarted by selecting the option "Resume this job automatically if it is interrupted due to a CSPC server restart".

Manage SNMP Trap Profiles

This helps you to add the new SNMP Trap profiles and store them depending on the filter you configure. One trap can be applied to multiple filters. You get a notification when a trap is received.

Note This feature is only for NCCM services

Figure 6-105 Manage SNMP Trap Profiles



To create new SNMP Trap Profile click *Add SNMP Trap Configuration* icon from Manage SNMP Trap Profiles window.

To add a new SNMP Trap Profile, follow the steps given below:

Step 1 Select **Profile Details**

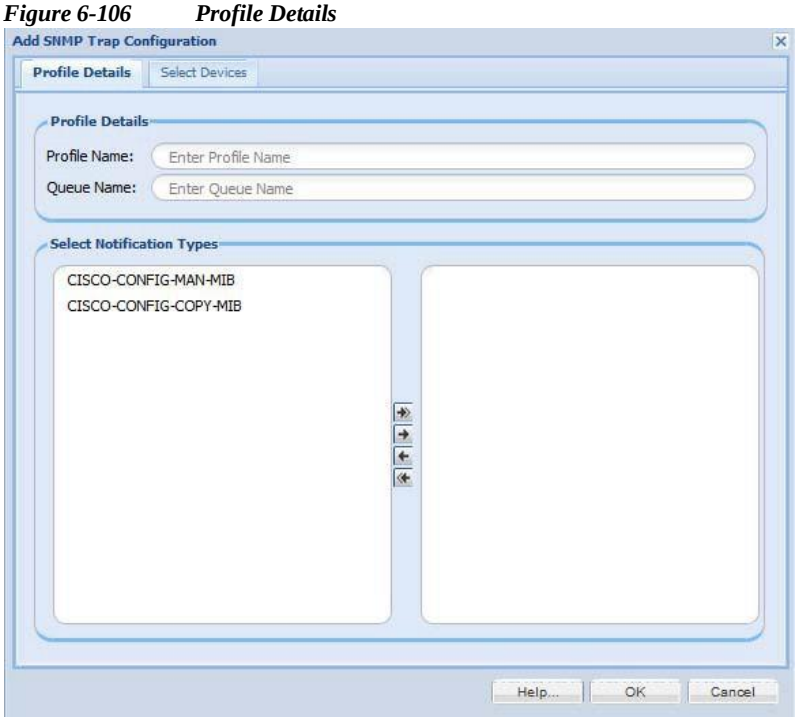
a. Enter the **Profile** and **Queue** name is JMF queue where add-on process should subscriber to the given JMF Queue

b. Click arrows to select the **Notification Types.** By default ,there are only two notification types if required you can add as many as notifications through xml request. *Refer to "XML APIs"*

Step 2 Select the **Devices**

Step 3 Click **OK**.

Figure 6-106 Profile Details

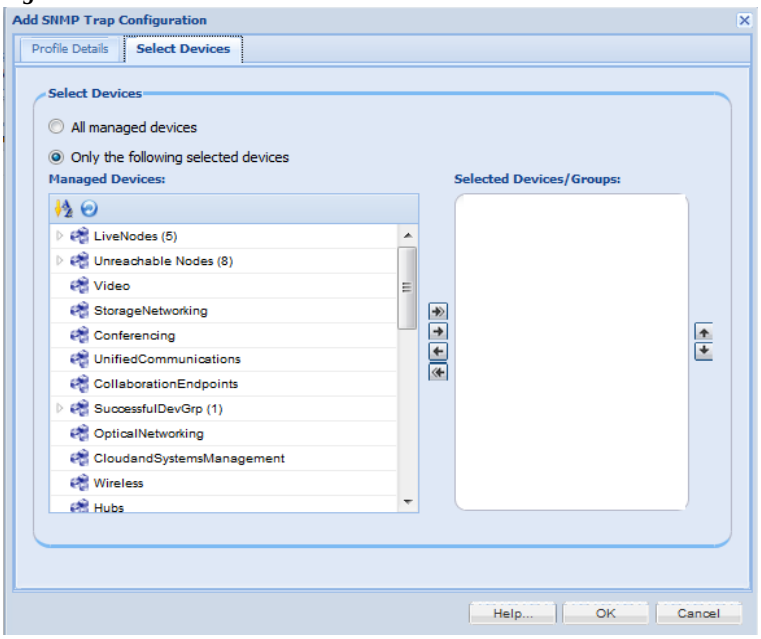


Select Devices tab as shown in Figure 6-110 allows you to map the devices to the specific Trap Profiles.

There are two options to map the devices to Taps Profiles:

- All managed devices - It maps all the devices to the specified Taps Profile
- Only the following selected devices - It maps only the selected devices to the specified Taps Profile.

Figure 6-107 Select Devices



Manage Jump Server

The Jump server support allows CSPC to connect to any device CLI via a Jump Server where direct access to the device CLI is prevented. The Jump Server configuration allows you to configure the Jump Server feature. In Manage Jump Server you can add or edit a Jump server. It manages the device and the type of connection and test the connection.

Figure 6-108 Manage Jump Server

To create new Jump Server click *Add Jump Server* icon from Manage Jump Server window.

To add a new jump server, follow the steps given below:

Step 1 Select Profile details

Step 2 Select the Devices

Step 3 Click OK.

Figure 6-109 Profile Details

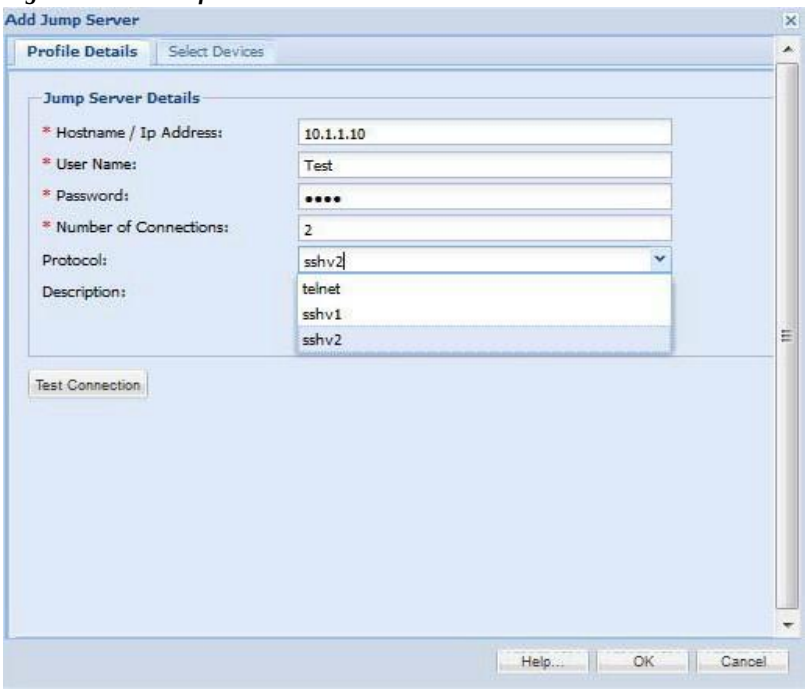


Table 6-8 Jump Server Parameters

Field Name	Description
Host name	Name defined to server
User Name	Login username
Password	Login Password
Number of Connections	No of connections to jump server.
Protocol	Select the protocol to be used
Description	Description of the server
Test Connection	To check the jump server credentials

Note: Device must be SNMP supported without jump server in order to be discovered in CSPC. If not, DAV will be skipped & Collection would fail.

Select Devices tab as shown in Figure 6-110 allows you to map the devices to the specific Jump Server.

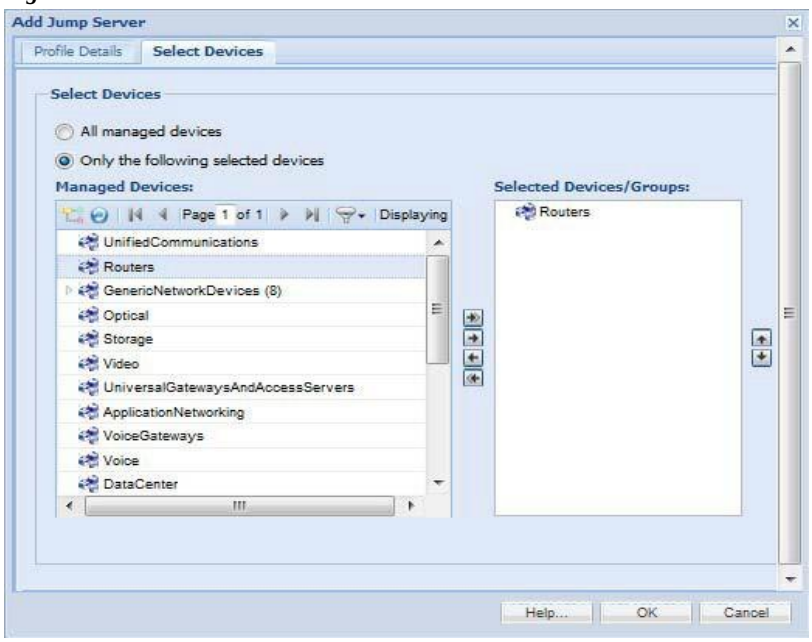
There are two options to map the devices to Jump Server:

- All managed devices - It maps all the devices to the Jump Server
- Only the following selected devices - It maps only the selected devices to the specified Jump Server.

If you select "**All managed devices**" option, it maps all the devices to the specified Jump Server. If you want to map all devices to specified jump server you have to make sure that no other devices are mapped to any other Jump Server.

If you select "**Only the following selected devices**" option, it maps only the selected devices to the specified Jump Server. If some of the devices which you are trying to map to the specified Jump Server are already mapped to any other Jump Server, then while creating the Jump Server these already mapped device will be excluded from the mapping and unique devices will be mapped.

Figure 6-110 Select Devices

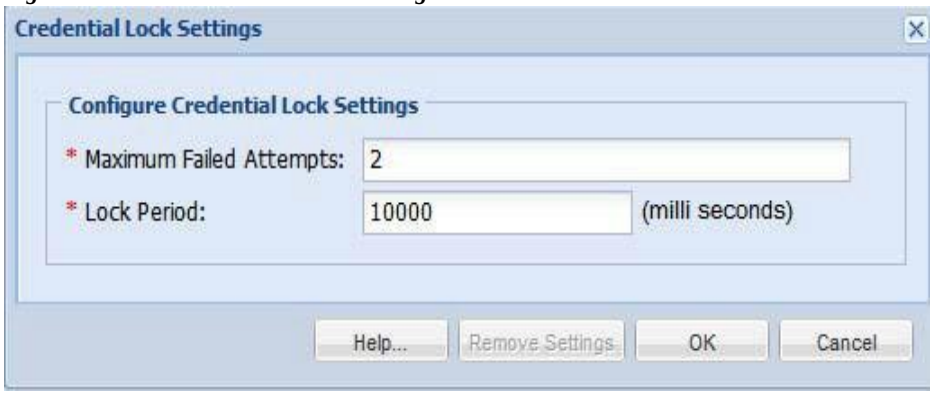


Credential Lock Settings

Credential Lock Settings allows you to set the maximum number of failed attempts for any given credential. You can also specify a lock period for a credential. If a lock period is present that credential will be unlocked once the lock period expires.

There is also an option for the user to manually unlock the credential. This helps in continuation of the discovery/inventory processes even after a device fails to respond to a specific credential.

Figure 6-111 Credential Lock Settings



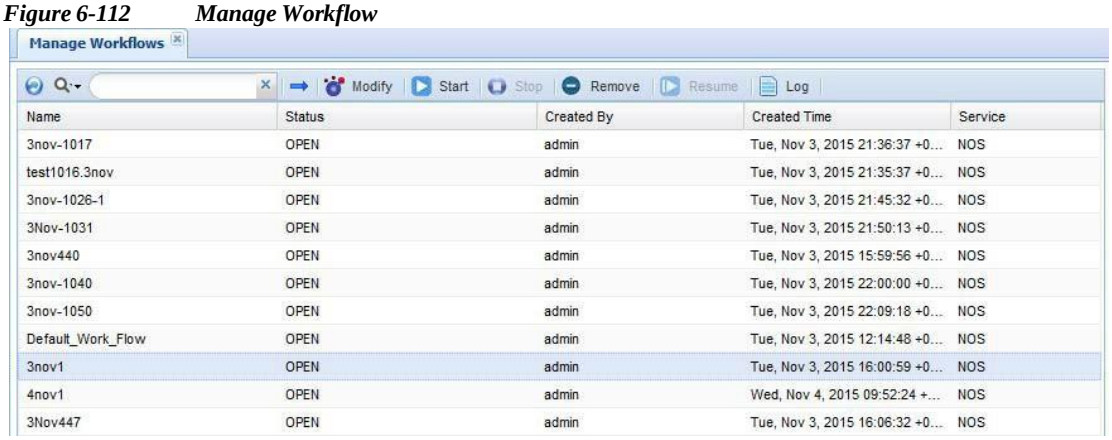
You can also remove the previously added lock settings by using *Remove Settings* button.

Manage WorkFlow

This Helps you to Modify, Start, Stop, Remove, Resume, and see Log. This Displays Name, Status, Created By, Created Time, and Service.

- Click **Modify** to modify the workflow
- Click **Start** to start the workflow which are in open and stop status.
- Click **Stop** to stop the workflow and click **Resume** to resume the workflow

Figure 6-112 Manage Workflow



Applications - Management Tasks

Management Tasks

You can use the Management tasks to access tools with which you can discovery, collect profile, retrieve job status.

This section describes the Management Tasks options in the following topics:

- Device Tasks
- Common Tasks
- Job Run Status
- Job Management

Device Tasks

Use the Device Tasks sub tab of the Management tasks to set up device discovery and data collection process.

This section describes the Device Tasks options in the following topics:

- Discover Devices
- Unmanage Devices
- Verify Device Access
- Device Prompt Collection

Discover Devices

The Discover Devices feature allows you to discover devices and manage them. When you double-click **Discover Devices**, a new wizard called **Discover and Manage Network Devices** appear. It allows you to select the Discovery method and the devices to be discovered by entering either the IP address or host name of the device.

Note To overcome the exposure of the credentials to all hosts in the IP range:

- Use trusted networks for discovery based on IP ranges.
- It is recommended to add devices using individual IP address.

There are multiple ways to discover a device:

- Known Device List
- Protocol based discovery (CDP, OSPF,ARP, BGP, etc.). Not supported in UC Discovery.
- IP Address Range Scanning
- Rediscover the currently managed devices

Note A message box “Please select at least one discovery method” is displayed when you click **Next** button without selecting any Discovery method.

Figure 7-1 Rediscovery

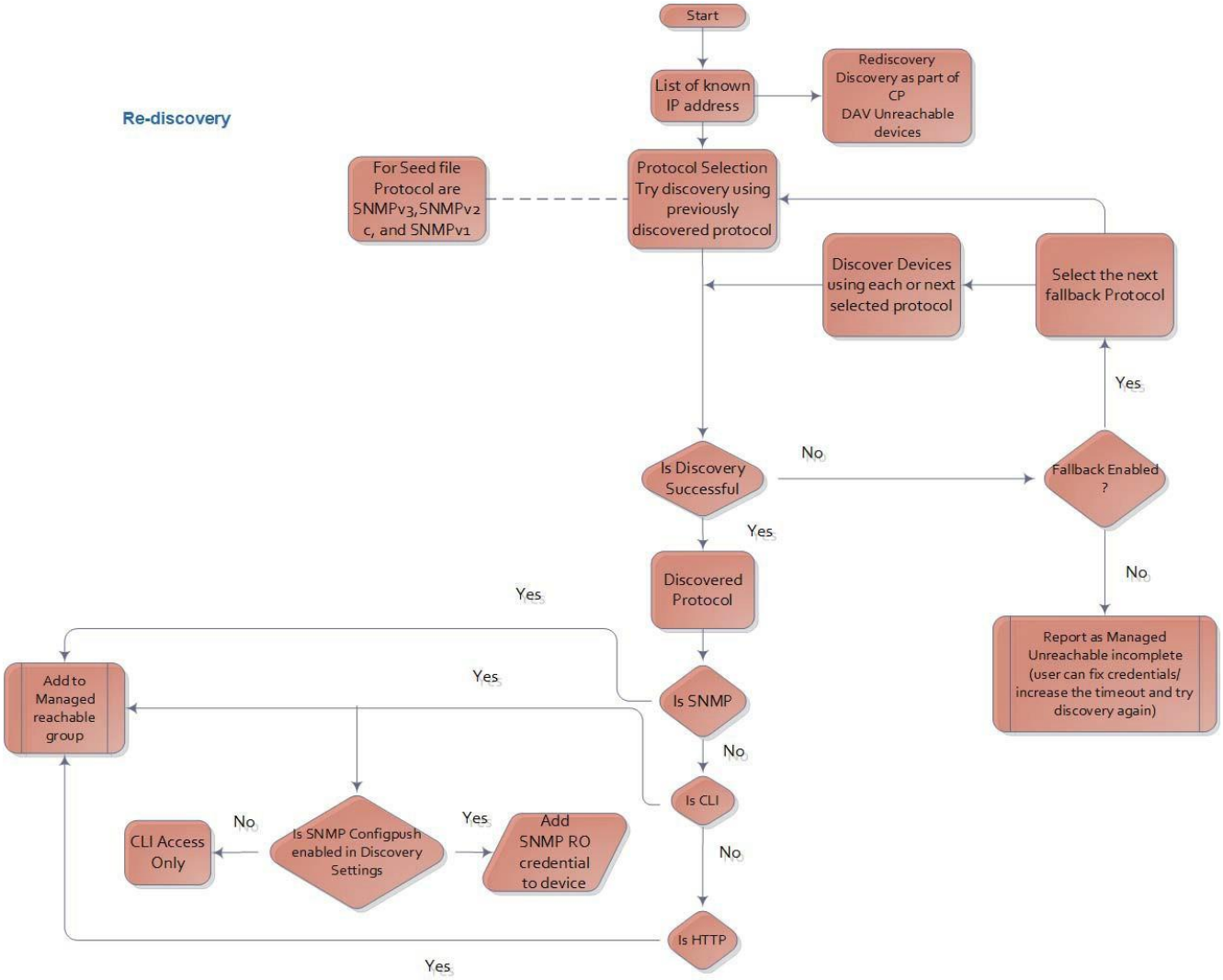


Figure 7-2 Known IP

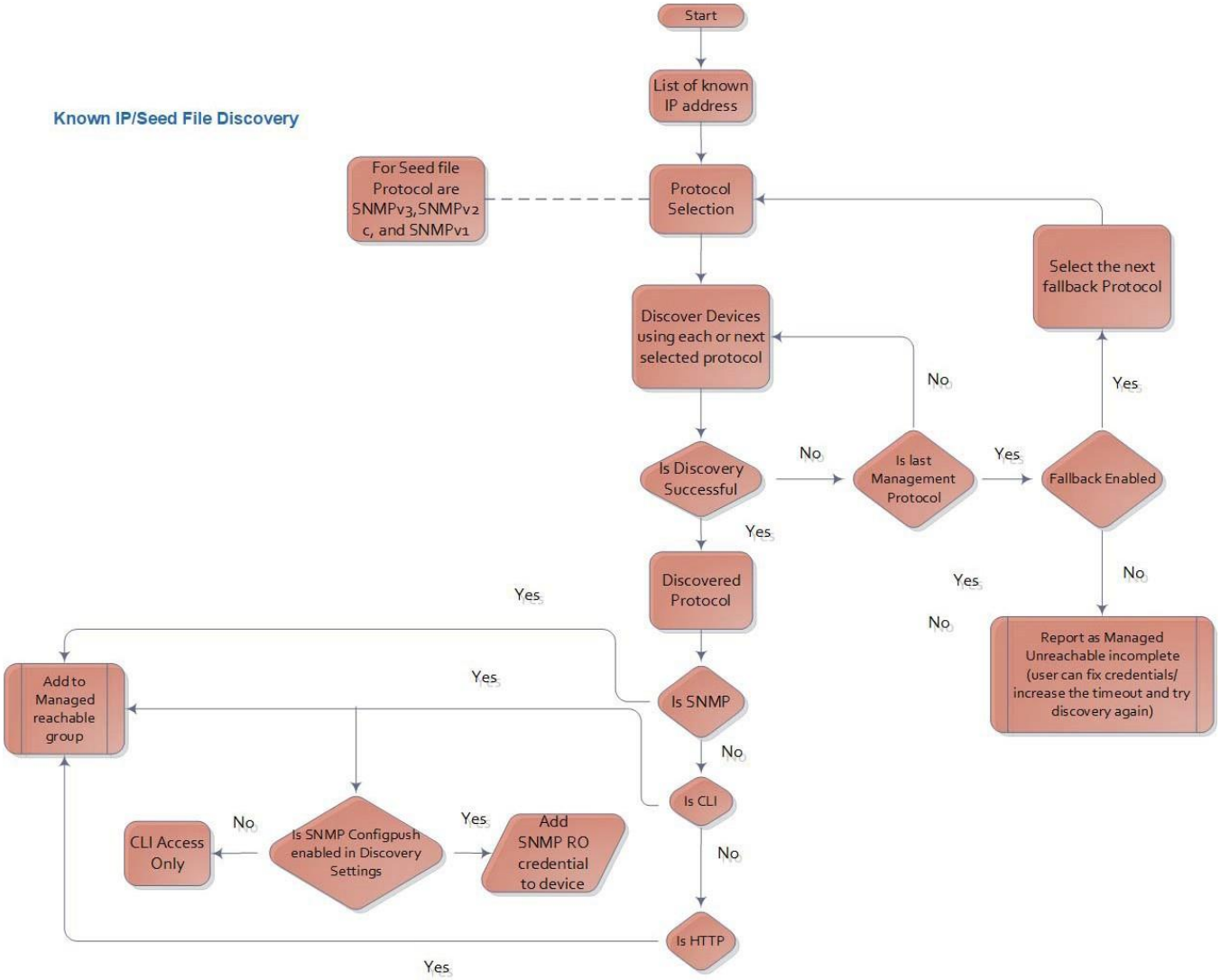


Figure 7-3 Range Discovery

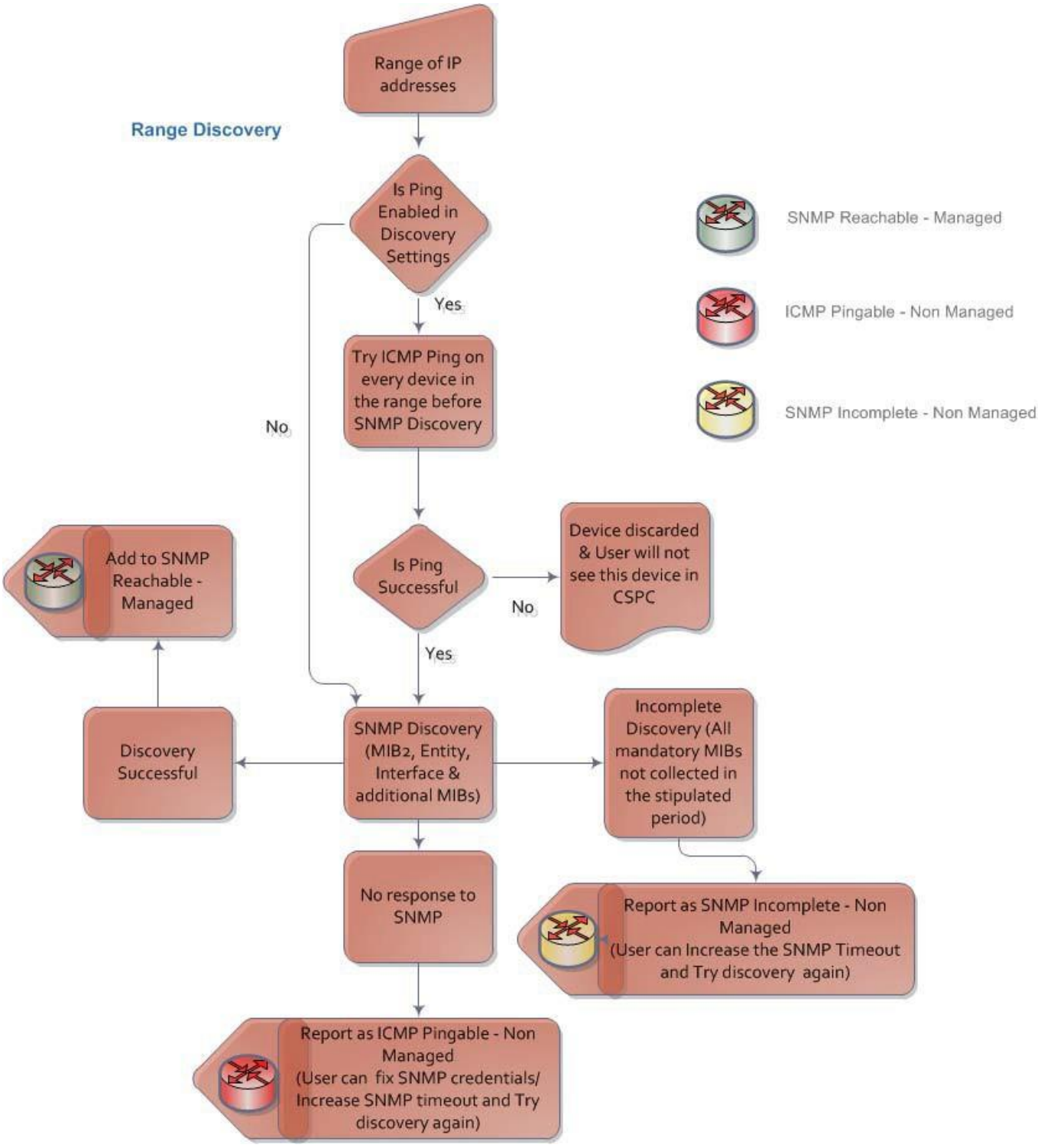


Figure 7-4 Seed IP and Protocol Based Discovery

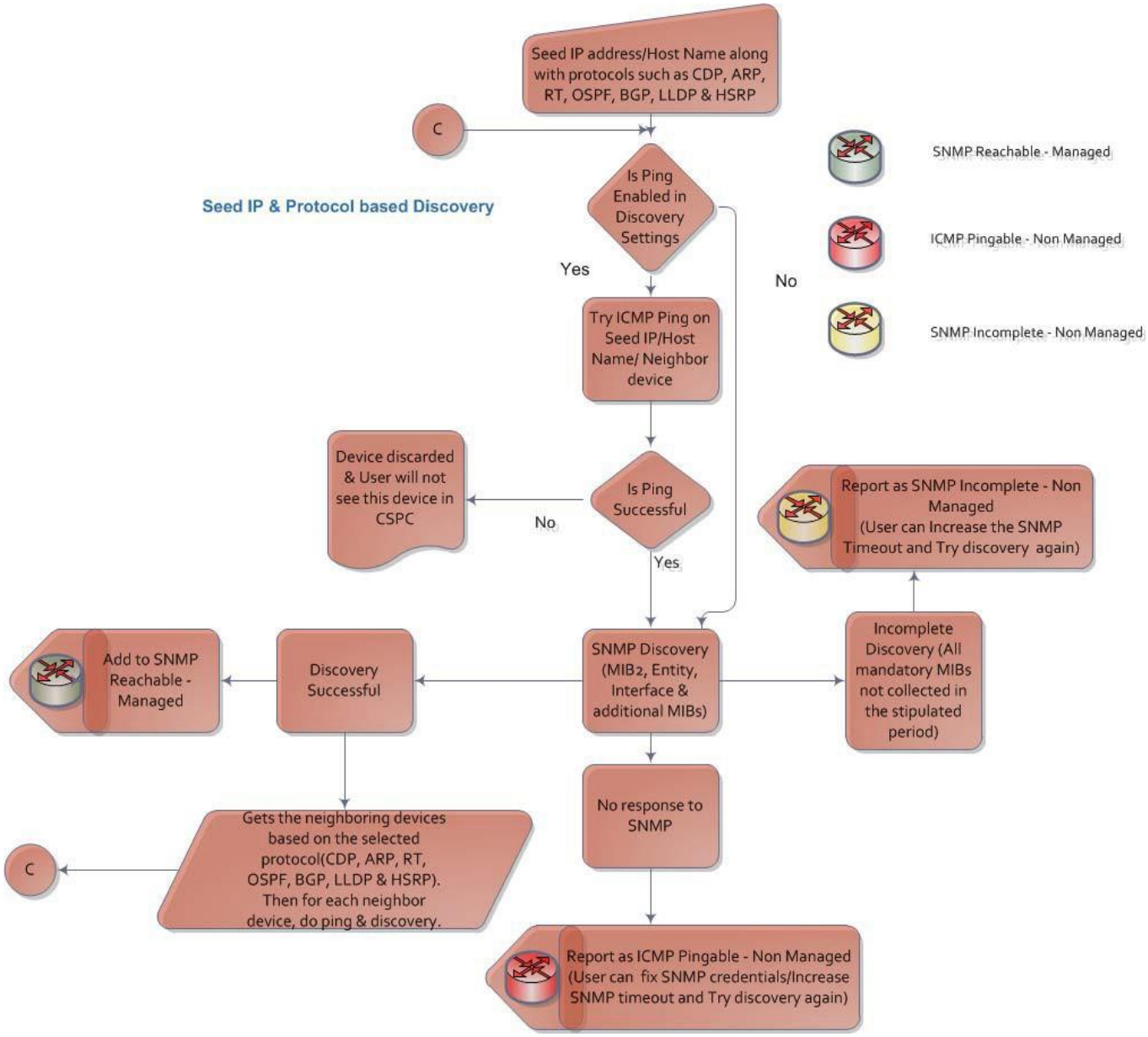
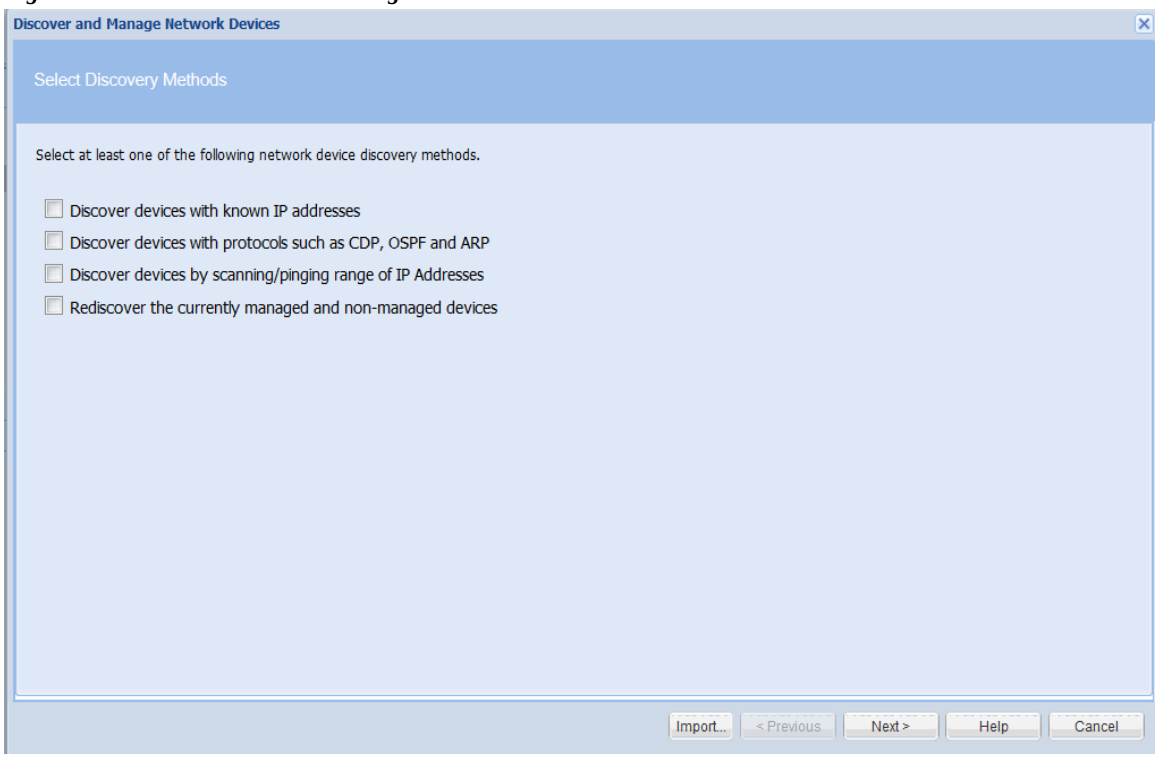


Figure 7-5 Discover and Manage Network Devices

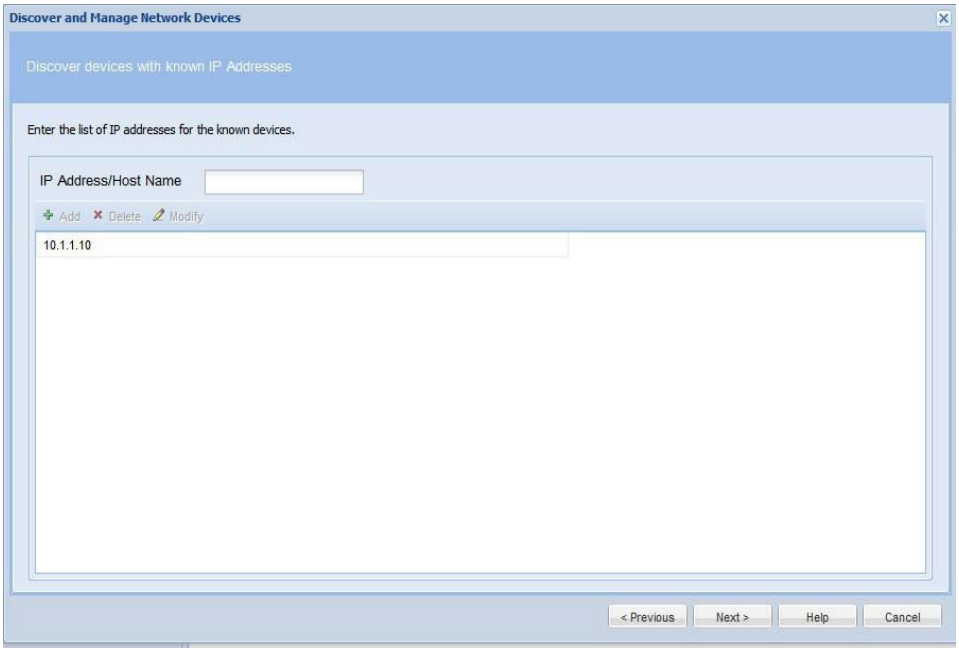


You could also import the device list from either a CiscoWorks DCR file or a Pari Discovery Options XML file.

For Known Device List discovery, enter the IP addresses or hostnames as shown in Figure 7-6.

Note If multiple discovery types are selected then first selected SNMP version protocol will be used for range and protocol based discovery

Figure 7-6 Discover Devices using Known IP Addresses



To include protocols, select the protocol and use the arrows to move back and forth. To change the priority ofprotocols, use the up and down arrows.

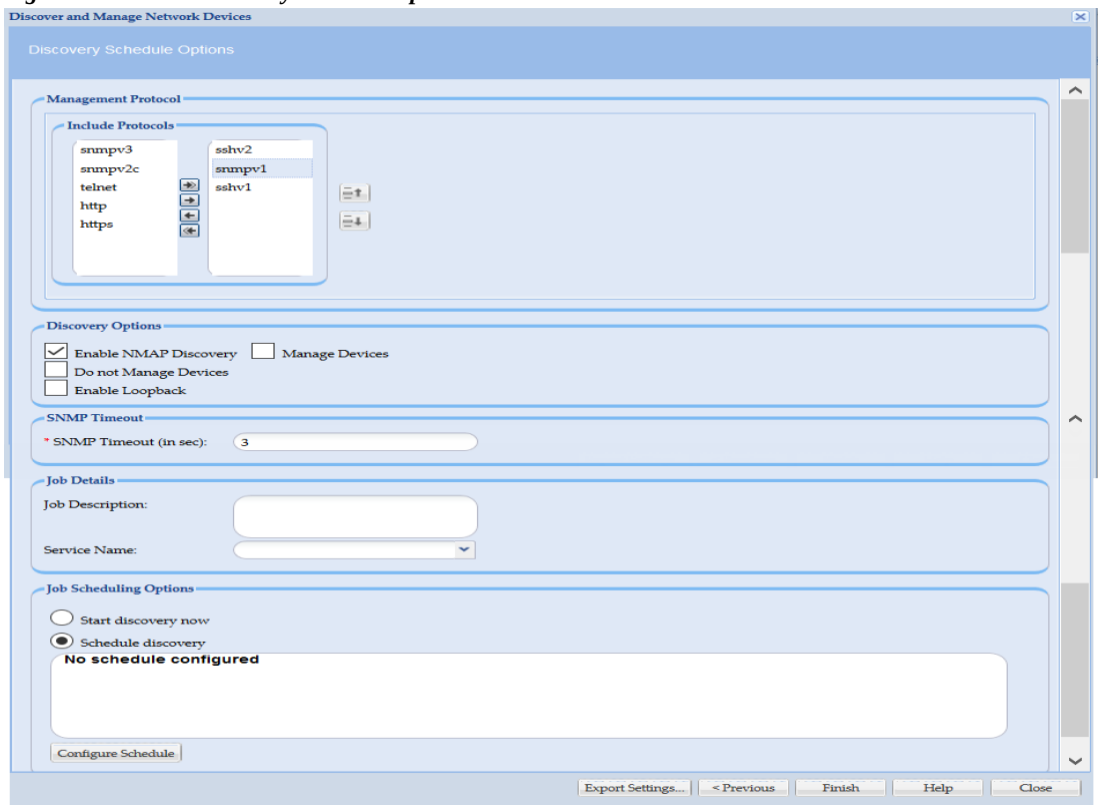
If you Select **Do not Manage Devices** option, then the devices are not be managed but discovered. These devices can be exported as a zip file which contains *.csv* files for Discovered Devices and Un-Reachable Devices. Discovered Devices *csv* file is of *CNC CSV* format. This export option is available under Discovery Jobs.

If you select **Enable Loopback** option, then discovery will prefer a loopback IP address and it will attempt to use other addresses if a loopback is not found. Loopback is tried if Mac Address Duplicate Check option is selected in Discovery Settings.

If required provide job specific SNMP timeout value in SNMP Timeout (in sec) field.

Enter the **Job Description** and select the **Service Name** from drop down.

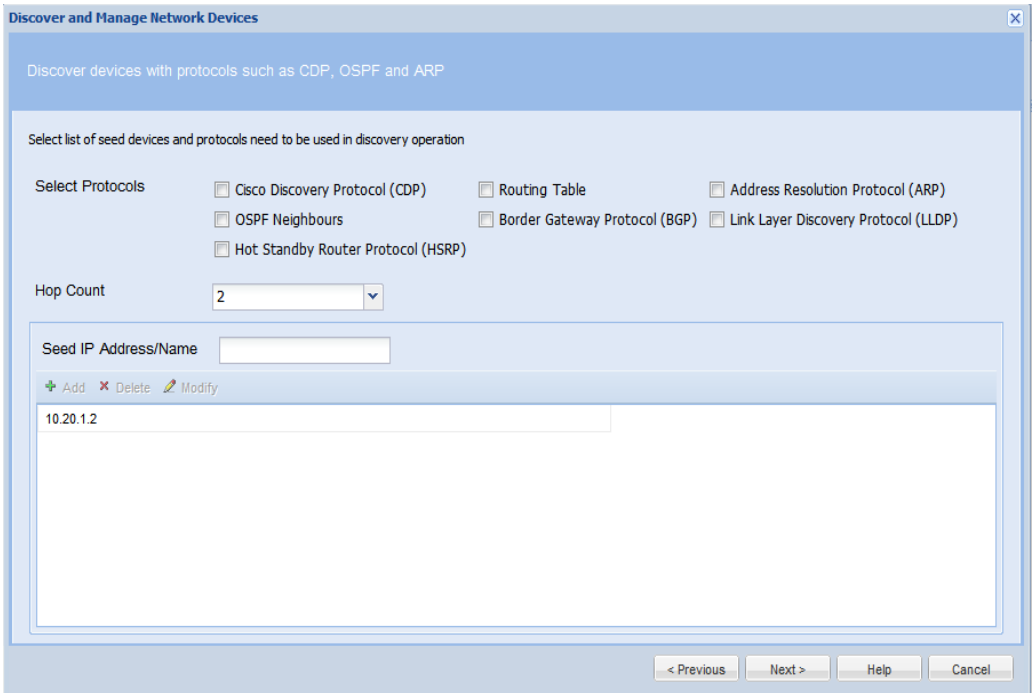
Figure 7-7 Discovery Schedule Options



For protocol based discovery, enter the following information:

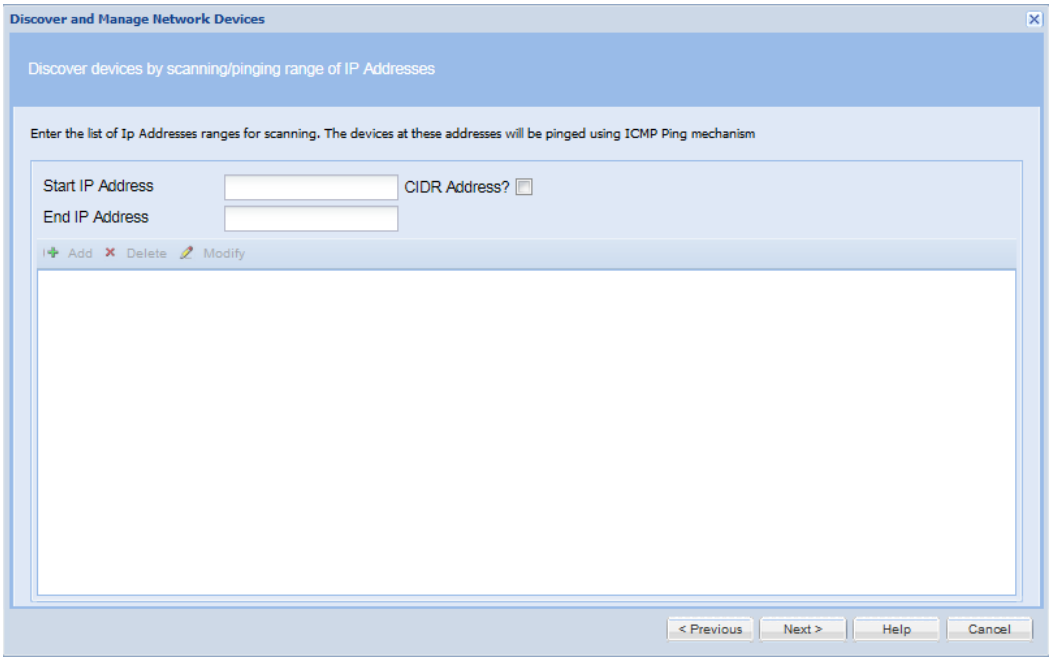
- Protocol (CDP, Routing Table, ARP, OSPF Neighbors, BGP, HSRP, LLDP, etc.)
- Hop count (number of hops the discovery process should traverse)
- Seed IP Address(s) (Initial seed device or devices)

Figure 7-8 Protocol Based Discovery



For IP Range Scanning based discovery, provide the Start IP address and the End IP address. You can also provide the Start IP in CIDR format as show here *IP Address/subnet mask (x.x.x.x/x)* and the End IP will be auto populated. You also have "select CIDR Address" before providing Start IP Address.

Figure 7-9 IP Scanning



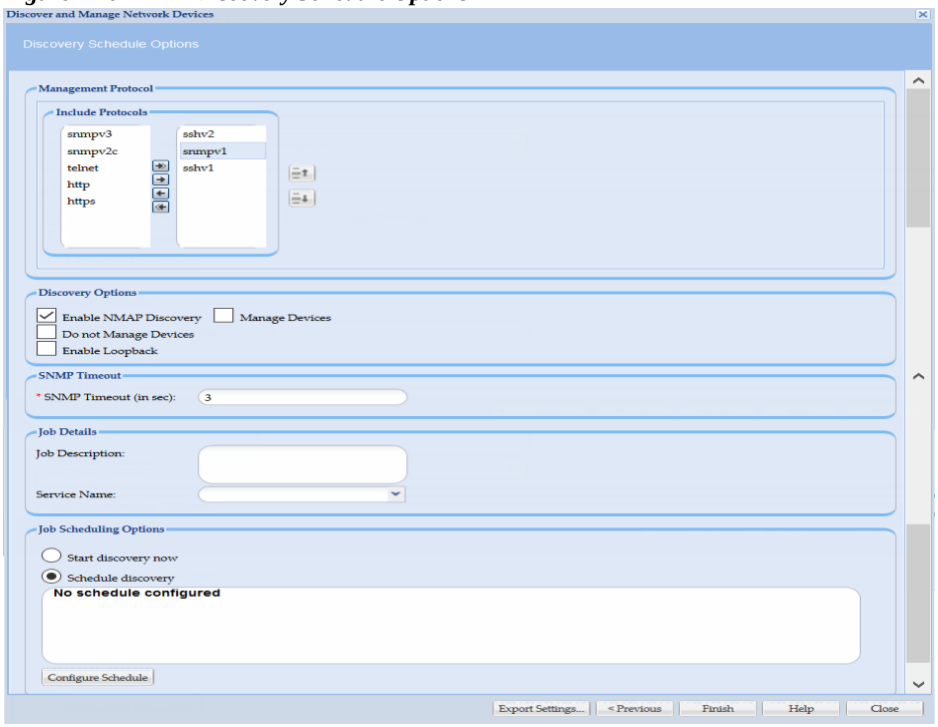
You can select the option **Rediscovering Currently Managed and NON Managed Devices**. It will discover with all the previous discovered protocol and for unreachable devices, and non-managed devices it will try all SNMP protocol and discovery process will rediscover all the devices that are currently managed.

Select the management protocol used for the discovery process. The current options are SNMPv1, SNMPv2 or SNMPv3.

Enter the **Job Description** and select the **Service Name** from drop down.

Once the type of discovery is specified, you are ready to discover the devices. You can schedule the discovery process either right away or at a later time.

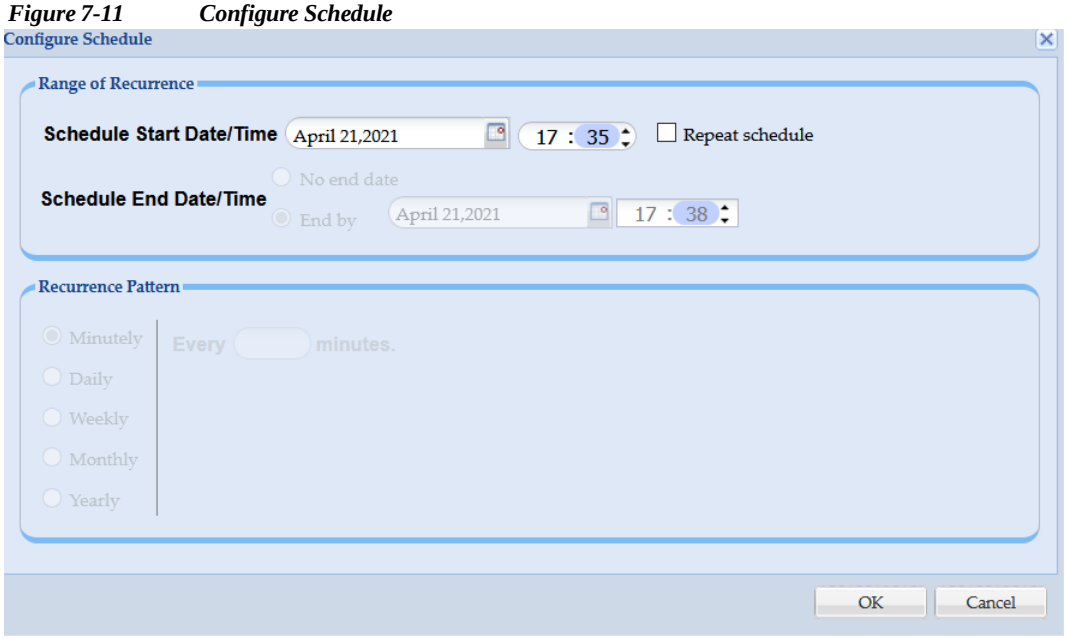
Figure 7-10 Discovery Schedule Options



To Schedule Discovery at a later time, select Schedule Discovery option and then click **Configure Schedule** button.

You can schedule Start and End Date/Time or select the Recurrence pattern as Minutely, Daily, Weekly, Monthly, or Yearly as shown in Figure 7-11.

Figure 7-11 Configure Schedule

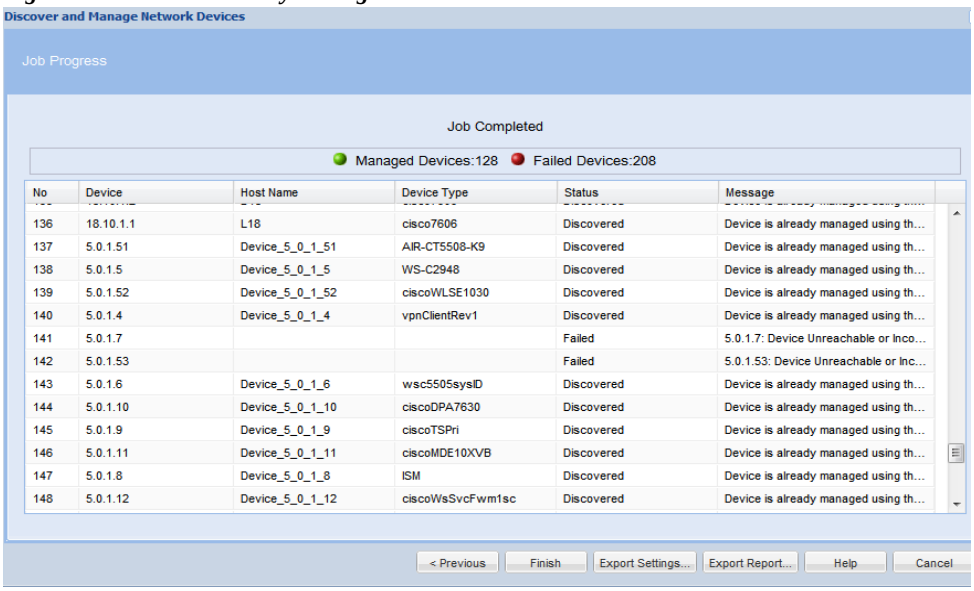


After the *Discover and Manage* operation is finished, you see the results which include the IP Address (of the selected device), Host Name, Device Type, Status (which indicates whether or not the device is managed), and Message. Discovery operation can be closed and run in the background. You can check the *Job Log Reports->Discovery Jobs* to view the results of the background operation.

You can also Clone an older discovery job to use as a new discovery job to speed up discovery. Refer to *Job Log Reports ->Discovery Jobs* for more information on cloning a discovery operation.

In the discovery jobs report, you can create a new discovery job by right clicking on any discovered joband selecting 'Create new discovery by cloning this job'.

Figure 7-12 Discovery in Progress



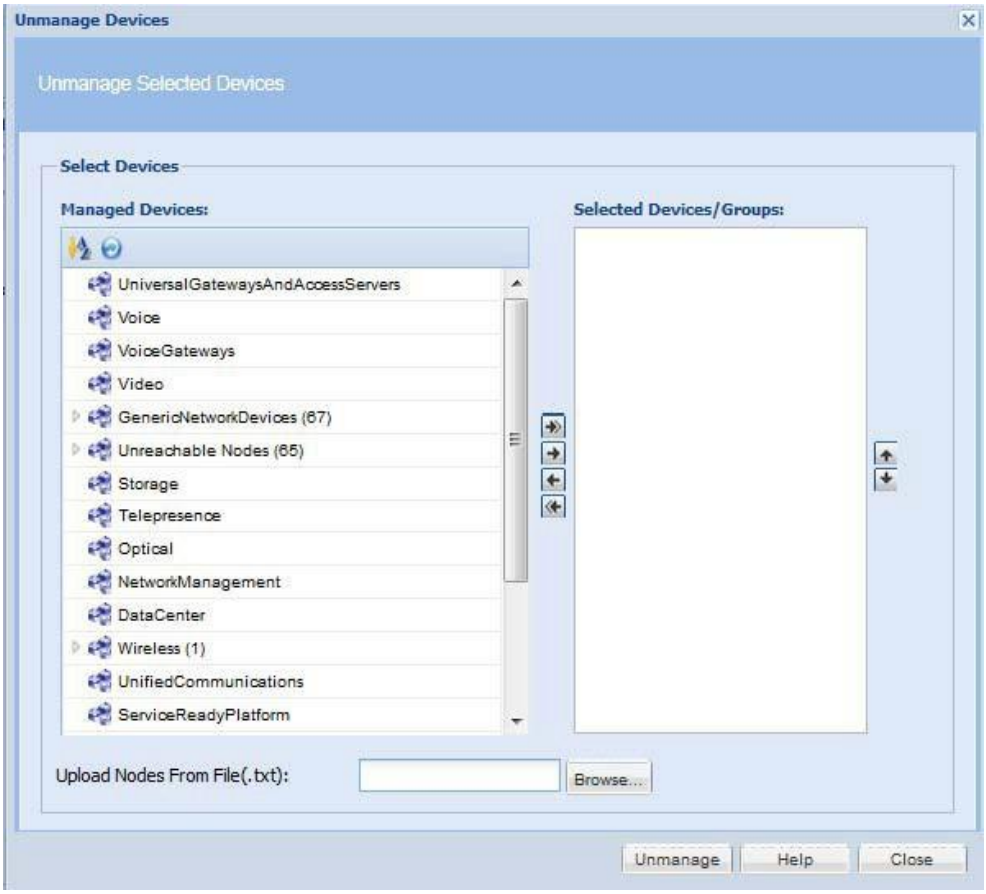
You can export the Discovery Settings to an XML file, as well export the discovered devices report.

Go back to CSPC Flow Chart

Unmanage Devices

Double-clicking **Unmanage Devices** opens a new window. It shows the list of devices that are already managed, and allows you to select the devices that you want to Unmanage. After selecting the devices or groups, the selected devices or groups appear on right side of the window. Then, click **Unmanage** to remove the selected devices or groups, as shown below. You can also browse to upload list of nodes from *.txt* file.

Figure 7-13 Unmanage Devices



Once this operation is completed, CSPC removes the unmanaged devices along with all the corresponding data (collection profile data and so on) from its database.

Verify Device Access

Use Device Access Verification when you want to check whether a given device is accessible through a specific credential, as shown below. All the settings are taken from Access Verification Settings. You can also make the changes to settings and is applicable only for the job you change the settings.

Follow the steps given below to perform device access verification:

Step 1 Select the devices for which data access needs to be verified. You can also browse to upload list of nodes from *.txt* file.

Step 2 Select the protocols order to be used for verification using side arrows and reorder them using the up and down arrows. To avoid the failure, you can use the option **Use All Selected Protocol Versions** and to override the failed protocol select the option **Override Enable Failed**. If all the protocol fails, then you have an option to use ICMP for reachability of device. If Use all selected protocol version is selected, then all the selected protocol are used even if the first protocol passes. If Override enable failed is selected, then status is shown as enabled by default, even if device do not enter enable mode.

Step 3 Start the verification process now or schedule it at a later time

Figure 7-14 Device Access Verification - Device Selection

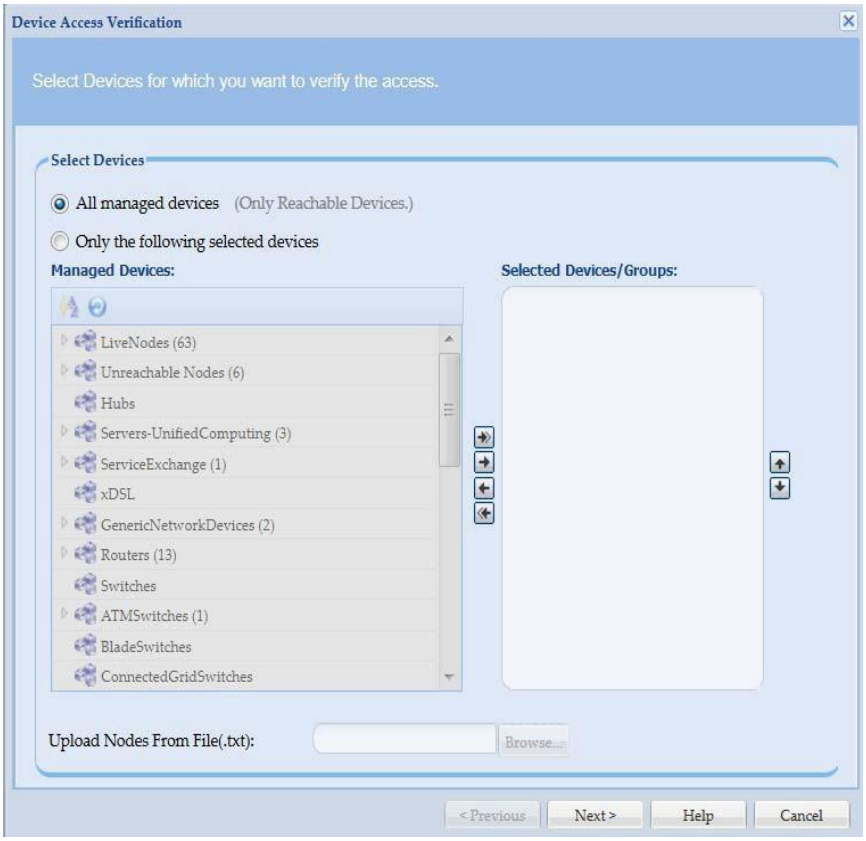
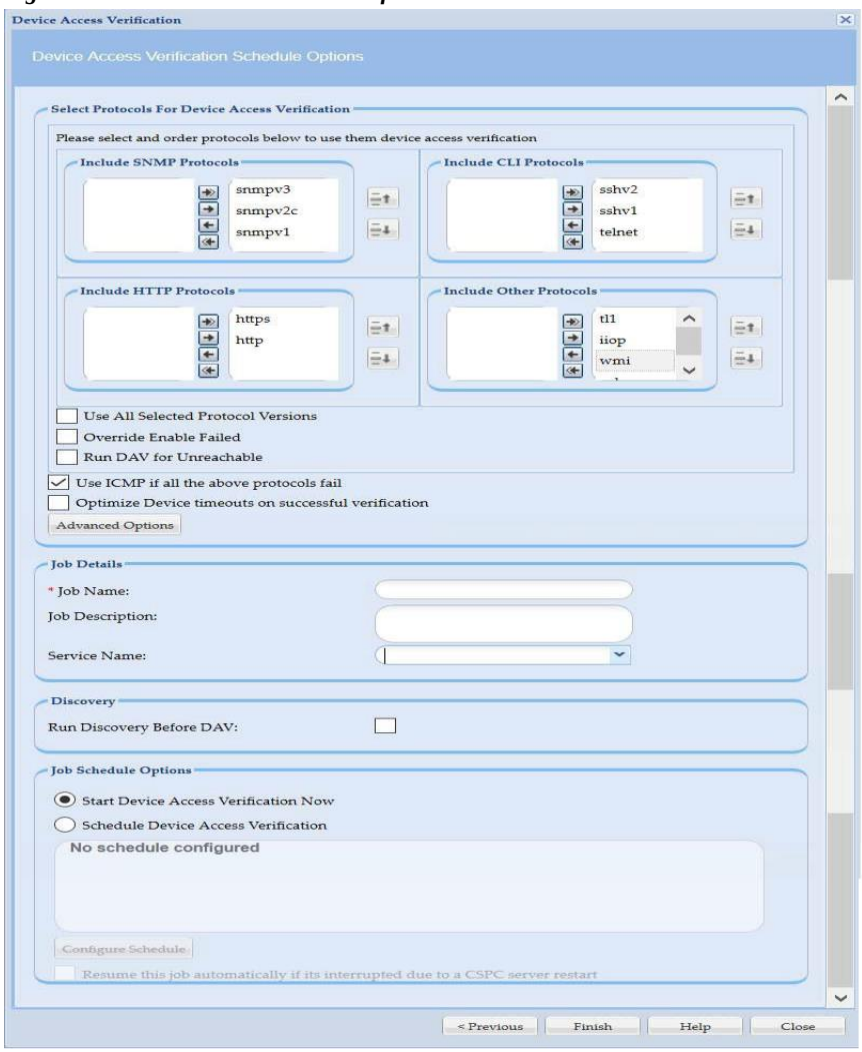


Figure 7-15 Device Access Verification - Protocol Selection

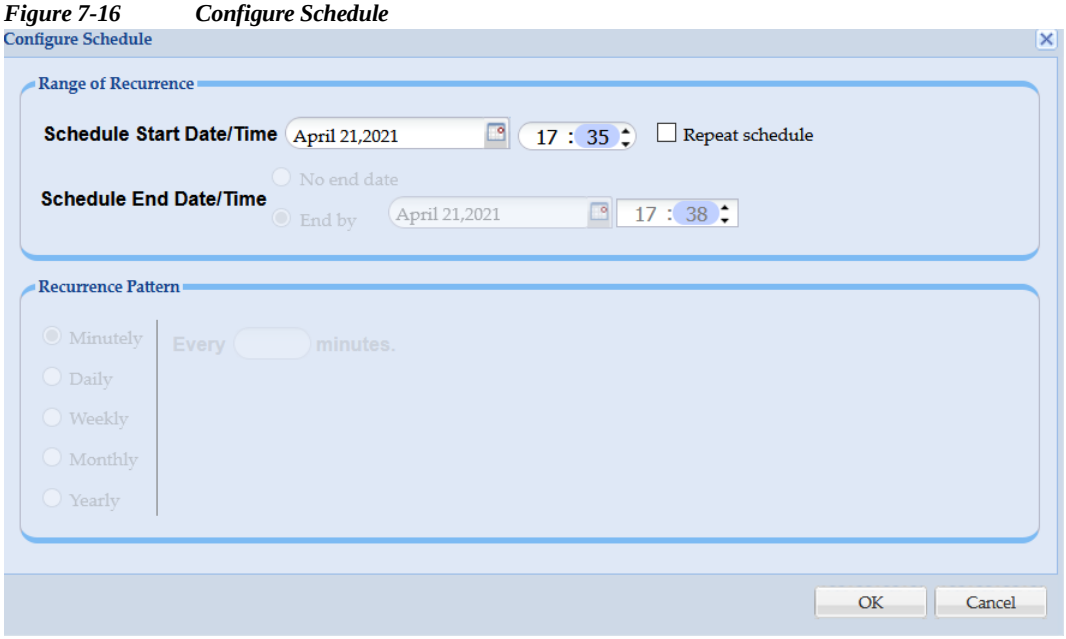


Enter the **Job Name**, **Job Description**, and select the **Service Name** from drop down.

Use the **Run Discovery before DAV** option to rediscover the unreachable device for a particular job before running DAV.

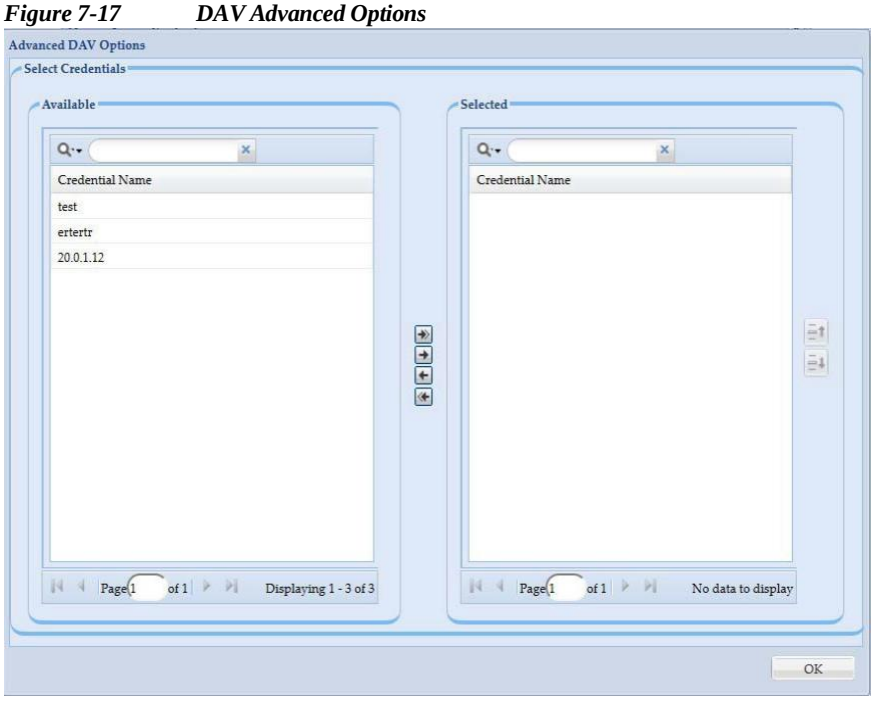
To Schedule Device Access Verification at a later time, select Schedule Device Access Verification option and then click Configure Schedule button. You can schedule Start and End Date/Time or select the Recurrence pattern as Minutely, Daily, Weekly, Monthly, or Yearly as shown in Figure 7-16.

Figure 7-16 Configure Schedule



You can click on **Advanced Options** button and select the credentials to run DAV on as shown in Figure 7-17.

Figure 7-17 DAV Advanced Options



Once the job is started you can view the successful and failed credentials/protocols for a given device as shown below.

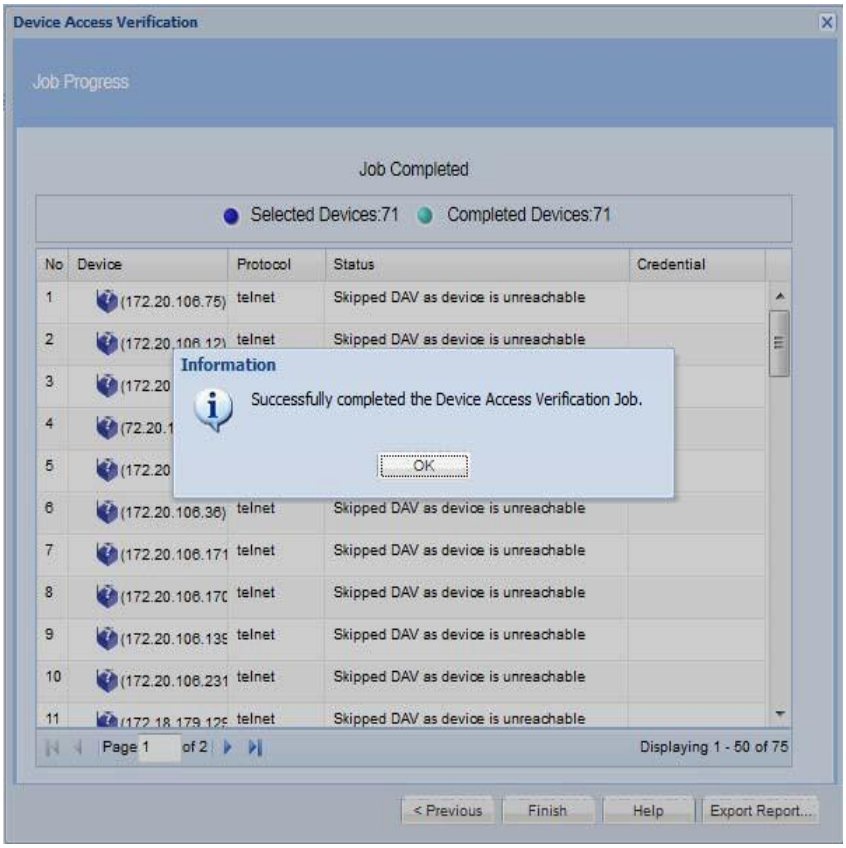
There is also an option to Optimize device timeouts on successful verification. This is applicable only for SNMP. The option once enabled will automatically calculate the timeout for a specific device and add it to the Global Timeouts under the advanced settings.

When a device access verification job is scheduled to run at a later time, ‘Resume this job automatically if it is interrupted due to a CSPC Server restart’ option will be available. If the CSPC restarts for any reason while device access verification job is running, CSPC will resume the job upon restart.

By default, CSPC pings a device to check if it is responding Additional ping.

If all the selected protocols have failed for DAV, by default an Additional Ping feature is triggered to check if the devices are responding.

Figure 7-18 Device Access Verification - Results



Go back to CSPC Flow Chart

Device Prompt Collection

You can use Device Prompt Collection option to collect the Device Prompt and DNS Names for the devices that are selected.

Follow the steps given below to perform device prompt collection:

Step 1 Select the devices for, which device prompts needs to be collected

Step 2 Enter the **Job name**, **Job Description**, and select the **Service Name** from drop down to create a job for collection.

Step 3 Start the job now or schedule it at a later time

Figure 7-19 Select Devices for Prompt Collection

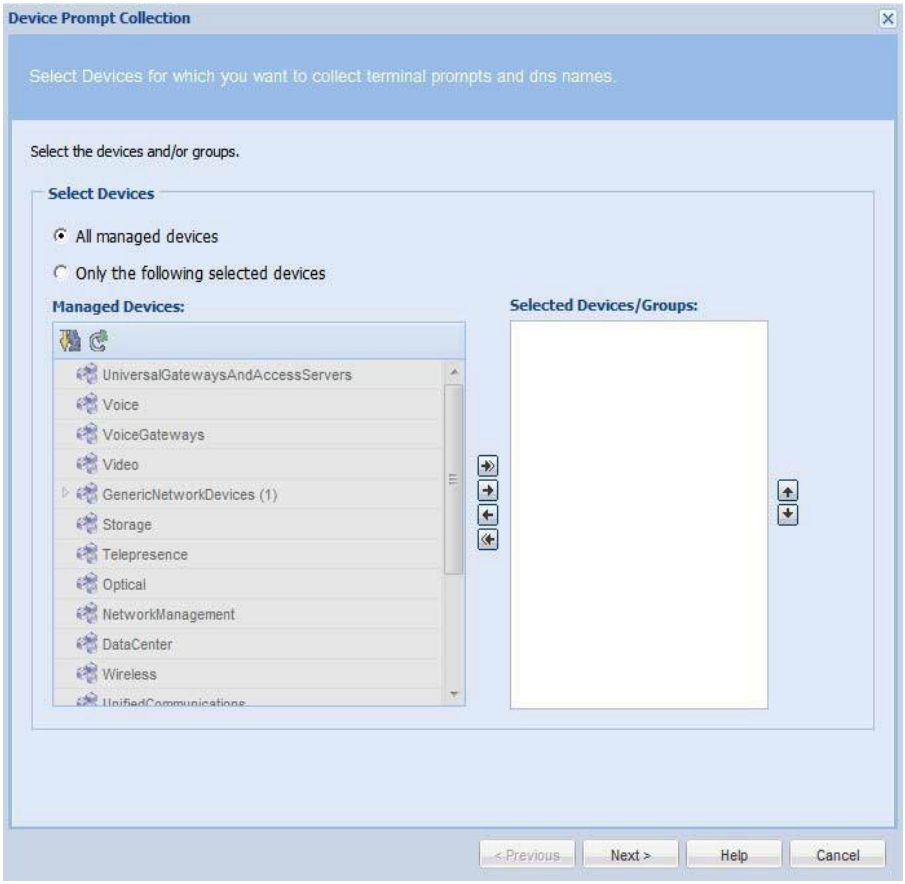
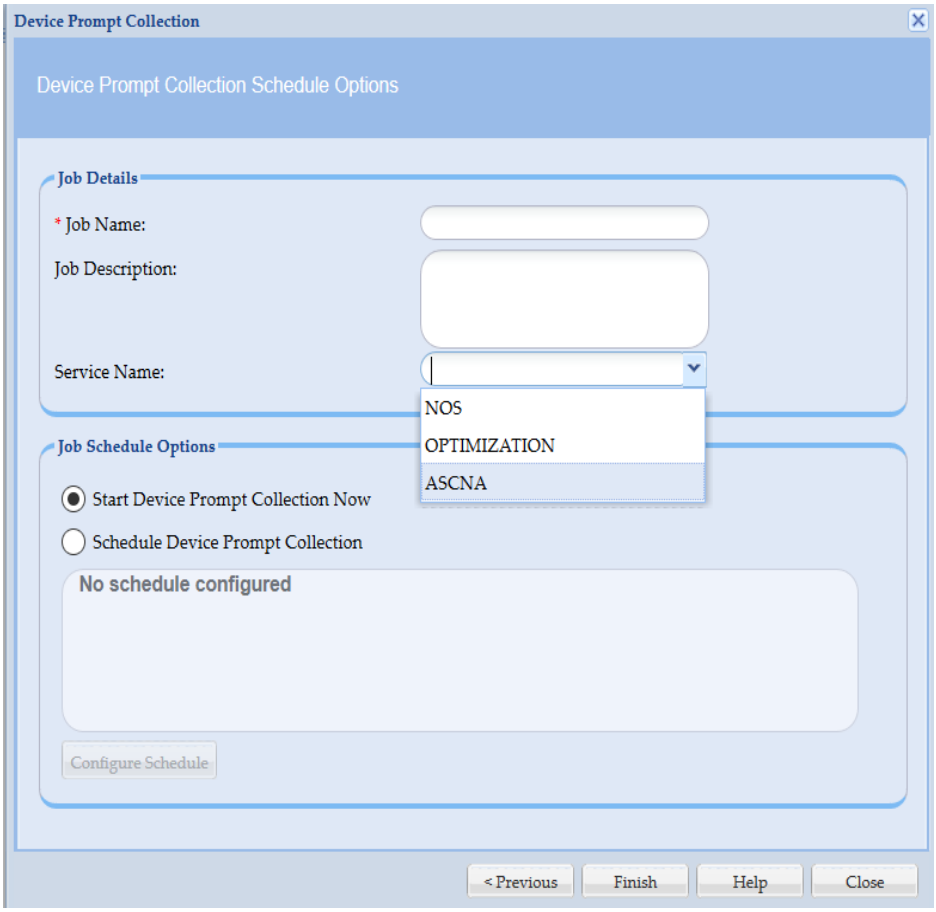
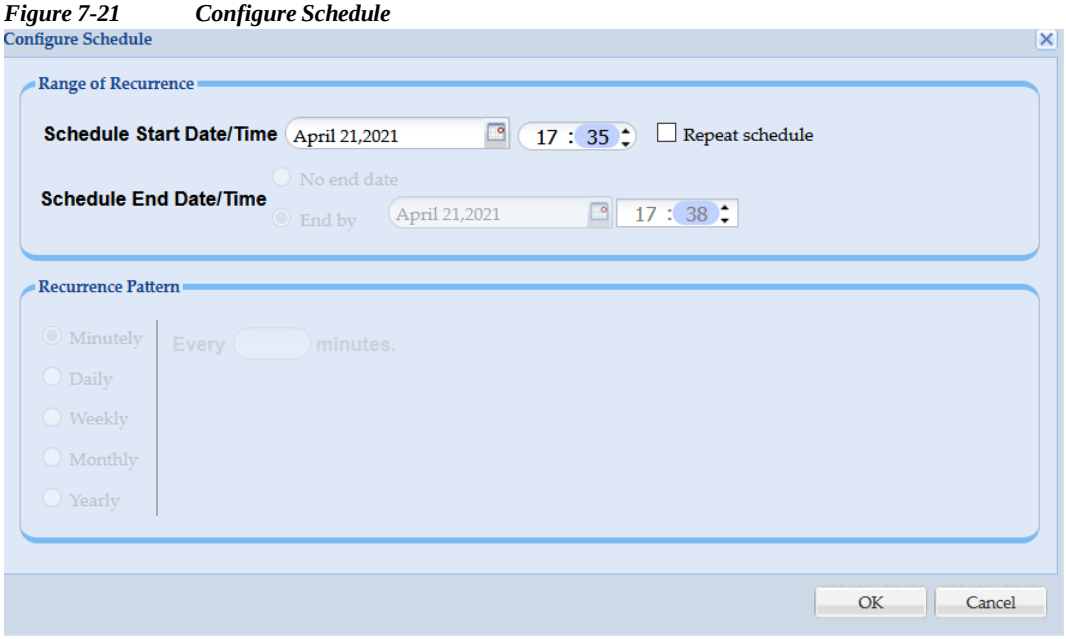


Figure 7-20 Create a job for prompt collection



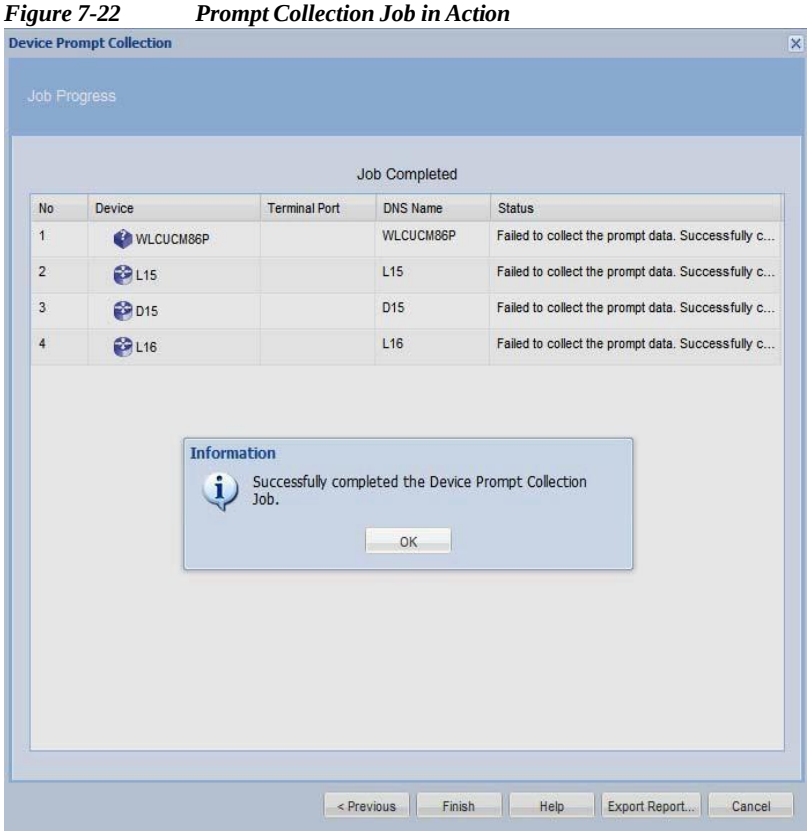
To Schedule Device Prompt Collection at a later time, select Schedule Device Prompt Collection option and then click Configure Schedule button. You can schedule Start and End Date/Time or select the Recurrence pattern as Minutely, Daily, Weekly, Monthly, or Yearly as shown in Figure 7-21.

Figure 7-21 Configure Schedule



Once the job is started you can view the successful and failed collection for a given device as shown in Figure 7-22.

Figure 7-22 Prompt Collection Job in Action



Common Tasks

You can use the Common Tasks sub tab of the Management Tasks tab to execute a selected collection profile. Collection Profiles are described in the Collection Rules and Miscellaneous Rules chapters.

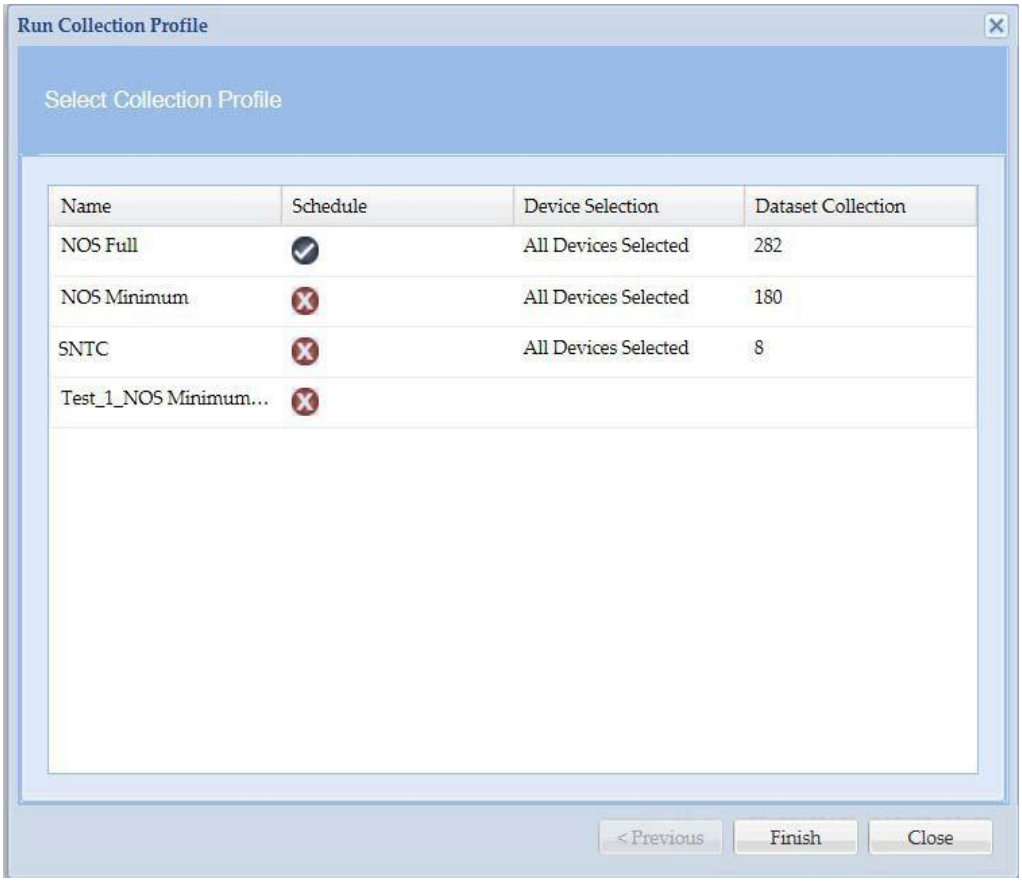
This section describes the Data Collection options in the following topics:

- Collect Data
- Upload Data
- Adhoc Data Collection
- Collect Application Data

Collect Data

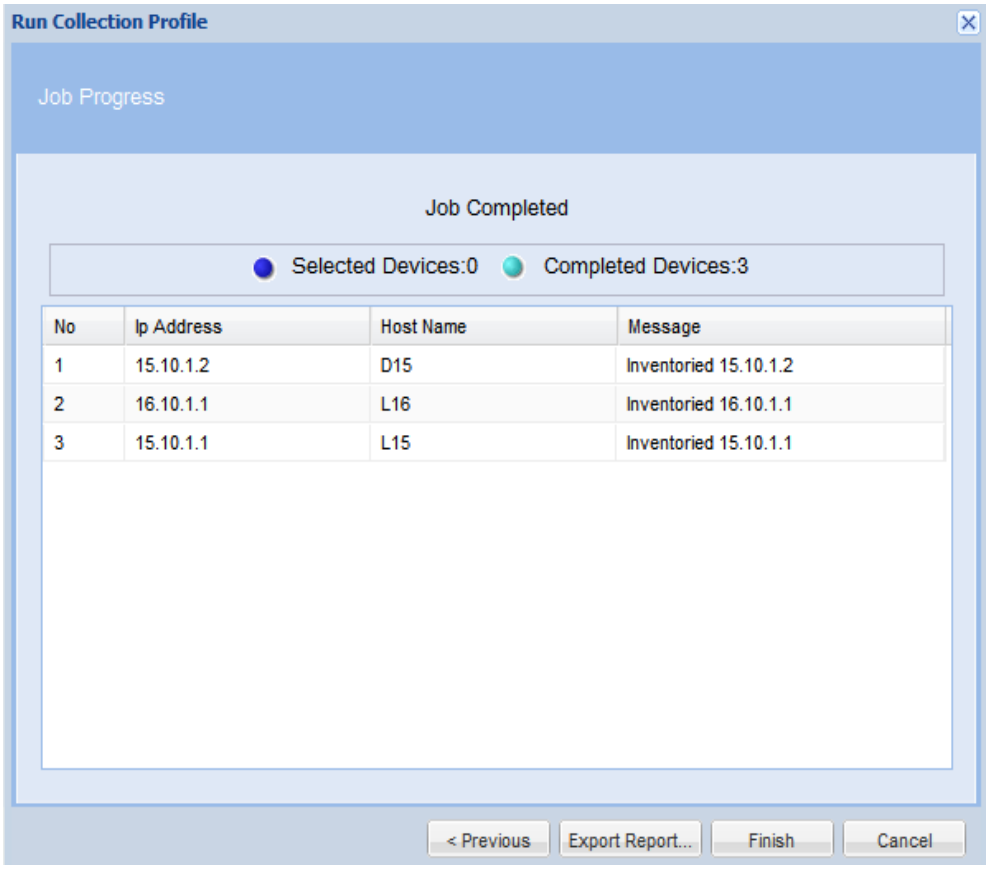
You can select any collection profile from the list of collection profiles defined and run it as needed. Select the profile and click **Finish** button to run the profile.

Figure 7-23 Select the Collection Profile



Once you start the job, the results are displayed including device name, IP address, and success or failure, as shown below.

Figure 7-24 Executed Data Collection Profile Results

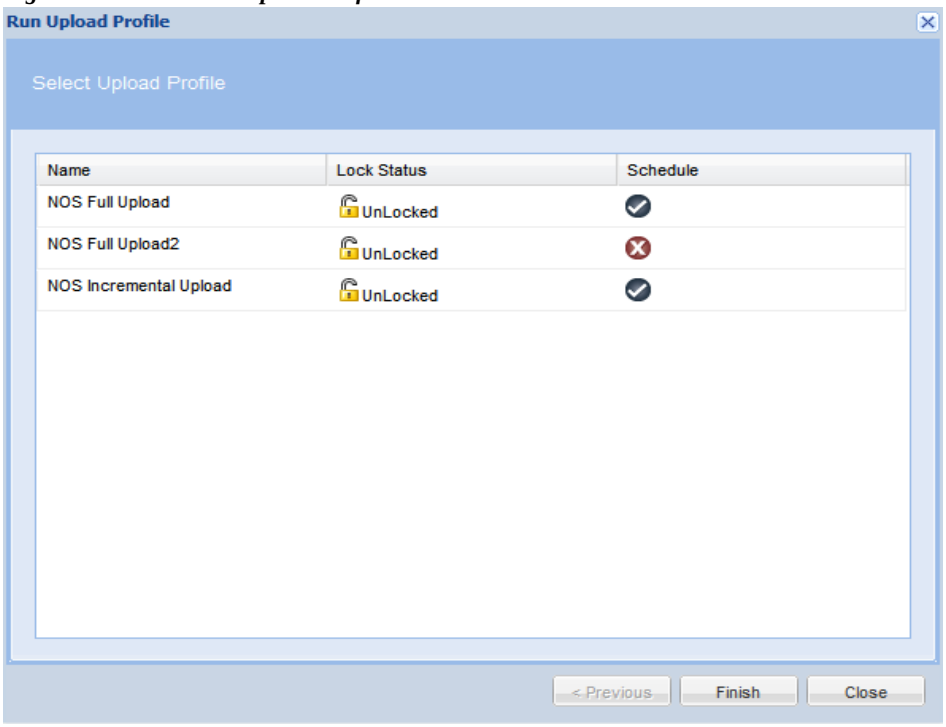


Upload Data

Run Upload Profile screen lists all the profiles created using Manage Upload Profiles. You can select a profile from Run Upload Profile screen and click **Finish** to start uploading the profile.

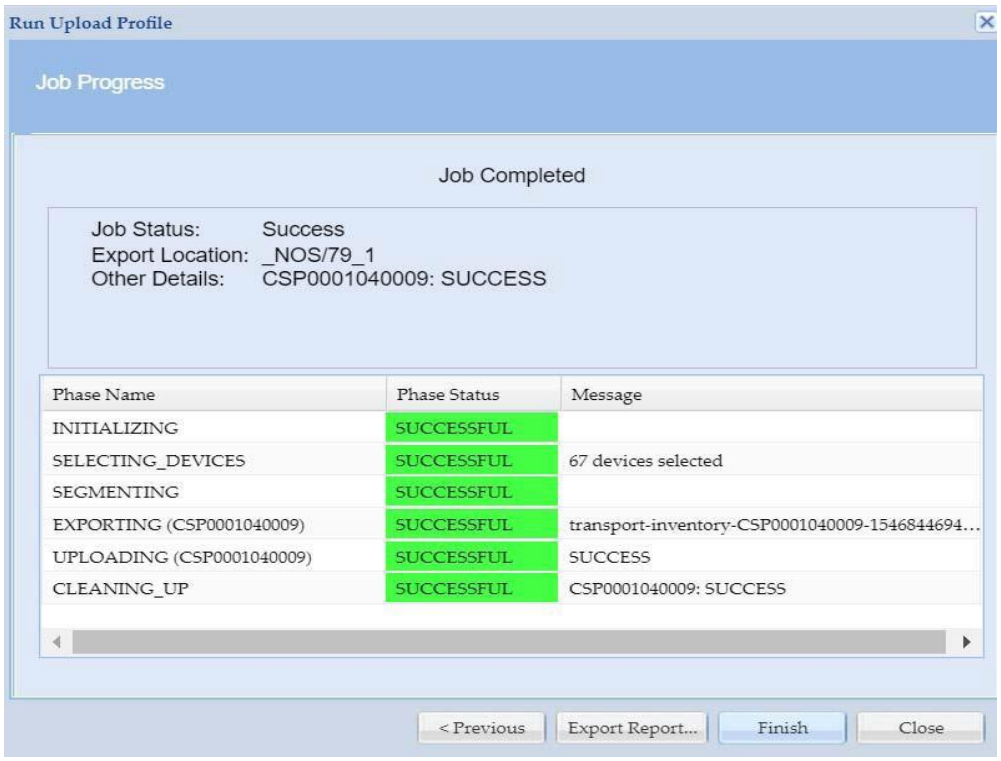
Note This feature is only for NOS services

Figure 7-25 Run Upload Profile



Job Progress screen showing the status of the uploaded profile is displayed as shown in Figure 7-26.

Figure 7-26 Job Results



The status is shown in orange color if the upload is running, in green if the upload is successful and in red color if the upload failed.

If any of the phase status is failure, you have to re-run the upload profile.

Go back to CSPC Flow Chart

Ad hoc Data Collection

You can create adhoc collection profile if you want some devices to be configured to collect data based on the datasets.

In general, a collection profile will be associated with a set of devices. This means when you run collection profile, collection will be performed on devices associated with this collection profile definition.

If you wants to run a collection profile for a different set of devices other than what is present in the profile definition, an ad hoc collection profile serves this purpose.

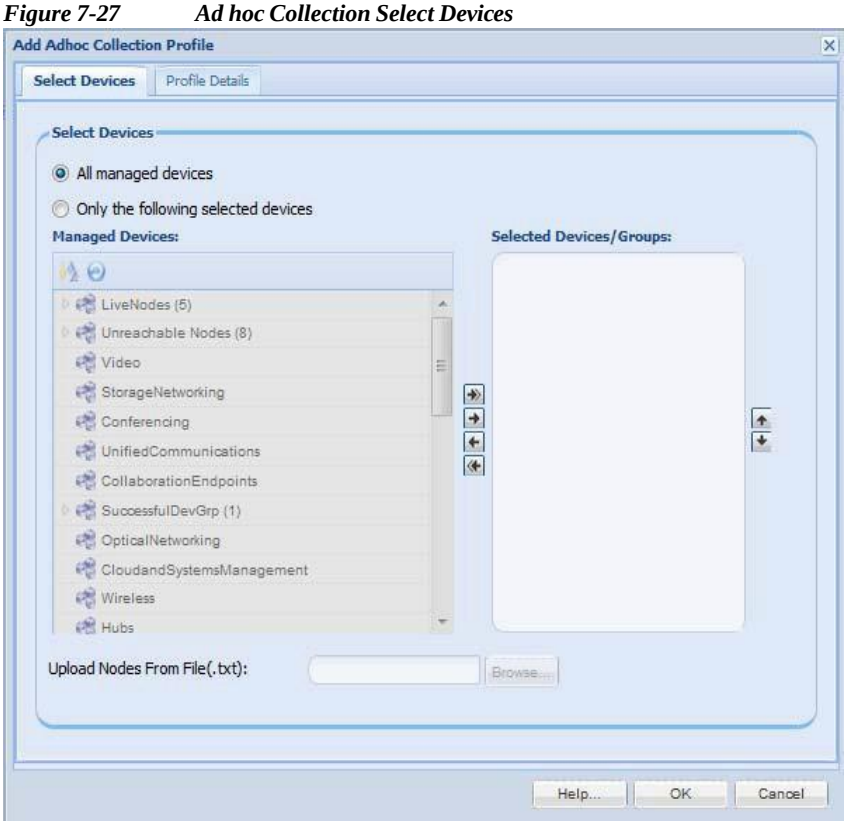
When you create ad hoc collection profile, select:

- A base collection profile
- Device details
- Scheduling information

Ad hoc collection profiles inherit collection details (like data sets) from a given base collection profile. It inherits all the details except device details and scheduling information.

On clicking “Create Ad hoc Data Collection Profiles”, screen as shown in Figure 7-27 is displayed.

Figure 7-27 Ad hoc Collection Select Devices

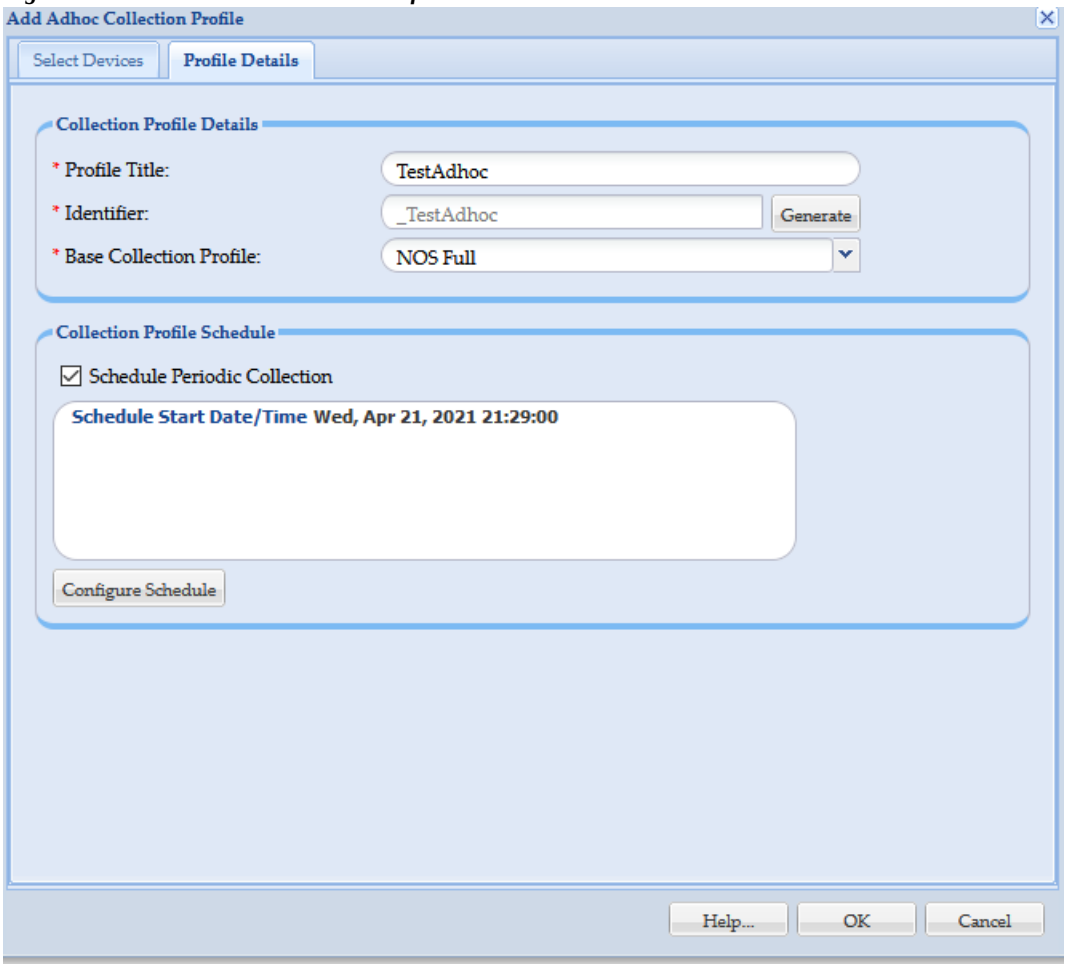


Enter the mandatory details under the following two sections:

- Select Devices
- Profile Details

In Select Devices you can select all managed devices or only few devices. You can also browse to upload list of nodes from .txt file. Profile Details you can add the mandatory details as shown in Figure 7-28.

Figure 7-28 Ad hoc Collection Profile Details

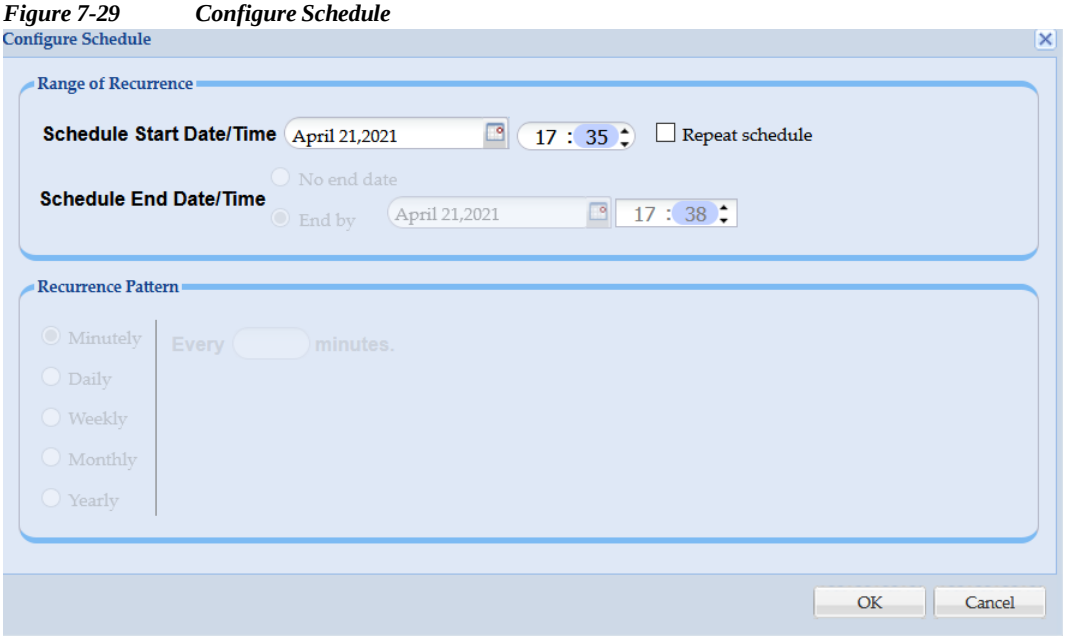


Note If configure schedule is not provided, then ad hoc collection profile will be scheduled as soon as it is created.

The drop down box beside “Base Collection Profile” lists all the collection profiles present in the CSPC. You need to select a collection profile as a base collection profile. It is mandatory to select a base collection profile.

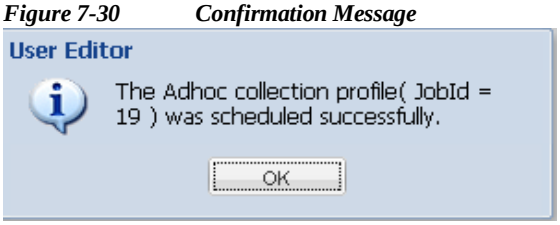
Configure schedule can be used to schedule ad hoc collection at a specified time and can be repeated at certain intervals by giving the required details.

Figure 7-29 Configure Schedule



Click **OK** to save the Profile and device details to the ad hoc collection profile. On successful completion, you will receive a message as shown in Figure 7-30.

Figure 7-30 Confirmation Message

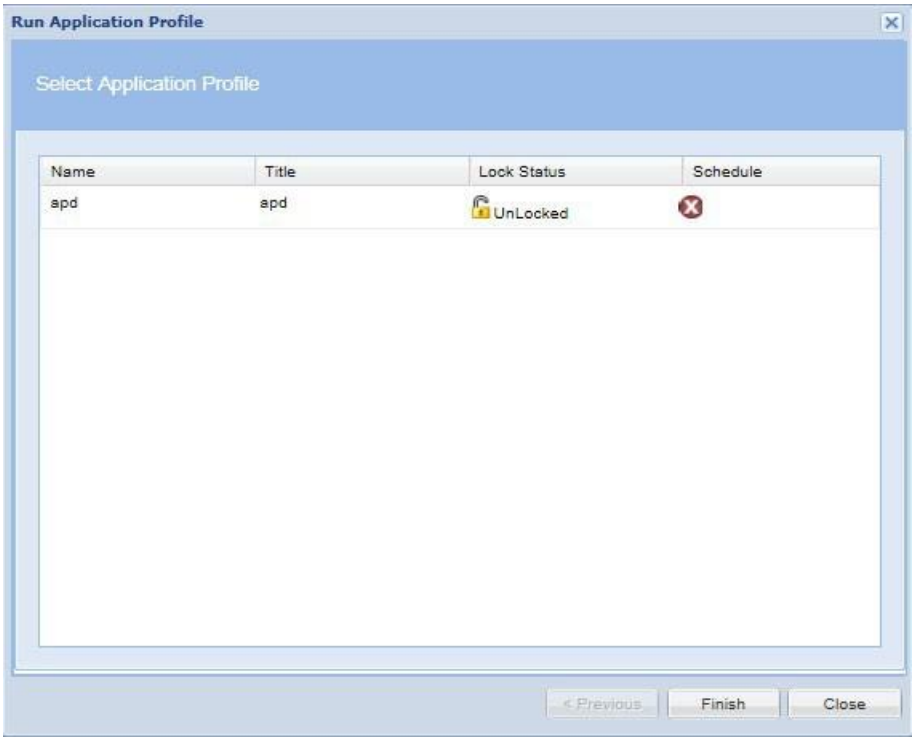


The ad hoc collection profile created will appear in the Manage Data Collection Profiles tab.

Collect Application Data

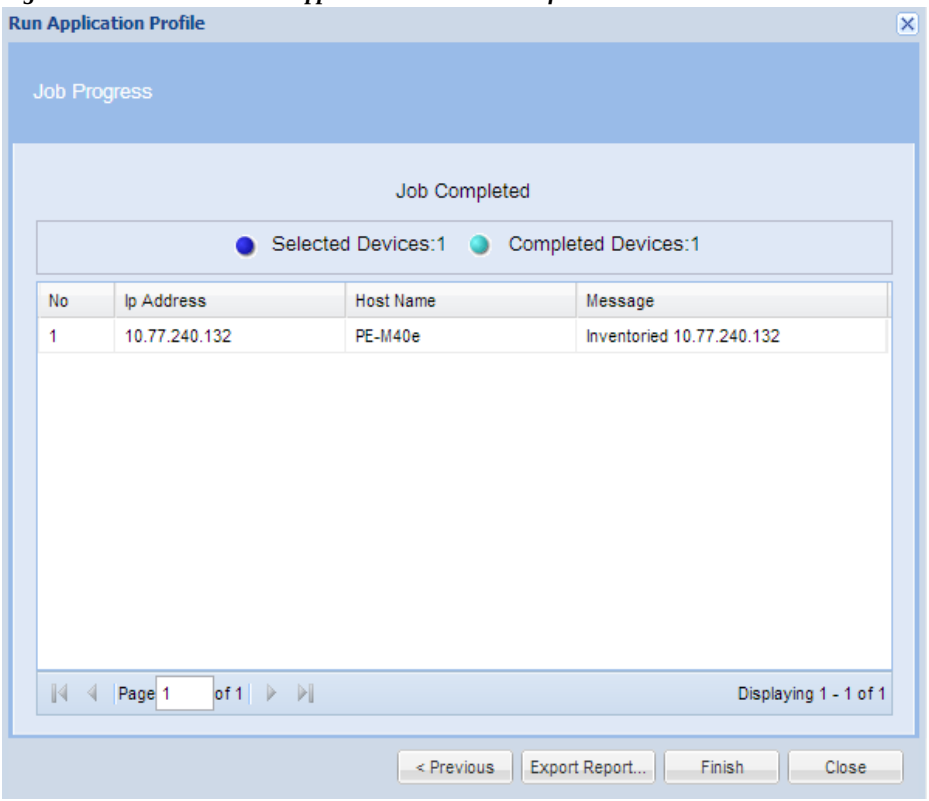
Run Application Profile shows the list of application profiles. You can select any application profile from the list of application profiles defined and run it as needed. Select the profile and click **Finish** to run the profile.

Figure 7-31 Run Application Profile



Once you start the job, the results are displayed including IP address, Host Name and success or failure, as shown in Figure 7-32.

Figure 7-32 Executed Application Collection Profile Results

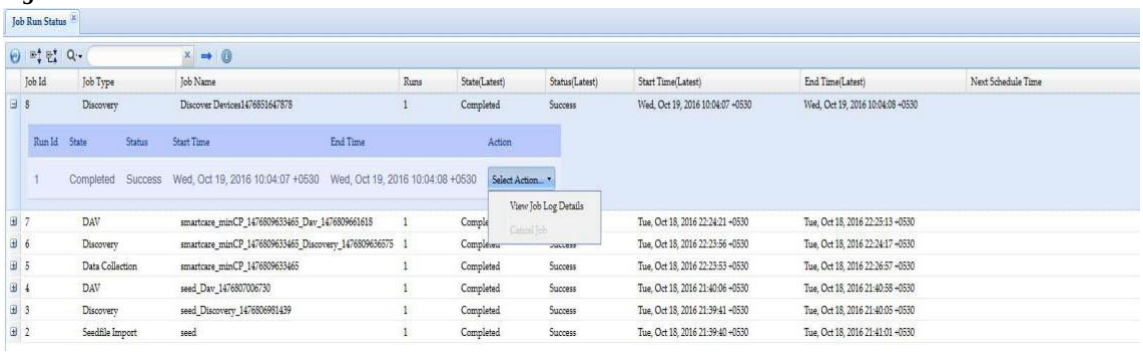


Job Run Status

Job Run Status

This helps you to know the status of all the jobs you run. In addition, you can see the description of each job by clicking the + symbol next to the *Job Id*. Clicking the + sign shows the *Run Id*, *State* (Successful/Aborted), *Status* (Completed/Not Completed), *Start Time*, *End Time*, and *Job Log Details* for this particular job, as shown in Figure 7-33.

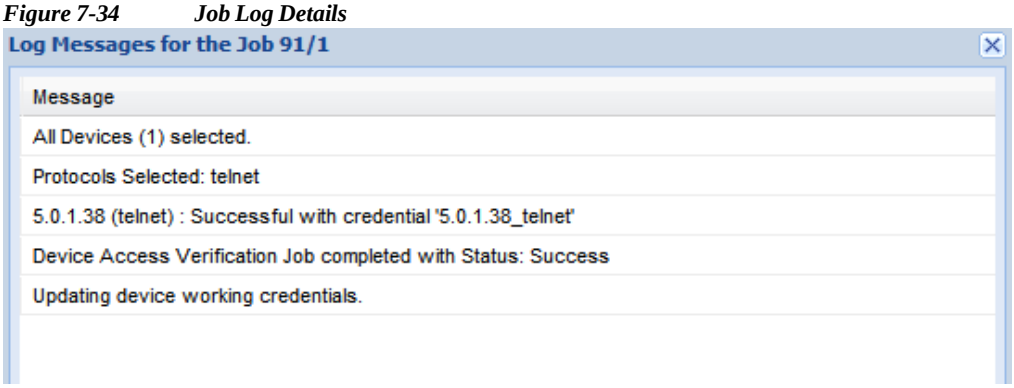
Figure 7-33 Job run Status



Select the *Action* button in the report to view either the Job Log details for this particular job, or to cancel a job while it is still running.

Figure 7-34 shows the job log details.

Figure 7-34 Job Log Details



Job Management

Use the Job Management sub tab of the Management tasks to retrieve Job information. The job information can also be exported to an output file. The currently supported file formats are PDF, HTML, DOC, CSV (Comma delimited), TXT (Tab delimited).

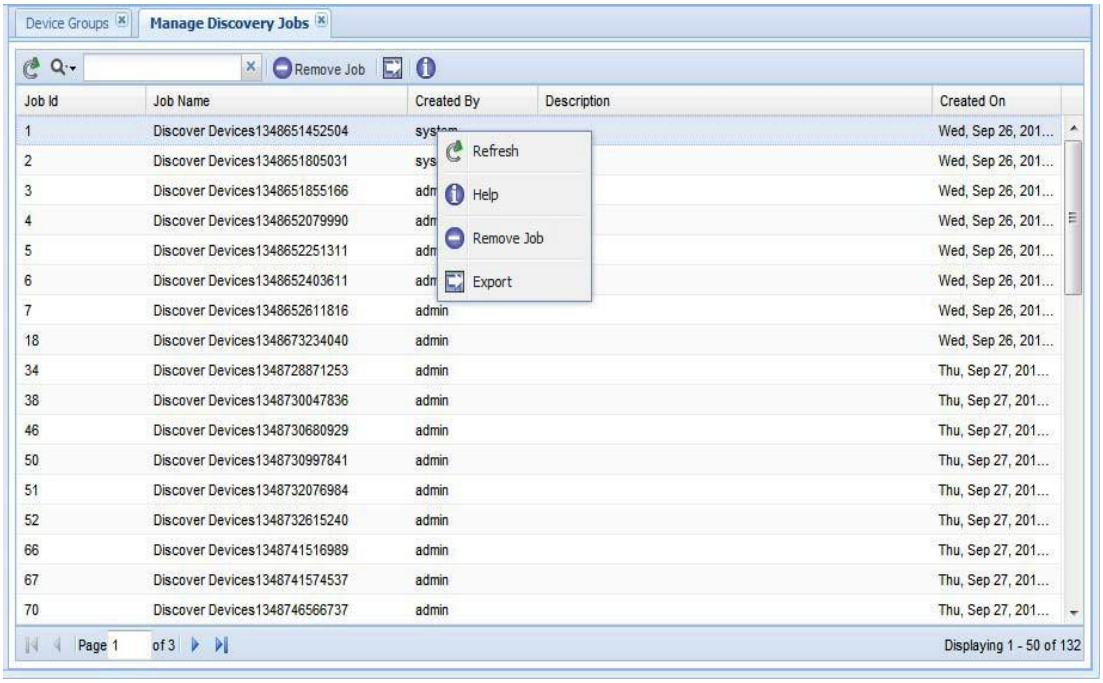
This section describes the Job Management options in the following topics:

- Manage Discovery Jobs
- Manage Device Access Verification Jobs
- Manage Workflow Jobs
- Manage Configuration Jobs
- Manage Device Prompt Collection Jobs
- Manage Health Monitor Jobs

Manage Discovery Jobs

Manage Discovery Jobs provides a list of all the discovery jobs previously run, and provides you with an option to either export the job information or delete job information from the database as shown below.

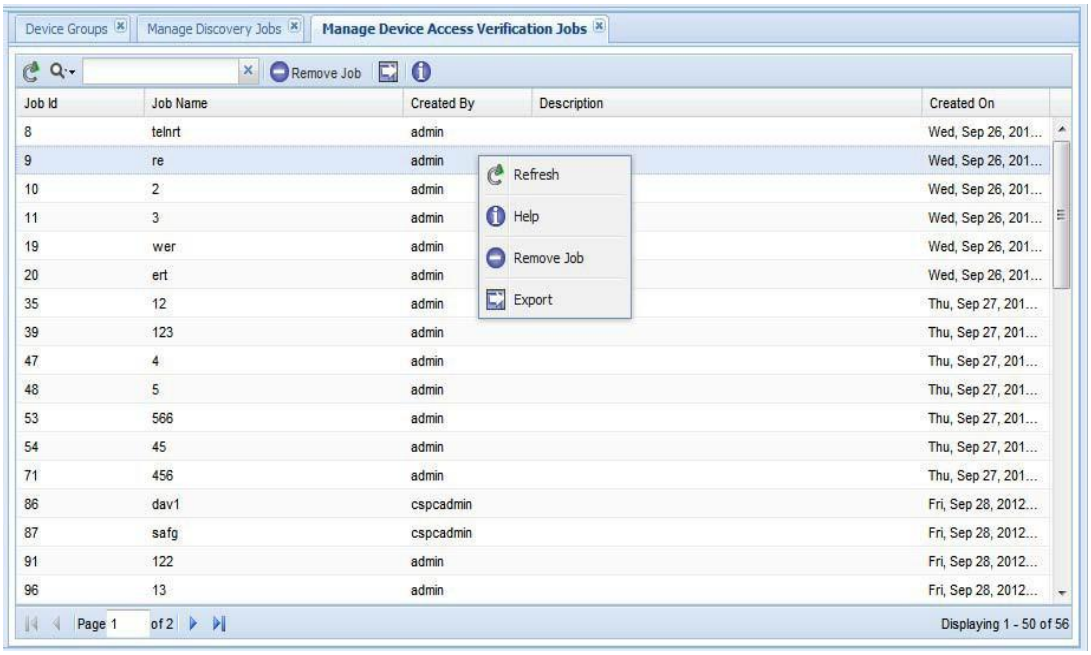
Figure 7-35 Manage Discovery Jobs



Manage Device Access Verification Jobs

Manage Device Access Verification Jobs provides a list of all the device verification jobs previously run, and provides you with an option to either export the job information or delete job information from the database as shown below.

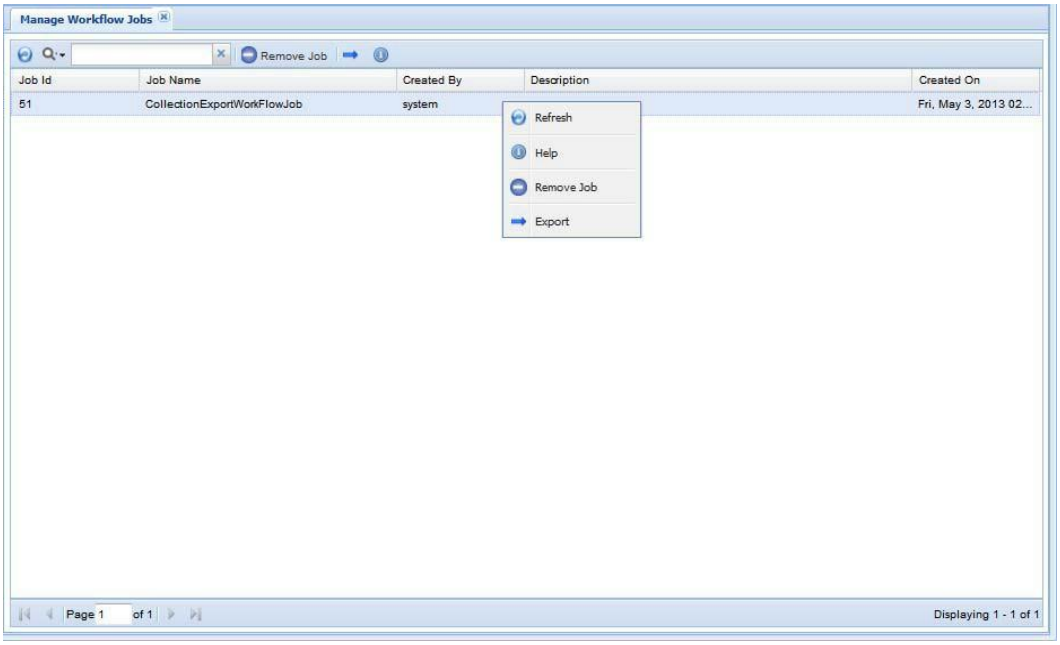
Figure 7-36 Manage Device Access Verification Jobs



Manage Workflow Jobs

Manage Workflow Jobs provides a list of workflow jobs that are previously run, and provide you with an option to either export the job information or delete the job information from the database as shown below.

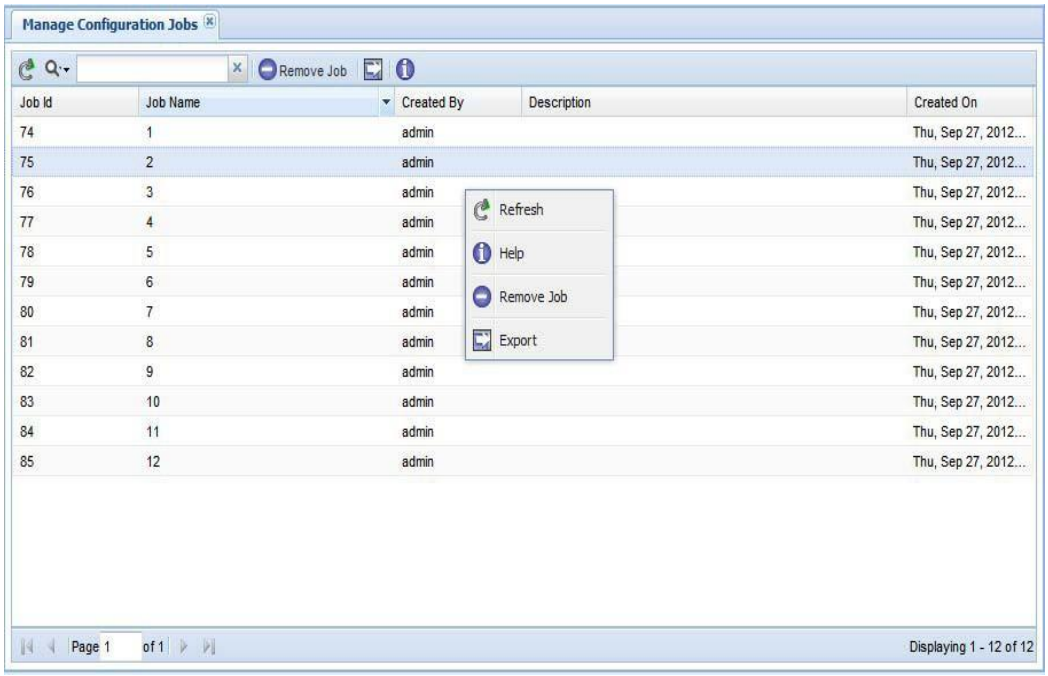
Figure 7-37 Manage Workflow Jobs



Manage Configuration Jobs

Manage Configuration Jobs provides a list of all the device configuration jobs previously run, and provides you with an option to either export the job information or delete job information from the database as shown below.

Figure 7-38 Manage Configuration Jobs

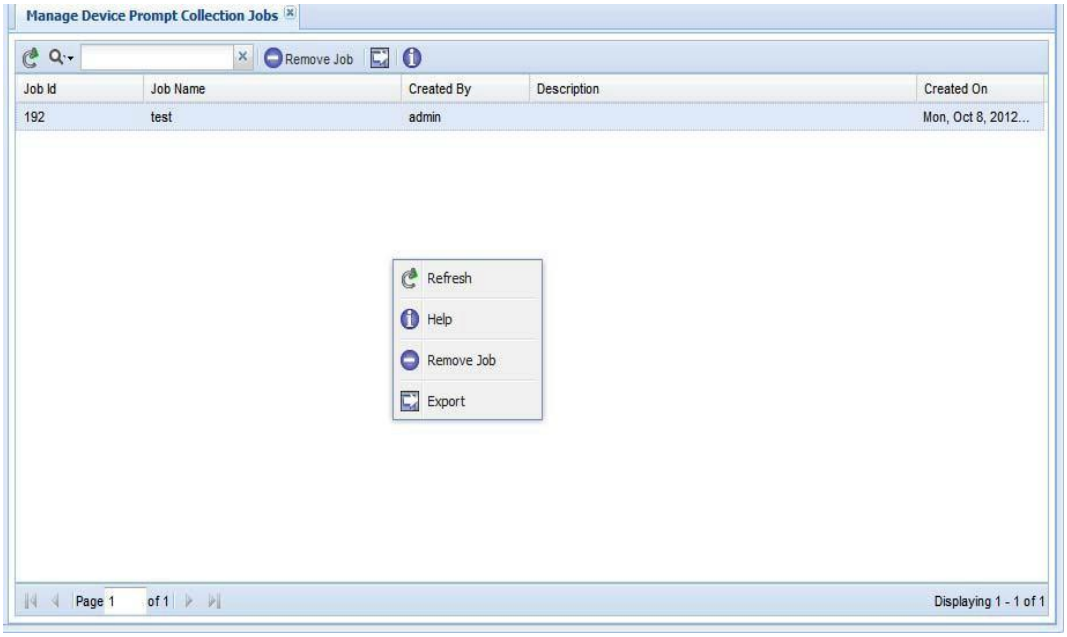


Manage Device Prompt Collection Jobs

Manage Device Prompt Collection Jobs provides a list of all the device prompt collection jobs previously run, and provides you with an option to either export the job information or delete job information from the database as shown in Figure 7-39.

The jobs info can also be exported to an output file. The currently supported file formats are PDF, HTML, DOC, CSV (Comma delimited), TXT (Tab delimited)

Figure 7-39 Device Prompt Collection Jobs



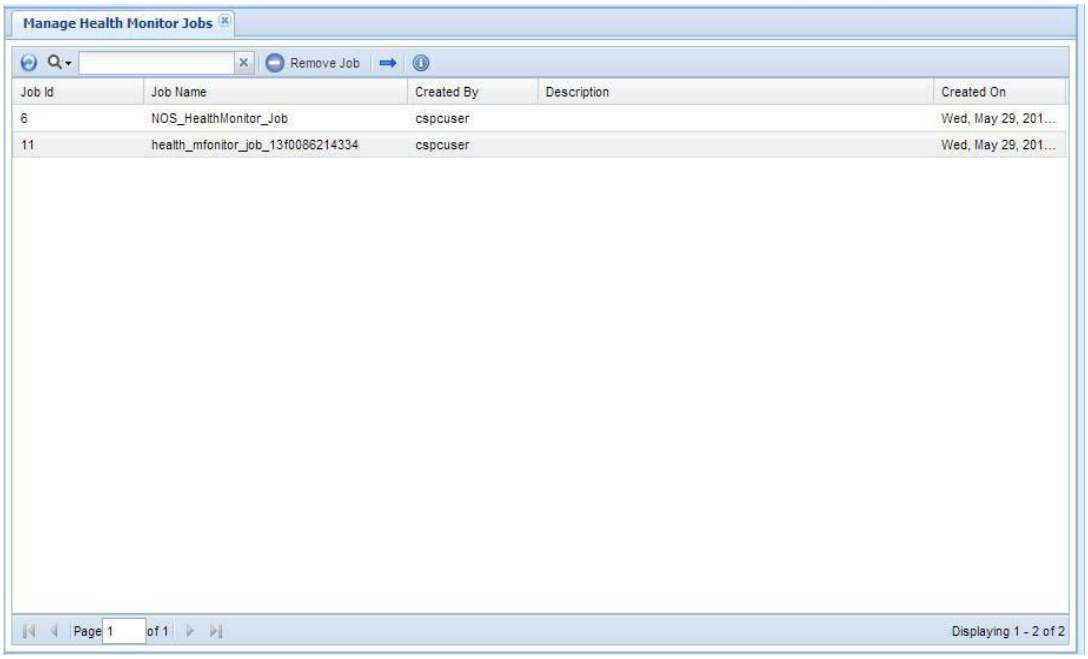
Manage Health Monitor Jobs

Health Monitor Jobs provides a list of all the monitor jobs previously run, and provides you with an option to either export the job information or delete job information from the database.

Health Monitor job which comes as part of NOS configure installation. This is a daily scheduled job. A user cannot alter or create a scheduled health monitor job from GUI/CLI. The screen shot of health monitor job after installation is shown in Figure 7-40. The jobs information can also be exported to an output file. The currently supported file formats are PDF, HTML, DOC, CSV (Comma delimited), TXT (Tab delimited)

Note This feature is only for NOS services

Figure 7-40 Health Monitor Jobs



Job run details can also be viewed from **Reports** -> **Job Management Reports**. From the drop down select Health Collection jobs and click **OK** as shown in Figure 7-41.

Figure 7-41 Job Report Filter

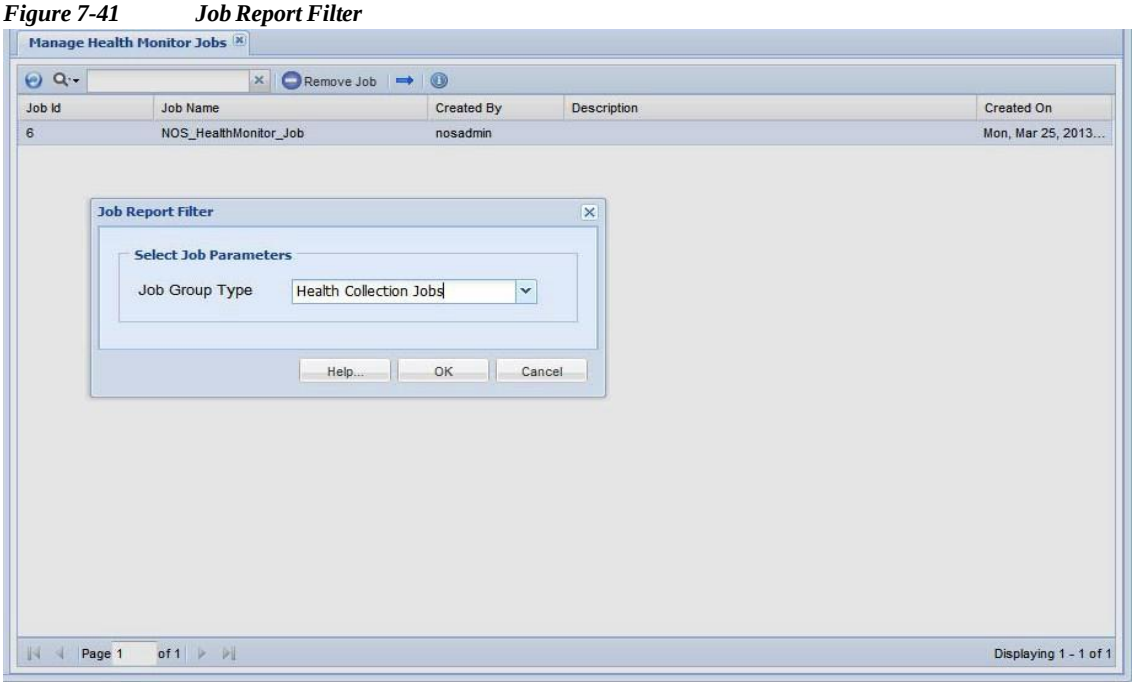
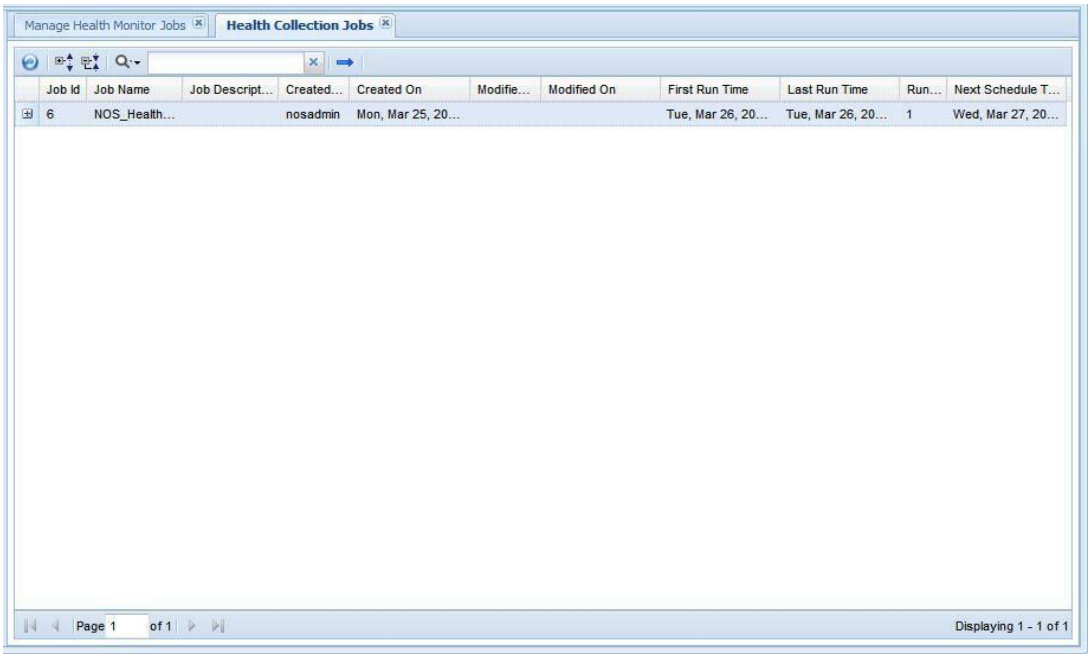


Figure 7-42 Health Collection Jobs



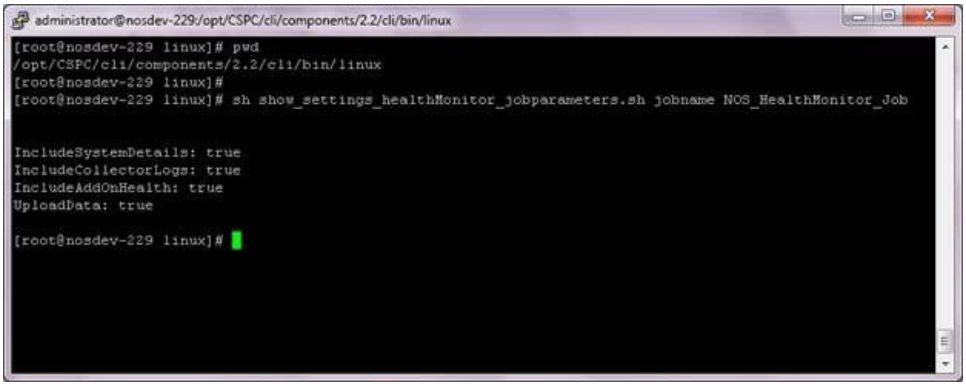
In Figure 7-42 you could see Job Id, Job Name, Created By, Created On, Modified By, Modified On, First Run Time, Last Run Time, Run Count, Next Scheduled Time. On the screen, there is no option from where the job could be triggered manually.

There are two CLI's using which this could be achieved. The CLIs are listed below:

- `job_schedule_healthMonitor_runnow.sh`
- `show_settings_healthMonitor_jobparameters.sh`

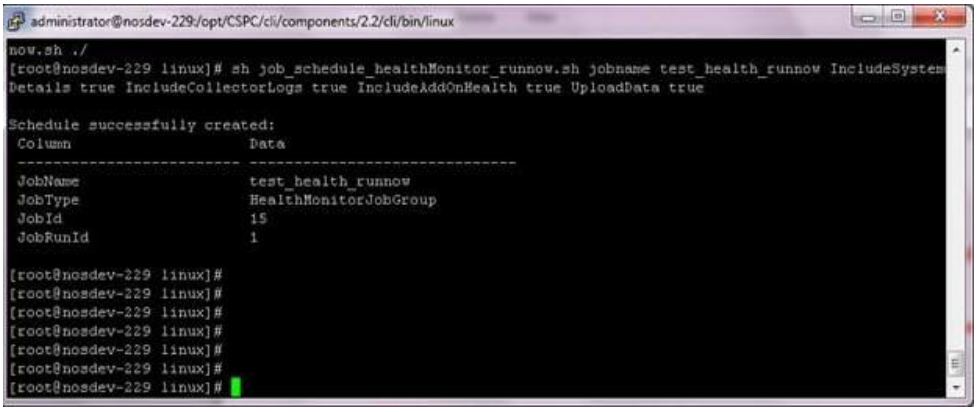
Using `show_settings_healthMonitor_jobparameters.sh` you could view any health monitor job parameters and the first CLI, `job_schedule_healthMonitor_runnow.sh` is used to create a run now job. It expects 4 parameters. Figure 7-43 shows the view health monitor job parameters from CLI.

Figure 7-43 CLI Command



A new health monitor runnow job can be scheduled from CLI as shown in Figure 7-43.

CLI Command



Applications - Reports

Reports

Use the Reports tab to view the collected data and job log details for discovery, inventory, collection, and backup jobs.

This section describes the Reports options in the following topics:

- Device Reports
- Device Access Verification Reports
- Data Collection Reports
- Services Reports
- Job Reports
- Audit Trails
- Miscellaneous

All the reports can be exported to various formats such as HTML, Microsoft Word, PDF, CSV, and TXT formats, along with various graphing options. Each report is easy to navigate with filtering and report formatting options.

Device Reports

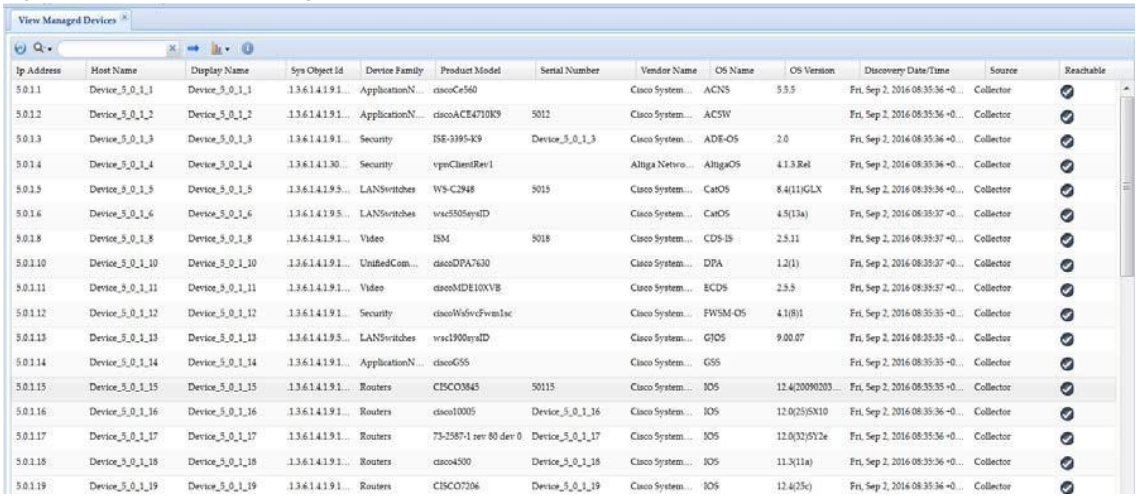
Use the Device Reports sub tab to view the collected data for the selected devices. This section describes the Reports options in the following topics:

- View Managed Devices
- View Unreachable Devices
- View Duplicate Devices
- Discovery Report
- Device Display Properties
- Non SNMP Devices
- Interface Summary (IOS, PIX, ASA, IOS-XR)

View Managed Devices

Discovered Devices report shows all the devices that have been discovered and managed, along with their respective details such as IP Address, Host Name, Sys Object Id, Device Family, Product Model, Serial Number, Vendor Name, OS Name, OS Version, Discovery date and time, Source, and Reachable. The report can be exported to various formats such as HTML, Microsoft Word, PDF, CSV, and TXT formats, along with various graphing options. The report is easy to navigate with filtering and report formatting options.

Figure 8-1 View Managed Devices



All these reports also provide various graphing options along with a device product family graph as shown in Figure 8-2.

Figure 8-2 Graphing Options

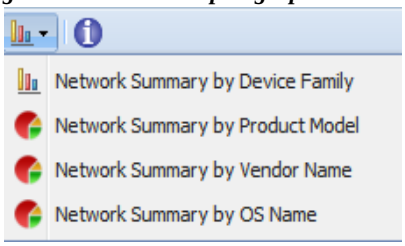
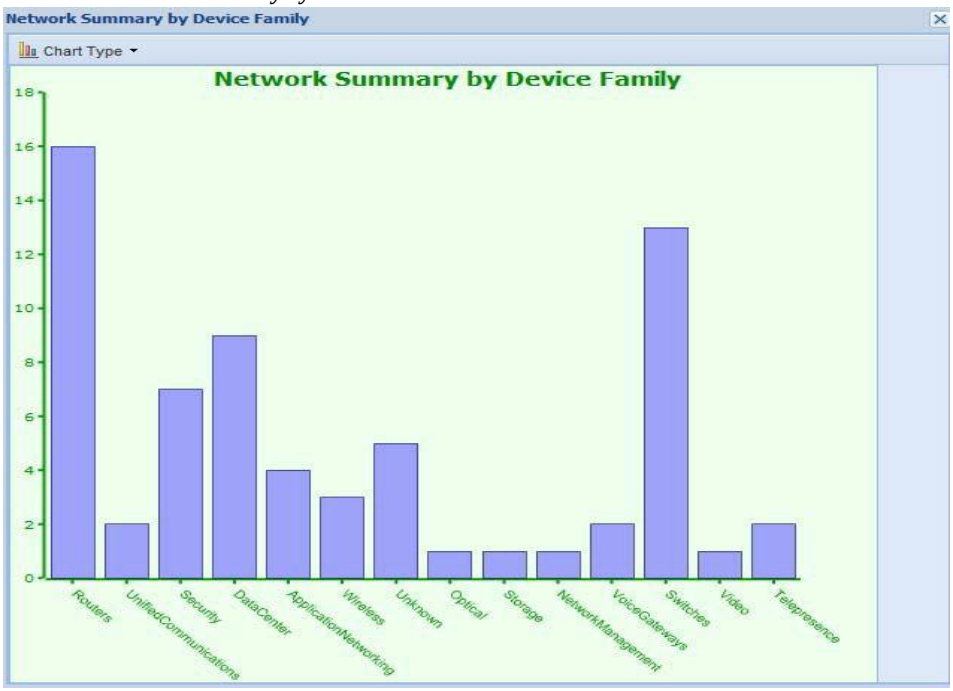


Figure 8-3 Network Summary by Product Model



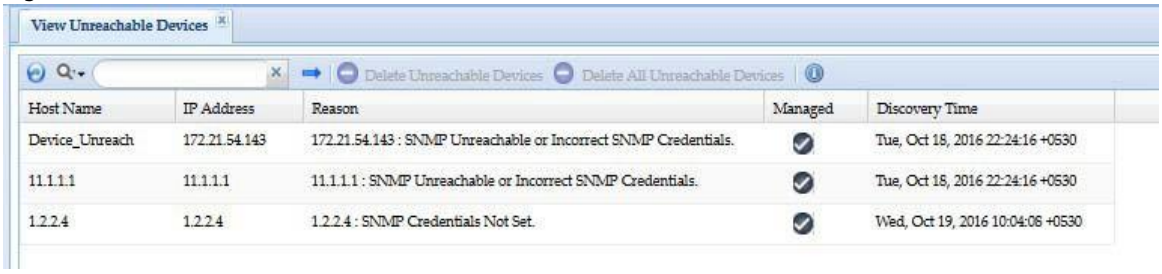
Go back to CSPC Flow Chart

View Unreachable Devices

All the devices that are unreachable and are not detected while performing discovery are shown in this report. This report provides the details like host name, IP address, reason, Manage status and discovery time for each unreachable device.

To perform the rediscovery of the device, right click on any device and select Start Discovery Job option. You can also delete any unreachable device or all unreachable devices by clicking **Delete Unreachable Device** or **Delete All Unreachable Device** button respectively.

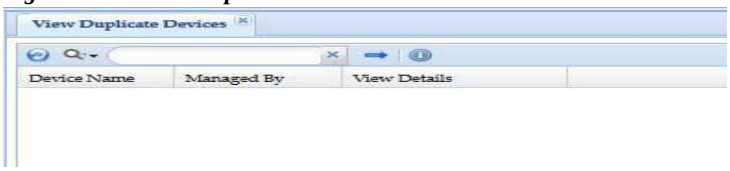
Figure 8-4 View Unreachable Devices



View Duplicate Devices

All the devices that are duplicate are shown in this report as shown in Figure 8-83. This report provides the details such as device name, Managed by, and Details of the device.

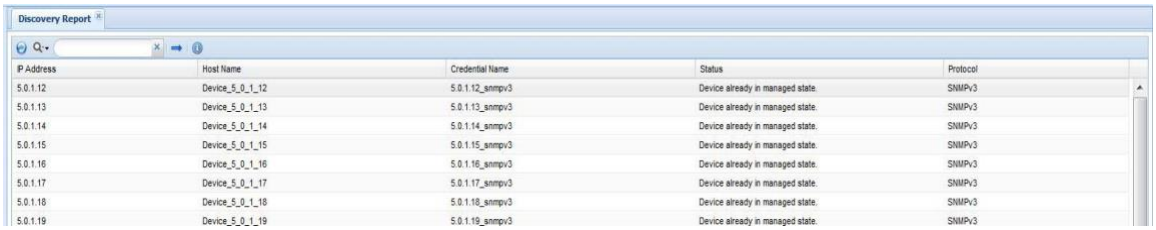
Figure 8-5 Duplicate Devices



Discovery Report

All the devices that are discovered are shown in this report. This report provides the details like host name, IP address, Credential name, Status and Protocol for each discovered device.

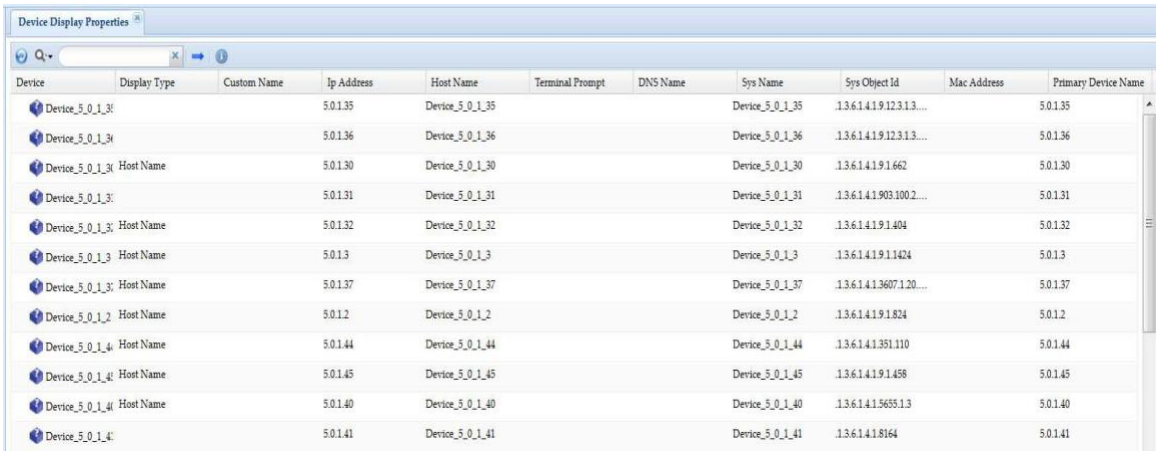
Figure 8-6 Discovery Report



Device Display Properties

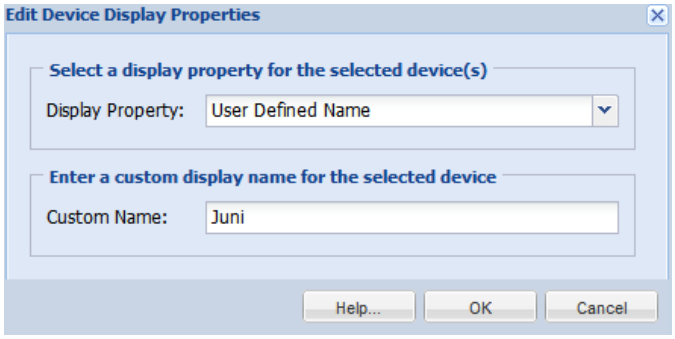
Device Display Properties report shows the display properties configured for all the devices. In addition, from this window you can configure display property for a specific device or a group of devices. You can assign a specific name for a device property such as Host Name, IP Address, DNS Name, Primary Device name and so on.

Figure 8-7 Device Display Properties



Right click on any listed device and select *Edit Properties* option to add a custom name to the display properties of the device. The settings configured locally will override the global settings.

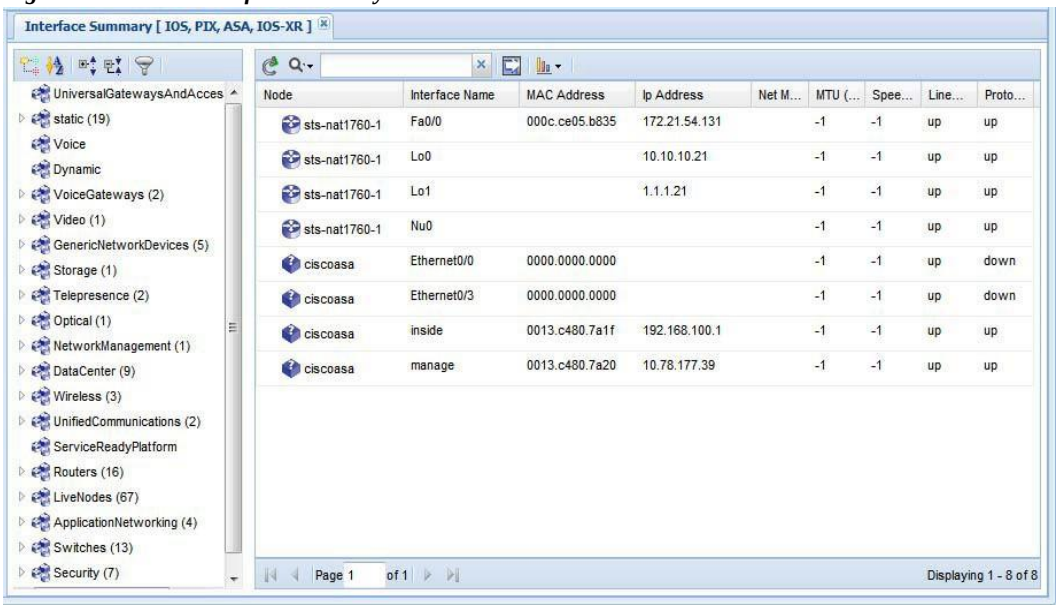
Figure 8-8 Edit Device Display Properties



Interface Summary (IOS, PIX, ASA, IOS-XR)

Interface Summary report displays the list of all the interfaces available in CSPC.

Figure 8-10 Interface Summary



Interface Summary data can be also seen in a graphical format, clicking on graphics icon shows following options:

- Interface Status Summary
- Interface IP Address Summary
- Interface Type Summary

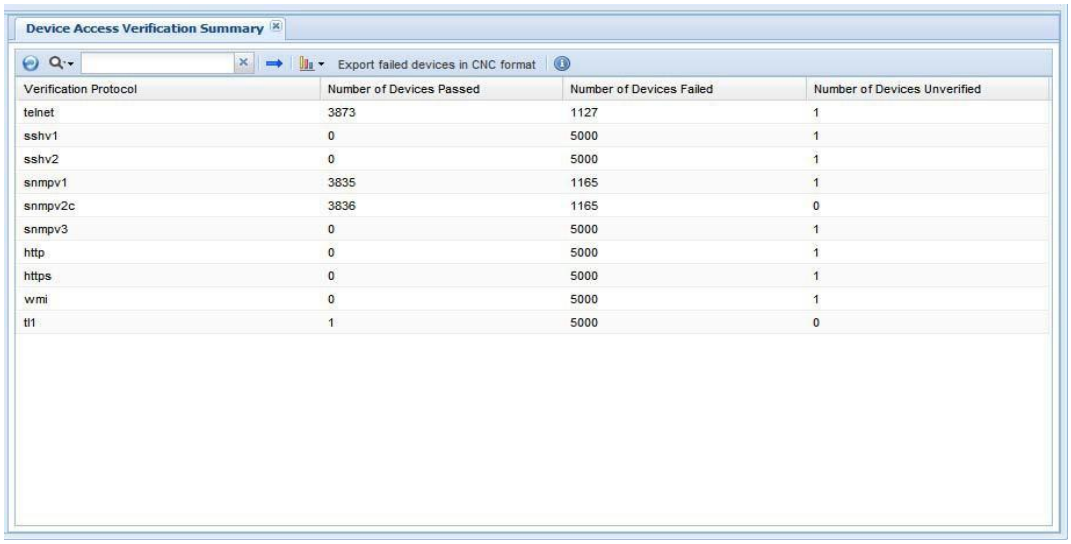
Device Access Verification Reports

- Device Access Verification Summary
- Device Access Verification By Dataset Type
- View Access Verification Results

Device Access Verification Summary

The Device Access Verification Summary report provides summary of the access verification. This report provides high level overview of the types of protocols used, and number of devices either succeeded or not along with number of devices that are not verified. This is shown in Figure 8-11.

Figure 8-11 Device Access Verification Summary



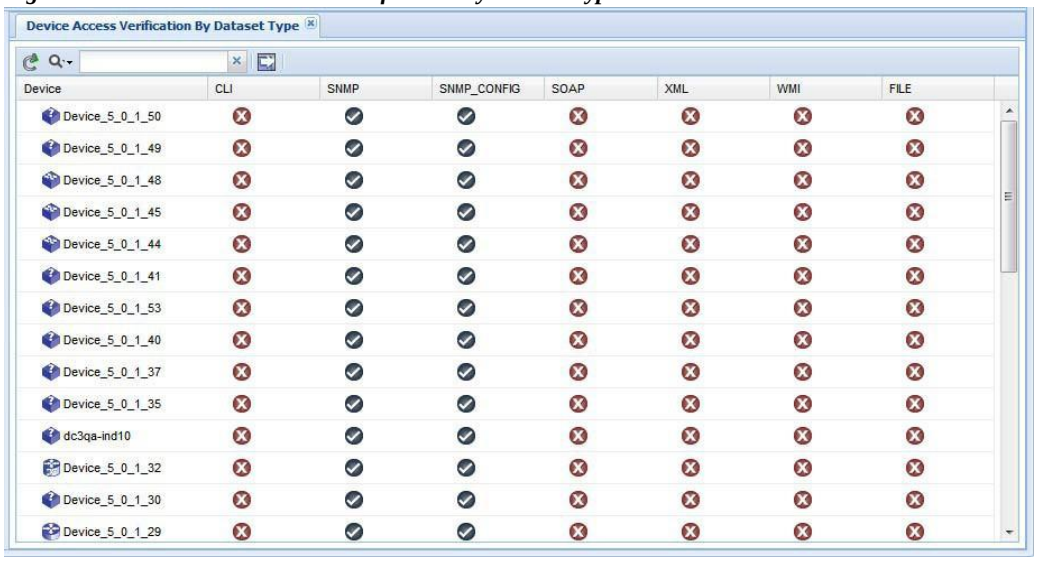
Verification Protocol	Number of Devices Passed	Number of Devices Failed	Number of Devices Unverified
telnet	3873	1127	1
sshv1	0	5000	1
sshv2	0	5000	1
snmpv1	3835	1165	1
snmpv2c	3836	1165	0
snmpv3	0	5000	1
http	0	5000	1
https	0	5000	1
wmi	0	5000	1
tl1	1	5000	0

In Device Access Verification Summary, you can export the failed devices in CNC format. The data related to the selected filter type (Device, Protocol, Status and so on) and only failed credentials are exported as part of a seed file. This export option is supported for both manually added devices and devices added through seed file import.

Device Access Verification By Dataset Type

The Device Access Verification by Dataset Type shows the devices and whether they are support CLI, SNMP, SNM Configuration, SOAP, XML, WMI, FILE type protocols and files.

Figure 8-12 Device Access Verification By Dataset Type

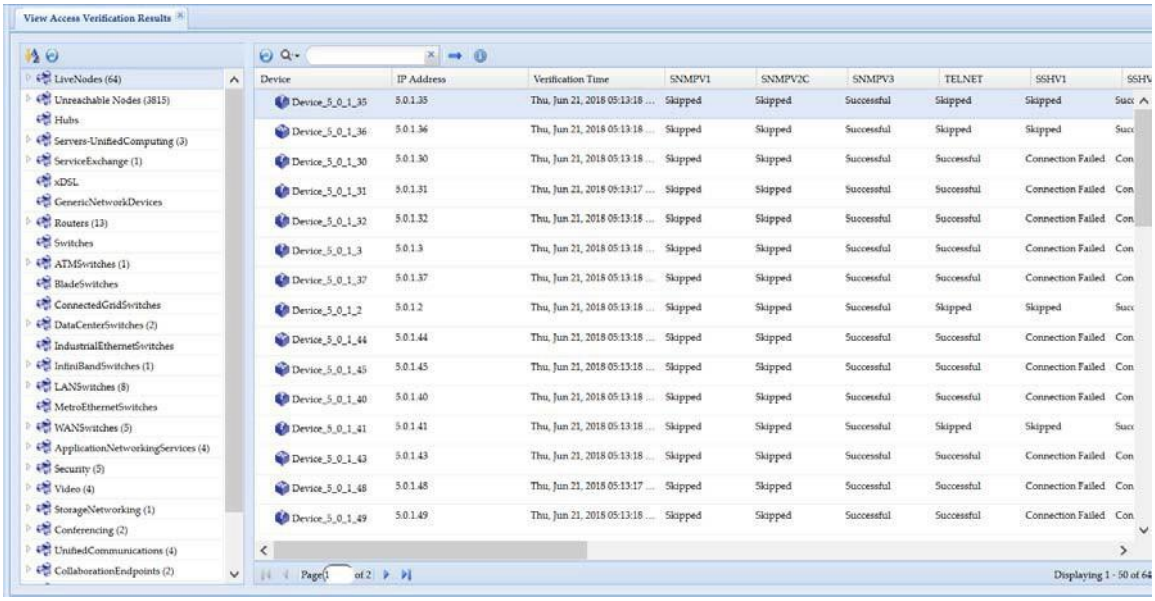


Device	CLI	SNMP	SNMP_CONFIG	SOAP	XML	WMI	FILE
Device_5_0_1_50	✗	✓	✓	✗	✗	✗	✗
Device_5_0_1_49	✗	✓	✓	✗	✗	✗	✗
Device_5_0_1_48	✗	✓	✓	✗	✗	✗	✗
Device_5_0_1_45	✗	✓	✓	✗	✗	✗	✗
Device_5_0_1_44	✗	✓	✓	✗	✗	✗	✗
Device_5_0_1_41	✗	✓	✓	✗	✗	✗	✗
Device_5_0_1_53	✗	✓	✓	✗	✗	✗	✗
Device_5_0_1_40	✗	✓	✓	✗	✗	✗	✗
Device_5_0_1_37	✗	✓	✓	✗	✗	✗	✗
Device_5_0_1_35	✗	✓	✓	✗	✗	✗	✗
dc3qa-ind10	✗	✓	✓	✗	✗	✗	✗
Device_5_0_1_32	✗	✓	✓	✗	✗	✗	✗
Device_5_0_1_30	✗	✓	✓	✗	✗	✗	✗
Device_5_0_1_29	✗	✓	✓	✗	✗	✗	✗

View Access Verification Results

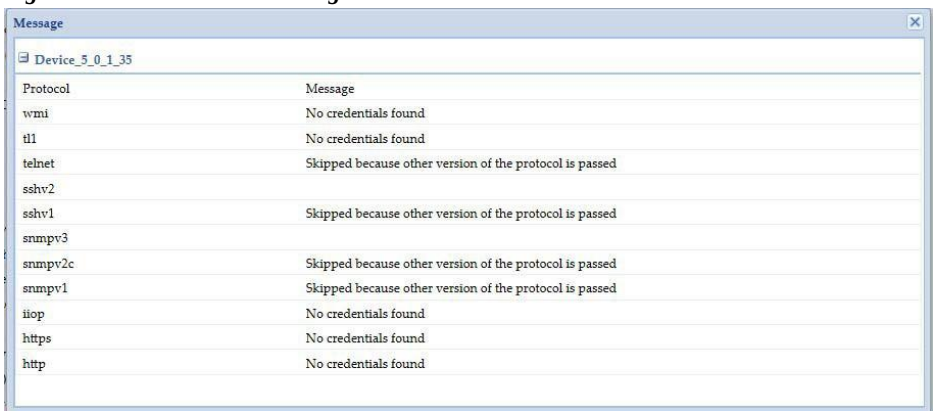
The View Access Verification Report shows the latest device access verification results. It provides details on verification time and source of the verification (either part of discovery or a separate verification job) and the successful/failed protocol, Status of each protocol, Messages and status of each device, device combinations, and User defined fields. This is shown in Figure 8-13.

Figure 8-13 View Access Verification Report



The intelligent search options are shown in this report as well. When you start typing “tel” to list only the Telnet credentials, the report only shows those entries that match the “tel” string you entered. As shown in the above screen, the search options are quite extensive, and you can search based on any field/value in the report. You can also specify wild cards, regular expressions, matching patterns, etc. This helps to pinpoint the data you are looking for in a fast and easy way.

Figure 8-14 Device Message



Go back to CSPC Flow Chart

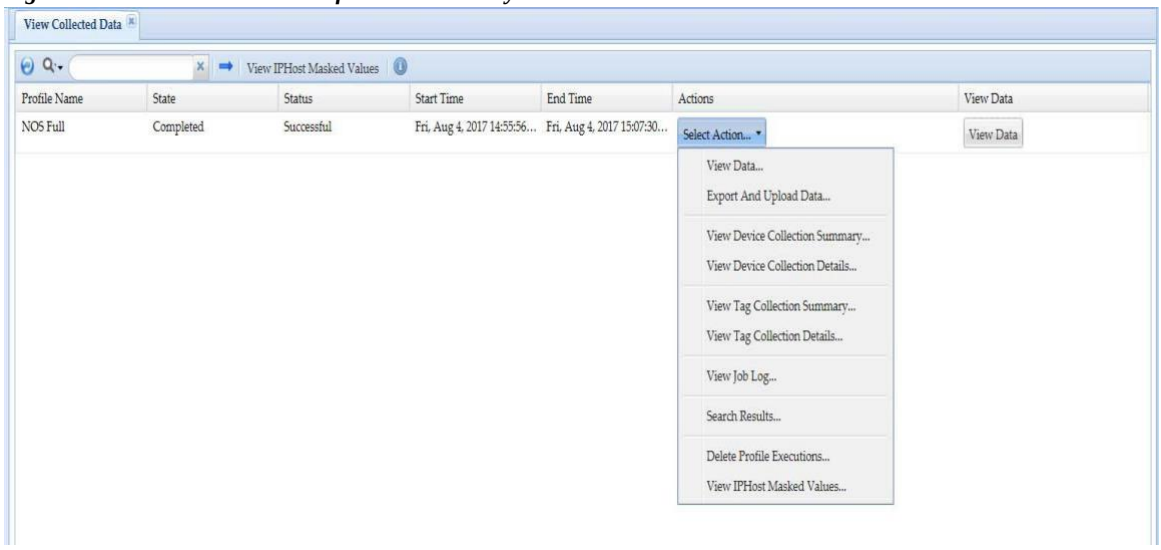
Data Collection Reports

- View Collected Data
- View Collection Run Summary
- Config Collected Devices
- Config Data Per Device
- Export Detailed Device Data

View Collected Data

This report provides a summary of the completed collection profiles and the data that is collected while completing those collection profiles. You can view a specific completed collection profile data, export data to a report, look at job log status and delete the collected data.

Figure 8-15 Collection Profile Run Summary Main Window

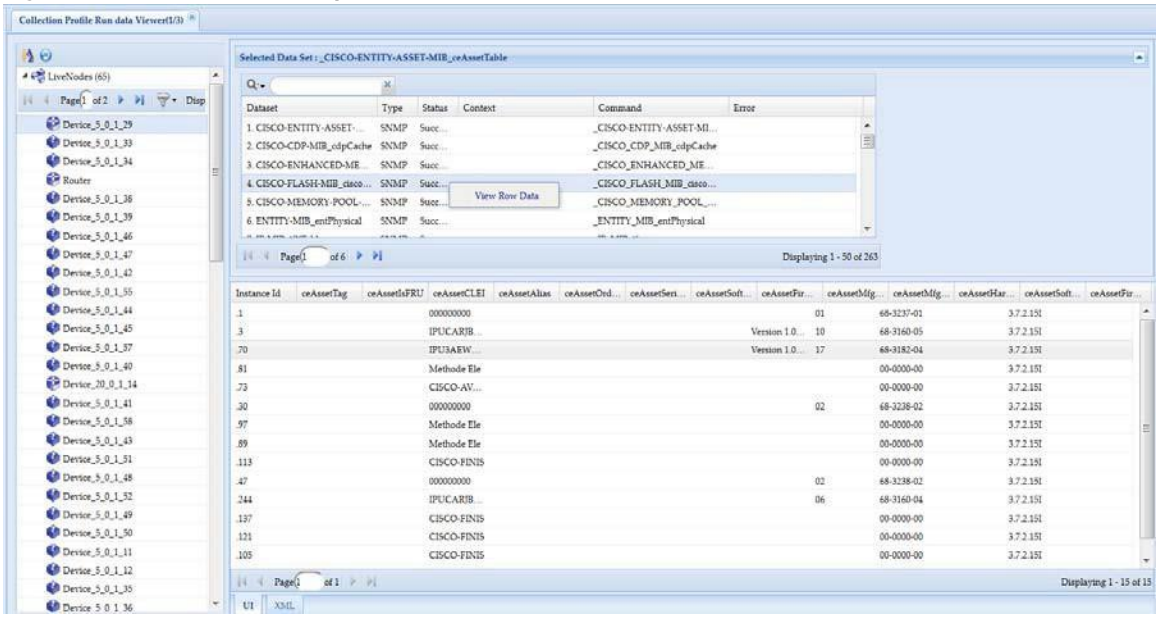


You can select any row in the report, right click on it to get all the options associated with that row:

- View Data
- Export and Upload Data
- View Device Collection Summary
- View Device Collection Details
- View Tag Collection Summary
- View Tag Collection Details
- View Job Log
- Search Results
- Delete Profile Executions
- View IP Host Masked Values

When you select *View Data*, you are provided with the data collection profile run data viewer, as shown in Figure 8-16.

Figure 8-16 Collection Profile Run Data Viewer

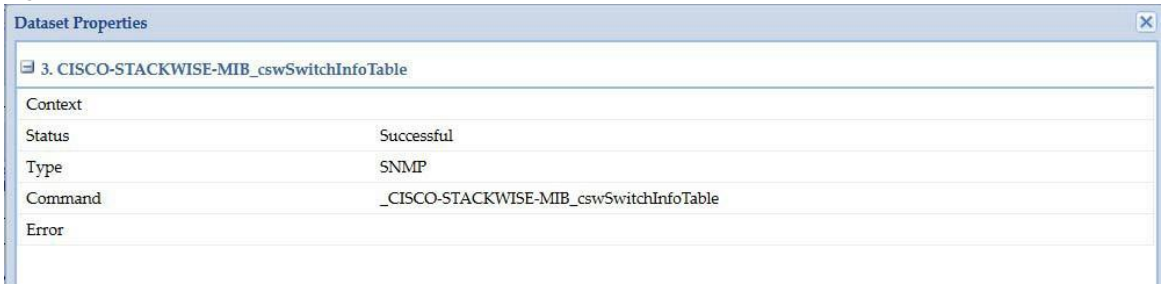


Once you select a specific dataset the output of the dataset along with, if the data collection is successful or not appears (command status). The Command Status is shown as one of these states:

- Successful
- Failed
- Not Applicable

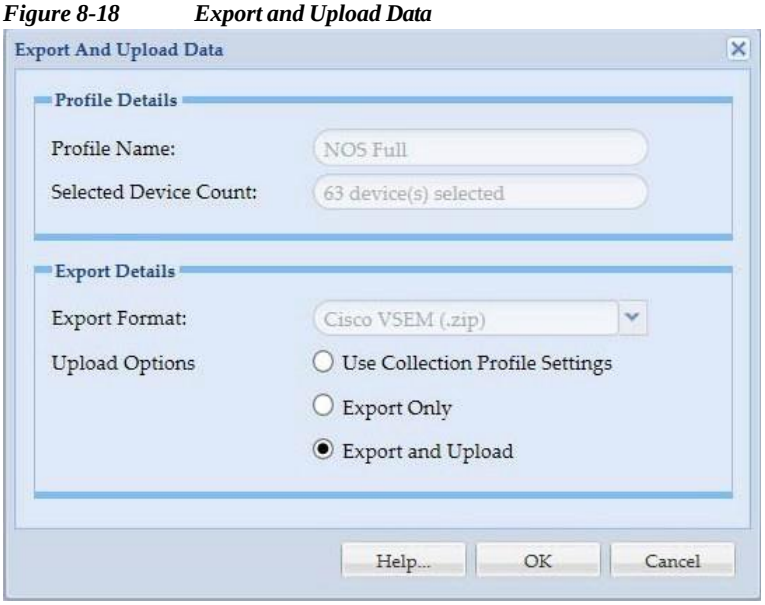
To see the dataset properties right click on a dataset and click **View Row Data.**

Figure 8-17 View Row Data



Export and Upload data provide options to use collection profile settings, export and upload the data, as shown in Figure 8-18

Figure 8-18 Export and Upload Data

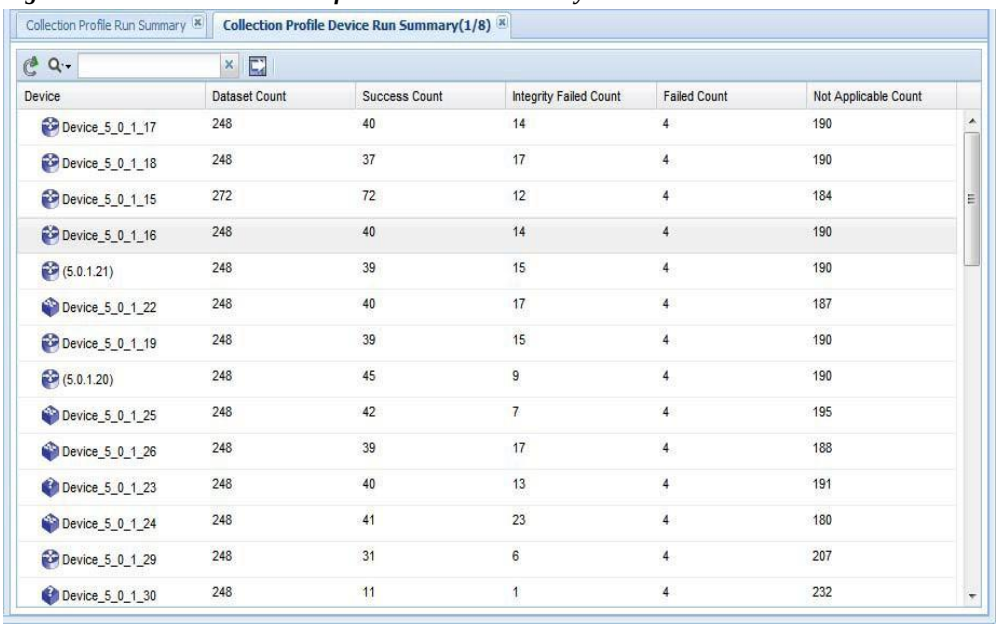


You can select the required options on the screen

- Use Collection Profile Settings: Uses the collection profile settings.
- Export Only: Only exports the data.
- Export and Upload: Exports and uploads the data.

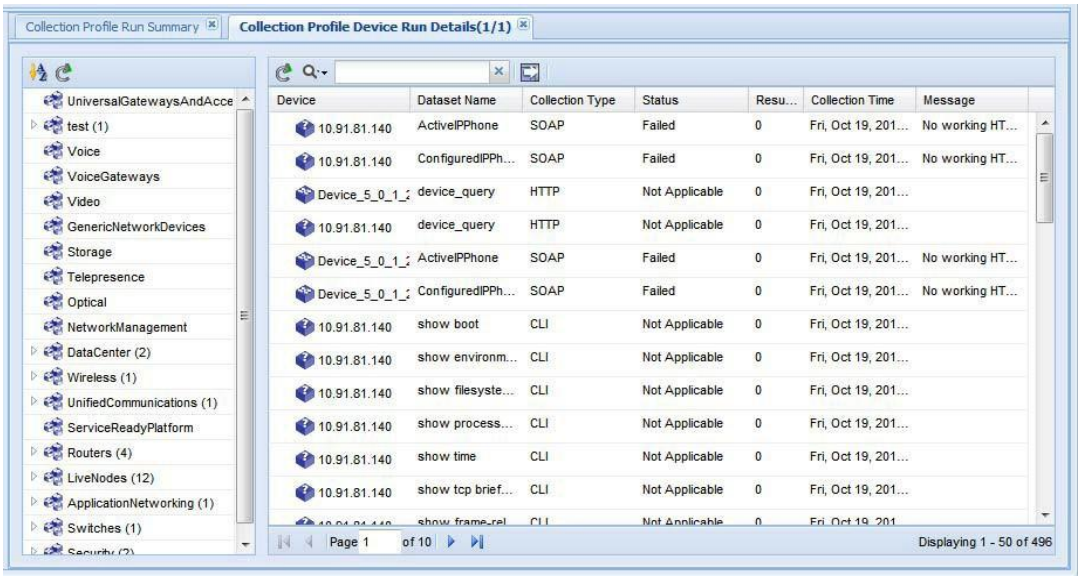
View Collection Summary and View Collection Details provide collection summary and details for the selected collection profile. This is shown in Figure 8-19.

Figure 8-19 Collection Profile Device Run Summary



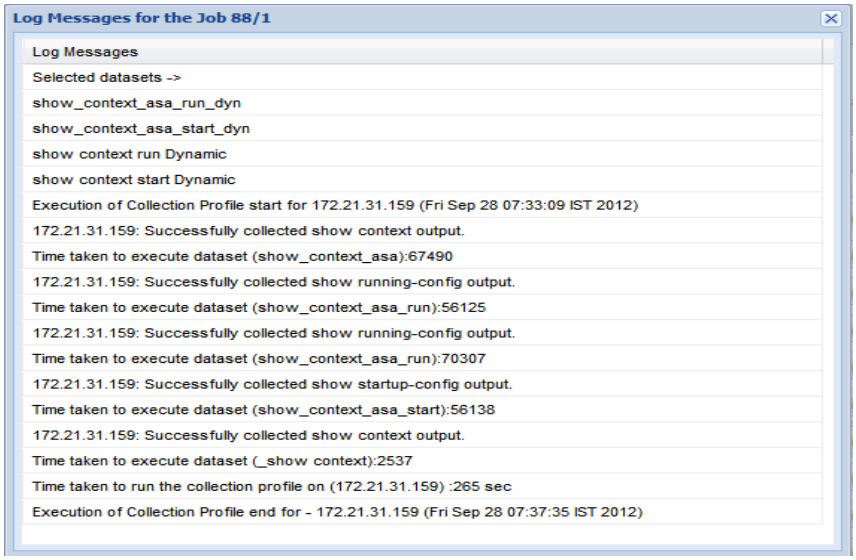
Device	Dataset Count	Success Count	Integrity Failed Count	Failed Count	Not Applicable Count
Device_5_0_1_17	248	40	14	4	190
Device_5_0_1_18	248	37	17	4	190
Device_5_0_1_15	272	72	12	4	184
Device_5_0_1_16	248	40	14	4	190
(5.0.1.21)	248	39	15	4	190
Device_5_0_1_22	248	40	17	4	187
Device_5_0_1_19	248	39	15	4	190
(5.0.1.20)	248	45	9	4	190
Device_5_0_1_25	248	42	7	4	195
Device_5_0_1_26	248	39	17	4	188
Device_5_0_1_23	248	40	13	4	191
Device_5_0_1_24	248	41	23	4	180
Device_5_0_1_29	248	31	6	4	207
Device_5_0_1_30	248	11	1	4	232

Figure 8-20 Collection Profile Run Details



You can view the log messages for specific job runs, along with the status of the collection for each data set for the selected devices as shown below.

Figure 8-21 Collection Profile Run Summary Log Messages

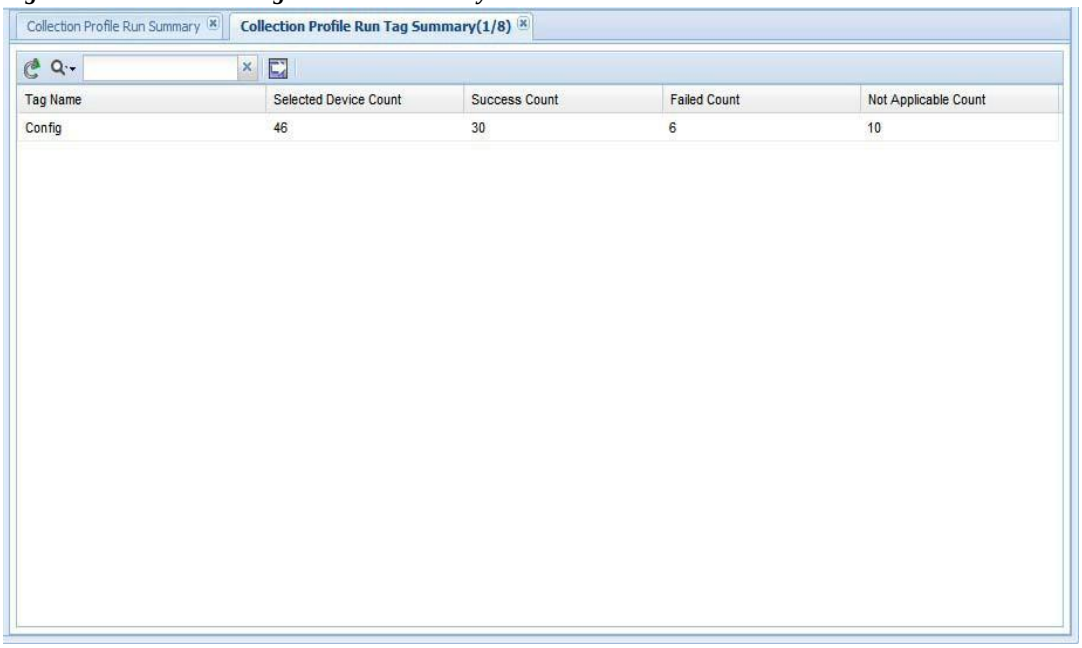


You can also delete a specific instance of the collection profile execution by selecting *Delete Profile Executions*.

To check the differences between two selected runs, select *Show Differences between selected Runs* option as shown below.

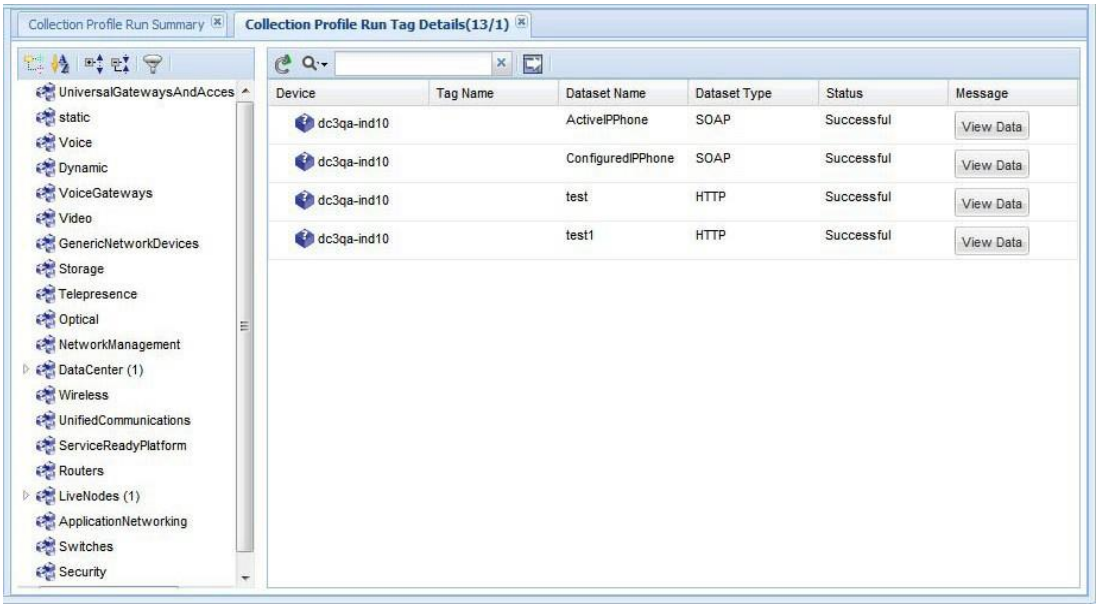
Use the *View Tag Collection Summary* option to list the summary of the commands that have been tagged earlier. Collection tag summary screen shows the device count of the tag along with the count of success, failed and not applicable devices, as shown in Figure 8-22.

Figure 8-22 View Tag Collection Summary



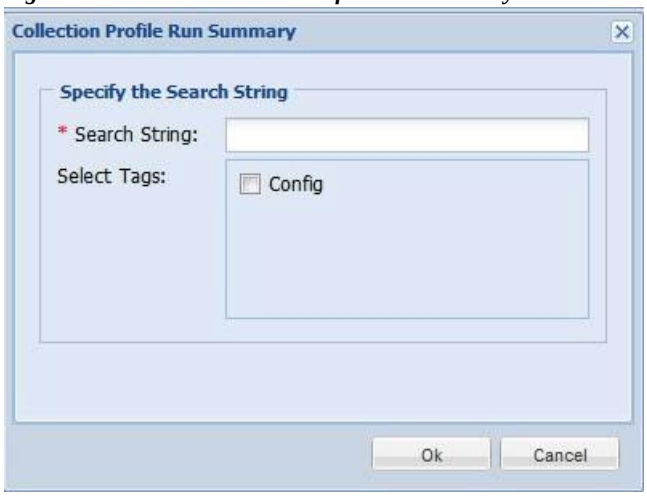
Use the *View Tag Collection Details* option to show the details of the commands that have been tagged. The screen shows the Device name, Tag name, Dataset name, Dataset type, Status and Message.

Figure 8-23 View Tag Collection Details



Use the Search Results option to search for the results. Specify the search string and select the tags to search the results, as shown in Figure 8-24.

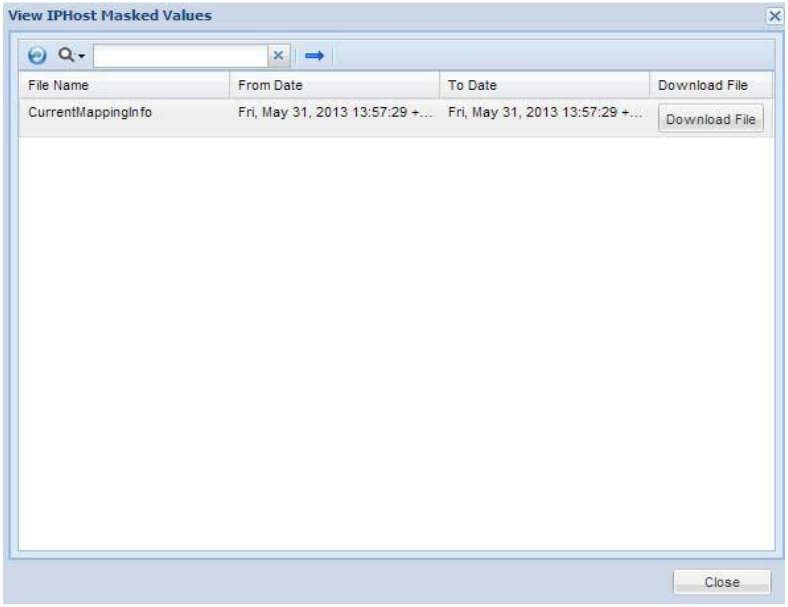
Figure 8-24 Collection Profile Run Summary



To remove the profile executions select Delete Profile Executions

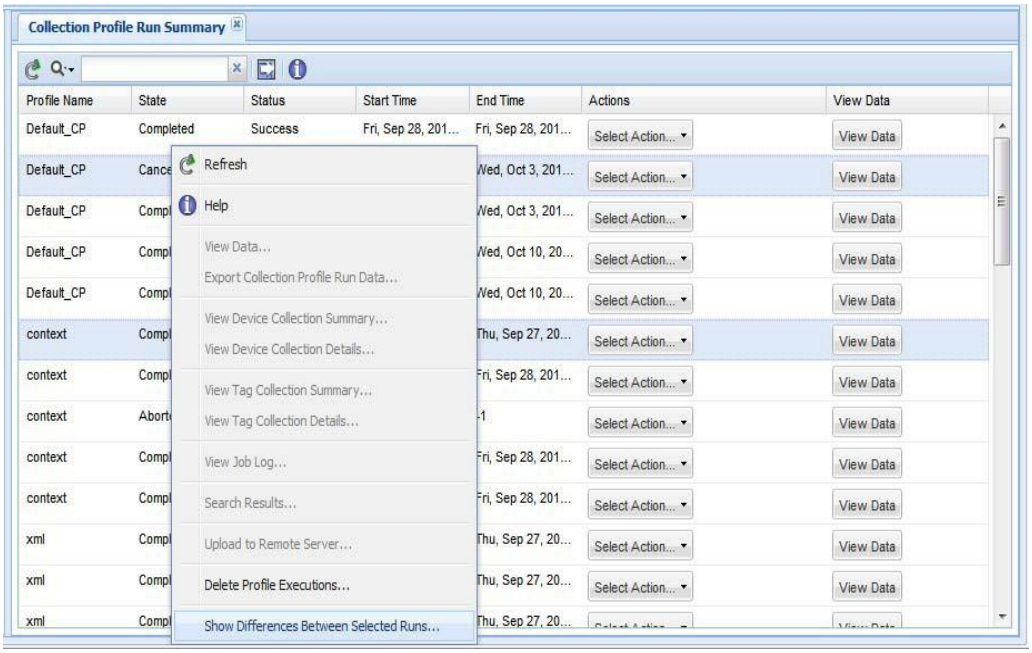
Select the View IP Host Masked Values option to view the IP hosted masked values. You can also download the file in txt format by clicking on Download button.

Figure 8-25 View IP Host Masked Values



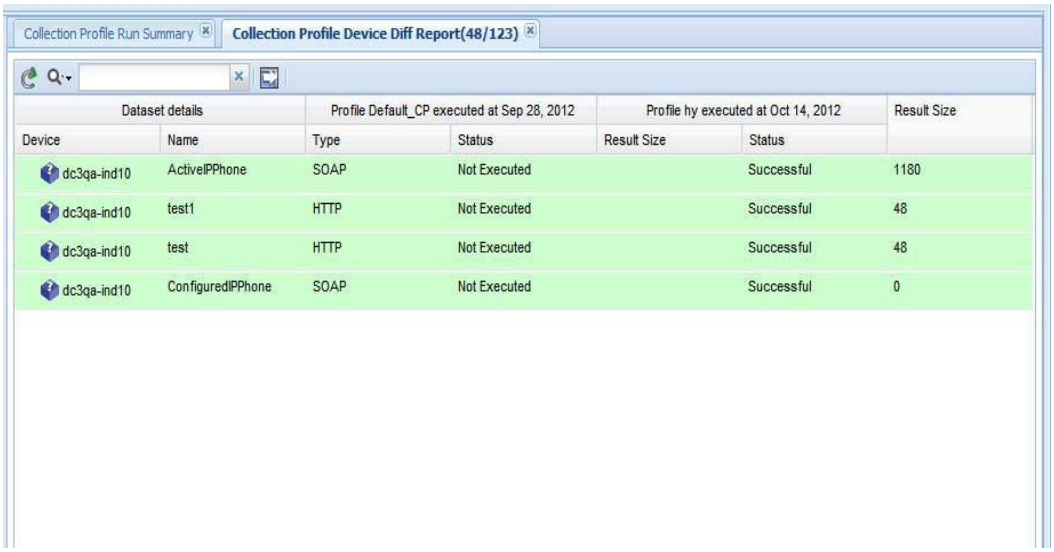
To view the difference between the selected runs chose the option Show Difference Between Selected Runs as shown in Figure 8-26.

Figure 8-26 Show Differences between Selected Runs



When you select two different runs, you can see what has changed between those runs in a Diff report where color codes (green-additions, red-deletions, and blue-changes) identify exactly what has changed.

Figure 8-27 Differences Between Two Collection Profile Runs

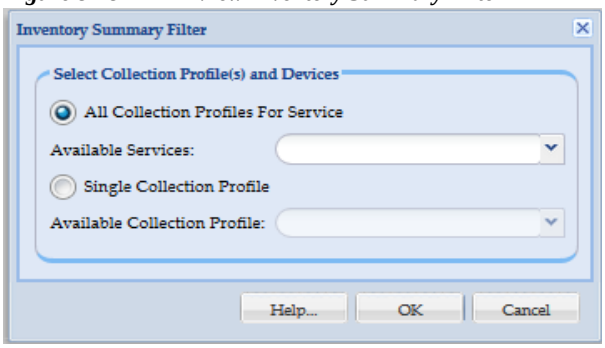


Go back to CSPC Flow Chart

View Collection Run Summary

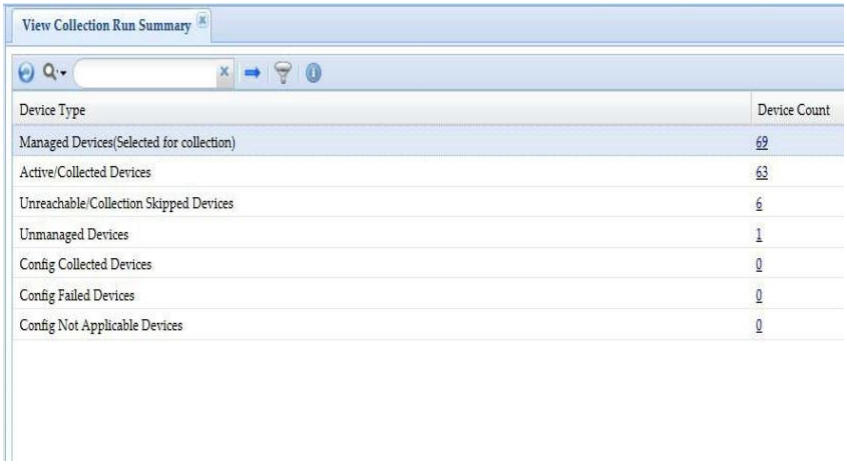
Collection Run Summary report provides the summary of inventory. You can view the All Collection Profiles for Service or Single Collection Profile. To view collection profile and devices, select the option. In Available Services and Collection Profile drop down box, select the available service and click **OK** as shown in Figure 8-28.

Figure 8-28 View Inventory Summary Filter



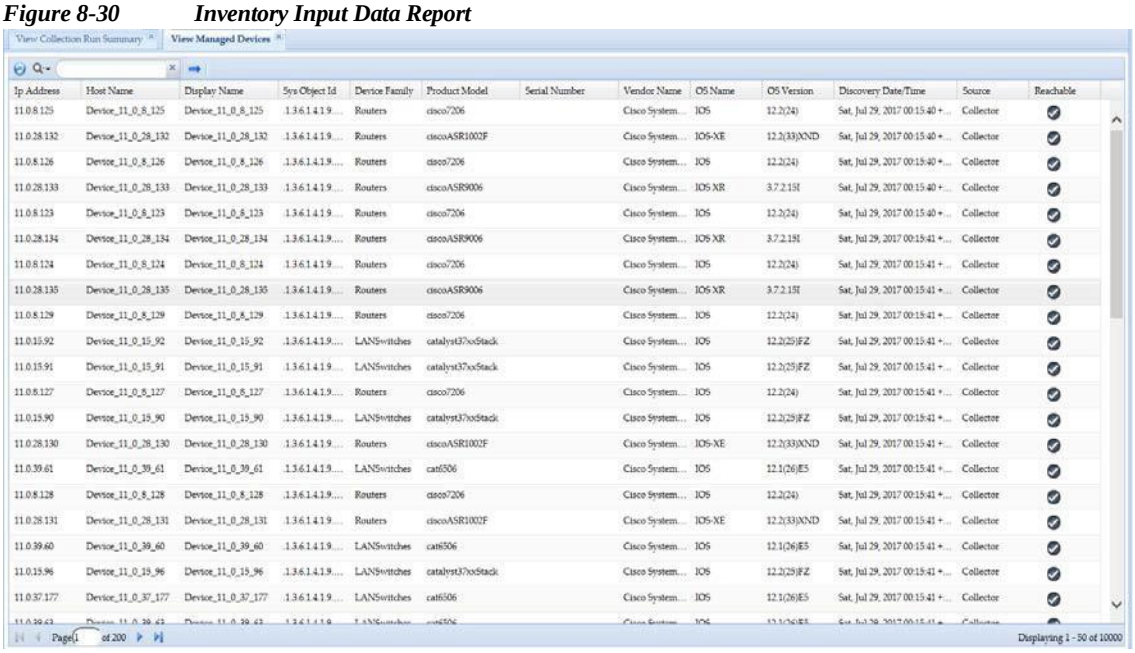
View Collection Run Summary Input screen is displayed. It shows the list of Device Type and Device Count as shown in Figure 8-29.

Figure 8-29 View Collection Run Summary



By clicking on the Device Count, View Managed Devices for that Device is displayed as shown in Figure 8-30.

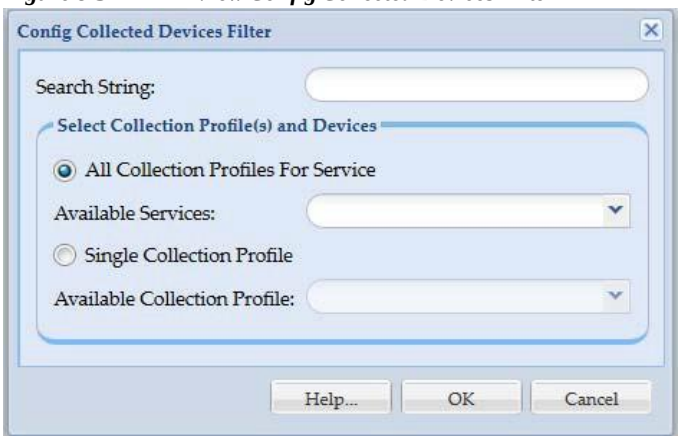
Figure 8-30 Inventory Input Data Report



Config Collected Devices

You can filter and view the Collection Profile and devices. You can also enter the filter value in the Search String to view the config collected devices.

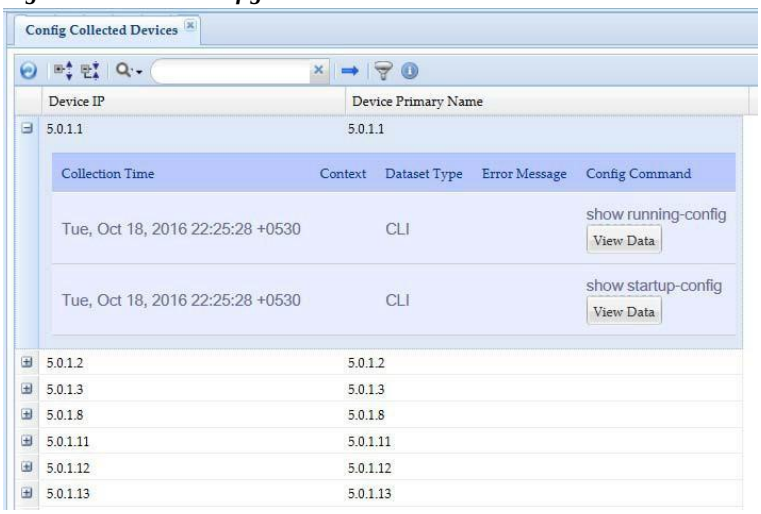
Figure 8-31 View Config Collected Devices Filter



Config Collected Devices screen is displayed. It shows the list of Device IP and Device Primary Name as shown in Figure 8-32.

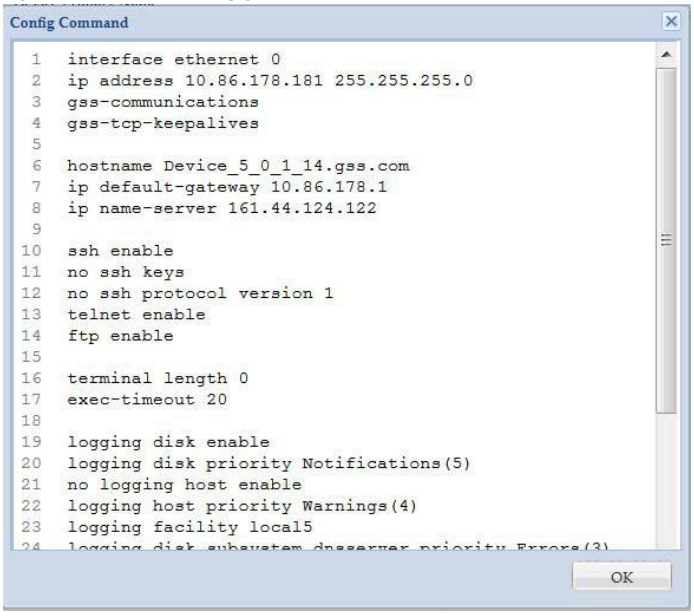
In addition, you can see the description of each device by clicking the + symbol next to the *Device Ip* Clicking the + sign shows the *Collection Time, Context, Dataset Type, Error Message, and Config Command* for this particular device.

Figure 8-32 Config Collected Devices



Click View Data in the report to view config command for this particular device Figure 7-49 shows the Config command details.

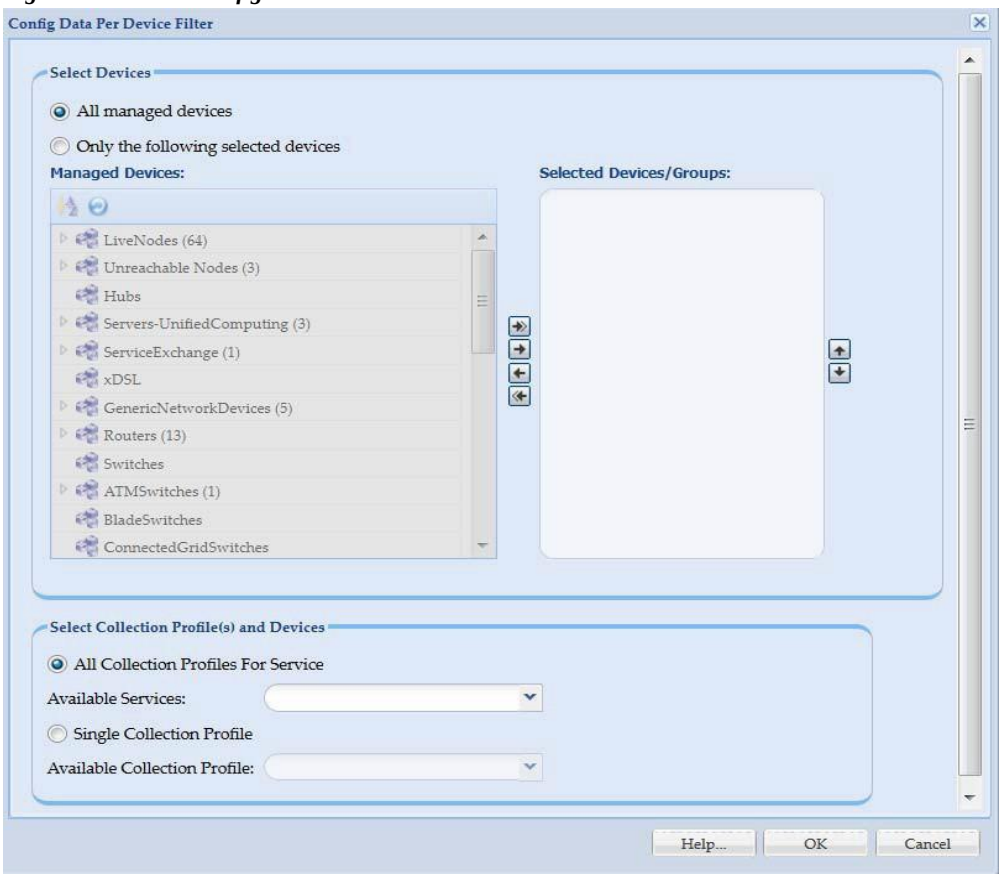
Figure 8-33 Config Command



Config Data Per Device

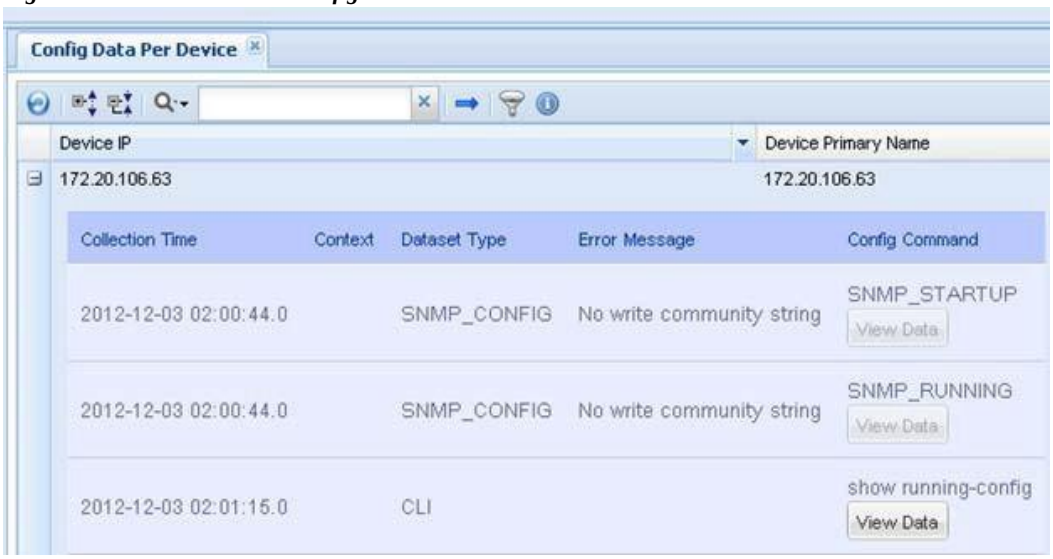
Config Data Per Devices report shows the configs collected by CSP Collector. You can select configs based on Collection Profile. Config data per device filter can be configured by providing required inputs as shown below.

Figure 8-34 Config Data Per Device Filter



The config data will be processed for the mentioned devices as shown in Figure 8-35. On clicking View Data, collected config data is displayed for the specified device.

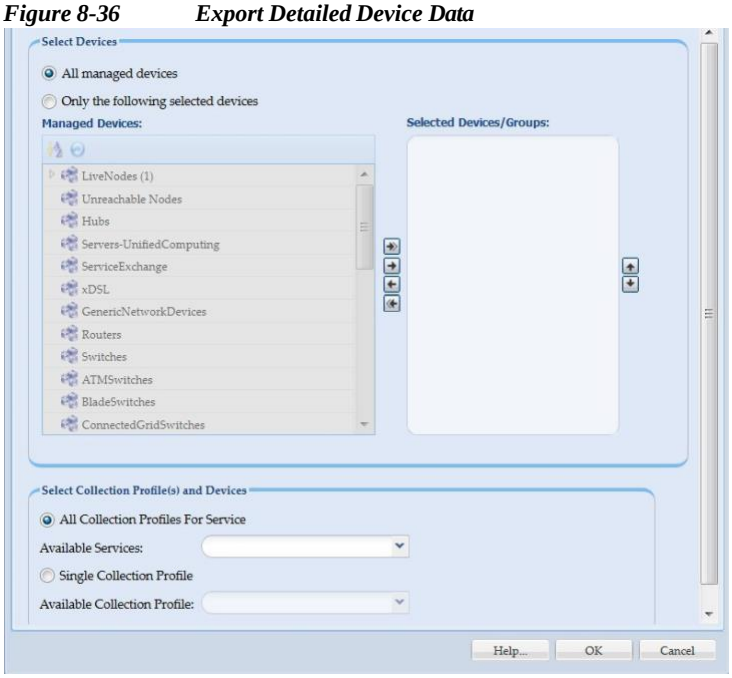
Figure 8-35 Collected Config Data



Export Detailed Device Data

You can export the detailed device data such as, device, access verification config time and collection time and so on. You can select devices based on Collection Profile for service. Devices can be downloaded in csv format by providing required inputs as shown below.

Figure 8-36 Export Detailed Device Data



Services Reports

- Alerts
- SNMP Trap Report
- Syslog Summary
- Syslog Messages

Alerts

This report provides a list of all Alerts. The report contains Event ID, Module, Time of event, severity, message, and View Details. Alerts that are older than 14 days in CSPC system are purged.

There two types of alerts UI Notification and Email alerts.

- UI Notification alerts appears on the UI when a notification is received.
- Email alerts are the alerts sent via mail to the subscribed email address

Figure 8-37 Alerts

SNMP Trap Report

This report shows a list of traps sorted by Device, Notification types, Trap Data, and Received At.

To generate the SNMP Trap Report, do the following steps:

Step 1 Select the **Trap Received Time** from drop down

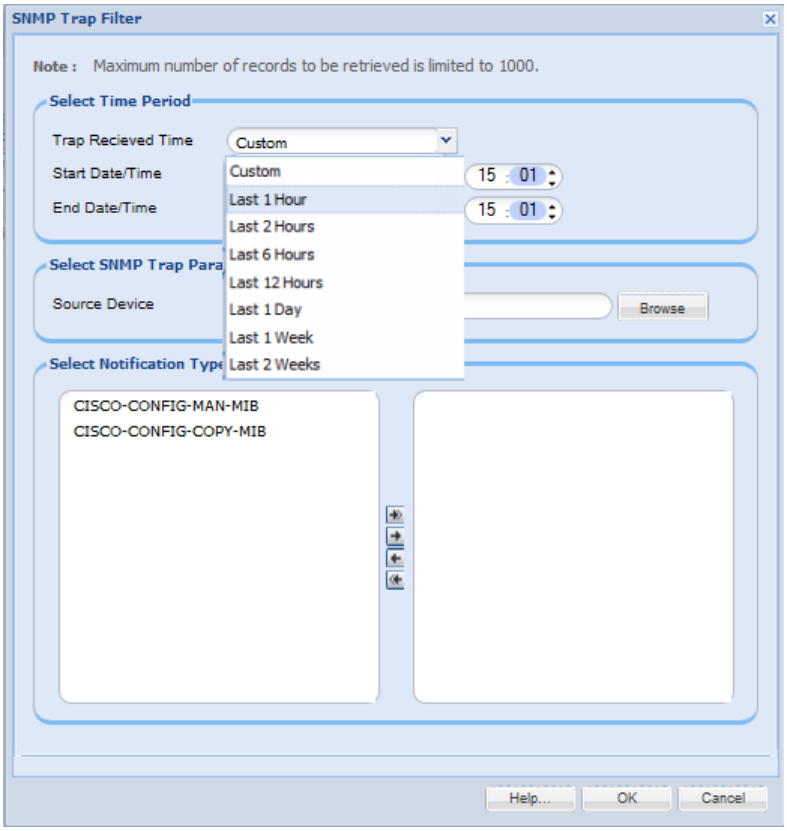
- If custom is selected, then enter the **Start Date/Time** and E**nd Date/Time**

Step 2 Browse to select the **Source Device**

Step 3 Select **Notification Types**

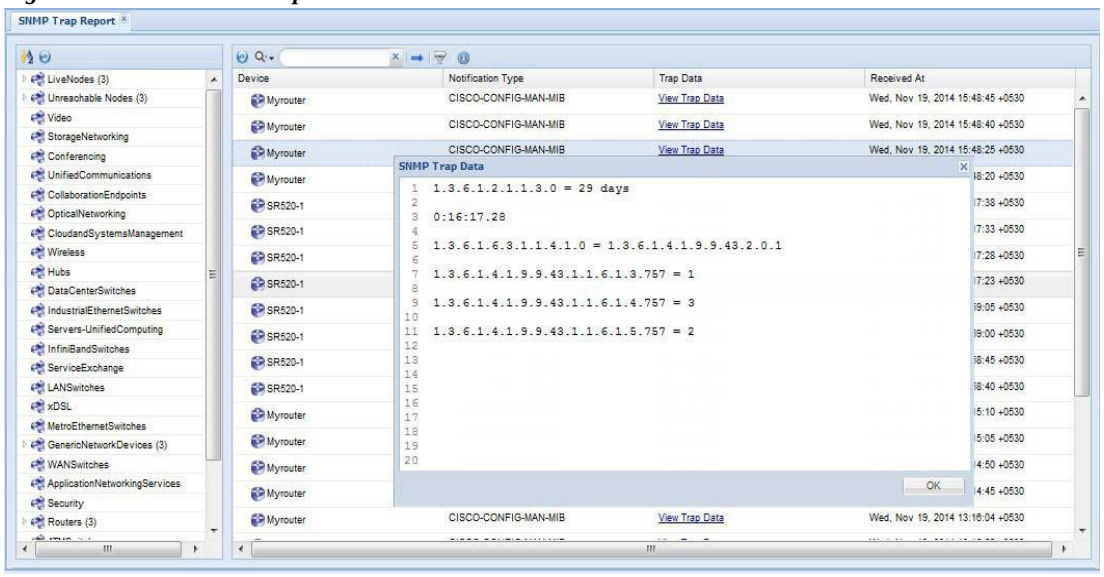
Step 4 Click **OK**

Figure 8-38 SNMP Trap Filter



To view the Trap Data click **View Trap Data.**

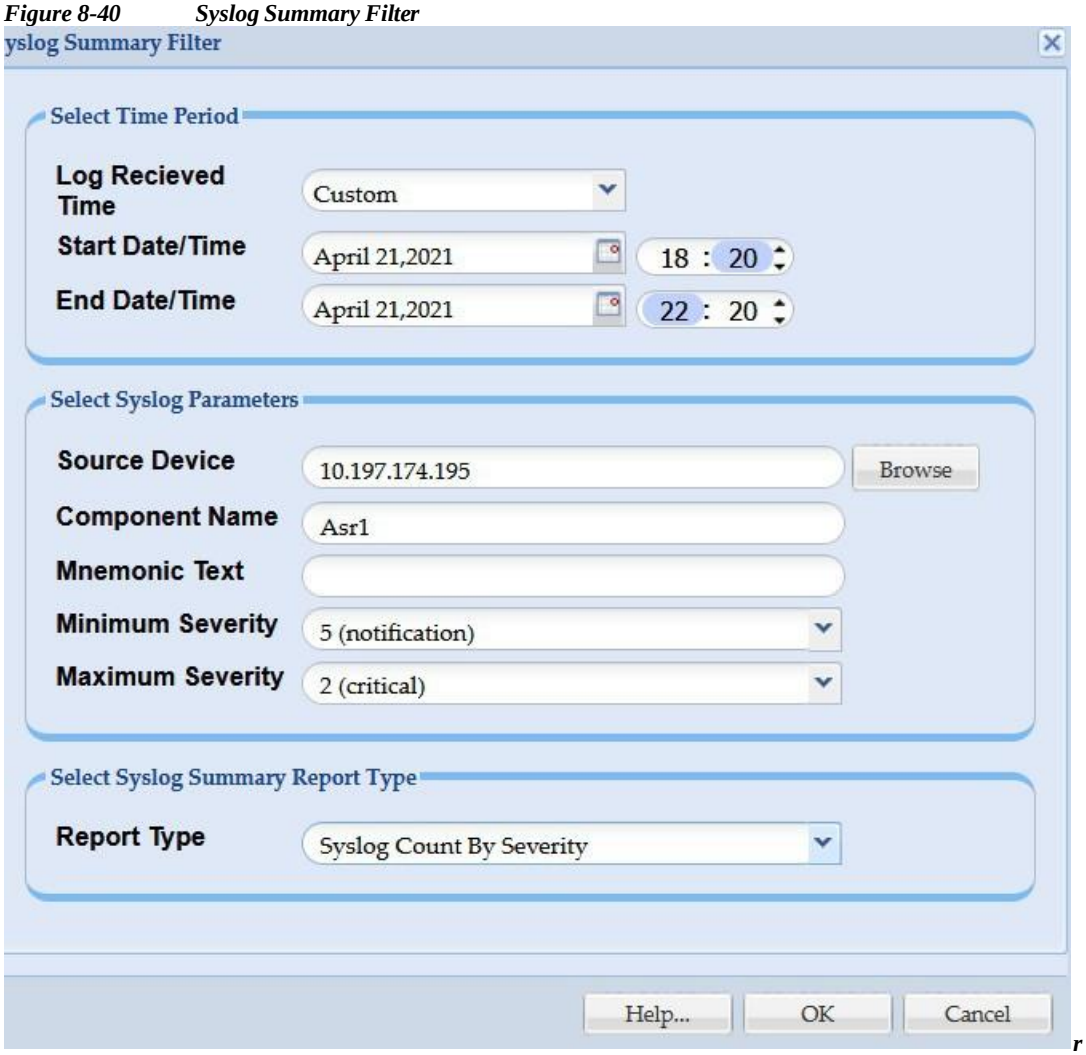
Figure 8-39 SNMP Report



Syslog Summary

Syslog Summary report provides the summary of the all the syslogs collected by CSPC. You need to provide the filtering information such as when was the log(s) received, and do you want to see the summary based on severity and so on as shown in Figure 8-40.

Figure 8-40 Syslog Summary Filter



Once the filter is selected, the summary report matching that filter is provided.

Figure 8-41 Syslog Summary

Severity	Message Count
0 (emergency)	0
1 (alert)	0
2 (critical)	0
3 (error)	303
4 (warning)	27
5 (notification)	0
6 (informational)	0
7 (debugging)	60

Syslog Messages

Syslog messages report provides all the syslogs that are collected by CSPC. Just like the Syslog Summary report, you need to provide the filter that needs to be applied before providing the detailed syslog message report.

Figure 8-42 Syslog Filter

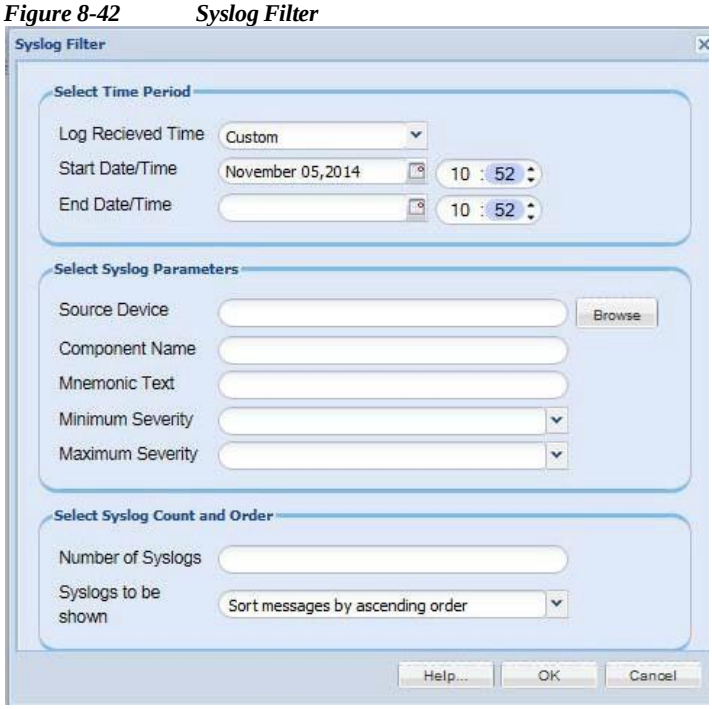
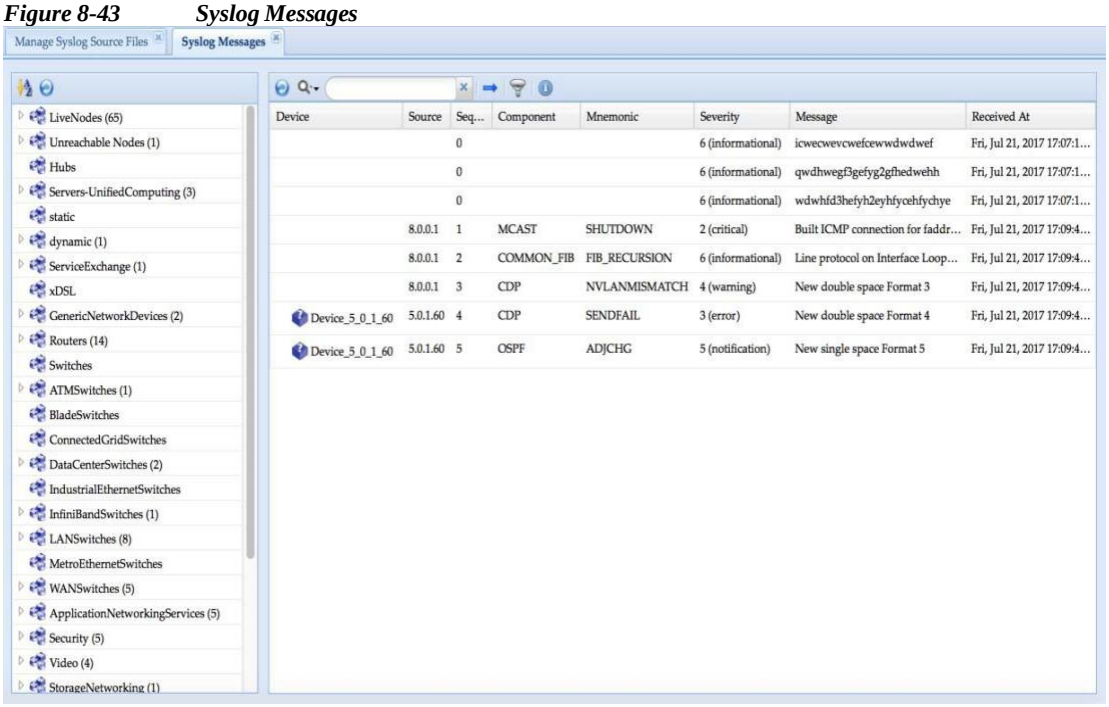


Figure 8-43 Syslog Messages



Job Reports

Use the Job Log Reports sub tab to view the collected logs for various operations that are performed through the CSP collector.

This section describes the Reports options in the following topics:

- Discovery Jobs
- Job Management Reports
- Inventory Jobs
- Device Access Verification Jobs
- View Job Metrics

Discovery Jobs

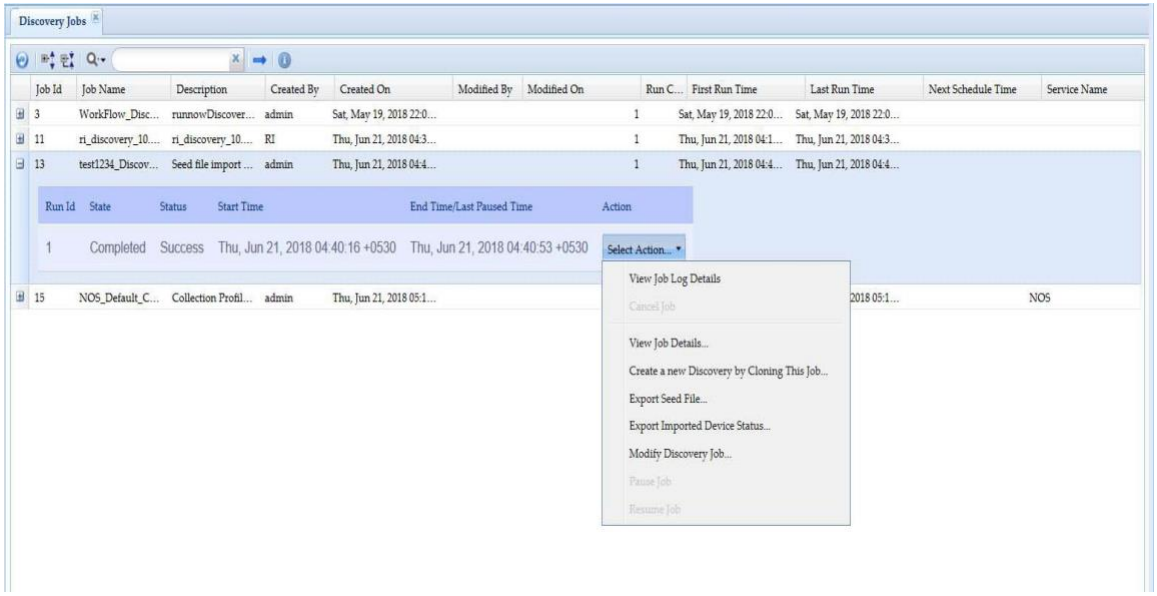
The discovery jobs report includes information on all the network device discovery jobs performed.

In addition, you can see the description of each job by clicking the + symbol next to the *Job Id*. Clicking the + sign shows the *Run Id*, *State* (Successful/Aborted), *Status* (Completed/Not Completed), *Start Time*, *End Time*, and *Job Log Details* for this particular job.

You can cancel any job by clicking the *View Job Details -> Cancel Job* button.

These details are common to all *Job Reports*.

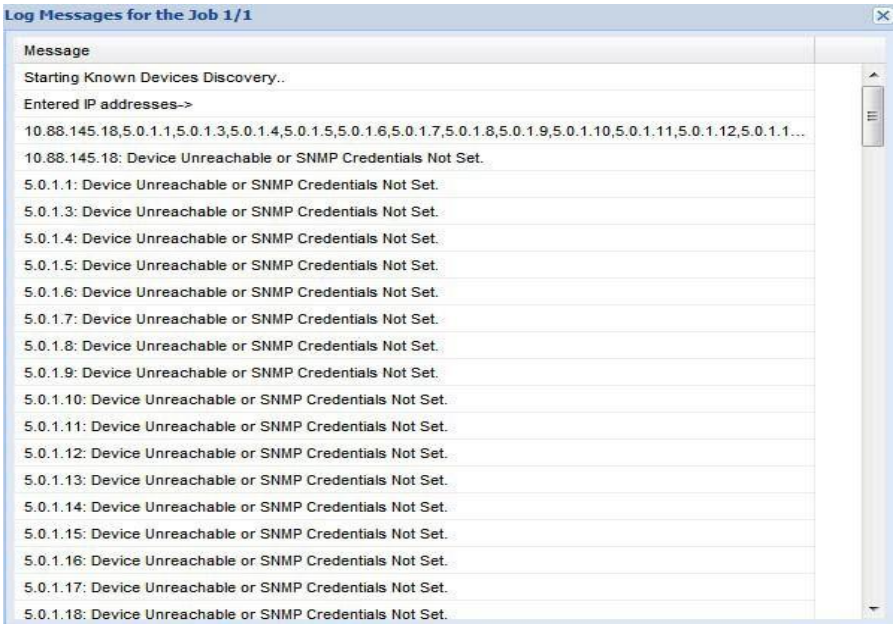
Figure 8-44 Discovery Jobs



Select the *Action* button in the report to view either the Job Log details for this particular job, look at the Job itself (what options are provided for the discovery, etc.) or you can create a new job by cloning this discovery job. Figure 8-45 shows the job log details. You can also **Export Seed File** and **Export Imported Device Status**. To know the status of imported devices you can generate/export the report based on Discovery JobId and JobRunId and to export the status of imported devices into *.csv* file, with the name *ImportedDeviceStatus_jobid_jobrunid.cvs* click **Export Imported Devices Status**.

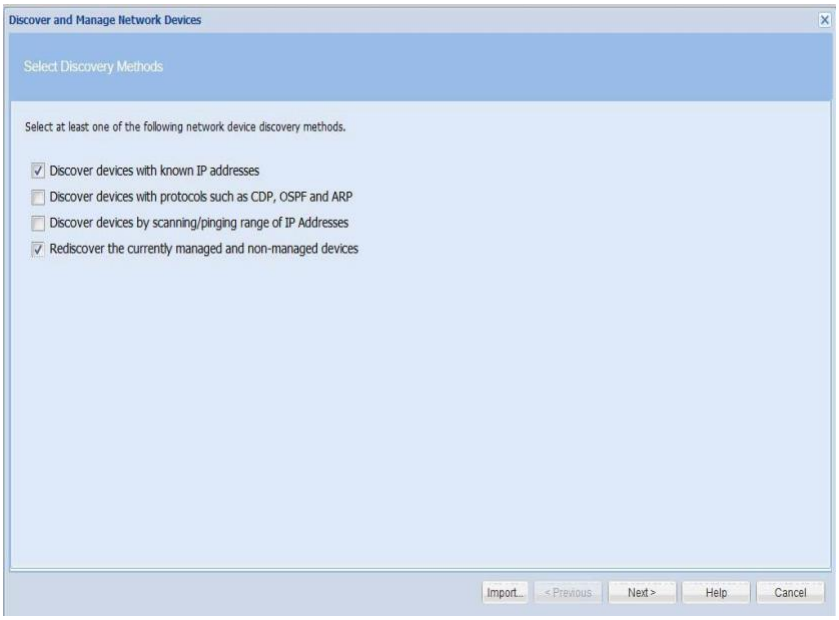
Pause and resume jobs using the **Pause Job** and **Resume Job** menu options. Pause is activated when job starts running and resume is activated once the job is paused.

Figure 8-45 Job Log Details



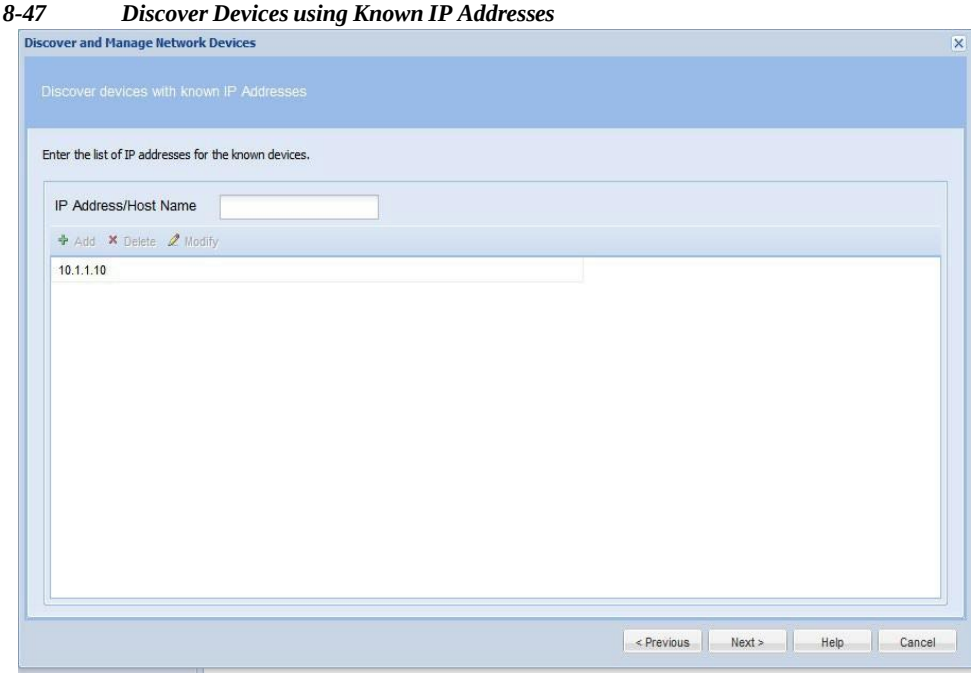
When you select the **Cloning** or **Modify Discovery Job** option, you see the exact job that was completed earlier, and can modify it to create another job as shown below.

Figure 8-46 Clone This Discovery Job



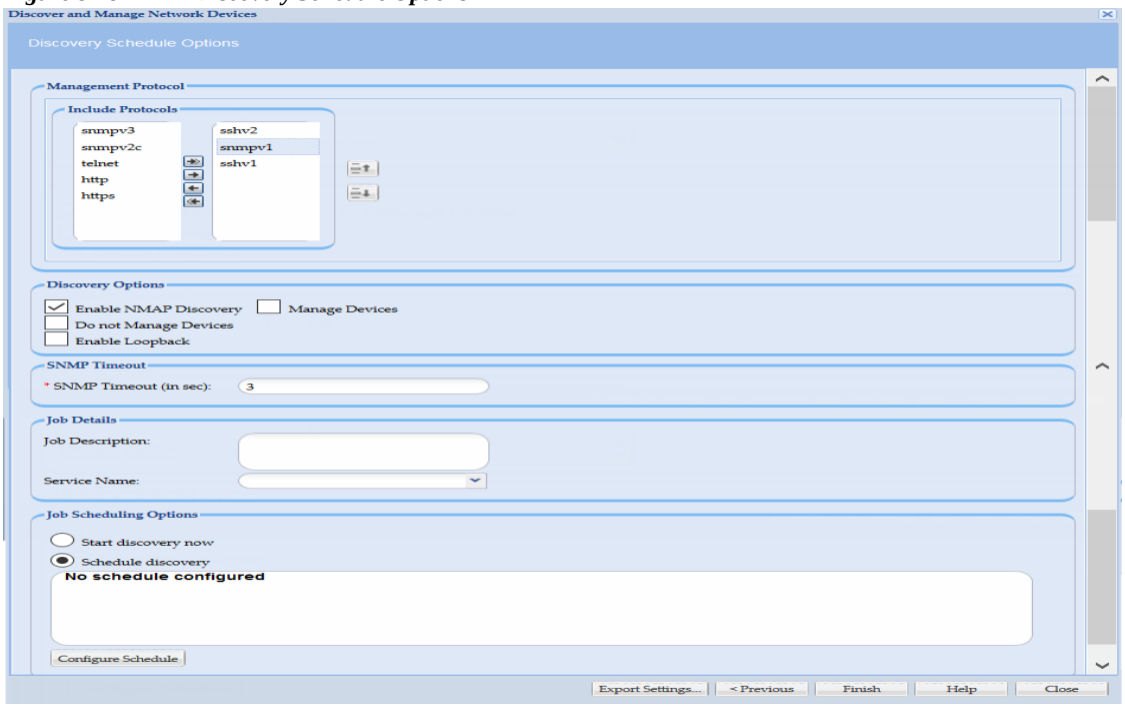
To **IP Address/Host Name** , click **Next** button.

Figure 8-47 Discover Devices using Known IP Addresses



To schedule discovery options, click **Next** button.

Figure 8-48 Discovery Schedule Options

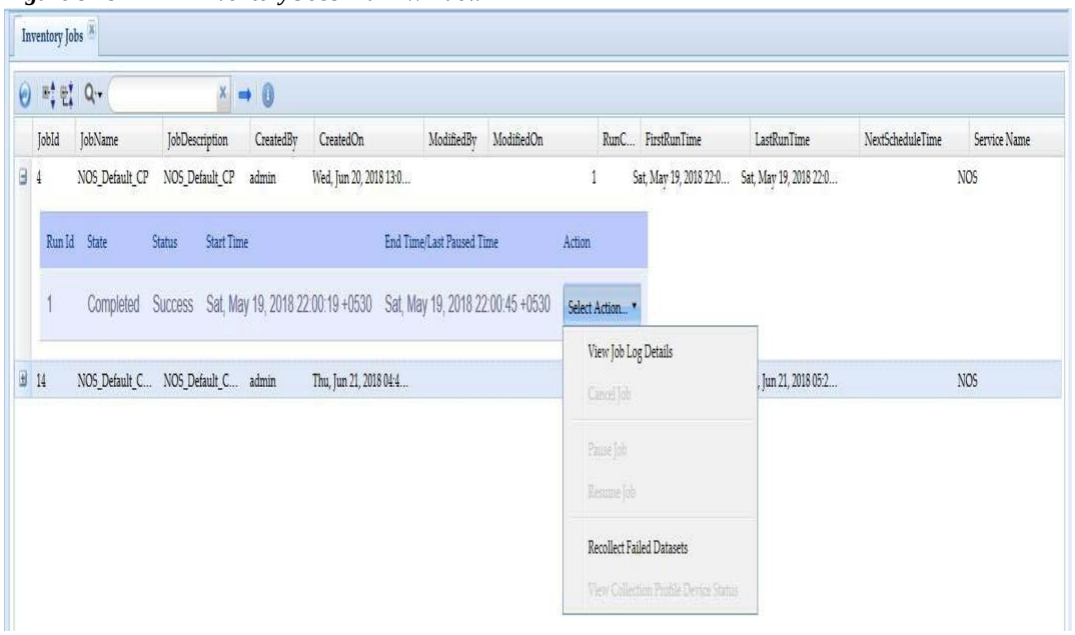


Inventory Jobs

This report includes all the network device inventory jobs performed.

In addition, you can see the description of each job by clicking the + symbol next to the *Job Id*. Clicking the + sign shows the *Run Id*, *State* (Successful/Aborted), *Status* (Completed/Not Completed), *Start Time*, *End Time*, and *Job Log Details* for this particular job, as shown in the figure below.

Figure 8-49 Inventory Jobs Main Window



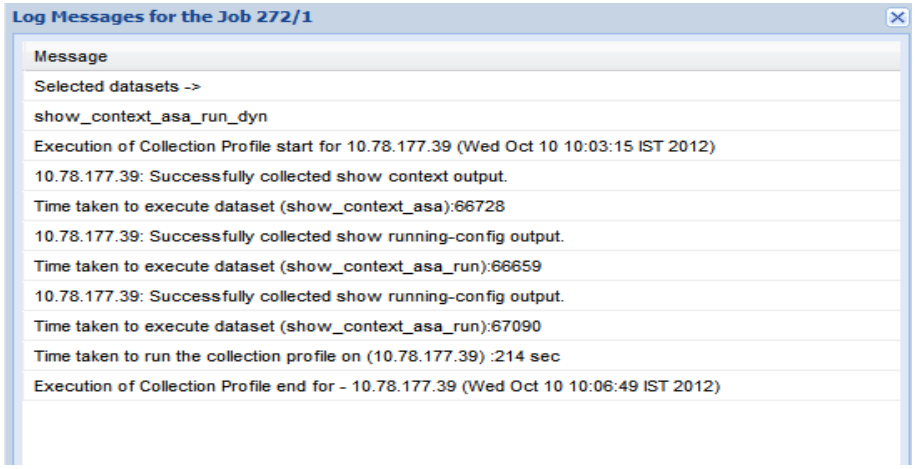
Select the *Action* button in the report to view either the Job Log details for this particular job, or to cancel a job while it is still running. You can pause any running job and later resume it by using the Pause Job and Resume Job options.

By selecting *Recollect Failed Datasets* option, the data from only those devices is collected that showed an error earlier, once the data is collected it is merged with the other data before it is sent to Cisco.

Use view collection profile device status is to see the progress of device collection and it is enabled only if collection is in running state.

Figure 8-50 shows the job log details.

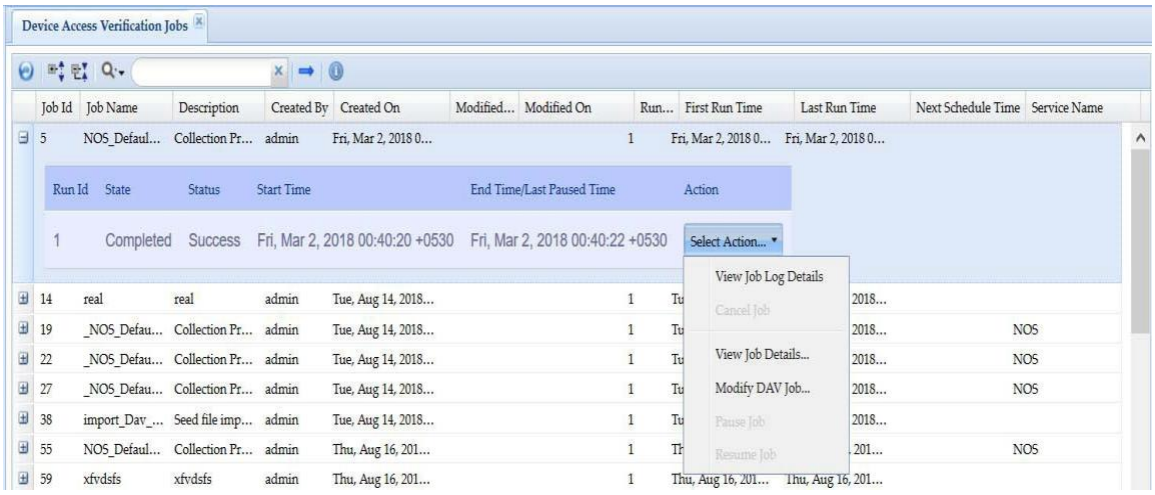
Figure 8-50 Job Log Details



Device Access Verification Jobs

The Device Access Verification Jobs report includes all the network device verification jobs performed. In addition, you can see the description of each job by clicking the + symbol next to the *Job Id*. Clicking the + sign shows the *Run Id*, *State* (Successful/Aborted), *Status* (Completed/Not Completed), *Start Time*, *End Time*, and *Job Log Details* for this particular job, as shown in Figure 8-51.

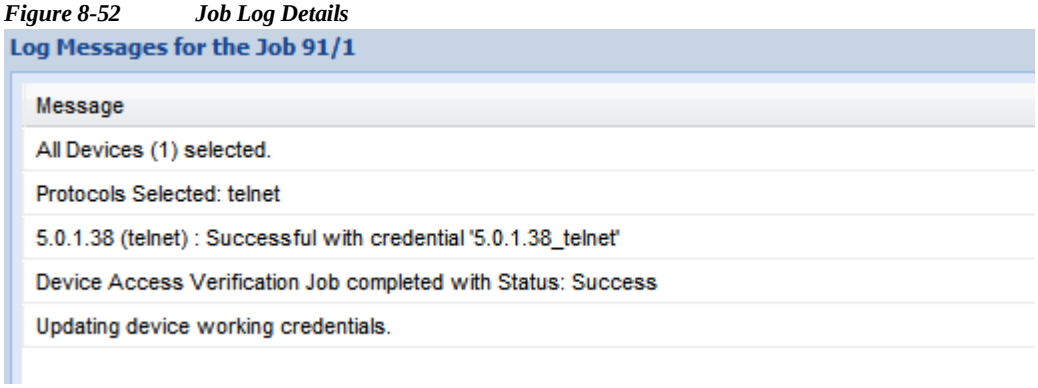
Figure 8-51 Device Access Verification Jobs Main Window



Select the *Action* button in the report to view either the Job Log details for this particular job, or to cancel a job while it is still running. You can also view and modify the job details. Pause and resume jobs using the **Pause Job** and **Resume Job** menu options. Pause is activated when job starts running and resume is activated once the job is paused.

Figure 8-53 shows the job log details.

Figure 8-52 Job Log Details



Job Management Reports

Job Management Reports option is a container from where you can select any of the supported jobs, except for discovery jobs and inventory jobs.

Job Management Reports allows to select any of the supported Job reports. You can select any job from the Job Group Type drop down list to go to the specified Job report. In addition, for all the jobs you can see the description of each job by clicking the + symbol next to the Job Id. Clicking the + sign shows the Run Id, State (Successful/Aborted), Status (Completed/Not Completed), Start Time, End Time, and Job Log Details for the particular job.

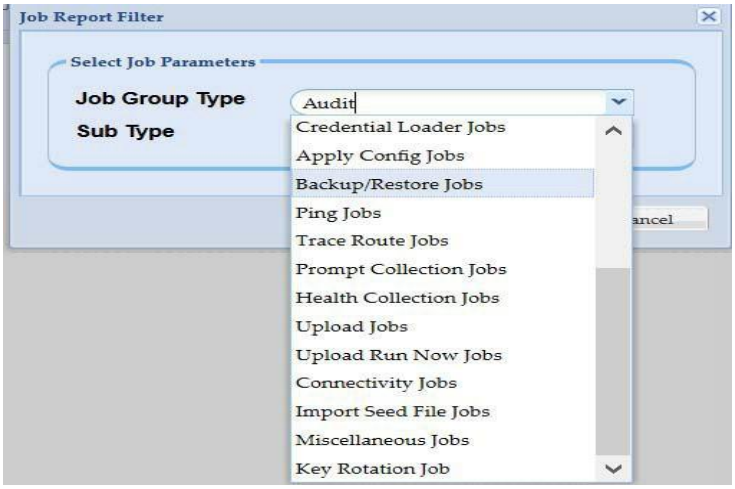
Select the Action button in the report to view either the Job Log details for this particular job, or to cancel a job while it is still running.

The currently supported jobs are:

- Credential Loader Jobs
- Apply Config Jobs
- Backup and Restore Jobs
- Ping Jobs
- Trace Route Jobs
- Prompt Collection Jobs
- Health Collection Jobs
- Upload Jobs
- Upload Run Now Jobs
- Connectivity Jobs
- Import Seed File Jobs
- Miscellaneous Jobs
- Key Rotation Job

After opening the Job Management Reports window, select the Job which you want to display and click **OK** button. More details on the Jobs are given below. Jobs can be either Unscheduled or Scheduled. Jobs can be edited by right clicking on the Job and selecting Edit Job Schedule option.

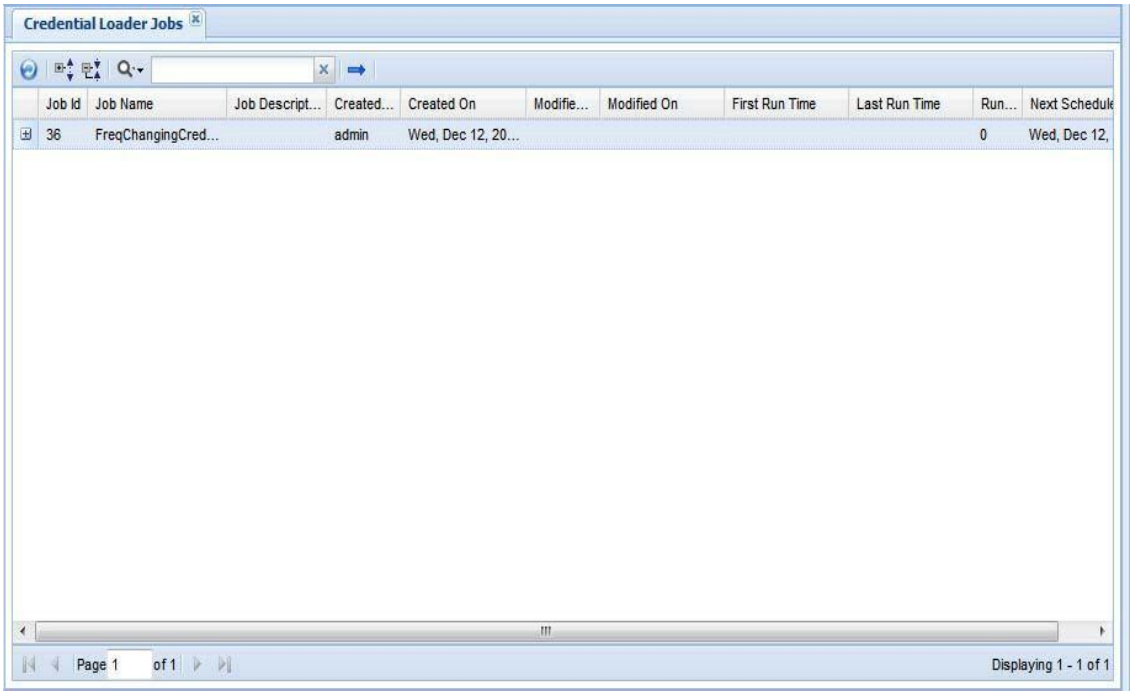
Figure 8-53 Job Management Reports



Credential Loader Jobs

Credential Loader Jobs allows you to view all the jobs runs/created using Changing Credential Import.

Figure 8-54 Credential Loader Jobs



Jobs can also be Unscheduled, or Schedules can be edited by right clicking on the Job name.

In addition, you can see the description of each job by clicking the + symbol next to the *Job Id*. Clicking the + sign shows the *Run Id*, *State* (Successful/Aborted), *Status* (Completed/Not Completed), *Start Time*, *End Time* for this particular job.

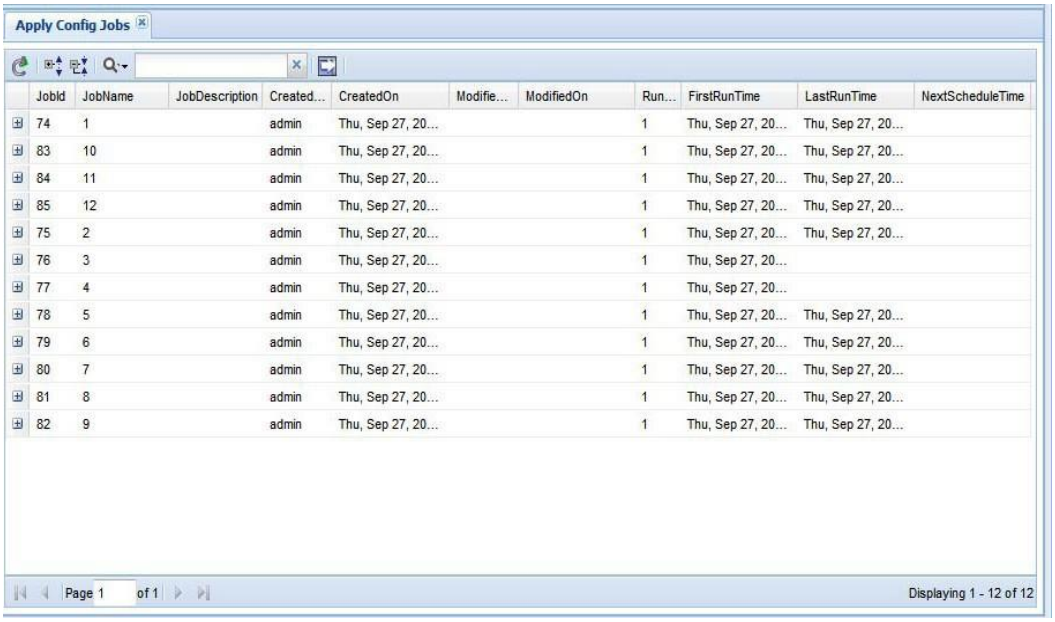
Apply Config Jobs

The Apply Config Jobs report allows you to view the configuration jobs that were applied from the CSP collector. You can view all the jobs, job creator, etc.

In addition, you can see the description of each job by clicking the + symbol next to the *Job Id*. Clicking the + sign shows the *Run Id*, *State* (Successful/Aborted), *Status* (Completed/Not Completed), *Start Time*, *End Time*, and *Job Log Details* for this particular job, as shown in Figure 8-55.

Jobs can also be Scheduled or Unscheduled, and can be edited by right-clicking on the Job name.

Figure 8-55 Apply Config Jobs



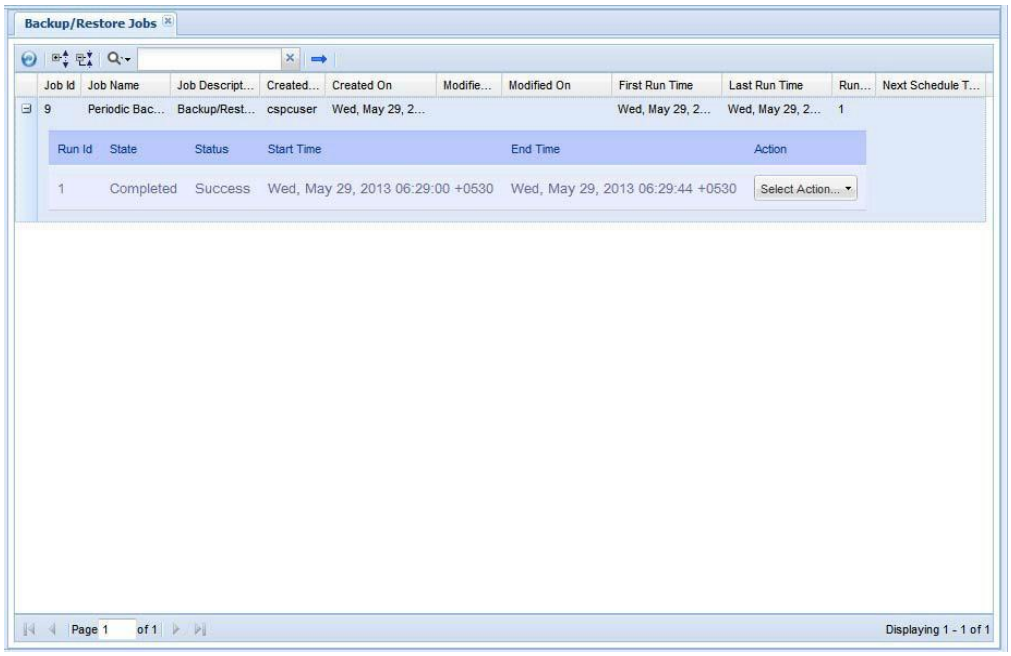
Backup and Restore Jobs

The Backup and Restore Jobs report allows you to view the backup and restore jobs that were applied on the CSP collector. You can view all the jobs, job creator, etc.

In addition, you can see the description of each job by clicking the + symbol next to the *Job Id*. Clicking the + sign shows the *Run Id*, *State* (Successful/Aborted), *Status* (Completed/Not Completed), *Start Time*, *End Time*, and *Job Log Details* for this particular job, as shown in the figure below.

Jobs can also be Scheduled or Unscheduled, and can be edited by right-clicking on the Job name.

Figure 8-56 Backup/Restore Jobs



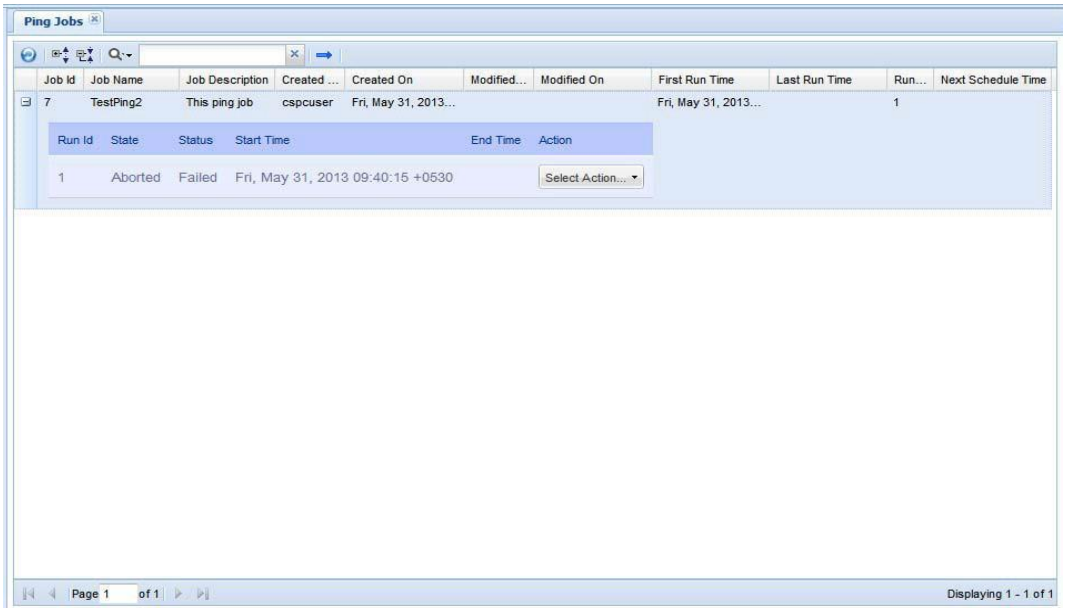
Ping Jobs

Ping Jobs allows you to view the ping jobs that were applied on the CSP collector from XML API interface.

In addition, you can see the description of each job by clicking the + symbol next to the *Job Id*. Clicking the + sign shows the *Run Id*, *State* (Successful/Aborted), *Status* (Completed/Not Completed), *Start Time*, *End Time*, and *Job Log Details* for this particular job, as shown in the figure below.

Jobs can also be Scheduled or Unscheduled, and can be edited by right clicking on the Job name.

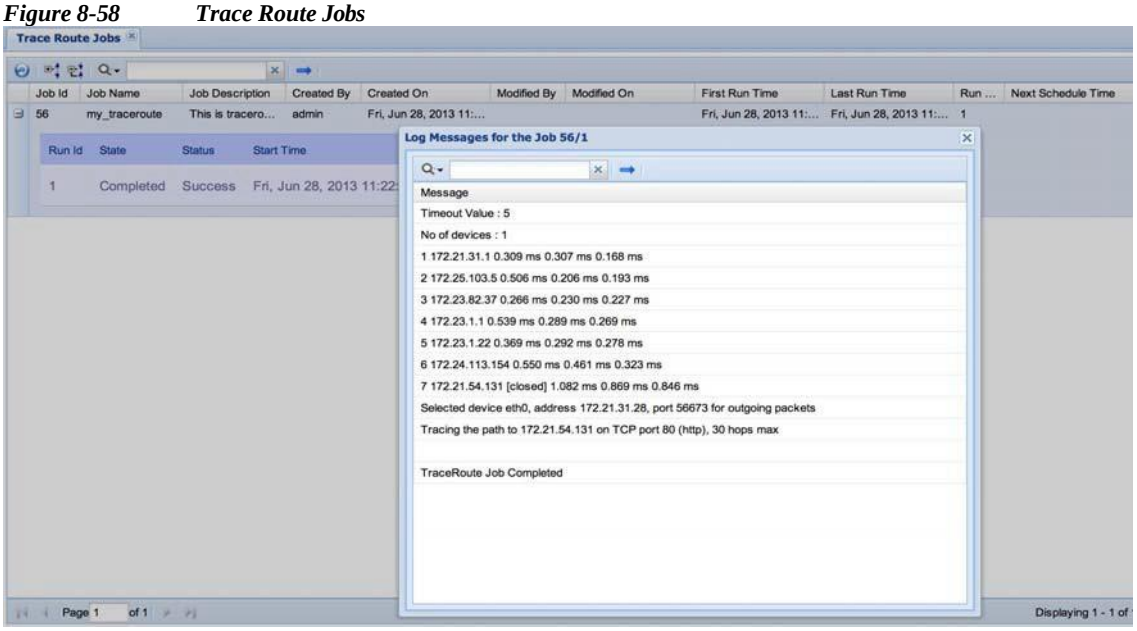
Figure 8-57 Ping Jobs



Trace Route Jobs

In Trace Route Jobs you can view all the trace route jobs that were performed on a CSP collector.

Figure 8-58 Trace Route Jobs



You can see the description of each job by clicking the + symbol next to the *Job Id*. Clicking the + sign shows the *Run Id*, *State* (Successful/Aborted), *Status* (Completed/Not Completed), *Start Time*, *End Time*, and *Job Log Details* for this particular job.

Jobs can also be Scheduled or Unscheduled, and can be edited by right clicking on the Job name.

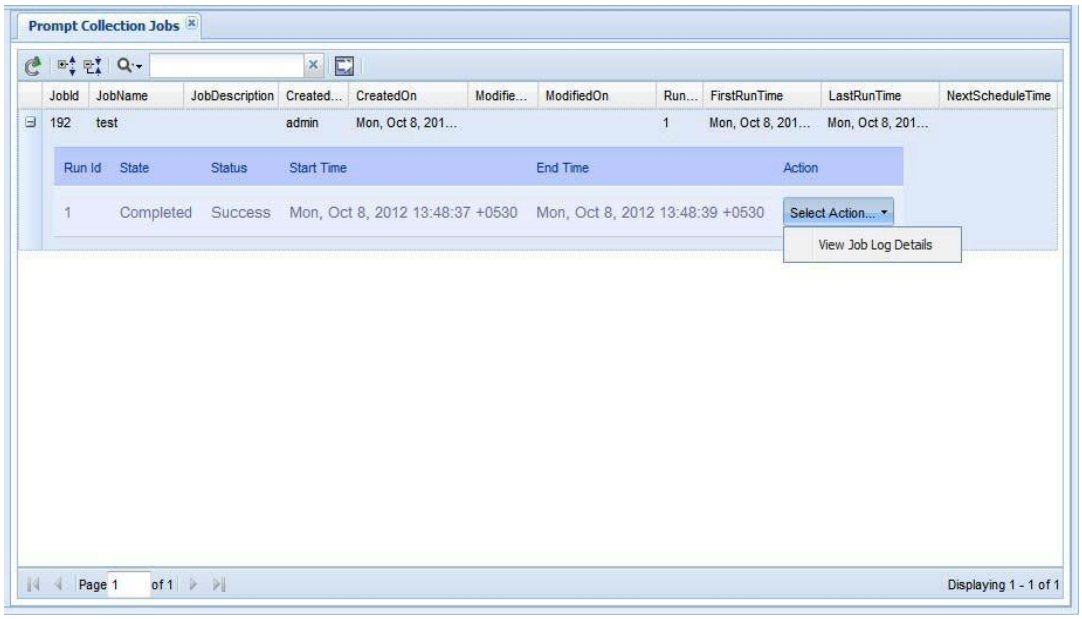
Prompt Collection Jobs

The Prompt Collection Jobs report includes all the Prompt Collection jobs performed.

In addition, you can see the description of each job by clicking the + symbol next to the *Job Id*. Clicking the + sign shows the *Run Id*, *State* (Successful/Aborted), *Status* (Completed/Not Completed), *Start Time*, *End Time*, and *Job Log Details* for this particular job, as shown in the figure below.

Jobs can also be Scheduled or Unscheduled, and can be edited by right clicking on the Job name.

Figure 8-59 Prompt Collection Jobs



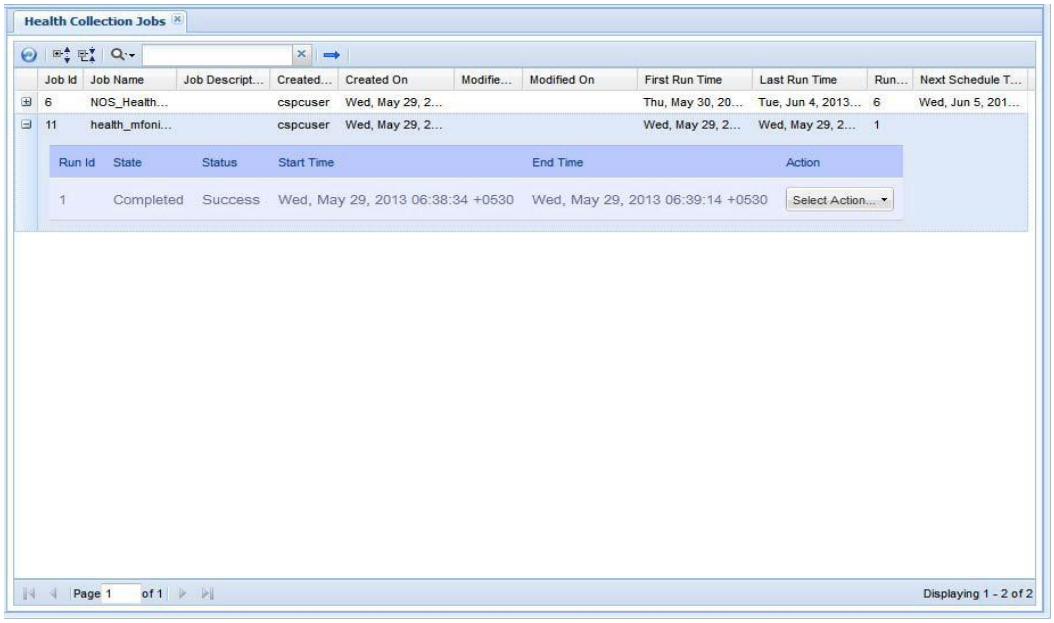
Health Collection Jobs

The Health Collection Jobs report includes all the Health Monitor jobs performed on CSPC

In addition, you can see the description of each job by clicking the + symbol next to the *Job Id*. Clicking the + sign shows the *Run Id*, *State* (Successful/Aborted), *Status* (Completed/Not Completed), *Start Time*, *End Time*, and *Job Log Details* for this particular job, as shown in Figure 8-60.

Jobs can also be Scheduled or Unscheduled, and can be edited by right clicking on the Job name.

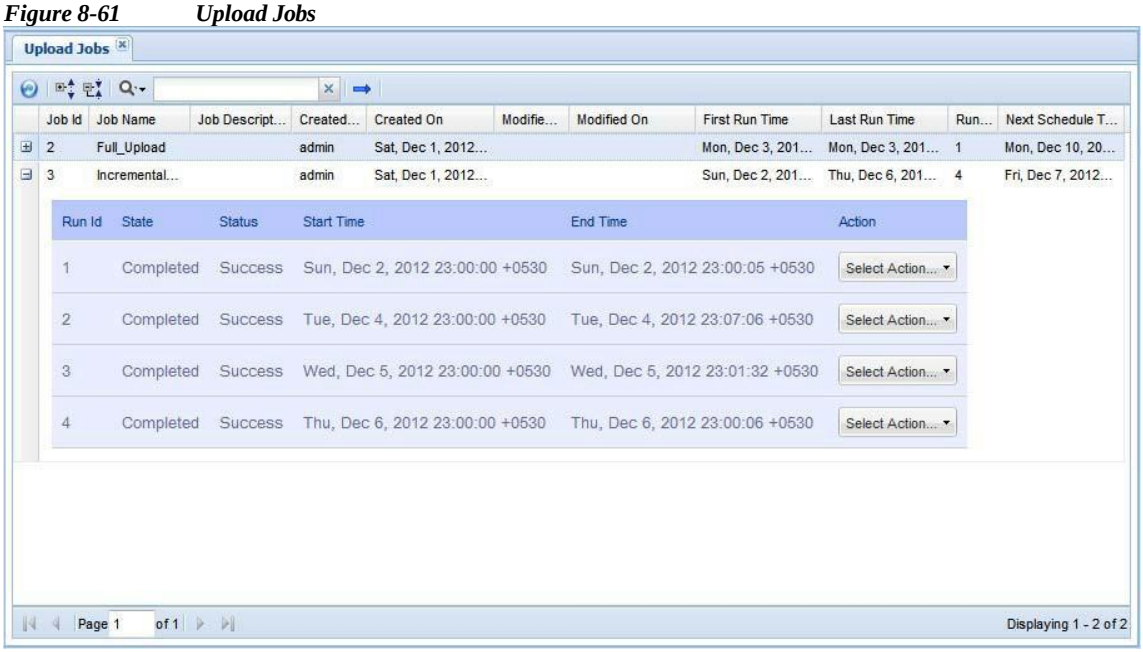
Figure 8-60 Health Collection Jobs



Upload Jobs

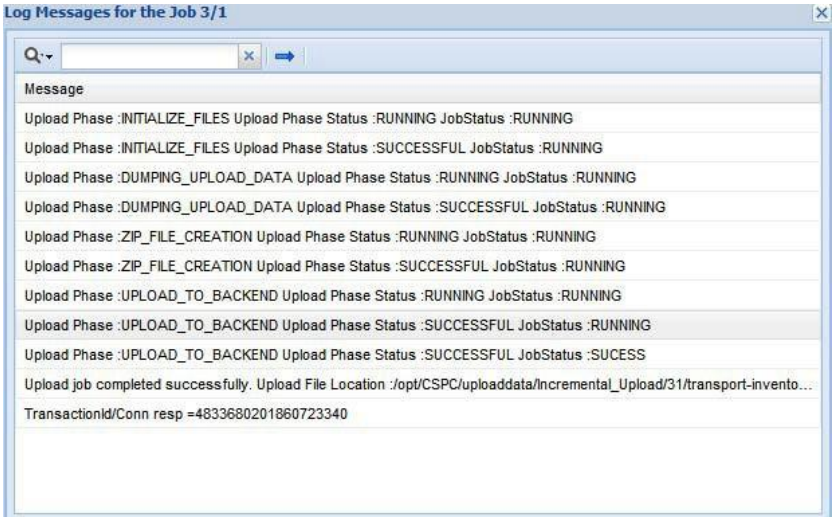
In the Upload Jobs report you can view all the scheduled jobs with Upload Profile, view the upload jobs that are user defined and created by the system. You can unschedule a job or edit an existing job schedule. You can also check the status of uploaded jobs, view job log details or cancel any running job.

Figure 8-61 Upload Jobs



To check the status of the Uploaded jobs, click the '+' button next to Job Id. Job status along with data and time is displayed as shown in the above figure. To view the log details of a job as shown in Figure 8-62, click Select Action button and then View Job Log Details.

Figure 8-62 View Job Log Details

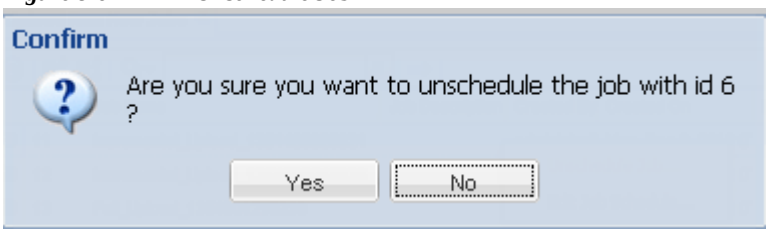


If you do not want to run a scheduled upload, right click on the job, and then click Unschedule Job button.

Figure 8-63 Unschedule Job / Edit Job Schedule

A confirmation box as shown in Figure 8-64 is displayed.

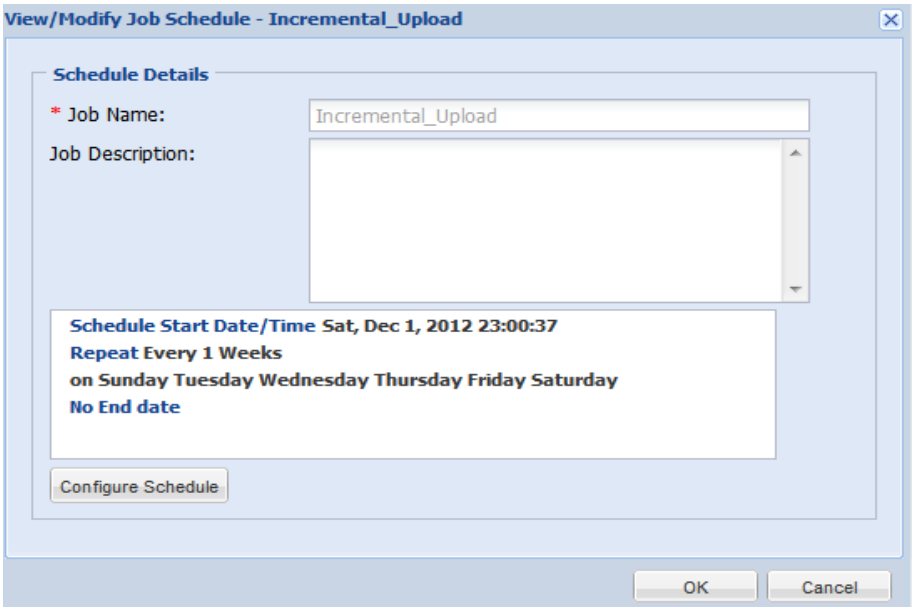
Figure 8-64 Unschedule Job



Click **Yes** button to unschedule the job.

If you want to edit an existing upload job schedule, right click on the job, and click Edit Job Schedule button. Modify Job Schedule screen as shown below is displayed.

Figure 8-65 Modify Job Schedule

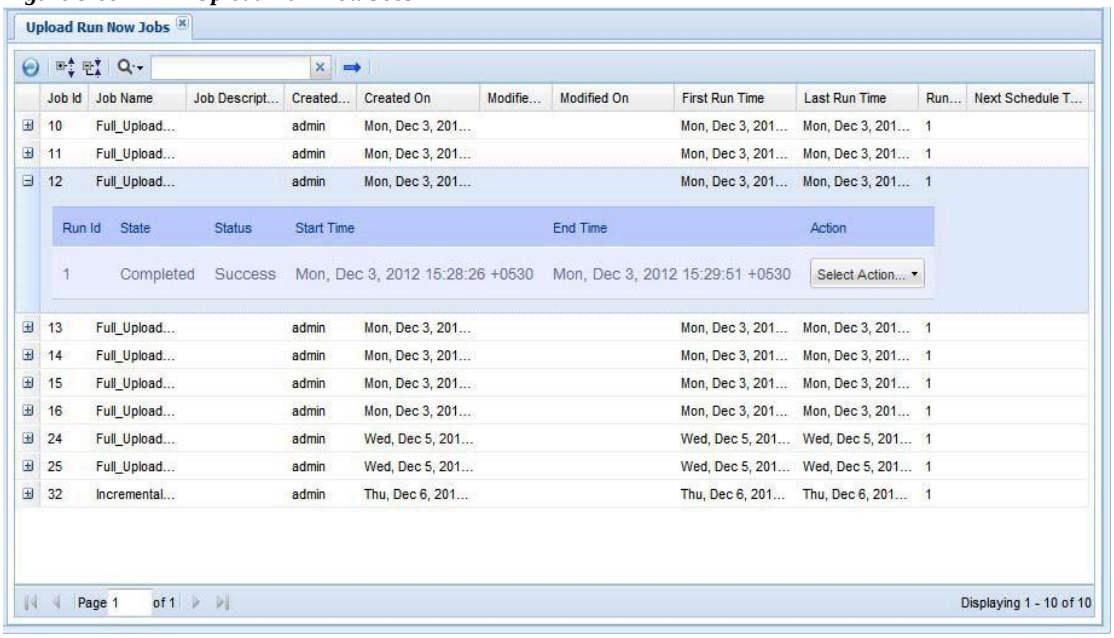


You can reconfigure the schedule by clicking the Configure Schedule button. Except the Job Name all details can be modified.

Upload Run Now Jobs

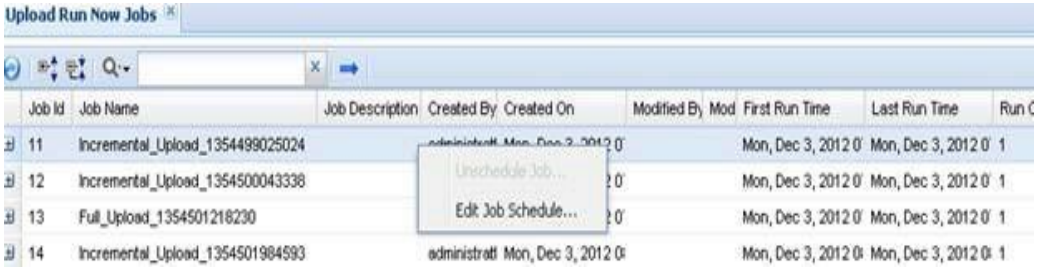
In Upload Run Now Jobs you can view all the run now jobs performed with upload Profile. Upload Run Now Jobs are System upload jobs created by system with the system generated job schedule.

Figure 8-66 Upload Run Now Jobs



For user jobs which are already completed without repeat schedule, you can only edit the job schedule. This will change the future runs of the system uploads.

Figure 8-67 Edit Job Schedule

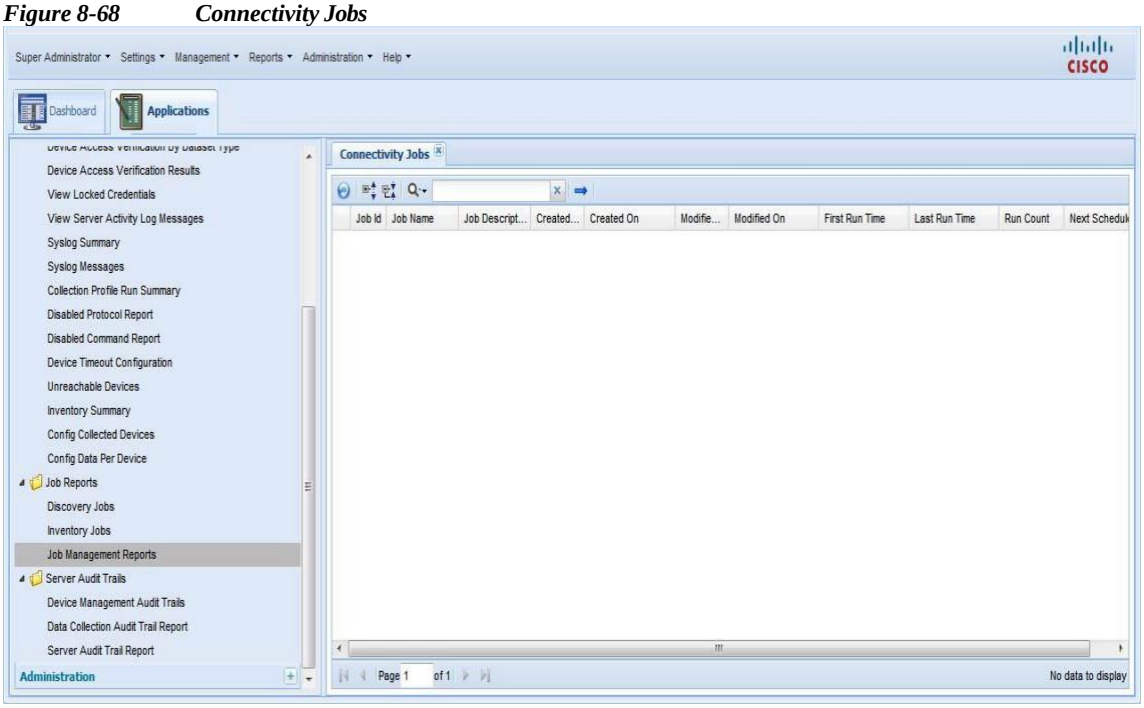


The change in schedule will be reflected in the Next Schedule Time of Upload Run Now Jobs.

Connectivity Jobs

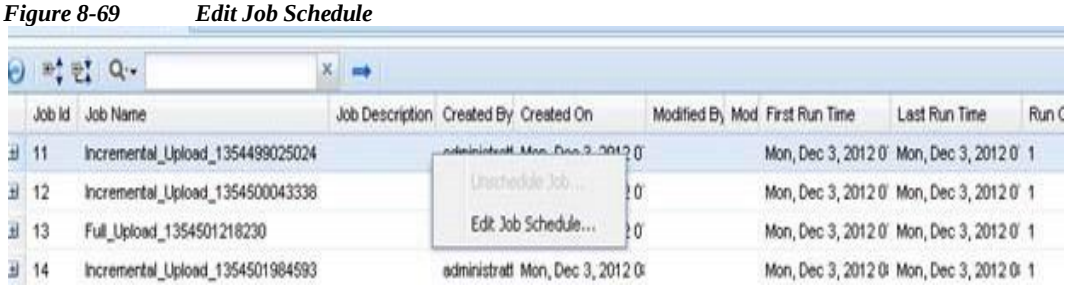
Connectivity Jobs report shows the connectivity related information, along with run count, first and last run time.

Figure 8-68 Connectivity Jobs



For user jobs which are already completed without repeat schedule, you can only edit the job schedule. This will change the future runs of the system uploads.

Figure 8-69 Edit Job Schedule

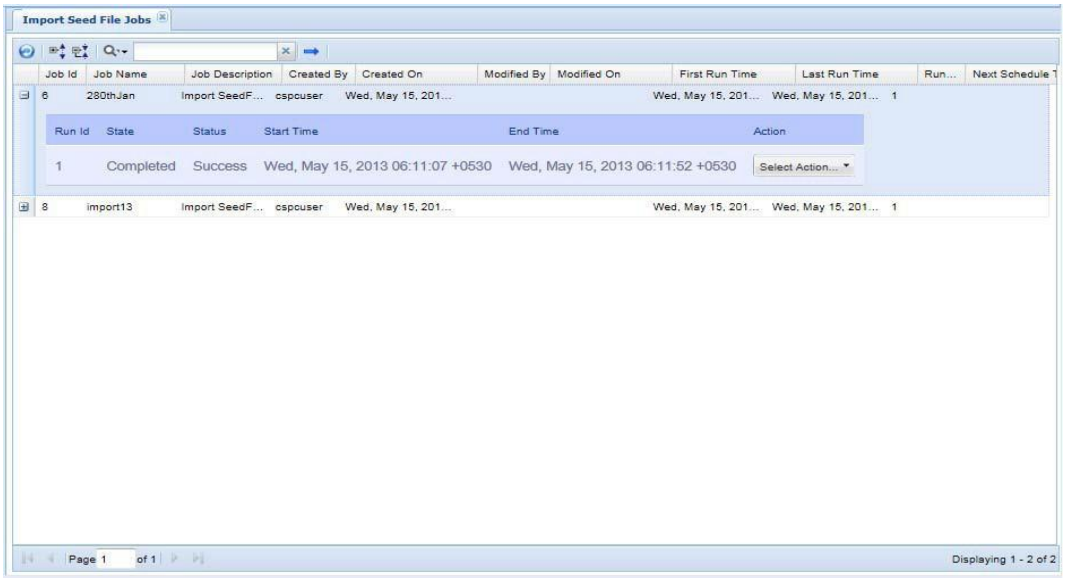


The Change in schedule will be reflected in the Next Schedule Time of Connectivity Run Now Jobs.

Import Seed File Jobs

Import seed file jobs report shows the list of imported seed file jobs. You can see the description of each job by clicking the + symbol next to the Job Id. It shows the Run Id, State (Completed/Not Completed), Status (Successful/Aborted), Start Time, End Time.Select the Action button in the report to view either the Job Log details for this particular job, or to cancel a job while it is still running.

Figure 8-70 Import Seed File Jobs



Miscellaneous Jobs

Miscellaneous Jobs shows a list of all the relatively small one time asynchronous jobs. Example of one such job is Collection Profile export job.

Figure 8-71 Miscellaneous Jobs

Key Rotation Job

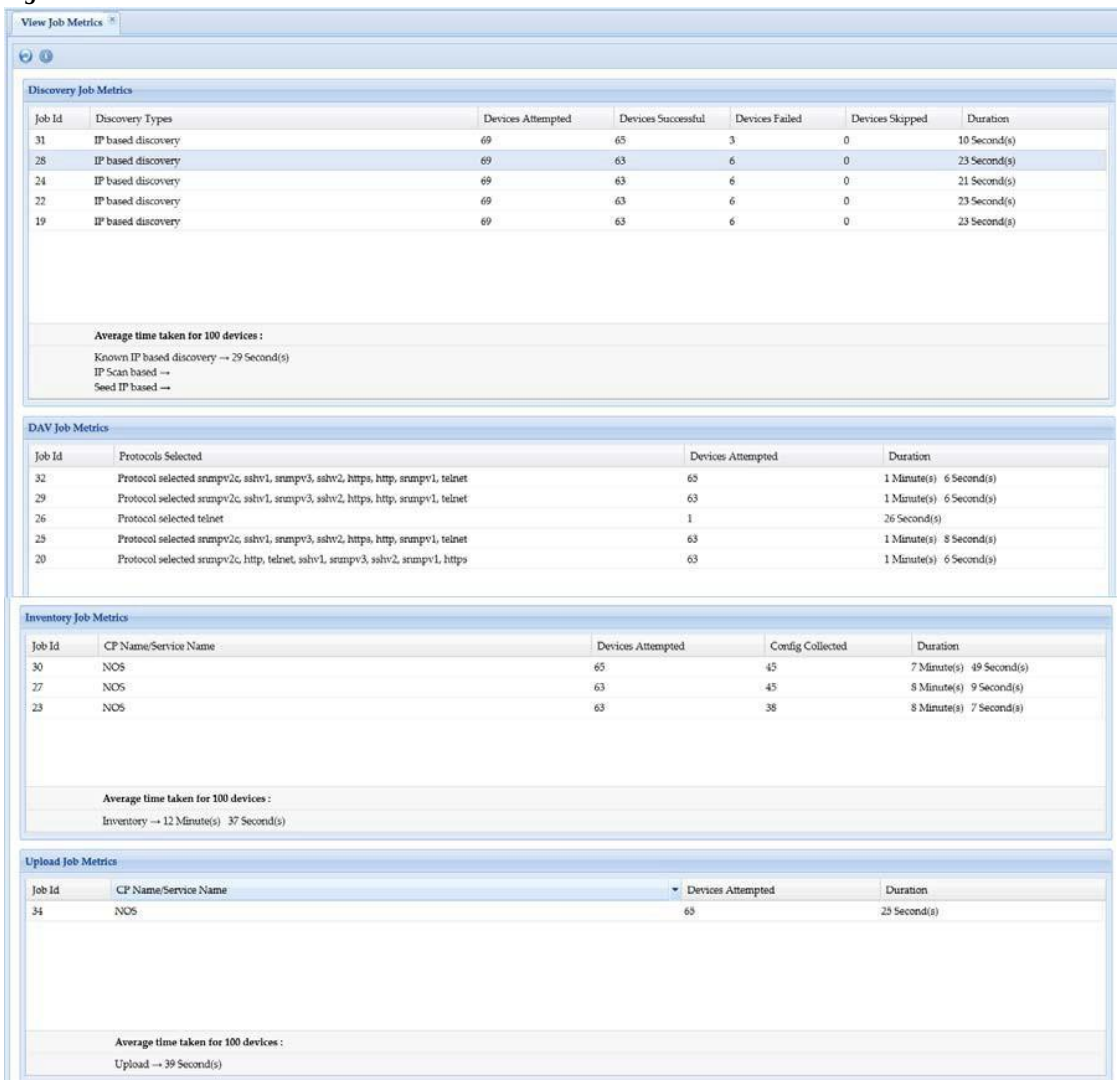
Key Rotation jobs report shows the list of key rotated jobs. You can see the description of each job by clicking the + symbol next to the Job Id. It shows the Run Id, State (Completed/Not Completed), Status (Successful/Aborted), Start Time, End Time.Select the Action button in the report to view either the Job Log details for this particular job, or to cancel a job while it is still running.

Figure 8-72 Key Rotation Jobs

View Job Metrics

You can see metrics for job specific details, in Discovery job what type of job was triggered, in inventory and upload what were the service or collection profile name, and in DAV what were the protocols used. Each job metrics displays the average time taken for 100 devices

Figure 8-73 Job Metrics



Audit Trails

Audit Trail report includes all the server related logs. Use the Server Audit Trails Reports sub tab to view the audit trails of the server, data collection and device management aspects. The columns displayed are username, module, sub module, message, log time, job log details.

The sub module includes changes made to session management, patch management, user management, groups. It will also show any unauthorized connection attempts made from other hosts. This report can be exported to PDF, HTML, DOC, CSV (Comma delimited), TXT (Tab delimited) formats.

This section describes the Reports in the following topics:

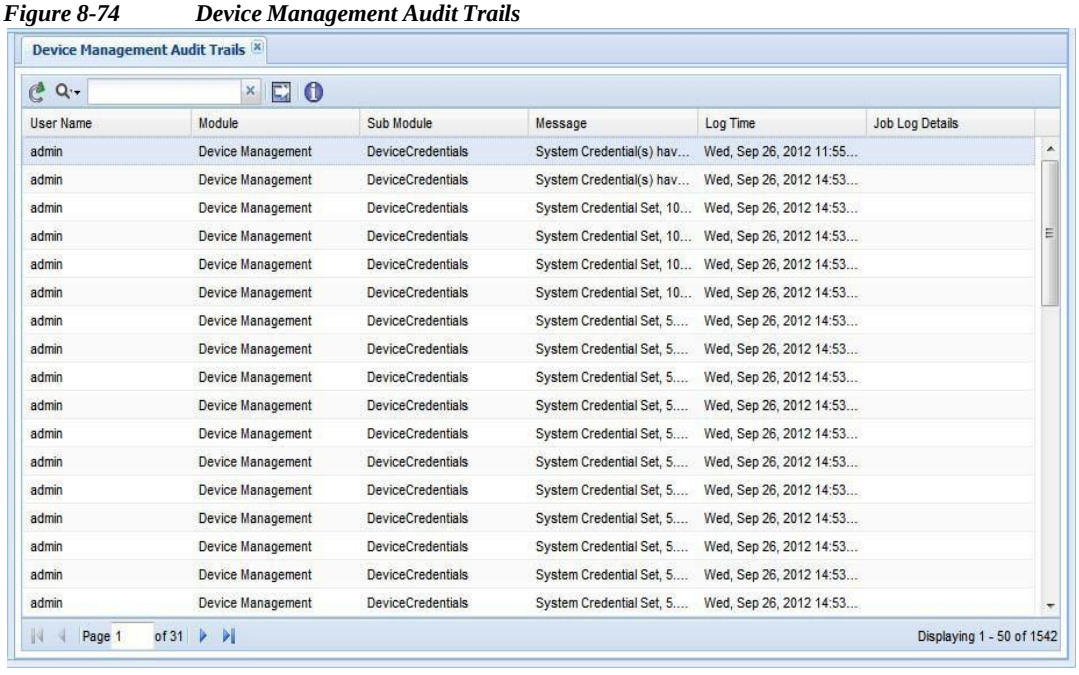
- Device Management Audit Trails
- Data Collection Audit Trail Report
- Server Audit Trail Report

Device Management Audit Trails

Device Management Audit Trails report includes all device management logs. It also displays the Job Log Details for various jobs. The columns displayed include usern ame, module, sub module, message, log time, job log details. For some jobs, Job Log Details button is displayed. When you click on it, it displays the appropriate job log.

The sub module includes changes made to device credential, discovery subsystem, device access verification, device state change, inventory subsystem, server preferences. The contents of this report can be exported to PDF, HTML, DOC, CSV (Comma delimited), TXT (Tab delimited) formats.

Figure 8-74 Device Management Audit Trails



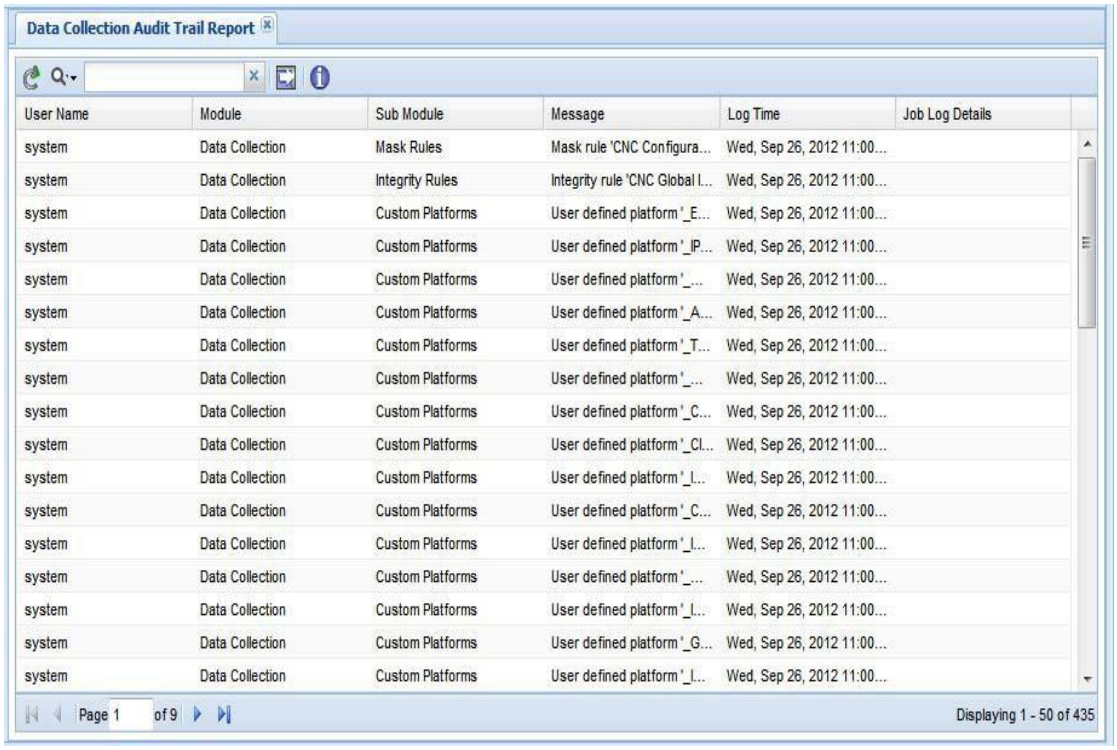
Data Collection Audit Trail Report

Data Collection Audit Trail report provides all the data collection profiles audit trails. The columns displayed are username, module, sub module, message, log time, job log details.

This report includes all the changes made to data collection settings which includes collection profile, datasets, platforms, integrity rule and masking rule.

This report can be exported to PDF, HTML, DOC, CSV (Comma delimited), TXT (Tab delimited) formats.

Figure 8-75 Data Collection Audit Trail Report



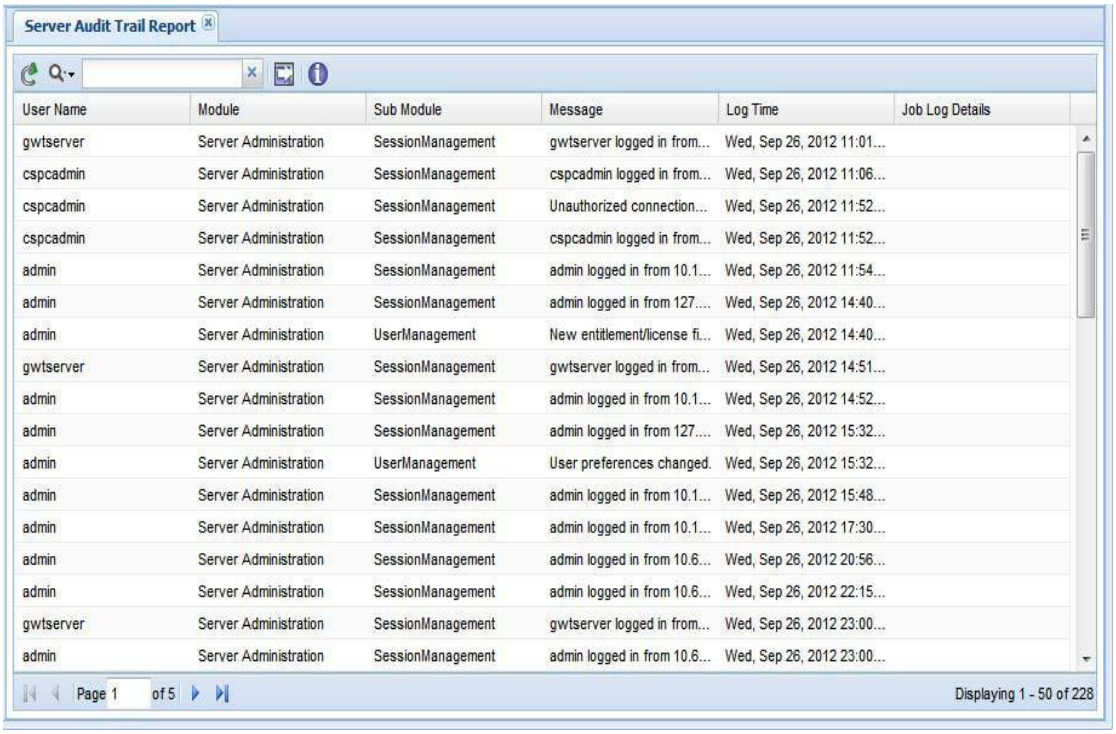
Server Audit Trail Report

Server Audit Trail report includes all the server related logs. The columns displayed are usern ame, module, sub module, message, log time, job log details.

The sub module includes changes made to session management, patch management, user management, groups. It will also show any unauthorized connection attempts made from other hosts.

This report can be exported to PDF, HTML, DOC, CSV (Comma delimited), TXT (Tab delimited) formats.

Figure 8-76 Server Audit Trail Report



Miscellaneous

- Device Launch Pad
- View Locked Credentials
- Disabled Protocol Report
- Disable Command Report
- Device Timeout Configuration
- Device Jump Server Mapping
- Application Profile Run Summary
- Application Discovery Report

Device Launch Pad

The Device Launch Pad report provides a list of all devices. You can choose what applications to launch for those devices.

Generating report is a two-step process. First you select the devices, and then you select the applications. Specific application report selected will be launched against the devices selected.

Figure 8-77 Select Devices

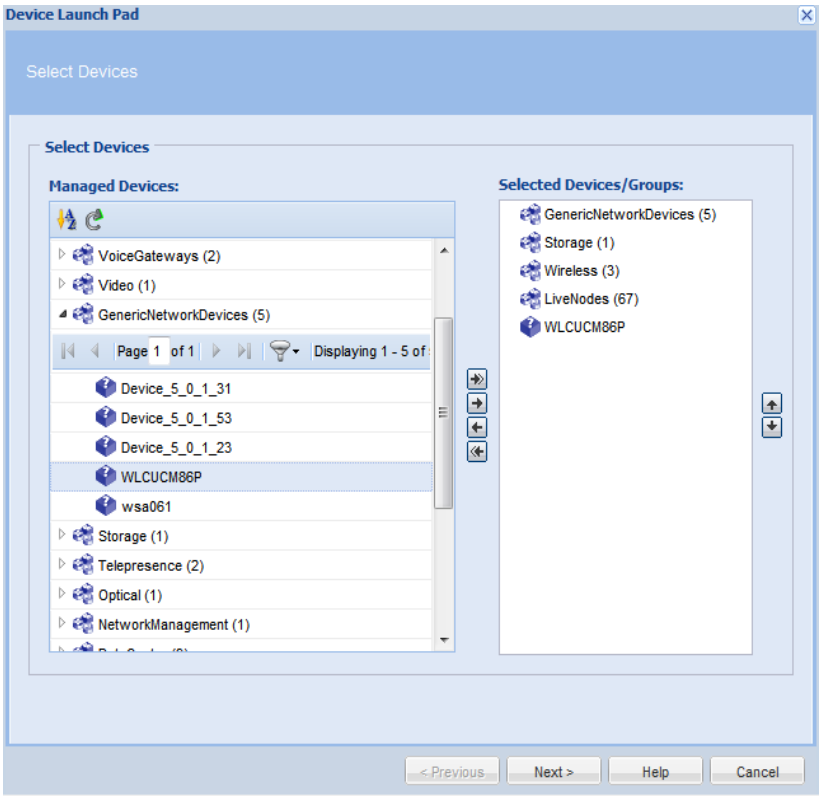
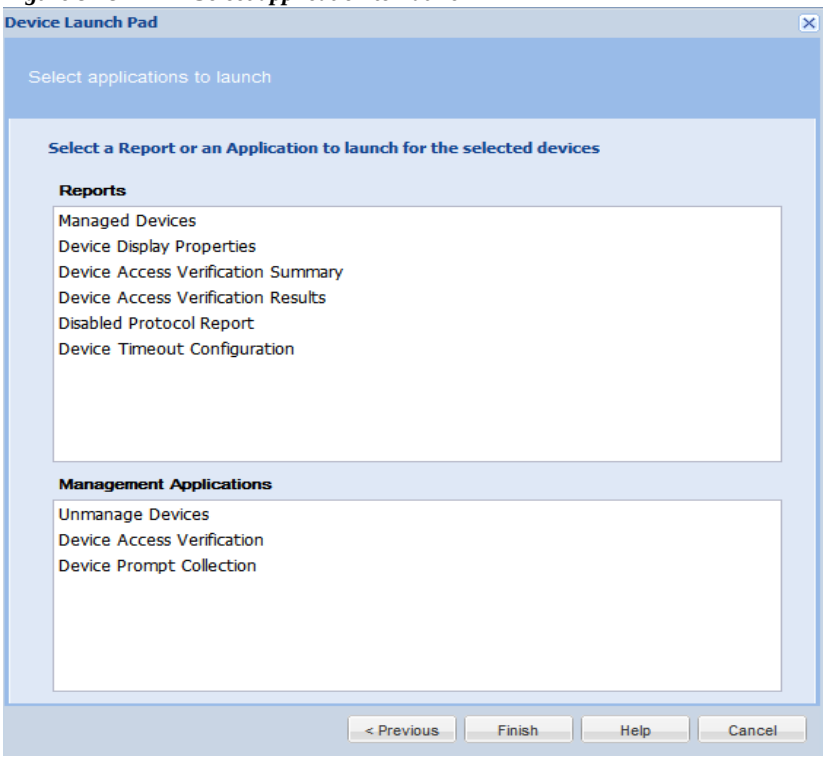


Figure 8-78 Select application to Launch

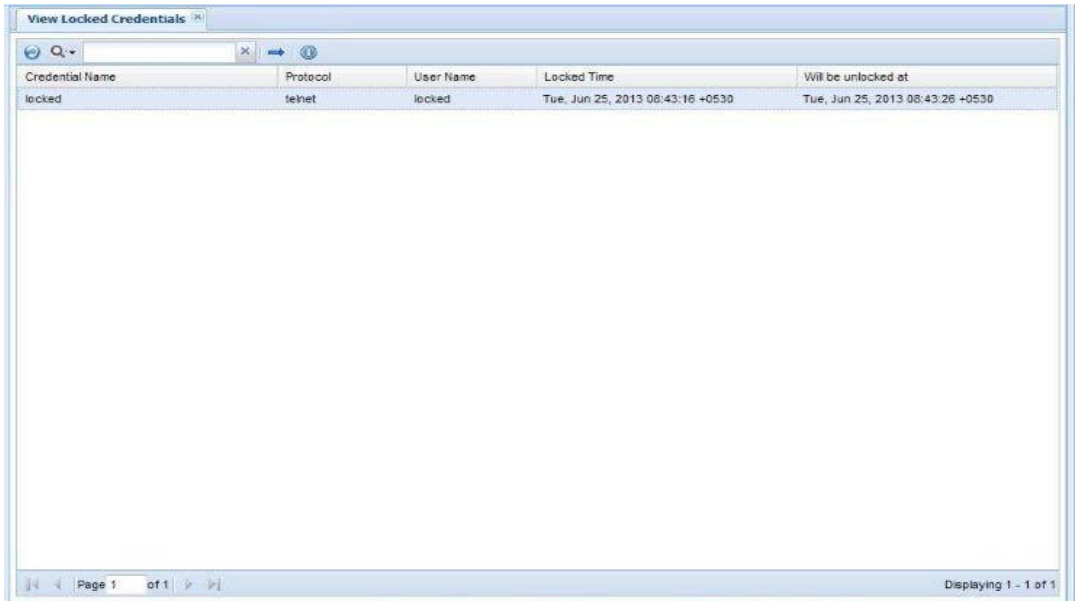


Once the selection is done, the specific application will be launched for the given devices.

View Locked Credentials

This report provides a list of all the locked credentials. The report contains Credential name, Protocol, Username, Locked time, and Will be Unlocked At (based on the configured Lock Period)

Figure 8-79 View Locked Credentials

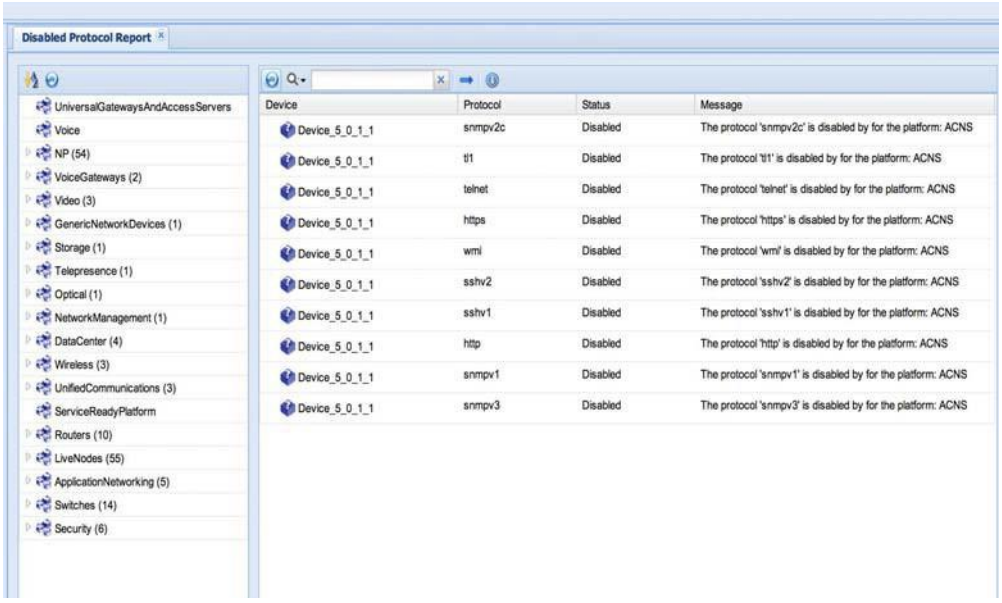


To unlock a credential, right click on the Credential you want to unlock and select *Unlock the Credential...* option.

Disabled Protocol Report

Disabled Protocol Report shows all the protocols that are disabled for a given device/group. The report contents can be exported in one of the supported formats. The supported formats are HTML, PDF, Microsoft Word, CSV, and TXT.

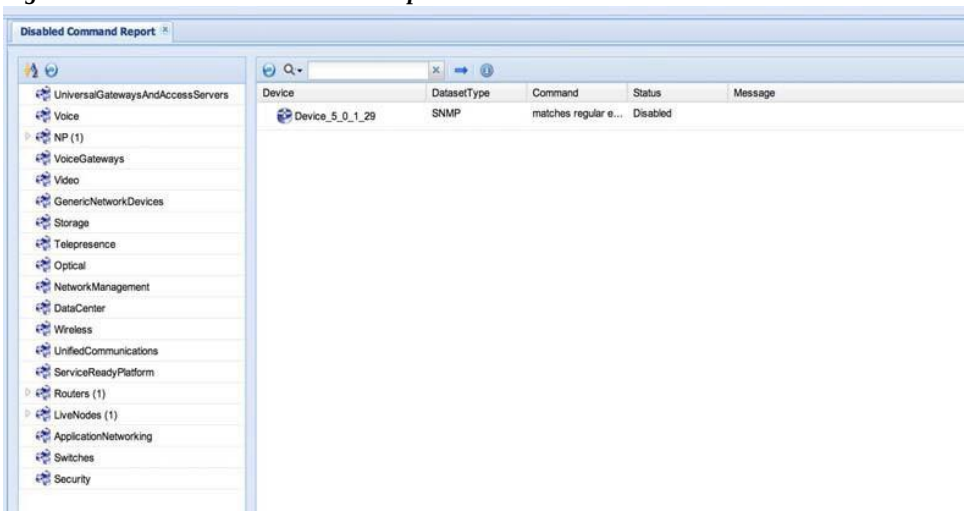
Figure 8-80 Disabled Protocol Report



Disable Command Report

Disabled Command Report shows the details of commands that are disabled for a given device.

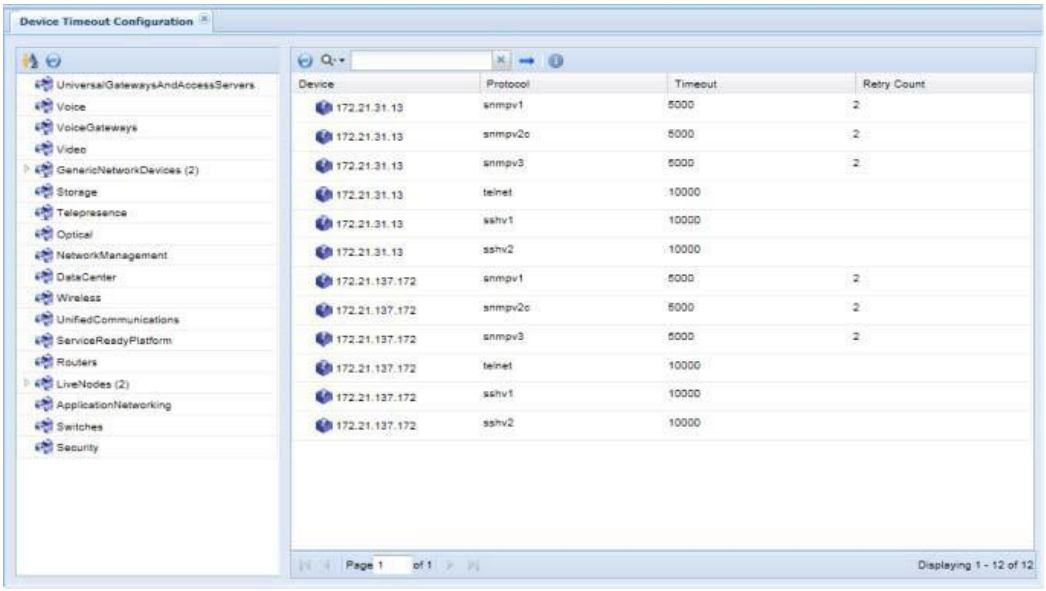
Figure 8-81 Disable Command Report



Device Timeout Configuration

Device Timeout Configuration report provides all the timeout configurations specified for different devices, along with retry counts. These values are populated from the timeouts configured in the Global Timeouts under Advanced Settings. This report can be exported into PDF, HTML, DOC, CSV (Comma delimited), TXT (Tab delimited) formats.

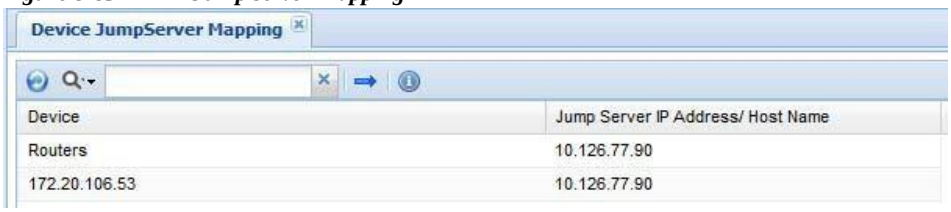
Figure 8-82 Device Timeout Configuration



Device Jump Server Mapping

All the devices or groups that are mapped to the jump server are shown in this report as shown in Figure 8-83. This report provides the details such as device/group name or IP address of the device and the Jump server IP which it is mapped to.

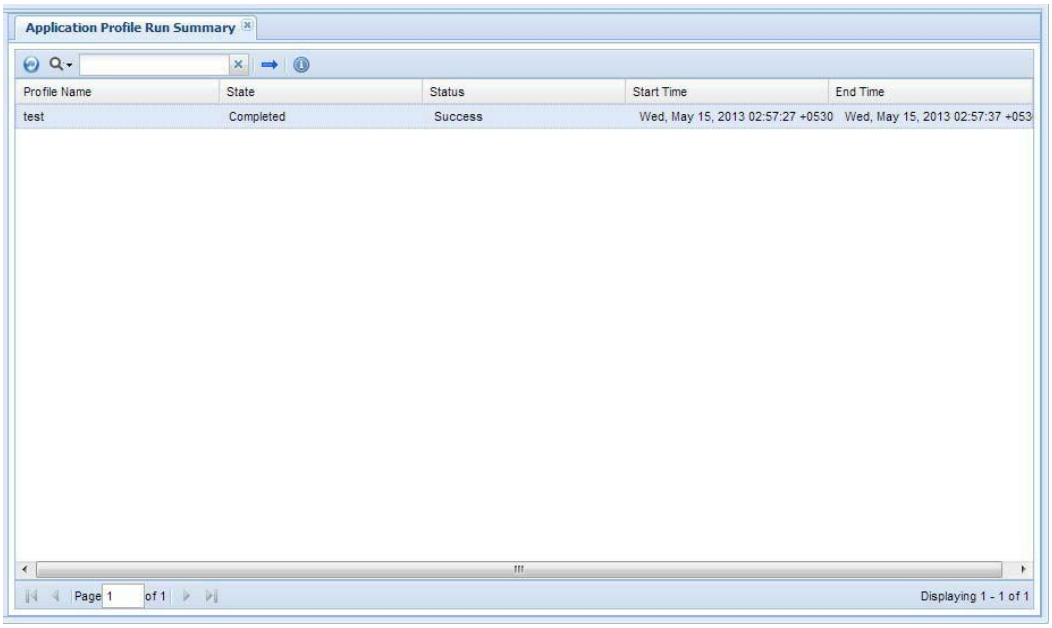
Figure 8-83 Jump server Mapping



Application Profile Run Summary

Application profile run summary report provides a summary of the completed application profiles as shown in Figure 8-84.

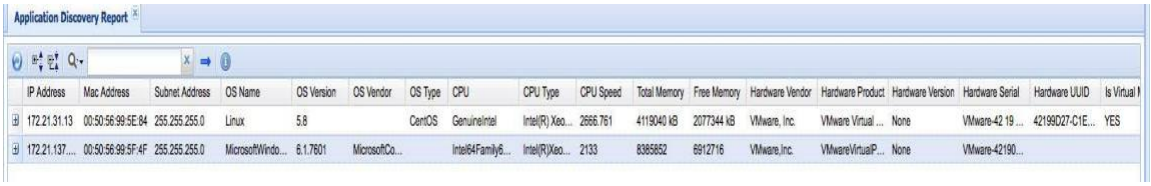
Figure 8-84 Application Profile Run Summary



Application Discovery Report

Application Discovery Report shows the list of discovery applications installed on the server (see list below). For each installed application it shows the system level information like, OS type, OS version, CPU type, Total memory installed and so on as shown in Figure 8-85.

Figure 8-85 Application Discovery Report



Expanding each row shows a list of installed application and its details like Name of the application, Version, Vendor, Path where the application is installed, Installed date and its running state as shown in Figure 8-86.

Installed Discovery Applications

Here is the list of applications that can be discovered on Microsoft Windows and Linux platforms.

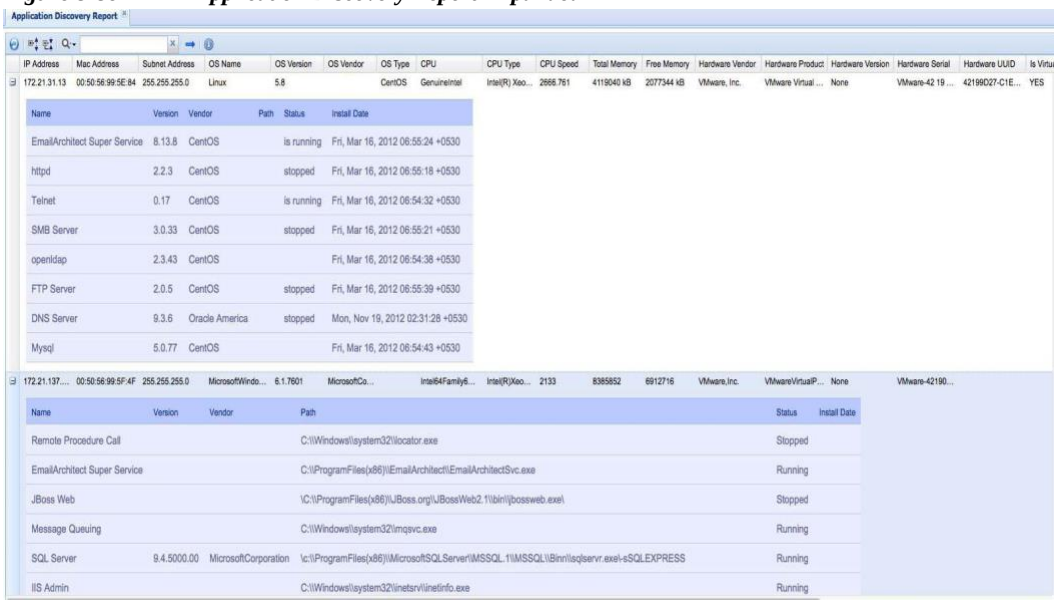
Microsoft Window:

Tomact, MySQL, ArgoSoft, DB2, SQL Server, OpenLDAP, NetBIOS Session Service, EmailArchitect Super Service, JBOSS, DNS Server, MSMQ, VMWare Workstation, WebSphere, Oracle, RPC, IIS Admin, SANSurfer.

Linux:

Tomcat, MySQL, httpd, OpenLDAP, FTP Server, SendMail, Telnet, DNS Server.

Figure 8-86 Application Discovery Report Expanded



Applications - Administration

Administration

Use the Administration tab to create users for the CSPC server, take backups of the collected data, look at the server patches, etc.

This section describes the Reports in the following topics:

- User Management
- User Preferences
- Alert Management
- Backup and Restore
- Log Preferences
- Miscellaneous Applications

User Management

The User Management sub tab is used to create users and modify user preferences for a given CSPC server.

This section describes the options in the following topics:

- Manage Users
- Manage Remote Authentication Servers
- Login Settings
- User Session Report

Manage Users

When you double-click *Manage Users*, a new Manage Users window appears which allows you to create and manage the collector users, as shown in the following screen.

Figure 9-1 Manage Users

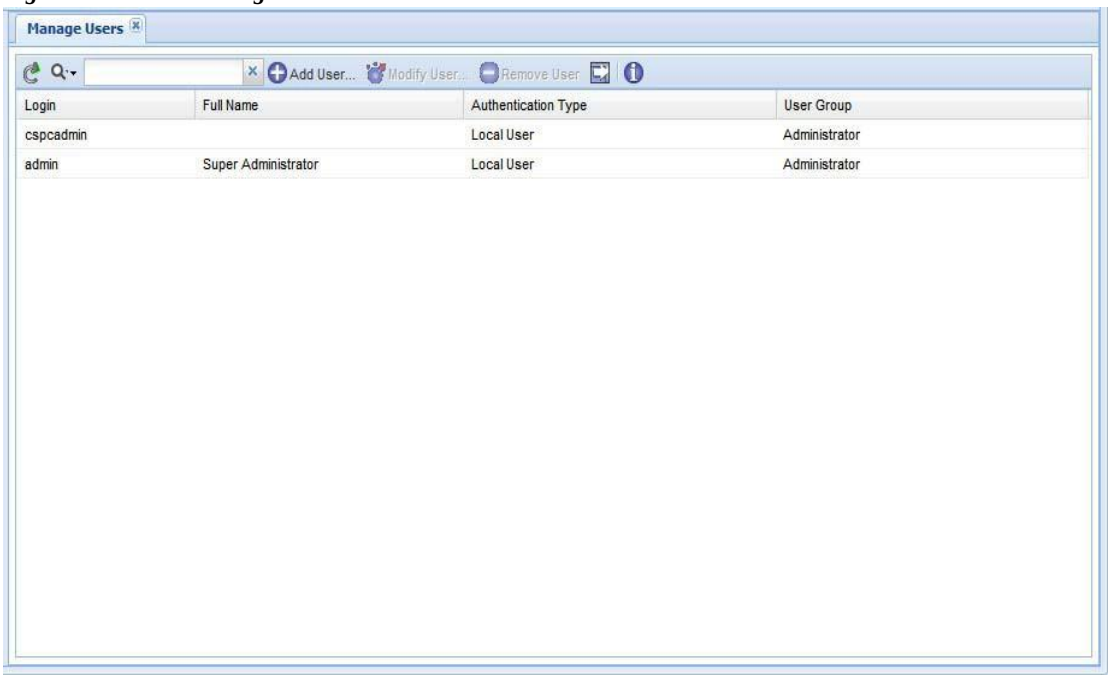
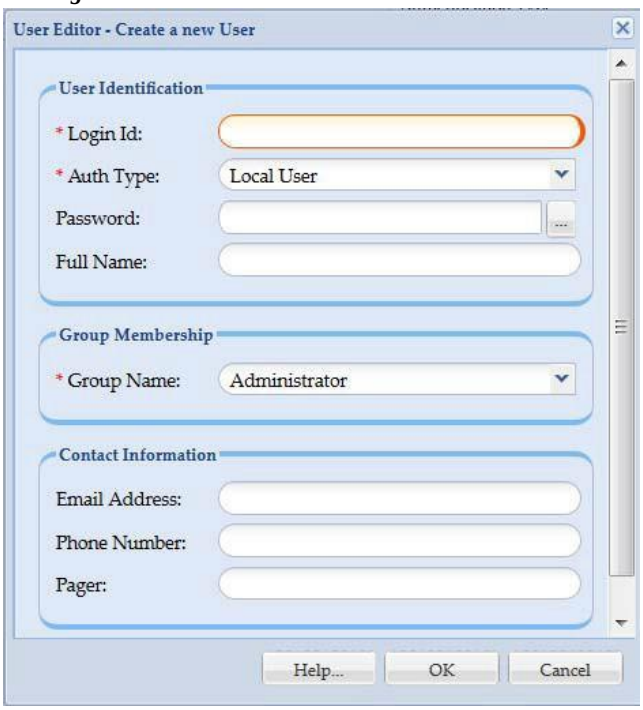


Figure 9-2 Manage Collector Users



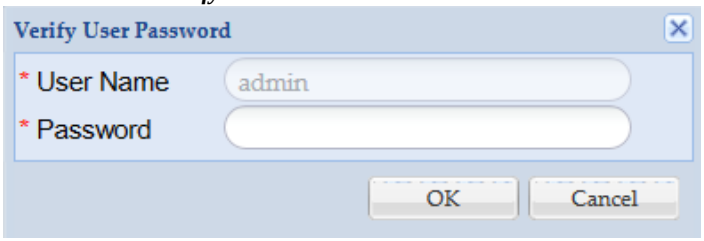
To add a new user, click *Add User*. This window shows the following information for each defined user on the system:

- Login ID
- Authentication Type (Local, Remote User Authentication)
- Password (masked)
- Full Name
- Group Name is the group of users belonging to
  - Administrator: Administrator will have full access on the entire CSPC server.
  - External Client User: External Client User is used for the purpose of external client authentication on collector. Login access for this user through GUI and CLI interface is disabled. Security features such as password expire, user account lock, session time out are not applicable for this type of user group.
  - Network Operator: Network Operator will have full access on managed network, and he/she can configure all the settings related to management. But he can't make any changes that effect theserver.
  - Report user: Report User can only be able to view reports.
  - SFTP User: Users can be of two types:
    - Local User: User configured in the local database.
    - Remote User: User configured on some remote authentication server. For remote users, password field is not needed.
- Email Address
- Phone Number
- Pager

Click **Modify User** to modify the details of existing user. Click **Remove User** to delete an existing user.

Click **OK** a prompt appears to verify the password. Enter the password and click **OK**.

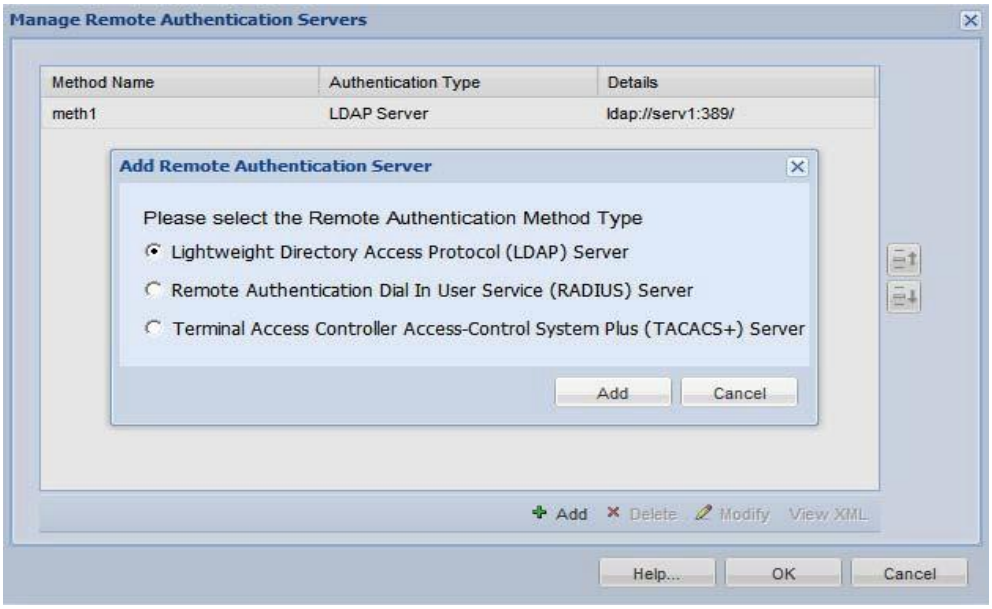
Figure 9-3 Verify User Password



Manage Remote Authentication Servers

If the user authentication type is remote authentication, CSPC gets the user credentials from a remote authentication server. The remote authentication servers need to be set up for the server to contact for credentials as defined below.

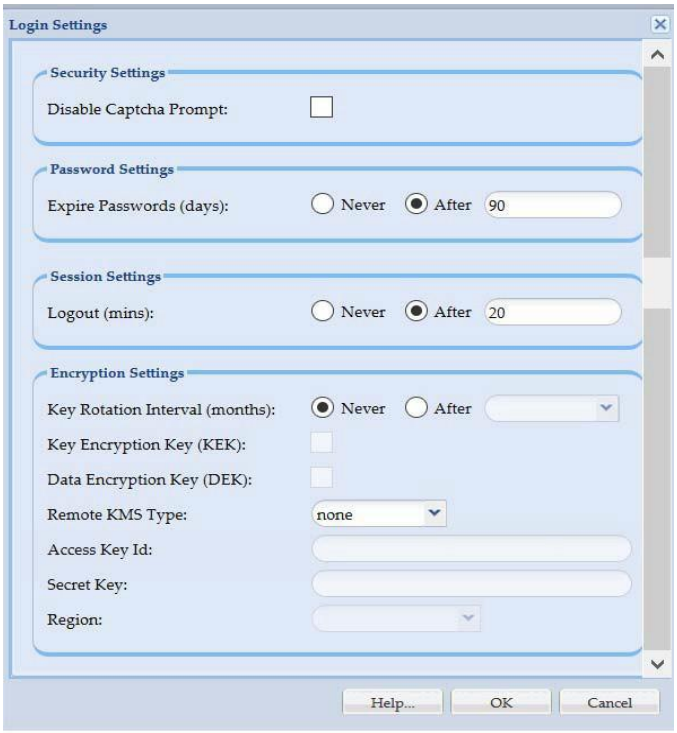
Figure 9-4 Setup Remote Authentication Servers



Login Settings

You can select and de-select the security options as per your requirements. Key rotation helps you to change the encryption key once in 3,6,12, or 24 months as per your requirements.

Figure 9-5 Login settings



To configure the login settings, perform the following:

Step 1 Select the **Disable Captcha Prompt** to remove the captcha prompt appearing on login screen

Step 2 Enter the number of days after the password should expires

Step 3 Set the session **Logout** time in minutes

Step 4 Select the **Key Rotation Interval** as **Never** or to occur **After** months

Step 5 Select **Key Encryption Key (KEK)** or/and **Data Encryption Key (DEK)**

Step 6 Select **Remote KMS Type** to store the data as **none** or **AWS**

Step 7 If AWS selected a prompt appears read it and click **OK**.

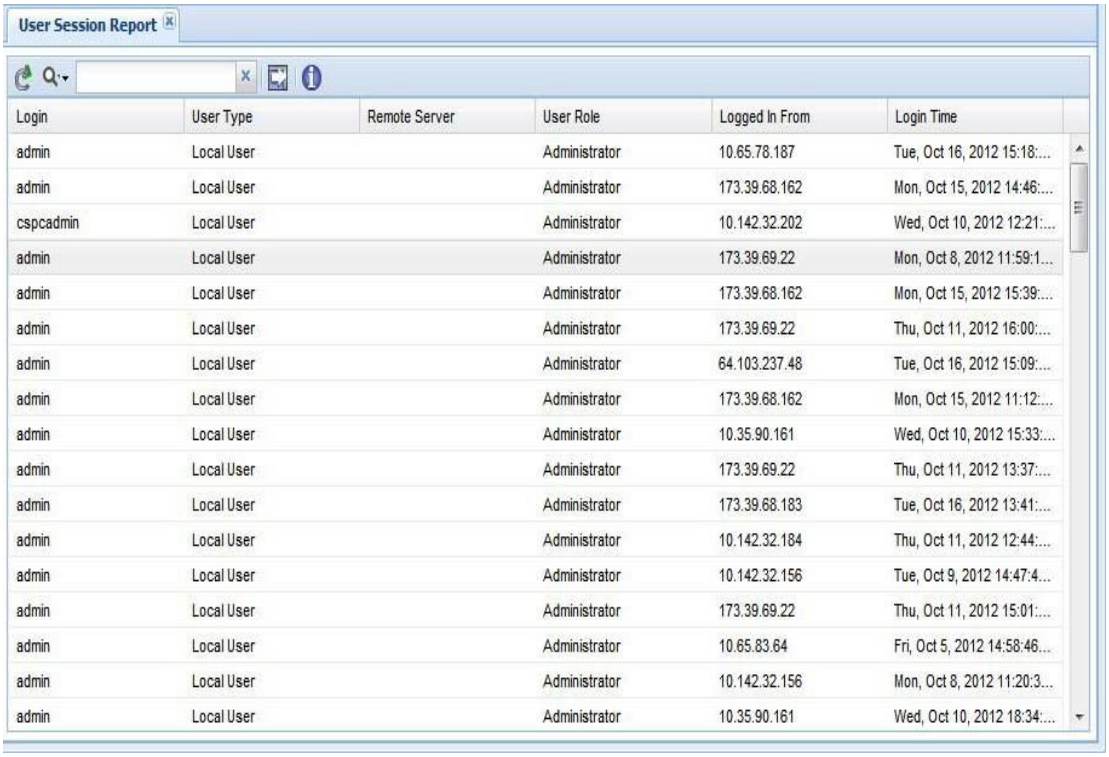
a. Enter **Access Key Id** and **Secret Key**.

b. Select the required **Region**.

User Session Report

The User Session Report window displays the list of users who are currently connected to the server.

Figure 9-6 User Session Report



Login	User Type	Remote Server	User Role	Logged In From	Login Time
admin	Local User		Administrator	10.65.78.187	Tue, Oct 16, 2012 15:18:...
admin	Local User		Administrator	173.39.68.162	Mon, Oct 15, 2012 14:46:...
cspcadmin	Local User		Administrator	10.142.32.202	Wed, Oct 10, 2012 12:21:...
admin	Local User		Administrator	173.39.69.22	Mon, Oct 8, 2012 11:59:1...
admin	Local User		Administrator	173.39.68.162	Mon, Oct 15, 2012 15:39:...
admin	Local User		Administrator	173.39.69.22	Thu, Oct 11, 2012 16:00:...
admin	Local User		Administrator	64.103.237.48	Tue, Oct 16, 2012 15:09:...
admin	Local User		Administrator	173.39.68.162	Mon, Oct 15, 2012 11:12:...
admin	Local User		Administrator	10.35.90.161	Wed, Oct 10, 2012 15:33:...
admin	Local User		Administrator	173.39.69.22	Thu, Oct 11, 2012 13:37:...
admin	Local User		Administrator	173.39.68.183	Tue, Oct 16, 2012 13:41:...
admin	Local User		Administrator	10.142.32.184	Thu, Oct 11, 2012 12:44:...
admin	Local User		Administrator	10.142.32.156	Tue, Oct 9, 2012 14:47:4...
admin	Local User		Administrator	173.39.69.22	Thu, Oct 11, 2012 15:01:...
admin	Local User		Administrator	10.65.83.64	Fri, Oct 5, 2012 14:58:46...
admin	Local User		Administrator	10.142.32.156	Mon, Oct 8, 2012 11:20:3...
admin	Local User		Administrator	10.35.90.161	Wed, Oct 10, 2012 18:34:...

User Preferences

The User Preferences sub tab is used to modify user preferences for a given CSPC server.

This section describes the options in the following topics:

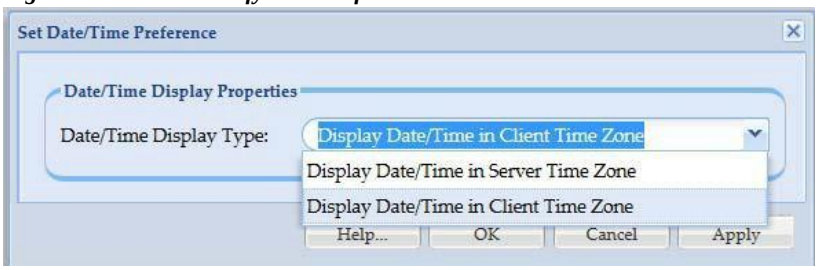
- Modify Data/Time Preference
- Configure Default Device Display Property

Modify Data/Time Preference

Modify Data/Time Preferences allows you to setup the data and time preferences. You can choose to display date and time in client time zone or in the server time zone as shown in Figure 9-7.

After the changes are done, the preferences are stored for the specific user account.

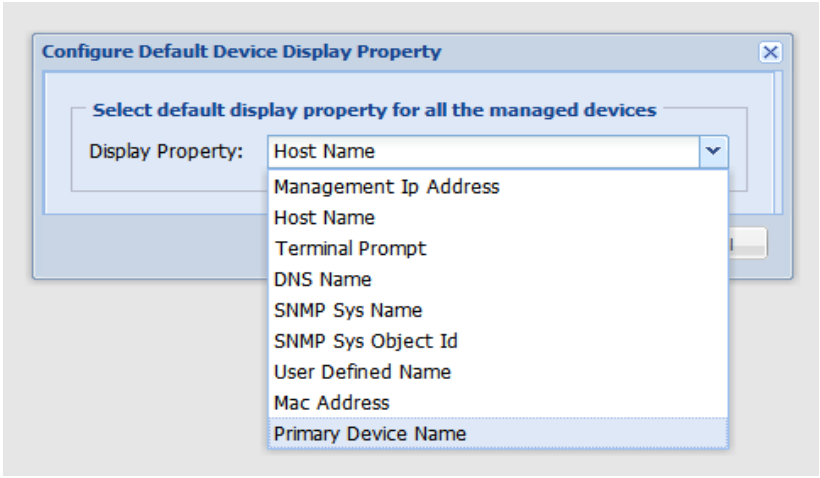
Figure 9-7 Modify User Preferences



Configure Default Device Display Property

Configure Default Device Display Property allows you to select the device property that will be the default for all managed devices.

Figure 9-8 Configure Default Device Display Property



Alert Management

The Alert Management sub tab is used to define Email settings and other alert for a given CSPC server.

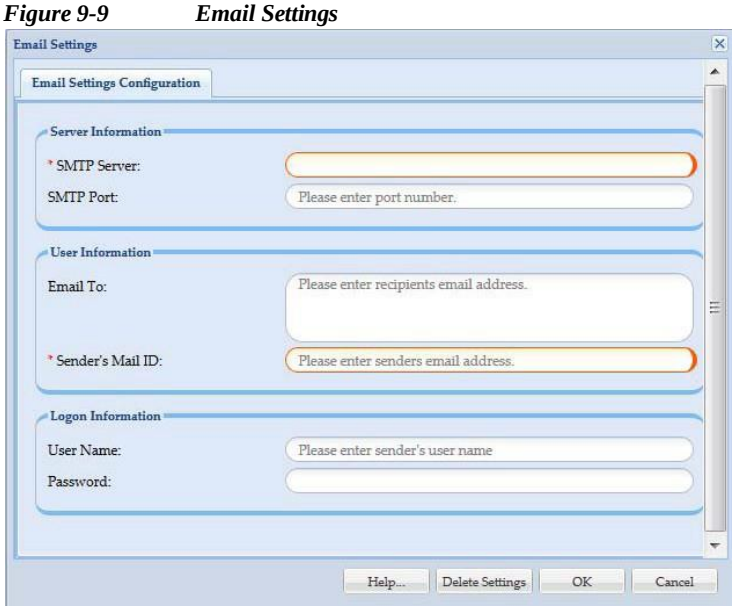
This section describes the options in the following topics:

- Email Settings
- Manage Subscribers
- Alert Configuration

Email Settings

This setting provides you with an option to configure a SMTP server for mail exchange.

Figure 9-9 Email Settings



Enter all the Mandatory fields and click **OK**

Table 9-1 SMTP Server Parameters

Field Name	Descriptions
SMTP Server	Server name or identity of the server
SMTP Port	Port number used for the server
Email To	Receiver mail address
Sender's Mail ID	Sender mail address
Username	Login name
Password	Login password

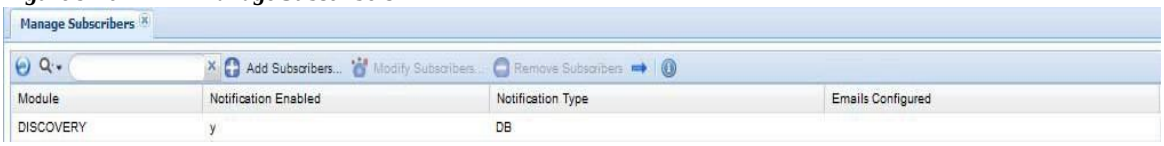
To reset the SMTP Settings to default value click **Default Settings**.

Only **Admin** user can configure/modify the email settings, however the network user can update "Email To" option if the settings are configured. Incase if the login settings are not defined, an error will be thrown for **Network** user.

Manage Subscribers

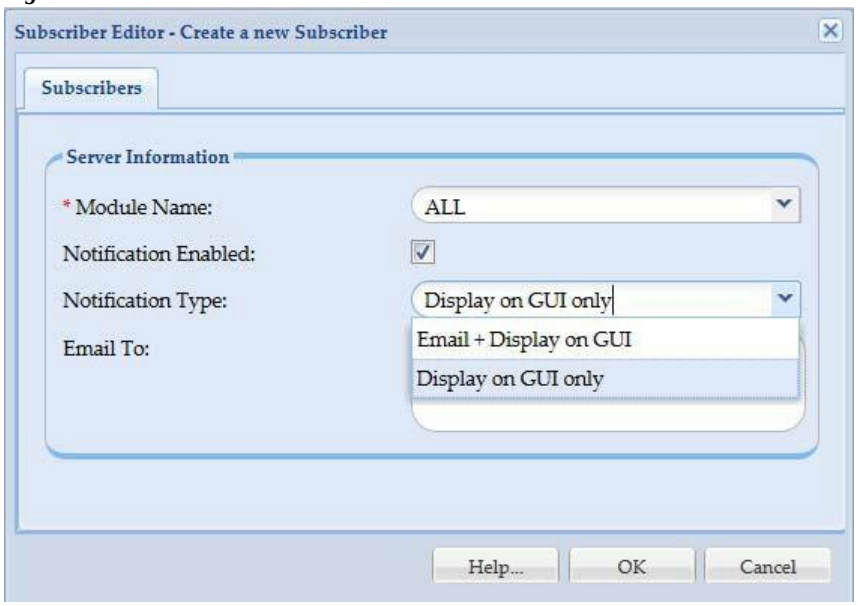
This option enables you to manage all the subscribers.

Figure 9-10 Manage Subscribers



Step 1 To add a Subscribers, click Add Subscribers the below screen appears shown in Figure 9-11

Figure 9-11 Add Subscribers

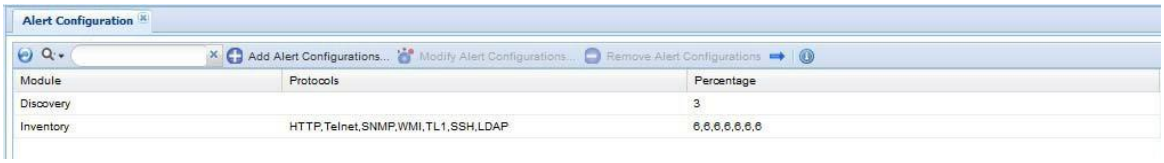


Step 2 Enter *Module Name*, select *Notification Enabled*, and if required enter *Notification Type* and *Email To* and then click *OK*.

Alert Configuration

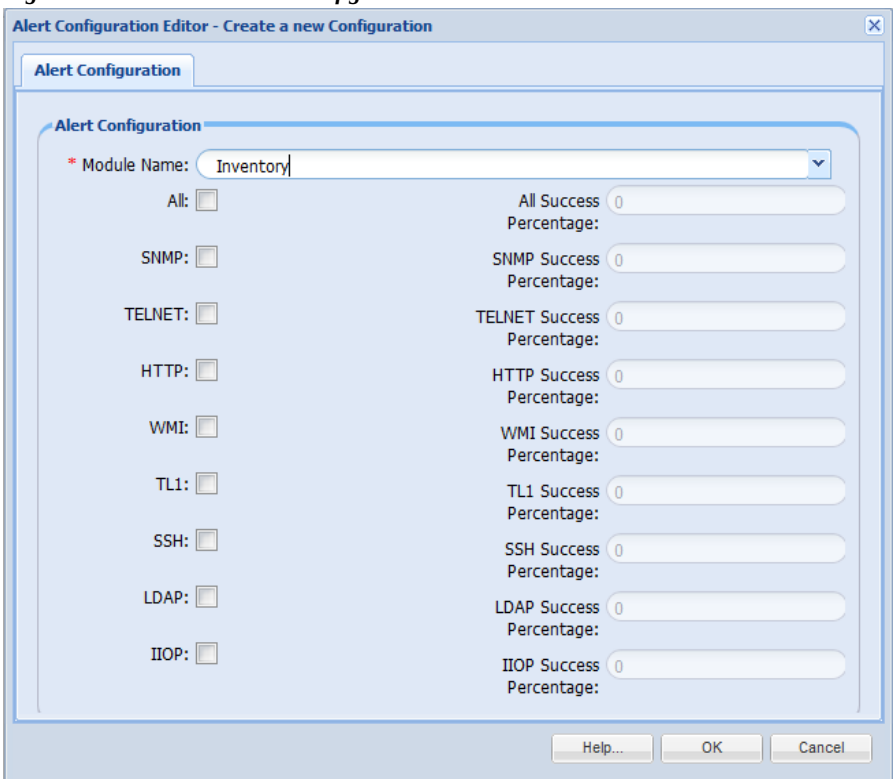
Alert a workflow CSPC service and pushes the notifications to the user. You do not need to login every time to see what the status of the job.

Figure 9-12 Alert Configurations



Step 1 To add an alert, click Add Alert Configurations the screen appears as shown in Figure 9-13

Figure 9-13 Add Alert Configurations



Step 2 Select the **Module Name** from the drop down,

- If *Discovery* is selected, then enter the *Discovery success Percentage* value
- If *Inventory* or *DAV* is selected, then select the protocol(s) and the enter the success percentage value for protocol(s)

Step 3 Click **OK**

Note You can select *ALL* or any protocol of your choice

Backup and Restore

The Backup and Restore sub tab is used to take backups of the collector data, as well as to restore the backed up data in case of a failure.

Note To make the file transfer more secure:

- It is recommended to use the secure protocols SFTP and SCP against insecure one's such as FTP and TFTP. If SFTP server is selected, then refer to RSA SHA 256 Fingerprint to generate the corresponding host key.

This section describes the options in the following topics:

- Backup
- Restore Backup

Backup

The Backup option allows you to select the database backup at a given instant, or to specify options for periodic database backup.

To perform the backup job, follow the below steps:

Step 1 Select **FTP Server**, **SFTP Server**, or **Local Server**

- If **FTP Server** selected enter the following
  - **Server Name**: IP Address/Host Name of the FTP server
  - **User Name**: FTP server username
  - **Password**: FTP server password
- If **SFTP Server** selected enter the following
  - **Server Name**: IP Address/Host Name of the SFTP server
  - **User Name**: SFTP server username
  - **Password**: SFTP server password
  - **Fingerprint**: Authentication received from server
- If **Local Server** is selected continue

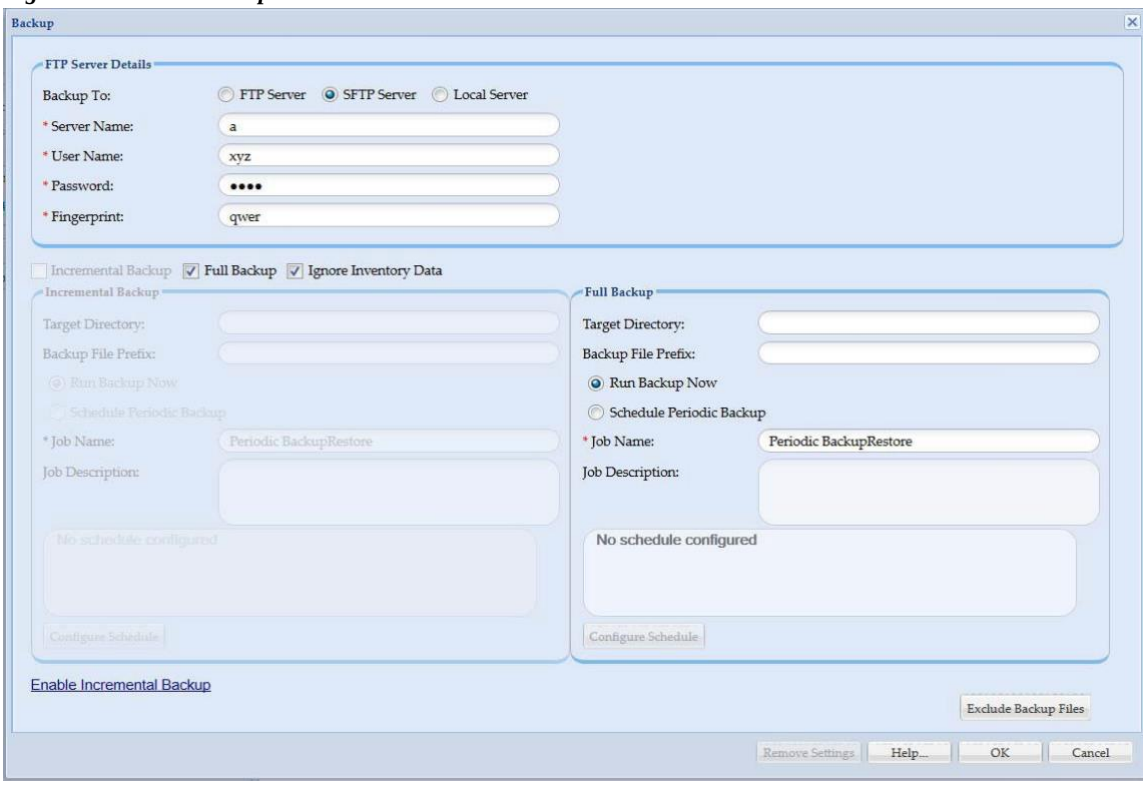
Note It is recommended to use the secure protocol SFTP against insecure FTP.

Step 2 Select required options **Incremental Backup** or/and **Full Backup** or/and **Ignore Inventory Data** and enter the following**:**

- **Target Directory**: The directory where the backup file needs to be stored
- **Backup File prefix**: The tag that will be appended to the backed up file
- To start backup instantly select **Run Backup Now** or to schedule the job later select **Schedule Periodic Backup.** For Periodic backup, you can configure schedule to specify the range of recurrences, Schedule start date/time, Schedule end date/time and recurrences pattern for the data backup. This is shown in Figure 9-15.
- **Job Name**: Enter the job name
- **Job Description**: Enter the description of the job

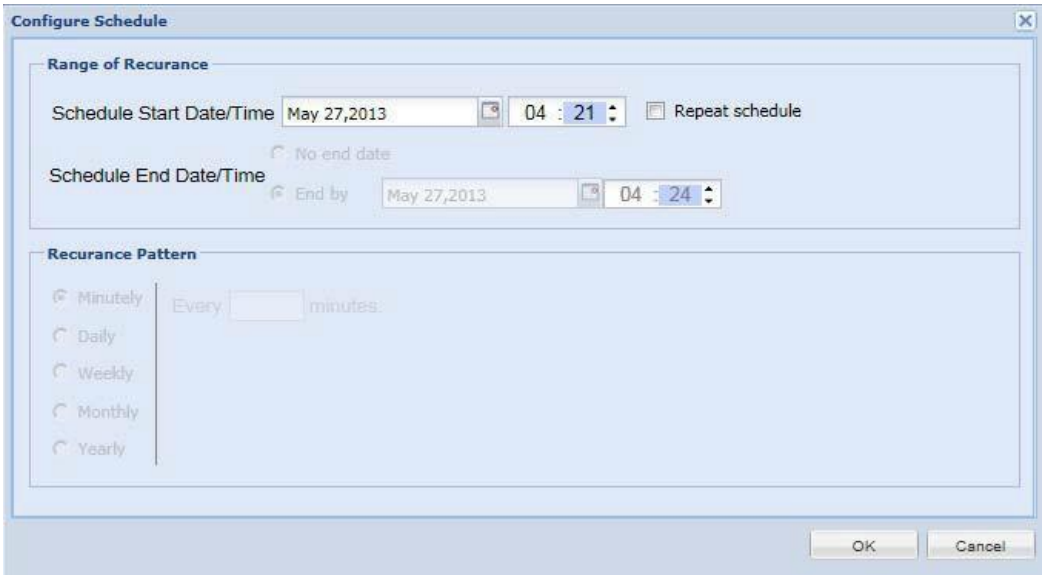
Note To remove inventory data from backup select Ignore Inventory Data.

Figure 9-14 Backup



Note To disable incremental backup click **Disable Incremental Backup** and this will prompt for the restart of the CSPC. Similarly, to enable click **Enable Incremental Backup** and it also requires restart.

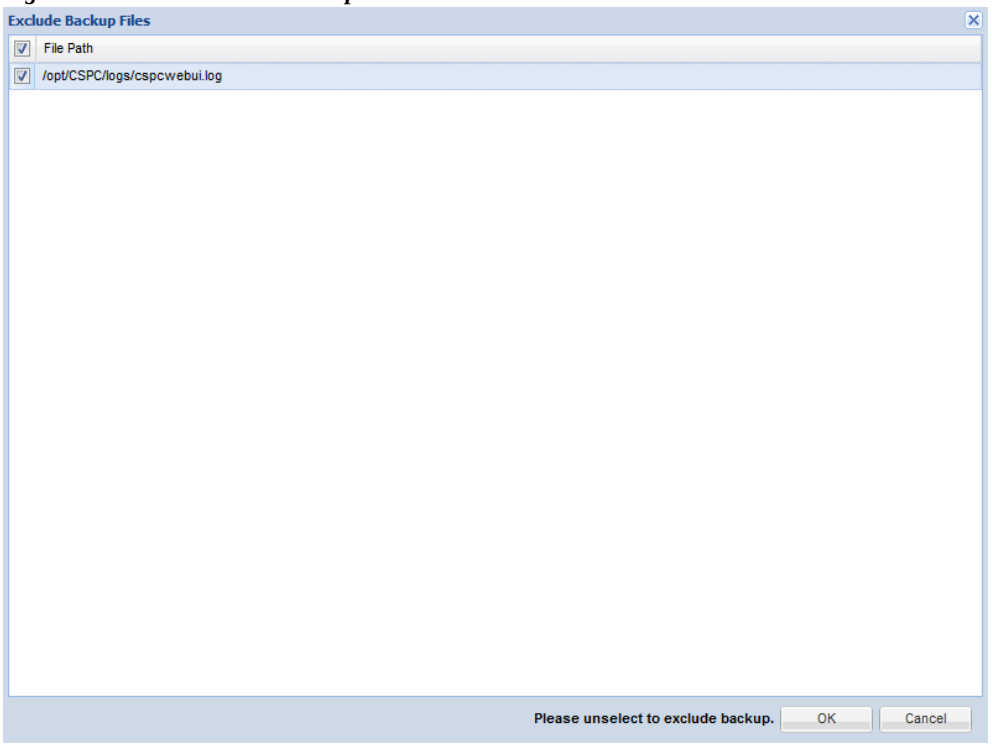
Figure 9-15 Configure Schedule



Step 3 To exclude the files from **Backup** unselect the files as shown in Figure 9-16.

To see the files here you have enter the file path in properties file.

Figure 9-16 Exclude Backup Files



Restore Backup

The Restore Backup option lets you restore a previously stored data backup. You need to provide the server information, such as where the backup file resides, and CSPC loads that backup to the system. This is shown in Figure 9-17.

To restore the backup file, follow the below steps:

Step 1 Select **FTP Server** or **Local Server**

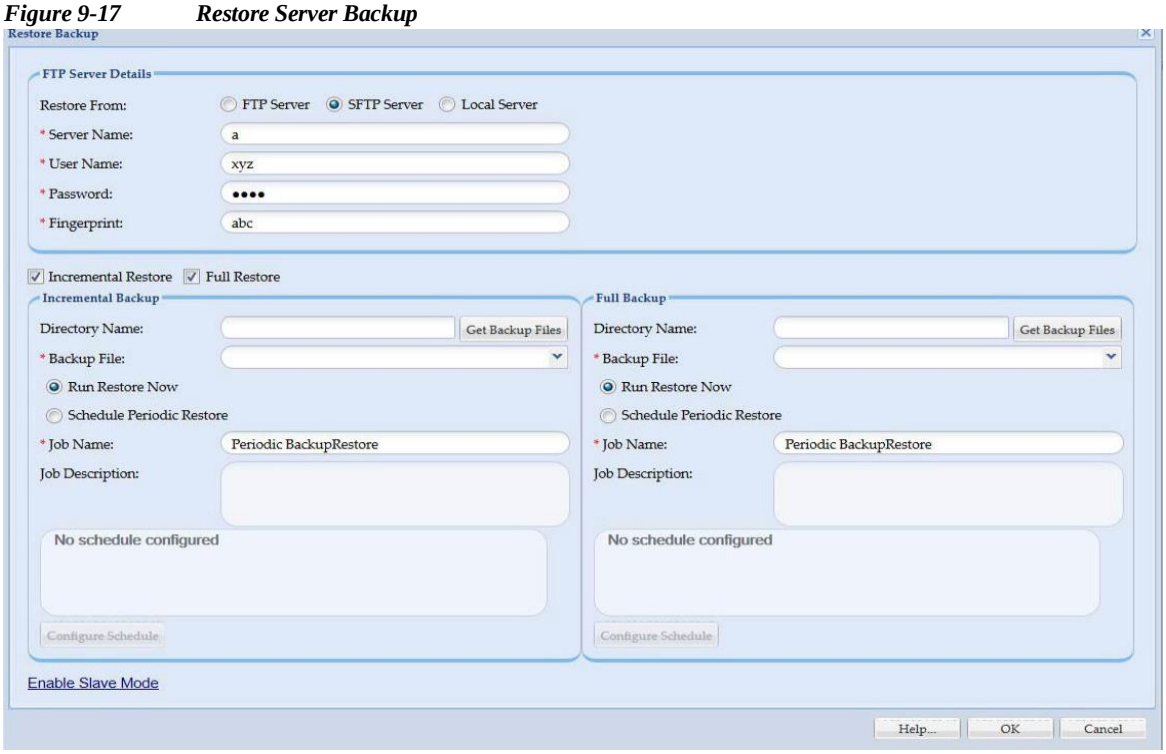
- If **FTP Server** selected enter the following
  - **Server Name**: IP Address/Host Name of the FTP server
  - **User Name**: FTP server username
  - **Password**: FTP Server Password
- If **SFTP Server** selected enter the following
  - **Server Name**: IP Address/Host Name of the SFTP server
  - **User Name**: SFTP server username
  - **Password**: SFTP server password
  - **Fingerprint**: Authentication received from server
- If **Local Server** is selected continue

Note It is recommended to use the secure protocol SFTP against insecure FTP.

Step 2 Select **Incremental Restore** or/and **Full Restore** and enter the following**:**

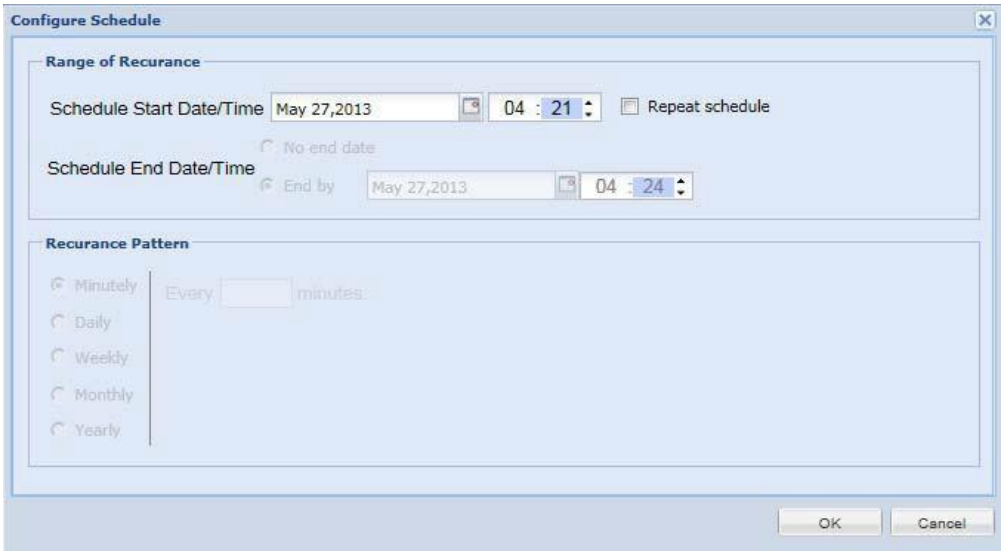
- **Directory Name**: The directory where the backup file needs to be restored
- **Backup File**: The backup file name
- To start restore instantly, select **Run Restore Now** or to schedule the job later select **Schedule Periodic Restore.** For Periodic restore, you can configure schedule to specify the range of recurrences, Schedule start date/time, Schedule end date/time and recurrences pattern for the data backup. This is shown in Figure 9-18.
- **Job Name**: Enter the job name
- **Job Description**: Enter the description of the job

Figure 9-17 Restore Server Backup



Note To enable slave mode click **Enable Slave Mode** and it requires CSPC to restart. This disables all other jobs expect **Backup and Restore** jobs on CSPC. Similarly, to disable click **Disable Slave Mode** and it also requires restart.

Figure 9-18 Configure Schedule



Log Preferences

The Server Log Preference sub tab is used to manage the server logs that are helpful in identifying and fixing any support issues.

This section describes the options in the following topics:

- Log Preferences
- Export Log Files

Log Preferences

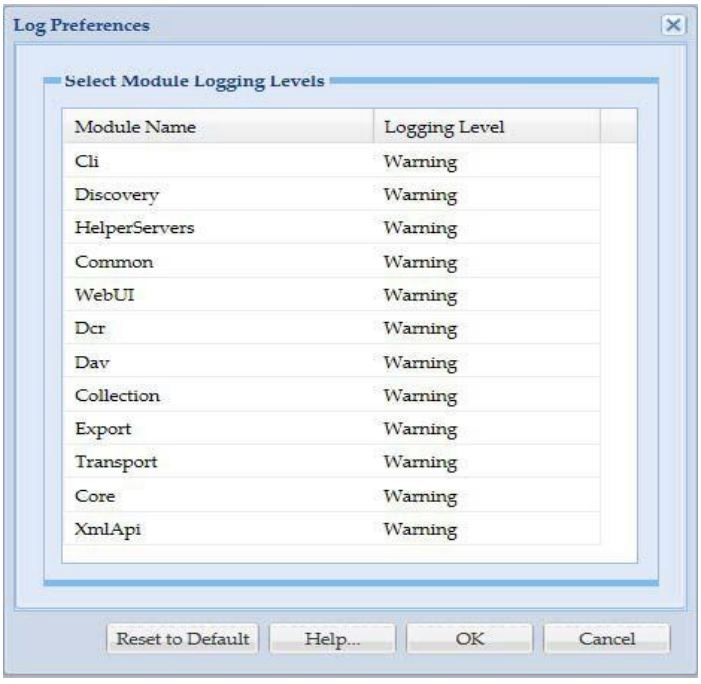
Using Log Preferences, you can select detailed logging level for each module of CSPC. Log preferences of the server as well as UI component can be changed.

Logging levels could be any one of the following:

- Fatal
- Error
- Warning
- Information
- Debug
- Trace

Log levels can be changed by clicking on the logging level and selecting the appropriate level. You can also select *none* and ignore the log for a specific module. This setting will be used for displaying the log messages in CSPC logs. Click **Reset to Default** to change all the log levels to default values.

Figure 9-19 Log Preferences



Export Log Files

The Export Log Files feature allows you to export all the server log files to the Cisco CSP support staff in case there is an error, and the support staff needs to access the server logs. Log Files can be exported both based on file name or time stamp. This is shown in the following screen.

Figure 9-20 Export Log Files by File

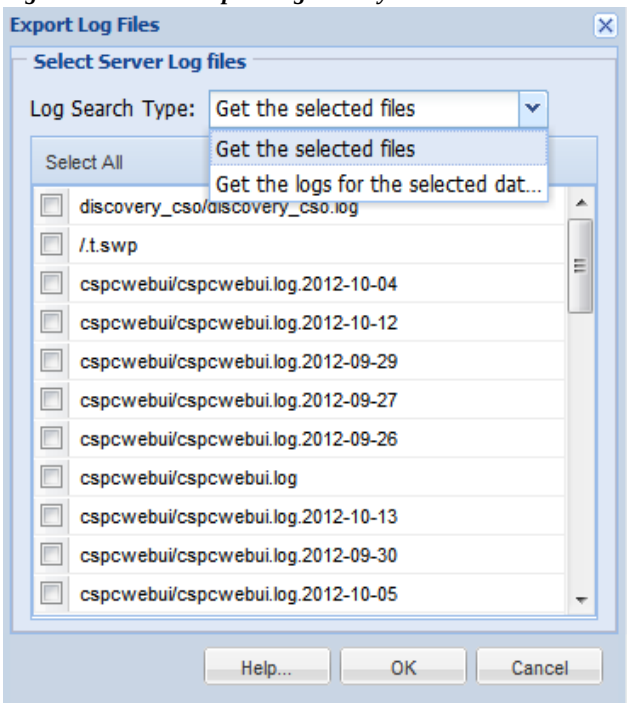
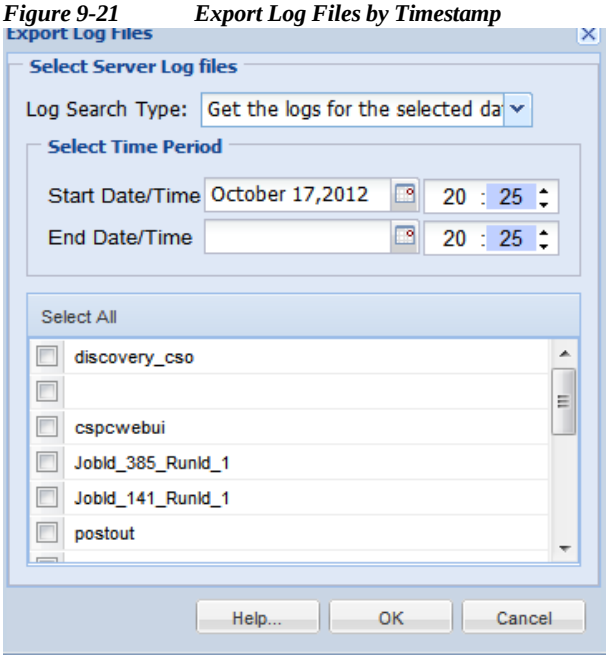


Figure 9-21 Export Log Files by Timestamp



Miscellaneous Applications

The Miscellaneous Applications sub tab shows server information, resynchronizes the client to server and provides some diagnostic tools.

This section describes the options in the following topics:

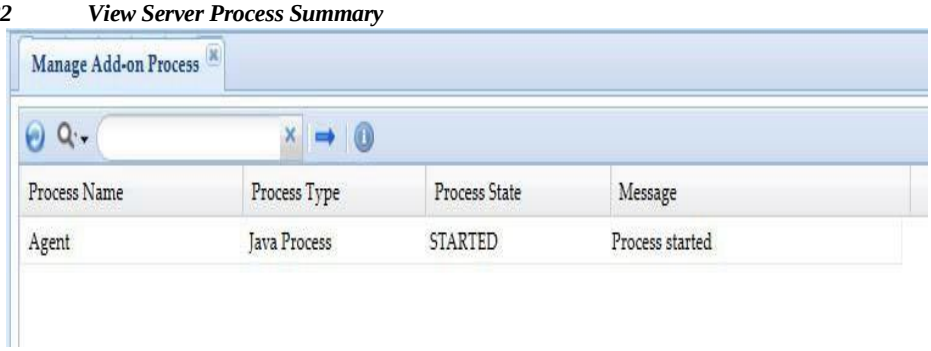
- Manage Add-on Process
- Manage UI Add-Ons
- Server Properties
- Diagnostic Tools
- XML API Console

Manage Add-on Process

Manage Add-on Process provides details on all the Server Processes including add-on processes for CSPC. This report includes Process Name, Process Type, Process State, and a Message associated withthat process as shown in Figure 9-22.

Note NOS service will have audit addon process and DCOS service will have dcos addon process

Figure 9-22 View Server Process Summary



Manage UI Add-Ons

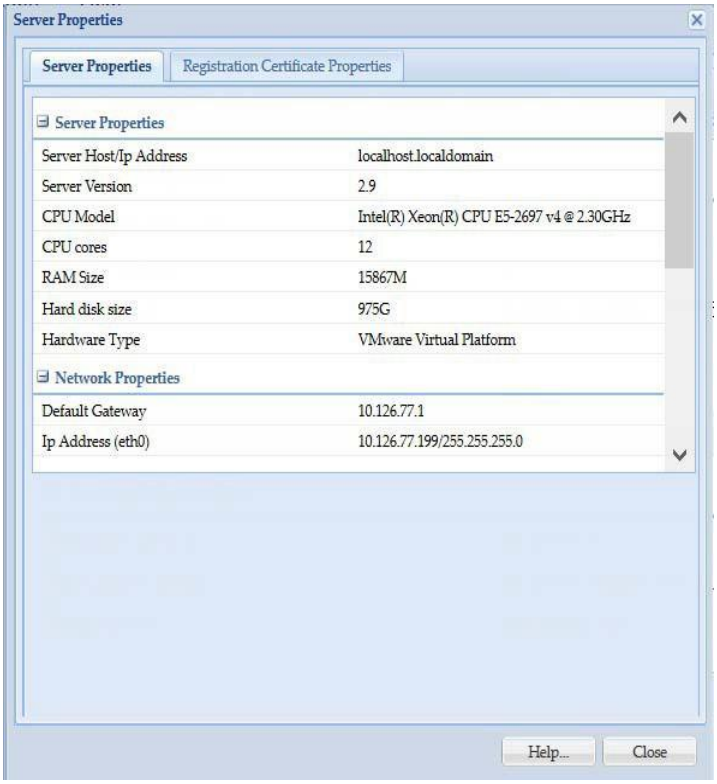
Manage UI Add-Ons screen shows the list of Add-Ons, action taken on the Add-On, the user who initiated the action, time of action and next possible action.

Figure 9-23 Manage UI Add-Ons

Server Properties

The View CSPC Server Properties window shows information about the server itself. The data shown in this window includes *Server Properties and License Properties*. This gives information, such, the IP address of the server, server version, default gateway, sever time zone, etc., as shown in Figure 9-24.

Figure 9-24 Server Properties



- CSPC Registration Properties: provides details of the certificate stored in CSPC that identifies the appliance and should be constant as long as the collector has not been decommissioned (with the exception of transition from evaluation to a service certificate).
- Connectivity Registration Properties: provides details of the certificate stored in CSPC, that after application to connectivity enables connectivity to communicate with Cisco. Any service certificate may be selected for connectivity certificate. Certificates supporting web-sockets have precedence over those that do not support.

You can also find the Certificate information of the server by clicking *Registration Certificate Properties*. You can expand each registration certificate to see the properties and click **Add** and browse to add new certificate file and click **Replace** to upgrade or change the certificate. Click **Delete** to remove the certificate as shown in Figure 9-25.

Figure 9-25 License Properties

Note CSPC supports multiple service on single collector and more than 10 k devices are uploaded. You can install the certificate at any point of time. The first certificate is applied during the installation. If you add multiple registration certificates for a service, then company name should be same for all the certificate or if it is different service on the same collector then company name can differ. You can upload multiple registration certificates for different servicer on the same collector and configures based the certificate. Name of the service should be in accordance with the registration certificate. Old certificate created before 2.8 will not work in fresh installation, but upgrade can be done. Service specific Registration Certificate is used to upload data to backend of the specific service.

Note Maximum allowed certificates for NOS/CSPT service is four and rest can have one.

Diagnostic Tools

This option provides simple diagnostic tools like *ping* and *traceroute* to check if the device is availableor connectivity is to the device is established. Pick the command you want to use and select the deviceon which you want the diagnostics to run, and click *Run Command*. The results appear in the *Command Result* section of the window.

Figure 9-26 Diagnostic Tools - ping utility

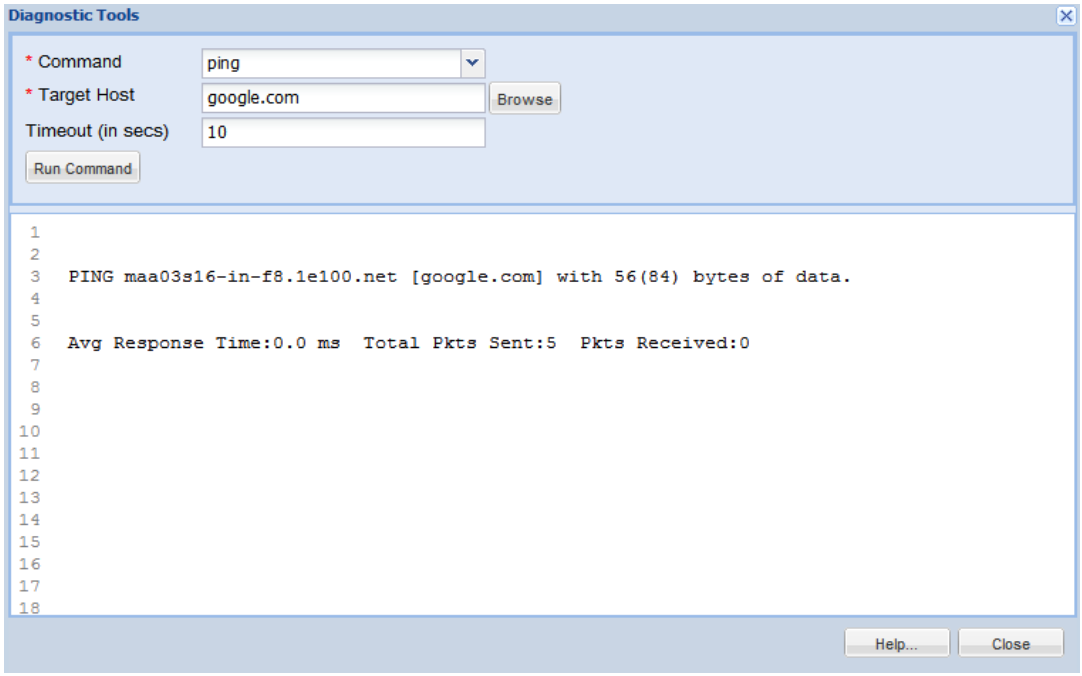
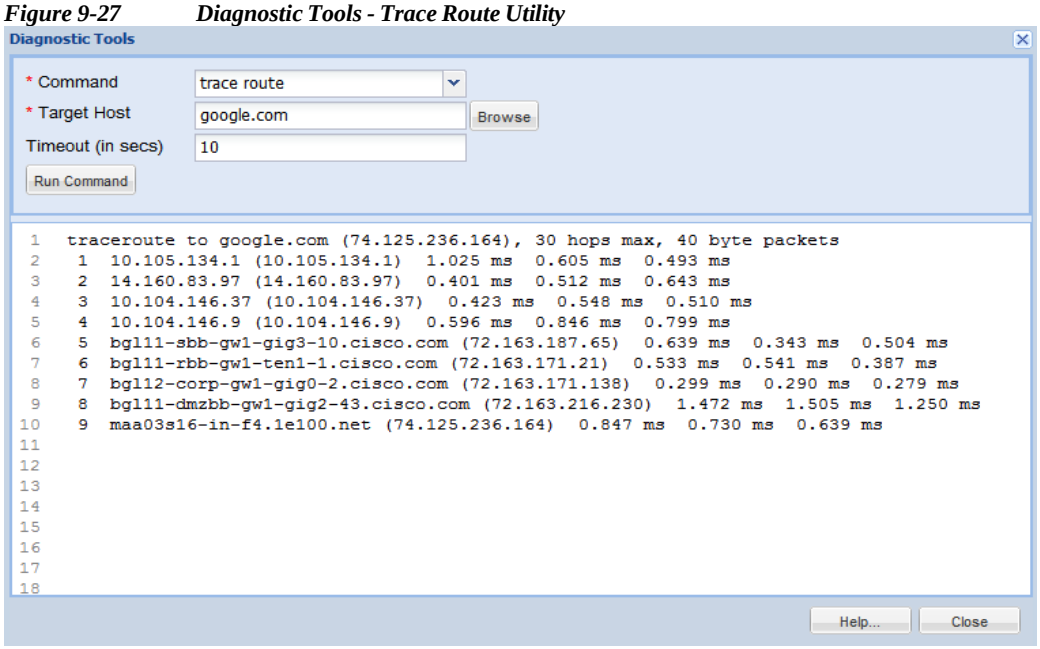


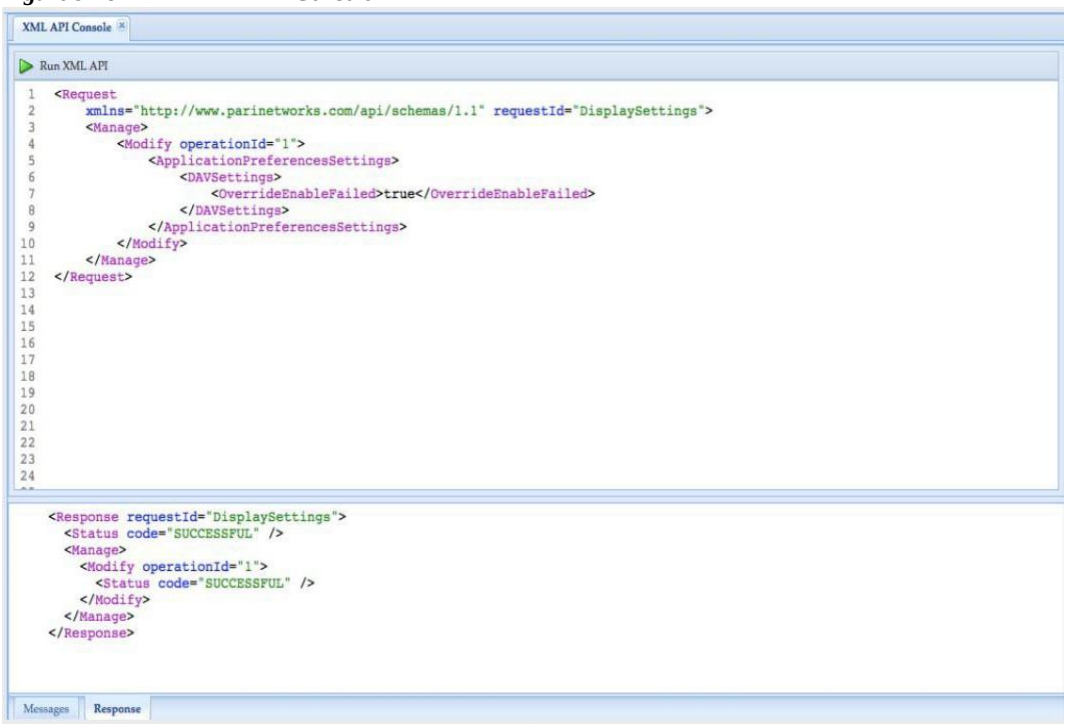
Figure 9-27 Diagnostic Tools - Trace Route Utility



XML API Console

XML API Console option is provided to execute XML APIs on the CSPC server. This option is provided for third party application integration with CSPC. This is shown in Figure 9-28.

Figure 9-28 XML API Console



Menu Options

Menus

Menu options are provided as a quick way to access the applications.

Figure 10-1 Menu Option

The menu options provided in CSPC are:

- User Name
- Settings
- Management
- Reports
- Administration
- Help
- Quick Menus

User Name

Shows the Name/Username of the user logged into CSPC application. In the illustration shown in Figure 10-1, the Super Administrator is logged in.

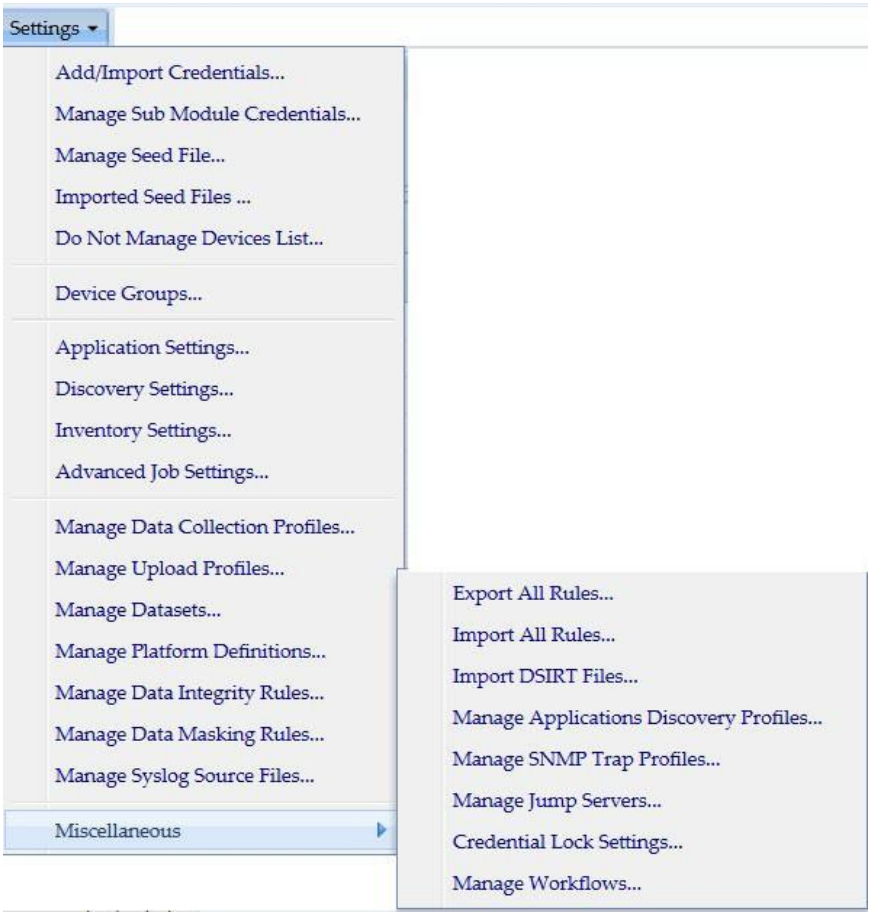
It has the following option:

- Logout: Logs out and closes the CSPC client application
- Change Password/settings: Resets the password

Settings

Settings in the menu bar provides various options for setting up device credentials and collection profiles for collecting device specific information, as displayed in the following figure. These options are described in the *Applications->Device Management Tab*.

Figure 10-2 Menu Option - Settings



Management

Management in the menu bar provides various options for discovering and managing devices and running collection profiles, as shown in the following figure. These options are described in the *Applications->Device Management Tab*.

Figure 10-3 Menu Option - Management

Reports

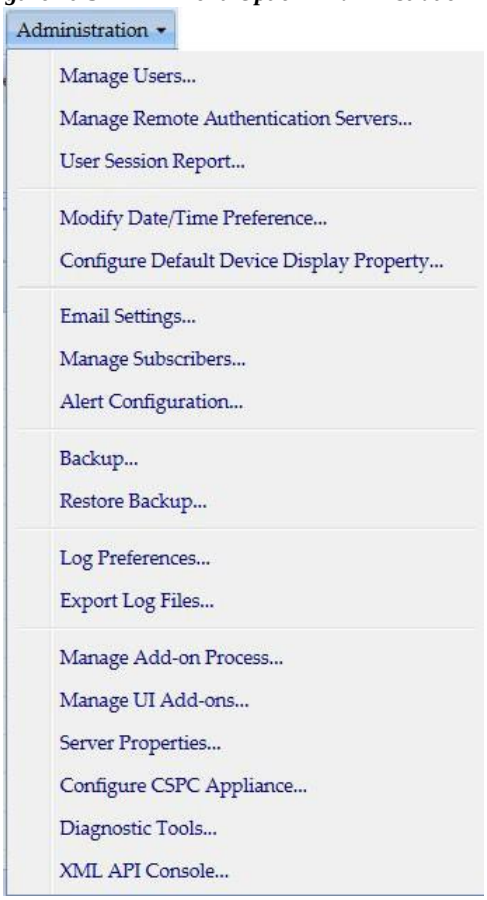
Reports in the menu bar provide various reporting options for viewing collected data as shown in the following figure. These options are described in the *Applications->Reports Tab*.

Figure 10-4 Menu Option - Reports

Administration

Administration in menu the bar provides various options for administrating server, device, and collection profiles, as shown in the following figure. These options are described in the *Applications->Administration Tab*.

Figure 10-5 Menu Option - Administration

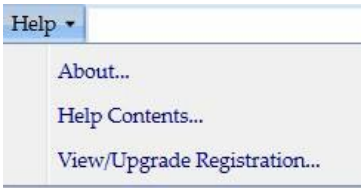


Help

Under Help menu, following option is shown:

- About
- Help Contents
- View/Upgrade Registration

Figure 10-6 Menu Option - Help



Quick Menus

This Menu helps for the fast and easy access for the vital features on CSPC.

Table 10-1 Quick Menu

Menu Options	Description
Credentials	This takes you to Device Credentials page for more info refer to: Add/Import Credentials.
Discovery	This takes you to Select Discovery Methods page for more info refer to: Discover Devices.
Managed Devices	This takes you to View Discovery Devices page for more info refer to: View Managed Devices.
Collect	This takes you to Select Collection Profile page for more info refer to: Collect Data.
Collected Data	This takes you to View Collected Data page for more info refer to: View Collected Data.
Upload	This takes you to Select Upload Profile page for more info refer to: Upload Data.
Job Run Status	This takes you to Job Run Status page for more info refer to: Job Run Status.

Adding Devices to CSPC

Overview

Adding devices to CSPC is a sequential, two-step process. First one adds credentials for the devices. Adding credentials for a device does not add the device, however. After the credentials have been added, the additional step of managing the device is necessary. Managing the device uses the credentials to contact the device via SNMP and collect device classification data from it.

There are two ways to add credentials. Credentials can be added individually, or through an import. You can import credentials from applications like:

- Cisco Works DCR XML File (.xml)
- Pari Networks Credential Repository (.xml)
- Cisco Works DCR CSV File (.csv)
- CNC CSV File (.csv)
- Simplified CSV File (.csv)

All the methods of adding credentials are performed on the credentials screen.

In CSPC there is a one-to-many relationship between credentials and devices. Multiple devices are stored against a single credential. The multiple devices can be specified by wildcards matching IP addresses or by IP address enumeration. Wildcards matching IP addresses is the preferred approach.

On the first collection, if the first wildcard matching the device does not succeed, the second wildcard matching the device will be tried. On subsequent collections the last successful credential will be tried first.

In addition, the protocol for the dataset type will be determined by the credentials order. For example, the choice between SSH and Telnet is controlled by the order of the SSH and Telnet credentials.

Thus, the order of credentials is important, and can be manipulated.

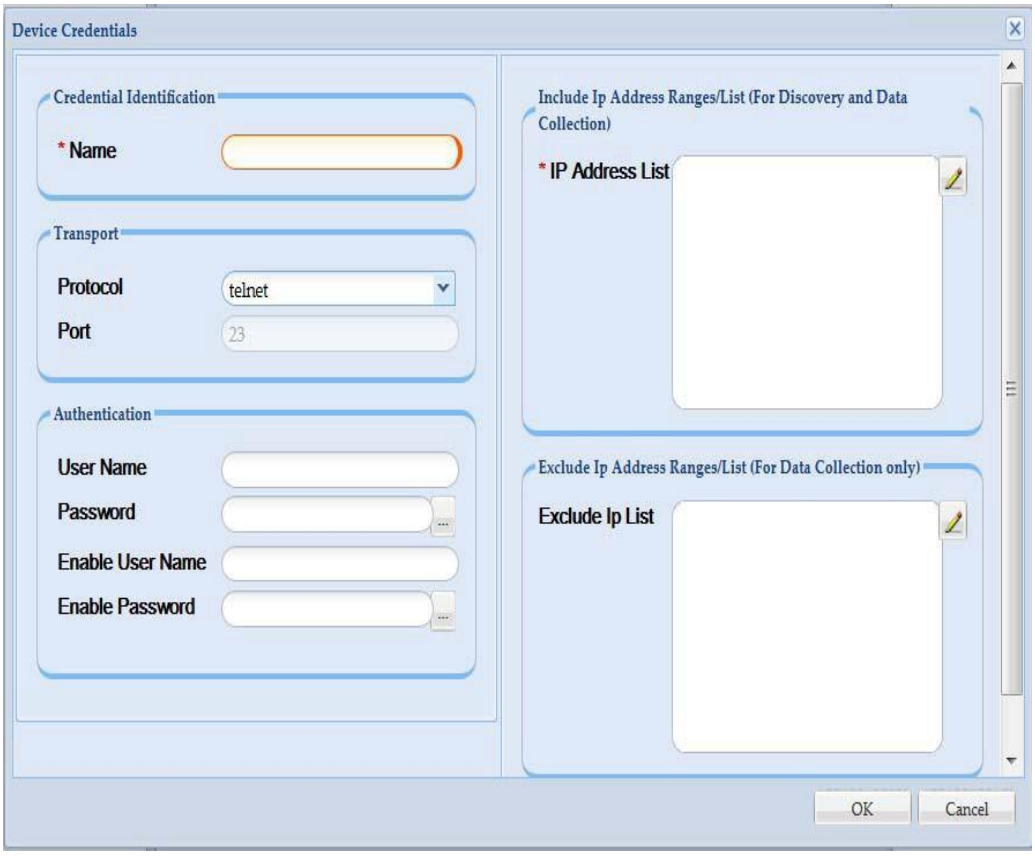
Credentials may be exported, but only in the Pari Credentials File Format.

After the credentials have been added, the devices can be managed. While credentials must be entered by wildcards matching IP addresses or the IP addresses themselves, the devices can be managed by either IP address or DNS name.

Examples

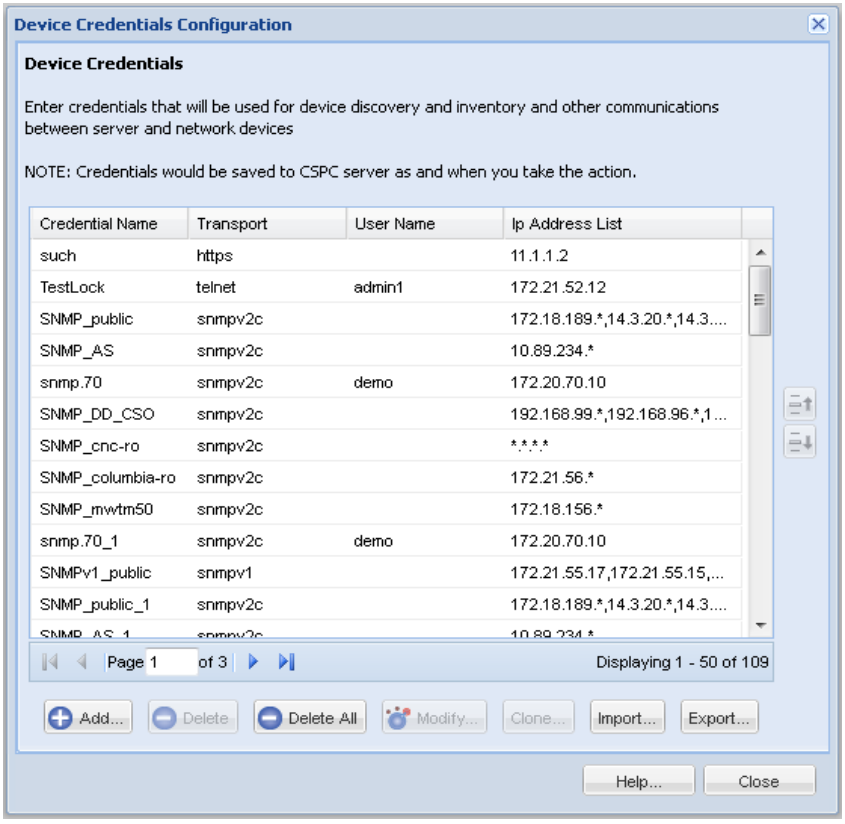
Here an SSH credential is added against a wildcard:

Figure A-1 Device Credentials



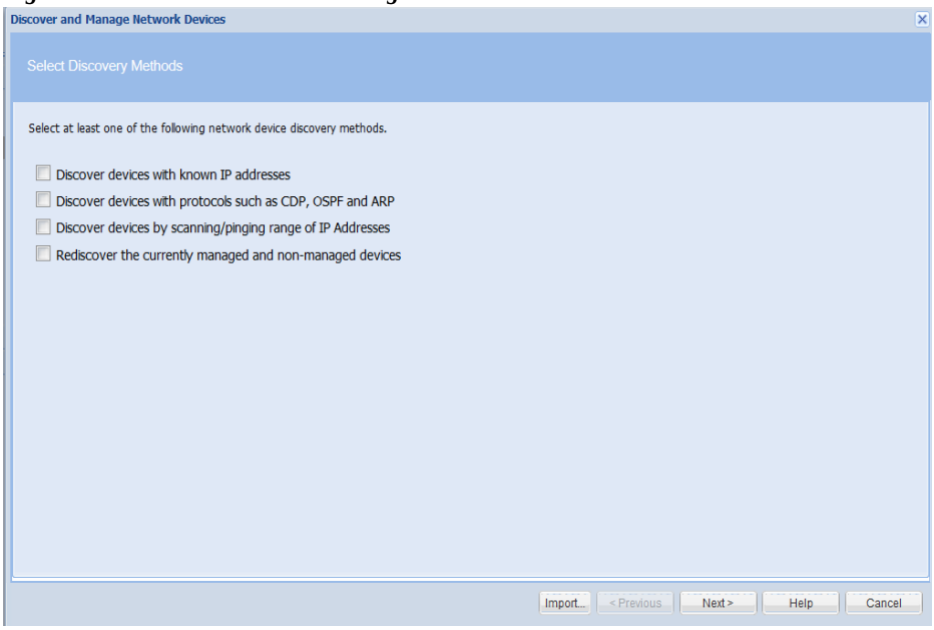
Result is shown in Figure A-2:

Figure A-2 Device Credential Configuration



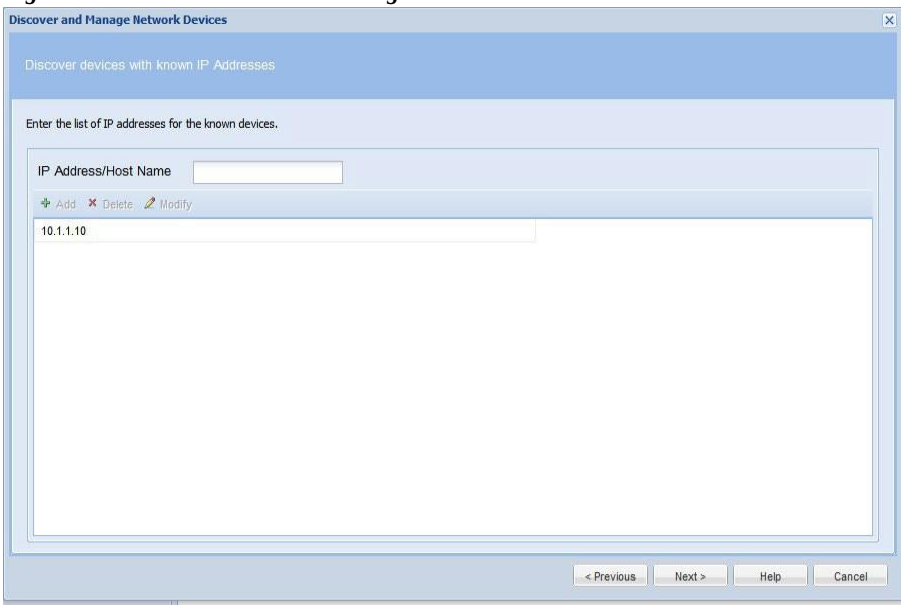
Now the devices can be managed. Devices are managed by discovery of known devices. This is a special kind of discovery that does not discover anything.

Figure A-3 Discover and Manage Network Devices



Either the IP Address or the DNS Name.

Figure A-4 Discover and Manage Network Devices



Seed File Formats

CSPC supports following seed file formats:

1. CNC Seed File Format
2. Cisco Works Seed File Format
3. Simplified Seed File Format

CNC seed file format has following three formats:

1. CNC 20-field format
2. CNC 30-field format
3. CNC 36-field format

And Cisco Works has following two formats:

1. Cisco Works 30-field format
2. Cisco Works 34-field format

Note All the above seed file formats are of *.csv* type.

Simplified seed file format allows users to easily specify credentials for all devices or set of devices using wild cards.

The basic difference between Simplified Format and rest of the formats is that for the same device there are multiple entries, each entry corresponds to one protocol. In other formats same entry carries for all devices.

Header Information

CNC Seed File Format

Header in CNC 20-field format contains the fields listed below:

; Col# = 1: Name (including domain or simply an IP),
; Col# = 2: RO community string,
; Col# = 3: RW community string,
; Col# = 4: Serial Number,
; Col# = 5: User Field 1,
; Col# = 6: User Field 2,
; Col# = 7: User Field 3,
; Col# = 8: User Field 4,
; Col# = 9; Name = Telnet password,
; Col# = 10; Name = Enable password,
; Col# = 11; Name = Enable secret,
; Col# = 12; Name = Tacacs user,
; Col# = 13; Name = Tacacs password,
; Col# = 14; Name = Tacacs enable user,
; Col# = 15; Name = Tacacs enable password,
; Col# = 16; Name = Local user,
; Col# = 17; Name = Local password,
; Col# = 18; Name = Rcp user,
; Col# = 19; Name = Rcp password,
; Col# = 20; Name = Enable User,

Header in CNC 30-field format contains the fields listed below:

; Col# = 1: IP Address (including domain or simply an IP),
; Col# = 2: Host Name,
; Col# = 3: Domain Name,
; Col# = 4: Device Identity,
; Col# = 5: Display Name,
; Col# = 6: SysObjectID ,
; Col# = 7: DCR Device Type,
; Col# = 8: MDF Type,
; Col# = 9; Snmp RO
; Col# = 10; Snmp RW
; Col# = 11; SnmpV3 User Name

; Col# = 12; Snmp V3 Auth Pass
; Col# = 13; Snmp V3 Engine ID
; Col# = 14; Snmp V3 Auth Algorithm
; Col# = 15; RX Boot Mode User
; Col# = 16; RX Boot Mode Pass
; Col# = 17; Primary User (Tacacs User)
; Col# = 18; Primary Pass (Tacacs Pass)
; Col# = 19; Primary Enable Pass
; Col# = 20; Http User
; Col# = 21; Http Pass
; Col# = 22; Http Mode
; Col# = 23; Http Port
; Col# = 24; Https Port
; Col# = 25; Cert Common Name,
; Col# = 26; Secondary User,
; Col# = 27; Secondary Pass,
; Col# = 28; Secondary Enable Pass,
; Col# = 29; Secondary Http User,
; Col# = 30; Secondary Http Pass,

Header in CNC 36-field format contains the fields listed below:

; Col# = 1: IP Address (including domain or simply an IP),
; Col# = 2: Host Name,
; Col# = 3: Domain Name,
; Col# = 4: Device Identity,
; Col# = 5: Display Name,
; Col# = 6: SysObjectID,
; Col# = 7: DCR Device Type,
; Col# = 8: MDF Type,
; Col# = 9; Snmp RO
; Col# = 10; Snmp RW
; Col# = 11; SnmpV3 User Name
; Col# = 12; Snmp V3 Auth Pass
; Col# = 13; Snmp V3 Engine ID
; Col# = 14; Snmp V3 Auth Algorithm
; Col# = 15; RX Boot Mode User
; Col# = 16; RX Boot Mode Pass

; Col# = 17; Primary User (Tacacs User)

; Col# = 18; Primary Pass (Tacacs Pass)

; Col# = 19; Primary Enable Pass

; Col# = 20; Http User

; Col# = 21; Http Pass

; Col# = 22; Http Mode

; Col# = 23; Http Port

; Col# = 24; Https Port

; Col# = 25; Cert Common Name,

; Col# = 26; Secondary User,

; Col# = 27; Secondary Pass,

; Col# = 28; Secondary Enable Pass,

; Col# = 29; Secondary Http User,

; Col# = 30; Secondary Http Pass,

; Col# = 31; Snmp V3 Priv Algorithm,

; Col# = 32; Snmp V3 Priv Pass,

; Col# = 33; User Field 1,

; Col# = 34; User Field 2,

; Col# = 35; User Field 3,

; Col# = 36; User Field 4,

A new feature is implemented to decide the primary device name using column1, column2, and column3 of 30 and 36 column CNC seedfile. This eliminates the need of manual updating of `/etc/hosts`.

Hostname and Domain name is decided based on below scenarios:

- If seed file has defined hostname in Column 2 and domain name in Column 3, then CSPC combines both the (Hostname in Column2 + Domain name Column3) and use this as a primary device name
- If seed file has defined hostname in Column 2 and no domain name in Column 3, then CSPC uses hostname in Column2 as a primary device name
- If seed file has defined hostname in Column 1, no data in Column2, and domain name in Column3, then CSPC combines both of them (Hostname in Column1 + Domain name in Column3) and uses this as a primary device name
- If no value present in Column2 and Column3 then CSPC uses Column1 value (Ipaddress or hostname) as a primary device name

Cisco Works Seed File Format

Header in Cisco Works 30 seed file contains these fields:

- management_ip_address
- host_name

- domain_name
- device_identity
- display_name
- sysObjectID
- dcr_device_typemdf_typesnmp_v2_ro_comm_string
- snmp_v2_rw_comm_string
- snmp_v3_user_idsnmp_v3_passwordsnmp_v3_engine_id
- snmp_v3_auth_algorithm
- rxboot_mode_username
- rxboot_mode_password
- primary_username
- primary_password
- primary_enable_password
- http_username
- http_password
- http_mode
- http_port
- https_port
- cert_common_name
- secondary_username
- secondary_password
- secondary_enable_password
- secondary_http_username
- secondary_http_password

Header in Cisco Works 34 seed file contains these fields:

- management_ip_address
- host_name
- domain_name
- device_identity
- display_name
- sysObjectID
- dcr_device_type
- mdf_type
- sysContact
- sysLocation
- snmp_v2_ro_comm_string
- snmp_v2_rw_comm_string

- snmp_v3_user_id
- snmp_v3_password
- snmp_v3_engine_id
- snmp_v3_auth_algorithm
- snmp_v3_priv_password
- snmp_v3_priv_algorithm
- rxboot_mode_username
- rxboot_mode_password
- primary_username
- primary_password
- primary_enable_password
- http_username
- http_password
- http_mode
- http_port
- https_port
- cert_common_name
- secondary_username
- secondary_password
- secondary_enable_password
- secondary_http_username
- secondary_http_password

Simplified Seed File Format

Header in Simplified Seed file contains these fields:

- IPAddress
- protocol
- port
- username
- password
- enableusername
- enablepassword
- SnmpRO
- SnmpRW
- SnmpV3Id
- SnmpV3Password
- SnmpV3EngineId

- Snmpv3AuthAlogorithm
- SnmpV3PrivAlgorithm
- SnmpVPrivPassword

Export File Format

These are the contents of the file generated by the export utility of Service Appliance 1.0:

; Col# = 1: IP Address (including domain or simply an IP)

; Col# = 2: Host Name

; Col# = 3: Domain Name

; Col# = 4: Device Identity

; Col# = 5: Display Name

; Col# = 6: SysObjectID

; Col# = 7: DCR Device Type

; Col# = 8: MDF Type

; Col# = 9; Snmp RO

; Col# = 10; Snmp RW

; Col# = 11; SnmpV3 User Name

; Col# = 12; Snmp V3 Auth Pass

; Col# = 13; Snmp V3 Engine ID

; Col# = 14; Snmp V3 Auth Algorithm

; Col# = 15; RX Boot Mode User

; Col# = 16; RX Boot Mode Pass

; Col# = 17; Primary User(Tacacs User)

; Col# = 18; Primary Pass(Tacacs Pass)

; Col# = 19; Primary Enable Pass

; Col# = 20; Http User

; Col# = 21; Http Pass

; Col# = 22; Http Mode

; Col# = 23; Http Port

; Col# = 24; Https Port

; Col# = 25; Cert Common Name

; Col# = 26; Secondary User

; Col# = 27; Secondary Pass

; Col# = 28; Secondary Enable Pass

; Col# = 29; Secondary Http User

; Col# = 30; Secondary Http Pass

; Col# = 31; Snmp V3 Priv Algorithm

; Col# = 32; Snmp V3 Priv Pass

; Col# = 33; User Field 1

; Col# = 34; User Field 2

; Col# = 35; User Field 3

; Col# = 36; User Field 4

; Col# = 37; Status_Msg

Optional Parameter for NATed Appliances

This feature allows TFTP dataset/CLI datasets/ ApplyIPSsignature/ApplyConfig to create/execute with commands having CSPC server IP, which needs to be added dynamically while executing the TFTP dataset/CLI datasets/ApplyIPSsignature/ApplyConfig. To use this feature for CLI datasets/ ApplyIPSsignature/ApplyConfig ,a unique tag called <#SERVERIP#> has to be added to the command where CSPC server IP needs to be replaced. Updating TFTP dataset is not needed. By default, CSPC will replace it with its own IP but, in case the externally visible IP is not the same as the internal CSPC IP, then use the following XML to added/modify the IP to be used for replacing the <#SERVERIP#> tag

To add/modify a CSPC Server IP, use below xml API

<Request requestId="" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"

xsi:schemaLocation="http://www.parinetworks.com/api/schemas/1.1 pari_api.xsd"

xmlns="http://www.parinetworks.com/api/schemas/1.1">

<Manage>

<Add operationId="1">

<ServerDetails>

<IPAddress>x.x.x.x</IPAddress>

</ServerDetails>

</Add>

</Manage>

</Request>

..

Conditional Collection

Conditional Collection Description

The phrase "Conditional Collection" generally refers to any collection decision (whether to collect/what to collect/how many times to collect) that is made based on the result of bunch of conditions or the results of another data collection. Other terms used for this are "Complex Collection", "Dynamic Collection", "Follow-on Collection".

What is Supported

Audit Use Case

- Execute a dataset (SNMP or CLI)
- Parse the output and capture a bunch of values
- Execute another command for each of the values captured above

Cisco Call Manager Use Case

In Cisco Call Manager detection, if the SysOID is one of a configurable set of OIDs, and an additional OID returns a value, the device is considered a Cisco Call Manager, and the CCM call manager platform applies.

Support Details:

This will be supported in Conditional collection. However, "platform definitions" in CSPC depend only on the results of discovery operation and cannot depend on the inventory collection results.

This means that you need to implement it in the following way:

1. Define a platform "Possible Call Manager" by providing the set of SysOIDs
2. Define a Conditional collection that is applicable only for the "Possible Call Manager" platforms
3. In this Conditional collection, execute the additional OIDs and based on their return value, collect the final dataset you wish to collect

SNMP/CLI Configuration Fallback Collection

There are four configurations controlling config collection from the device. CLI only and SNMP only do not require follow on collections. However, CLI fallback to SNMP and SNMP fallback to CLI configurations will issue a follow on collection if the first attempted collection protocol fails.

Support Details:

This will be supported in Conditional Collection. However, while this makes sense for collecting configuration, it may not be very useful for other collections.

```
For example: Interface statistics would result in completely different output based on
whether you collected it using SNMP or CLI.
```

Collected Value Based Follow-on Collections

There are more examples of these in Audits than in Inventory. These are the cases of follow on collection controlled by the "Condition" block in the RBML, and so could be considered the "true" conditional collections.

Support Details:

These use cases are supported as part of Audit Use Cases above.

Commands Requiring Re-login

Commands Requiring Re-login to the Same Device multiple times with mutated community strings to access card in different slots

This is the case where the same OID is issued against the same device multiple times, each time after logging in to a different card in a different slot. Here it is not the command that is mutating but the community string. Log in with the password *public@SM_1* to access the card in slot module 1. These are issued against WAN switches.

Support Details:

This will be supported in Conditional Collection. However, the support will be limited to changing the community string dynamically. (We do not support changing the other credentials like username/password or device IP address etc. dynamically. That needs to be handled by the add-on module if there is such a requirement).

Condition Collection in Detail

Conditional Collection in CSPC is based on recursive algorithm were in the output from each processing units will be fed as input to the next processing unit, until the last processing is complete.

Statement

Statement is the fundamental processing units in Conditional Collection. Statements mark the starting point of each processing units. Each statement is identified with an "identifier" and can optionally have a title and Input. Statement is represented by <Statement> tag

Statements are classified into two types:

1. Condition
2. Loop

The input of each statement will depend on the type of the statement. Input will be a scalar input for condition statement and vector input for loop statements.

Condition Statement

Condition Statement is represented by <Condition> tag and is identified by the statement identifier. Each condition statements input is a scalar input. In order to process the output of input the <Operation> tag is used where the user choose what to do with the output. Based on the operation performed the <Match> and <NonMatch> tags can be used to decide whether to continue with the single unit of processing or to go to the next processing.

Under the <Match> and <NonMatch> tag, user can choose to store the values in a variable which can be used for further processing. To store the values, <Assignment> tags are used under <Match> tag. Basedon the operation performed the engine can be used to:

a. Execute the next statement (Use <Goto>)
b. Use the next value from the processing (Use <Continue>)
c. Exit the process (Use <Exit>)
d. On a certain Matching situation break the recursion (Use <Break>)

Use the <Output> tag if a condition statement is the last program of execution where the output of condition collection is done. Two types of output processing are currently supported in CSPC:

1. **Dataset**: Execute another dataset with the variables populated in previous steps. Make sure the datasets uses the same variable string (case sensitive) that was used for assigning.

   Example: If the variable name is "name" and if the output dataset is to login to each slot then the command will be: **session slot <*name*> processor 1**
2. **AddOutput**: This type of output can be used to display the processed output in the format that is desired by the user.

Scalar Input

Scalar Inputs are the integral part of condition statement and can be only used with condition statements. There are five type of scalar inputs that can be used for processing in condition statements namely:

1. **Device Property**: Used for validating the device properties
2. **Variable**: Used in initializations
3. **Datasets**: Dataset names which needs to be provided if any commands needs to use issued in the device
4. **Loop Context**: Input Datatype which communicates to the engine if the input needs to be taken from the current loop
5. **SNMPIndex / SNMPOid/SNMPValue**: Used for processing SNMP data

Operation

In order to process the output of the scalar input the <Operation> tag is used. There are two types of operations:

1. **String Operation**: Used with java regular expression. Each of the matching patterns are then compared with the java string for matches, doesnotmatch, contains, doesnotcontain, isEmpty, equals and notEquals checks
2. V**ector Operation**: Used as a normal java vector where in the output can be added to a variable and later used for processing

Assignment

The condition statement assignment is the important place where the resultant variable are populated at the end of each operation. In order to assign values to a variable, a variable is created under <Variable> tag under assignment. The variable is populated with the results based on the following important tags:

a. **append**: Denotes if the matching result needs to be appended to the resulting variable
b. **onlyIfNotNull**: Add the result to variable only if the result is not null
c. **trim**: Trims the resulting string and add to the variable
d. **vectorType**: List/Set/OrderedList are the vector types in which the result will be added in the resultant list. By default, the results will be added to a list. But if the order of insertion is needs to be maintained then OrderedList needs to be used. Use Set, if only unique result string are required in the variable
e. **Operation**: add/remove. Add, adds the result to the resulting list and Remove, removes the string if present from the resulting list

Loop Statement

Loop statements are like while loop where each statement is executed recursively till the exit criteria is met. Loop Statement is represented by <Loop> tag and is identified by the statement identifier. Loop statement will be the first statement in any conditional collection dataset.

Each loop statements input is a vector input. Each loop-statement must terminate with a condition statement. Data collected from the vector input will be subjected to further processing using specific matching conditions and condition statement(s).

Vector Input

There are four type of vector-inputs used in conditional collection. Each of these vector inputs have discrete significance in achieving the needs of the complex collection. Four type of vector inputs are:

1. **Block Vector Input**: Block Vector Input is used whenever a block of response from the device response needs to be processed. Each of the block input has a mandatory <Input> and <Params> fields. The input used in block can be any of the scalar inputs except SNMP. The params filed has a start and end string which marks the starting and the ending of the block. Also, the start and end strings are java pattern matched. The result of matched pattern is further processed in a condition statement or in a loop statement.
2. **Line Vector Input**: Line Vector Input is used whenever the response from device needs to be processed line by line. Each of the line input has a mandatory <Input> and <Params> fields. The input used in line can be any of the scalar inputs except SNMP. The params filed has a match <Match> tag criteria which is string and is java pattern matched against the result. The result of matched pattern is further processed in a condition statement or in a loop statement.

3. **SNMP Table**: It is used for processing SNMP response from SNMP Table. Each of the SNMP input has a mandatory <Input> and <Rows> fields. The input used in SNMP must be any of the SNMP scalar inputs.
4. V**ariable Vector Input**: It is used like java array-list. The input list is populated and is fed for subsequent processing units for further processing.

Actions

Actions are used in conditional collection when a specific action needs to be done before, while or after processing a request. In most cases actions do assignment to variables which will be used in further processing

Examples

CLI Complex Collection

Collection of Show interfaces from device followed by interface status of those interface which contain the string "FastEthernet".

```
<Dataset identifier="ios_show_int_accounting_dynamic">
<Type>Dynamic</Type>
<Title>ios_show_int_accounting_dynamic</Title>
<CollectionType>CLI</CollectionType>
<CategoryName> show_int_accounting</CategoryName>
<Statements>
<Loop identifier="_show_interface_1">
<VectorInput>
<Line>
<Input>
<Dataset>
<DatasetName Failure="error_message">_show interface</DatasetName>
</Dataset>
</Input>
<Params>
<Match  ignoreCase="false">FastEthernet[^A-Za-z_]*</Match>
</Params>
</Line>
</VectorInput>
<Statements>
<Condition identifier="output_cond">
<Input>
```

<LoopContext></LoopContext>

</Input>

<Operation>

<NotEquals ignoreCase="true"></NotEquals>

</Operation>

<Match>

<Assignment>

<Variable append="false" onlyIfNotNull="true" trim="true" vectorType ="List" operation="add">interface</Variable>

<Value></Value>

</Assignment>

<Output>

<Dataset>

<DatasetName>ios_show_interface accounting</DatasetName>

<Variables>

<Variable>interface</Variable>

</Variables>

</Dataset>

</Output>

<Continue></Continue>

</Match>

<NonMatch>

<Continue></Continue>

</NonMatch>

</Condition>

</Statements>

</Loop>

</Statements>

</Dataset>

SNMP Complex Collection

<Dataset identifier="ifHCOutOctets_all_interfaces_9089">

<Type>Dynamic</Type>

<Title>ifHCOutOctets_all_interfaces For AIF: 9089 Created at Dec 20, 2011 9:48:06 PM</Title>

<CollectionType>SNMP</CollectionType>

<CategoryName>AIF_9089</CategoryName>

<Statements>

```
<Loop identifier="loop1">
<Title>Get SNMP Interface Types</Title>
<VectorInput>
<SNMPTable>
<Input>
<Dataset>
<DatasetName>ifType_9089_internal</DatasetName>
</Dataset>
</Input>
<Rows>
</Rows>
</SNMPTable>
</VectorInput>
<Actions>
<Assignment>
<Variable append="false" onlyIfNotNull="false" trim="false" vectorType="Set"
Operation="add">ifTypes</Variable>
<Values>
<Value>6</Value><Value>62</Value><Value>5</Value><Value>6</Value><Value>9</Value><Value
>15</Value><Value>17</Value><Value>18</Value><Value>19</Value><Value>22</Value><Value>
28</Value><Value>30</Value><Value>32</Value><Value>37</Value><Value>39</Value><Value>49
</Value><Value>63</Value><Value>73</Value><Value>76</Value><Value>77</Value><Value>81</
Value><Value>100</Value><Value>101</Value><Value>102</Value><Value>103</Value><Value>1
07</Value><Value>108</Value><Value>131</Value><Value>134</Value><Value>166</Value><Valu
e>171</Value></Values>
</Assignment>
</Actions>
<Statements>
<Condition identifier="loop1_cond1">
<Title>Check to see if Interface is required type</Title>
<Input>
<SNMPValue>
<LoopContext></LoopContext>
</SNMPValue>
</Input>
<Operation>
<IsMemberOf><VariableName>ifTypes</VariableName>
</IsMemberOf>
</Operation>
<Match>
```

```
<Goto></Goto>
</Match>
<NonMatch>
<Continue></Continue>
</NonMatch>
</Condition>
<Condition identifier="loop1_cond_last">
<Title>Save the ifIndex</Title>
<Input>
<SNMPIndex>
<LoopContext></LoopContext>
</SNMPIndex>
</Input>
<Operation>
<Matches ignoreCase="false">^.*\.([0-9]+)$</Matches>
</Operation>
<Match>
<Assignment>
<Variable append="true" onlyIfNotNull="true" trim="true" vectorType="Set"
Operation="add">interfaceList</Variable>
<Value><loop1_cond_last.1></Value></Assignment>
<Goto></Goto>
</Match>
<NonMatch>
<Continue></Continue>
</NonMatch>
</Condition>
</Statements>
</Loop>
<Loop identifier="loop2">
<Title>Get SNMP Interface Oper Status</Title>
<VectorInput>
<SNMPTable>
<Input>
<Dataset>
<DatasetName>ifOperStatus_9089_internal</DatasetName>
</Dataset>
</Input>
```

```
<Rows>
</Rows>
</SNMPTable>
</VectorInput>
<Statements>
<Condition identifier="loop2_cond1">
<Input>
<SNMPValue>
<LoopContext></LoopContext>
</SNMPValue>
</Input>
<Operation>
<Equals ignoreCase="false">1</Equals>
</Operation>
<Match>
<Continue></Continue>
</Match>
<NonMatch>
<Goto></Goto>
</NonMatch>
</Condition>
<Condition identifier="loop2_cond2">
<Title>Remove If Interface is not up</Title>
<Input>
<SNMPIndex>
<LoopContext></LoopContext>
</SNMPIndex>
</Input>
<Operation>
<Matches ignoreCase="false">^.*\.([0-9]+)$</Matches>
</Operation>
<Match>
<Assignment>
<Variable append="false" onlyIfNotNull="false" trim="false" vectorType="List"
Operation="add">interfaceList</Variable>
<Value><loop2_cond2.1></Value></Assignment>
<Goto></Goto>
</Match>
```

```
<NonMatch>
<Continue></Continue>
</NonMatch>
</Condition>
</Statements>
</Loop>
<Loop identifier="last">
<Title>Collect the output</Title>
<VectorInput>
<SNMPTable>
<Input>
<Dataset>
<DatasetName>ifHCOutOctets_all_interfaces_9089_ifHCOutOctets</DatasetName>
</Dataset>
</Input>
<Rows>
</Rows>
</SNMPTable>
</VectorInput>
<Statements>
<Condition identifier="last_cond1">
<Input>
<SNMPIndex>
<LoopContext></LoopContext>
</SNMPIndex>
</Input>
<Operation>
<Matches ignoreCase="false">^.*\.([0-9]+)$</Matches>
</Operation>
<Match>
<Assignment>
<Variable append="false" onlyIfNotNull="true" trim="true" vectorType="List"
Operation="add">oid</Variable>
<Value></Value></Assignment>
<Goto></Goto>
</Match>
<NonMatch>
<Continue></Continue>
```

```
</NonMatch>
</Condition>
<Condition identifier="last_cond2">
<Title>Check to see if this is in the final List</Title>
<Input>
<Variable>last_cond1.1</Variable>
</Input>
<Operation>
<IsMemberOf><VariableName>interfaceList</VariableName>
</IsMemberOf>
</Operation>
<Match>
<Goto></Goto>
</Match>
<NonMatch>
<Continue></Continue>
</NonMatch>
</Condition>
<Condition identifier="last_cond3">
<Title>Add the value to the final output</Title>
<Input>
<SNMPValue>
<LoopContext></LoopContext>
</SNMPValue>
</Input>
<Operation>
<Matches ignoreCase="false">^(.*)$</Matches>
</Operation>
<Match>
<Assignment>
<Variable append="false" onlyIfNotNull="true" trim="true" vectorType="List"
Operation="add">interface</Variable>
<Value><last_cond1.1></Value></Assignment>
<Output>
<AddOutput>
<Value><SnmpDatasetResponse><SNMPRequest><RequestType>Column</RequestType><ObjectLis
t><Object><oid></Object></ObjectList></SNMPRequest><SnmpResponse><Row><InstanceId><las
t_cond1.1></InstanceId><Columns><Column><last_cond3.1></Column></Columns></Row></Snm
pResponse></SnmpDatasetResponse></Value>
```

```
<Variables>
<Variable>interface</Variable>
</Variables>
</AddOutput>
</Output>
<Goto></Goto>
</Match>
<NonMatch>
<Continue></Continue>
</NonMatch>
</Condition>
</Statements>
</Loop>
</Statements>
</Dataset>
```

XML APIs

Seedfile job for runnow

```
<Request requestId="" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
        xsi:schemaLocation="http://www.parinetworks.com/api/schemas/1.1
../../../../CSPC2.3Dev/pari/dash/resources/server/schema/pari_api.xsd"
        xmlns="http://www.parinetworks.com/api/schemas/1.1">
    <Job>
      <Schedule operationId="1">
        <JobSchedule runnow="true">
        </JobSchedule>
        <RegressiveSeedFileJob>
          <TriggerDav>true</TriggerDav>
          <DeleteCreds>true</DeleteCreds>
          <DeleteDevices>true</DeleteDevices>
        </RegressiveSeedFileJob>
      </Schedule>
    </Job>
  </Request>
```

Scheduled seedfile job

```
<Request requestId="" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
        xsi:schemaLocation="http://www.parinetworks.com/api/schemas/1.1
../../../../CSPC2.3Dev/pari/dash/resources/server/schema/pari_api.xsd"
        xmlns="http://www.parinetworks.com/api/schemas/1.1">
    <Job>
      <Schedule operationId="1">
        <JobSchedule runnow="false">
          <Start>1409607000000</Start>
```

```
    <Repeat>
      <IntervalMilliSeconds>600000</IntervalMilliSeconds>
      <!- <End>1254316663640</End>->
    </Repeat>
   </JobSchedule>
   <RegressiveSeedFileJob>
    <TriggerDav>true</TriggerDav>
    <DeleteCreds>true</DeleteCreds>
    <DeleteDevices>true</DeleteDevices>
   </RegressiveSeedFileJob>
  </Schedule>
 </Job>
</Request>
```

Add Notification

```
<Request xmlns="http://www.parinetworks.com/api/schemas/1.1" requestId="4444">
 <Manage>
  <Add operationId="1">
   <NotificationList>
    <Notification>
    <TrapOID></TrapOID>
    <NotificationType></NotificationType>
    </Notification>
   </NotificationList>
  </Add>
 </Manage>
</Request>
```

Delete All Notifications

```
<Request xmlns="http://www.parinetworks.com/api/schemas/1.1" requestId="4444">
 <Manage>
  <Delete operationId="1">
   <NotificationList all="true">
   </NotificationList>
  </Delete>
 </Manage>
```

```
</Request>
```

Delete Single Notification

```
<Request xmlns="http://www.parinetworks.com/api/schemas/1.1" requestId="4444">
 <Manage>
  <Delete operationId="1">
   <NotificationList>
    <Notification>
<TrapOID></TrapOID>
    </Notification>
   </NotificationList>
  </Delete>
 </Manage>
</Request>
```

Get All Notification Types

```
<Request xmlns="http://www.parinetworks.com/api/schemas/1.1" requestId="4444">
 <Manage>
  <Get operationId="1">
   <NotificationList all="true">
   </NotificationList>
  </Get>
 </Manage>
</Request>
```

Modify Notification

```
<Request xmlns="http://www.parinetworks.com/api/schemas/1.1" requestId="4444">
 <Manage>
  <Modify operationId="1">
   <NotificationList>
    <Notification>
    <TrapOID></TrapOID>
    <NotificationType></NotificationType>
    </Notification>
   </NotificationList>
```

```
  </Modify>
 </Manage>
</Request>
```

Add SNMP Trap Profile

```
<Request xmlns="http://www.parinetworks.com/api/schemas/1.1" requestId="44444">
 <Manage>
  <Add operationId="1">
   <SNMPTrapProfileList>
    <SNMPTrapProfile>
     <ProfileName>profile1</ProfileName>
<QueueName>queue1</QueueName>
<NotificationList>
<Notification>
<NotificationType>config</NotificationType>
</Notification>
</NotificationList>
<DeviceSelection all="true">
      </DeviceSelection>
    </SNMPTrapProfile>
   </SNMPTrapProfileList>
  </Add>
 </Manage>
</Request>
```

Delete All SNMP Trap Profiles

```
<Request xmlns="http://www.parinetworks.com/api/schemas/1.1" requestId="4444">
 <Manage>
  <Delete operationId="1">
   <SNMPTrapProfileList all="true" />
  </Delete>
 </Manage>
</Request>
```

Delete Single SNMP Trap profile

```
<Request xmlns="http://www.parinetworks.com/api/schemas/1.1" requestId="4444">
 <Manage>
  <Delete operationId="1">
   <SNMPTrapProfileList>
    <SNMPTrapProfile>
<ProfileName>profile</ProfileName>
    </SNMPTrapProfile>
   </SNMPTrapProfileList>
  </Delete>
 </Manage>
</Request>
```

Get All SNMP Trap Profiles

```
<Request xmlns="http://www.parinetworks.com/api/schemas/1.1" requestId="4444">
 <Manage>
  <Get operationId="1">
   <SNMPTrapProfileList all="true" />
  </Get>
 </Manage>
</Request>
```

Get Single SNMP Trap Profile

```
<Request requestId="4444" xmlns="http://www.parinetworks.com/api/schemas/1.1">
 <Manage>
  <Get operationId="1">
   <SNMPTrapProfileList>
    <SNMPTrapProfile> <ProfileName>profile</ProfileName>
   </SNMPTrapProfile>
   </SNMPTrapProfileList>
  </Get>
 </Manage>
</Request>
```

Modify SNMP Trap profile

```
<Request xmlns="http://www.parinetworks.com/api/schemas/1.1" requestId="44444">
 <Manage>
  <Modify operationId="1">
   <SNMPTrapProfileList>
    <SNMPTrapProfile>
     <ProfileName>profile1</ProfileName>
<QueueName>queue1</QueueName>
<NotificationList>
<Notification>
<NotificationType>config</NotificationType>
</Notification>
</NotificationList>
<DeviceSelection all="false">
      <DeviceList>
       <Device>
        <IPAddress>x.x.x.x</IPAddress>
       </Device>
      </DeviceList>
     </DeviceSelection>
    </SNMPTrapProfile>
   </SNMPTrapProfileList>
  </Modify>
 </Manage>
</Request>
```

SNMP Trap Report

Custom Report XML

```
<Request xmlns="http://www.parinetworks.com/api/schemas/1.1 "requestId="44444">
<Report>
 <Get operationId="1">
  <SnmpTrapReport>
   <TimePeriod>
    <Custom>
     <FromTime></FromTime>
     <ToTime></ToTime>
```

```
  </Custom>
 </TimePeriod>
  <Source>
  </Source>
 <NotificationList>
 <Notification></Notification>
 </NotificationList>
</SnmpTrapReport>
</Get>
</Report>
</Request>
```

Report based on Time Interval

```
<Request xmlns="http://www.parinetworks.com/api/schemas/1.1 "requestId="44444">
<Report>
 <Get operationId="1">
  <SnmpTrapReport>
  <TimePeriod>
   <SinceTime>
   </SinceTime>
  </TimePeriod>
  <Source>
  </Source>
  <NotificationList>
  <NotificationType></NotificationType>
  </NotificationList>
  </SnmpTrapReport>
 </Get>
</Report>
</Request>
<SinceTime><!-- /* Style Definitions */ table.MsoNormalTable
Unknown macro: {mso-style-name}
```

Modify SNMP trap port and Purge Settings

```
<Request requestId="4444" xmlns="http://www.parinetworks.com/api/schemas/1.1">
  <Manage>
    <Modify operationId="1">
```

```
<ApplicationPreferencesSettings>
<SnmpTrapSettings>
<PurgeSettings>15</PurgeSettings>
<SnmpTrapPort>162</SnmpTrapPort>
</SnmpTrapSettings>
</ApplicationPreferencesSettings>
</Modify>
</Manage>
</Request>
```

After these changes user has to restart CSPC to get this affect visible

CSPC DB backup and restore XML API

Backup Job XML API

```
<Request xmlns="http://www.parinetworks.com/api/schemas/1.1" requestId="3333">
<Job>
<Schedule operationId="123">
<JobSchedule runnow="true">
</JobSchedule>
<BackupJob jobName="Backup_Scheduled1">
<IgnoreRunningJobs>false</IgnoreRunningJobs>
<FTPServerOptions>
<ServerHost>x.x.x.x</ServerHost>
<UserName>root</UserName>
<Password>XXXXX</Password>
<Directory>resources</Directory>
<FileName>file_temp_1</FileName>
</FTPServerOptions>
<PropertiesConfigFile>resources/server/backup_resource_config.properties</PropertiesConfigFile>
</BackupJob>
</Schedule>
</Job>
</Request>
```

Restore Job XML API

```
<Request xmlns="http://www.parinetworks.com/api/schemas/1.1" requestId="3333">
 <Job>
  <Schedule operationId="123">
   <JobSchedule runnow="true" />
   <RestoreJob jobName="Backup">
    <FTPServerOptions>
     <ServerHost>x.x.x.x</ServerHost>
     <UserName>user</UserName>
     <Password>xxxx</Password>
     <Directory>resources</Directory>
     <FileName>_1391384366427.pbx</FileName>
    </FTPServerOptions>
   </RestoreJob>
  </Schedule>
 </Job>
</Request>
```

CLI Channel XML API

CSPC CLI Channel dynamically supports the devices and accepts the required inputs using xml and stores these inputs in DB for future use.

New Device Input XML

```
<?xml version="1.0"?>
<Request  xmlns="http://www.parinetworks.com/api/schemas/1.1" requestId="12">
 <Manage>
  <Add operationId="1" replace="true">
  <ChannelType channelId = "StarOS"> <!-- Provide unique name for new channel -->
  <ChannelTypeRules>
   <Rules>
<MatchType>ANY</MatchType>          <!-- MatchType is based on rules provided, ANY or ALL -->
 <Rule>
<Attribute><![CDATA[OSTYPE]]></Attribute> <!-- Provide the attribute which needs to be matched with device OSTYPE, SYSOBJID, VERSIONTYPE -->
<Operator>EQUALS</Operator>              <!-- Provide operator used to match with attribute EQUALS, INDEXOF, STARTSWITH, ENDSWITH, CONTAINS, GREATERTHAN, LESSTHAN -->
```

```
<Operands>
<Operand><![CDATA[Star OS]]></Operand> <!-- Operand depend on attribute and operator values -->
</Operands>
 </Rule>
    </Rules>
  </ChannelTypeRules>

  <CLIRules>
   <MorePromptRules>
    <Rules>
 <MatchType>ANY</MatchType> <!-- MatchType is based on rules provided, ANY or ALL -->
 <Rule>
<Attribute><![CDATA[OUTPUT]]></Attribute>
<Operator>INDEXOF</Operator>        <!-- Provide operator used to match with attribute EQUALS,
INDEXOF, STARTSWITH, ENDSWITH, CONTAINS -->
<Operands>
<Operand><![CDATA[--More--]]></Operand>        <!-- Provide more prompts available for the device
-->
</Operands>
 </Rule>
</Rules>
<ContinueChar><![CDATA[32]]></ContinueChar>          <!-- Provide character needs to be entered if
more prompt available -->
    </MorePromptRules>

 <OtherPromptRules>
          <Rules> <!-- This OtherPromptRules are used when the device is having prompts other than
more prompts -->
            <MatchType>ANY</MatchType>
            <Rule>
              <Attribute><![CDATA[OSTYPE]]></Attribute>
              <Operator>EQUALS</Operator>
              <Operands>
                <Operand><![CDATA[AsyncOS]]></Operand>
              </Operands>
            </Rule>
            <Rule>
              <Attribute><![CDATA[OUTPUT]]></Attribute>
              <Operator>INDEXOF</Operator>
```

```
<Operands>
<Operand><![CDATA[Do you want to mask the password]]></Operand> <!-- The prompt appears on the device -->
</Operands>
</Rule>
</Rules>
<ContinueChar><![CDATA[Y]]></ContinueChar> <!-- ContinueChar is used if we need to input any data/character to continue further from the prompt -->
</OtherPromptRules>

<EnableRules>
<EnableCommand>enable</EnableCommand> <!-- Provide command used to enter into enable mode -->
<EnableUserPrompts><![CDATA[Username:&login:&user:]]></EnableUserPrompts> <!-- Provide user prompts -->
<EnablePwdPrompts><![CDATA[Password:]]></EnablePwdPrompts> <!-- Provide password prompts -->
</EnableRules>

<ClearTerminalLengthDefinition>
<Command>terminal length 0</Command> <!-- Provide commands used to set terminal length for the device -->
<Command>terminal width 0</Command>
</ClearTerminalLengthDefinition>
<AfterLoginCommand>
<Command>clish</Command> <!-- some devices required commands after login to the device and before entering into the enable mode, provide those commands here -->
</AfterLoginCommand>
<ReplaceEscChar>[j</ReplaceEscChar> <!-- Provide escape characters to be replaced -->
<ClearLineDef>3</ClearLineDef> <!-- This will clear the buffer before executing the command while collecting the data from the device -->
<ControlChar>\n</ControlChar>
<Priority>100</Priority>
<UsePariPatentEndOfCommand>true</UsePariPatentEndOfCommand>
</CLIRules>
</ChannelType>
</Add>
</Manage>
</Request>
```

Modify Channel XML

```
<?xml version="1.0"?>
<Request  xmlns="http://www.parinetworks.com/api/schemas/1.1" requestId="12">
 <Manage>
  <Modify operationId="1">
  <ChannelType channelId = "ACNS"> <!-- Provide unique name for new channel -->
  <ChannleTypeRules>
   <Rules>
<MatchType>ANY</MatchType>          <!-- MatchType is based on rules provided, ANY or ALL -->
 <Rule>
<Attribute><![CDATA[OSTYPE]]></Attribute> <!-- Provide the attribute which needs to be matched with device OSTYPE, SYSOBJID, VERSIONTYPE -->
<Operator>EQUALS</Operator>                <!-- Provide operator used to match with attribute EQUALS, INDEXOF, STARTSWITH, ENDSWITH, CONTAINS, GREATERTHAN, LESSTHAN -->
<Operands>
<Operand><![CDATA[Star OS]]></Operand> <!-- Operand depend on attribute and operator values -->
</Operands>
 </Rule>
   </Rules>
  </ChannleTypeRules>

  <CLIRules>
   <MorePromptRules>
    <Rules>
 <MatchType>ANY</MatchType> <!-- MatchType is based on rules provided, ANY or ALL -->
 <Rule>
<Attribute><![CDATA[OUTPUT]]></Attribute>
<Operator>INDEXOF</Operator>          <!-- Provide operator used to match with attribute EQUALS, INDEXOF, STARTSWITH, ENDSWITH, CONTAINS, GREATERTHAN, LESSTHAN -->
<Operands>
<Operand><![CDATA[--More--]]></Operand>          <!-- Provide more prompts available for the device -->
<Operand><![CDATA[<--- More --->]]></Operand>
</Operands>
 </Rule>
```

```
</Rules>
<ContinueChar><![CDATA[32]]></ContinueChar>          <!-- Provide character needs to be entered if more prompt available -->
    </MorePromptRules>

<OtherPromptRules>
        <Rules> <!-- This OtherPromptRules are used when the device is having prompts other than more prompts -->
          <MatchType>ANY</MatchType>
          <Rule>
            <Attribute><![CDATA[OSTYPE]]></Attribute>
            <Operator>EQUALS</Operator>
            <Operands>
              <Operand><![CDATA[AsyncOS]]></Operand>
            </Operands>
          </Rule>
          <Rule>
            <Attribute><![CDATA[OUTPUT]]></Attribute>
            <Operator>INDEXOF</Operator>
            <Operands>
              <Operand><![CDATA[Do you want to mask the password]]></Operand> <!-- The prompt appears on the device -->
            </Operands>
          </Rule>
        </Rules>
        <ContinueChar><![CDATA[Y]]></ContinueChar> <!-- ContinueChar is used if we need to input any data/character to continue further from the prompt -->
    </OtherPromptRules>

<EnableRules>
<EnableCommand>enable</EnableCommand> <!-- Provide command used to enter into enable mode -->
<EnableUserPrompts><![CDATA[Username:&Password:&login:&user:]]></EnableUserPrompts> <!-- Provide user prompts -->
<EnablePwdPrompts><![CDATA[Password:]]></EnablePwdPrompts> <!-- Provide password prompts -->
</EnableRules>

    <ClearTerminalLengthDefinition>
```

```
<Command>terminal length 0</Command> <!-- Provide commands used to set terminal length for the device -->
<Command>terminal width 0</Command>
</ClearTerminalLengthDefinition>

<AfterLoginCommand>
<Command>Clish</Command> <!-- some devices required commands after login to the device and before entering into the enable mode, provide those commands here -->
</AfterLoginCommand>

<ReplaceEscChar>[j</ReplaceEscChar> <!-- Provide escape characters to be replaced -->
<ClearLineDef>3</ClearLineDef> <!-- This will clear the buffer before executing the command while collecting the data from the device -->
<ControlChar>\n</ControlChar>
<Priority>100</Priority>
<UsePariPatentEndOfCommand>true</UsePariPatentEndOfCommand>
</CLIRules>
</ChannelType>
</Modify>
</Manage>
</Request>
```

CLI Channel Get Report XML

```
<Request xmlns="http://www.parinetworks.com/api/schemas/1.1" requestId="CLIChannelReport">
<Manage>
<Get operationId="1">
<CLIChannelReport all = "false"> <!-- all equals true will get the all channels Channel Type rules only not CLI rules -->
<ChannelId>IOS</ChannelId> <!-- if all equals false we need to provide channel id to get that particular channel channel type rulas and cli rules -->
</CLIChannelReport>
</Get>
</Manage>
</Request> ?
```

Channel Delete Channel XML

```
- <Request xmlns="http://www.parinetworks.com/api/schemas/1.1" requestId="ChannelList">
```

```
- <Manage>
- <Delete operationId="1">
  <ChannelType channelId="Acsw" />
- <!-- This Xml deletes channel definitions which is provided here as channelId
  -->
  </Delete>
  </Manage>
  </Request>
```

Get CLI Channel List Report XML

```
Request xmlns="http://www.parinetworks.com/api/schemas/1.1" requestId="ChannelList">
    <Manage>
        <Get operationId="1">
            <ChannelList all = "true"/> <!-- This report lists all the existing channel ids list -->
        </Get>
     </Manage>
</Request>?
```

Get Imported Devices Status Report

```
<Request xmlns="http://www.parinetworks.com/api/schemas/1.1" requestId="44444">
 <Manage>
   <Get operationId="1">
    <ImportedDeviceStatusReport>
    <DiscoveryJobId>32</DiscoveryJobId>
    <DiscoveryJobRunId>1</DiscoveryJobRunId>
    </ImportedDeviceStatusReport>
   </Get>
 </Manage>
</Request>
```

CSPC Backup (PSS)

```
<Request xmlns="http://www.parinetworks.com/api/schemas/1.1" requestId="3333">
<Job>
<Schedule operationId="123">
<JobSchedule runnow="true">
</JobSchedule>
```

```
<BackupJob jobName="Backup_RunNow">
<BackupJobType>Full_Backup</BackupJobType>
<IgnoreRunningJobs>true</IgnoreRunningJobs>
<FTPServerOptions>
<ServerHost>x.x.x.x</ServerHost>
<UserName>root</UserName>
<Password>cXXXXX</Password>
<Directory>CSPC_Backup</Directory>
<FileName>backup</FileName>
</FTPServerOptions>
<IgnoreInventoryData>true</IgnoreInventoryData>
</BackupJob>
</Schedule>
</Job>
</Request>
```

CSPC Backup (PSS) - Schedule

```
<Request xmlns="http://www.parinetworks.com/api/schemas/1.1" requestId="3333">
<Job>
<Schedule operationId="123">
<JobSchedule runnow="false">
<Start>1450692900000</Start>
</JobSchedule>
<BackupJob jobName="Backup_RunNow">
<BackupJobType>Full_Backup</BackupJobType>
<IgnoreRunningJobs>true</IgnoreRunningJobs>
<FTPServerOptions>
<ServerHost>10.127.152.54</ServerHost>
<UserName>admin</UserName>
<Password>XXXXX</Password>
<FileName>xml</FileName>
</FTPServerOptions>
<IgnoreInventoryData>true</IgnoreInventoryData>
</BackupJob>
</Schedule>
</Job>
</Request>
```

Collection of Loopback Interface IP address (NOS)

```
<Request xmlns="http://www.parinetworks.com/api/schemas/1.1" requestId="3333">
 <Job>
  <Schedule operationId="1">
   <JobSchedule runnow="true" />
   <DiscoveryJob identifier="my_discovery123">
    <DiscoveryOptionsList>
     <DiscoveryOptions>
      <IPAddressList>
       <IPAddress>x.x.x.x</IPAddress>
      </IPAddressList>
      <useLoopBackIp>true</useLoopBackIp>
     </DiscoveryOptions>
    </DiscoveryOptionsList>
   </DiscoveryJob>
  </Schedule>
 </Job>
</Request>
```

Add Optional Metadata Label to OIDs in Custom Datasets (PSS)

```
<Request xmlns="http://www.parinetworks.com/api/schemas/1.1" requestId="44444">
 <Manage>
  <Add operationId="1">
   <DatasetList>
    <Dataset identifier="_snmp_XML_SNTest2">
     <Title>_snmp_XML_SNTest2</Title>
     <Description />
     <CategoryName>1</CategoryName>
     <CreatedUser>XML</CreatedUser>
     <Locked>false</Locked>
     <CollectionType>SNMP</CollectionType>
     <VersionedDatasetList>
      <VersionedDataset identifier="cisco">
       <SNMP>
        <SNMPRequest>
         <RequestType>Scalar</RequestType>
```

```
                <ObjectList>
                  <Object>
                    <Id>.1.3.6.1.4.1.9.2.1.3</Id>
                    <Title>hostName</Title>
                    <Tag>!@#$%^&*()":.,</Tag>
                    <Type>Scalar</Type>
                  </Object>
                </ObjectList>
              </SNMPRequest>
            </SNMP>
          </VersionedDataset>
        </VersionedDatasetList>
      </Dataset>
    </DatasetList>
  </Add>
 </Manage>
</Request>
```

Export and Import Collection Profiles (PSS)

Api for Export All Rules

```
<Request>
 <Export>
  <ExportAllRules>
  <ExportLocation></ExportLocation>
  </ExportAllRules>
  </Export>
 </Request>
```

API for Import All Rules

```
 <Request>
 <Execute>
  <ImportAllRulesFromZipFile>

<AllRuleZipFileLocation>/opt/CSPC/data/ruleExport/CSPCRules_1450433792272.Zip</AllRuleZipF
ileLocation>
```

```
  </ImportAllRulesFromZipFile>
  </Execute>
</Request>
```

Upload Signature for Custom Profiles (PSS)

```
<CollectionProfile identifier="_ASA_Test">
 <Title>ASA Test</Title>
 <CreatedUser>admin</CreatedUser>
 <CreationTime>1439385708000</CreationTime>
 <Locked>false</Locked>
 <Tag>DONOTPROCESS</Tag>
 <ExportSeedFile>false</ExportSeedFile>
 <ApplicationDiscoveryProfile>false</ApplicationDiscoveryProfile>
 <DisableCollectionInterval>false</DisableCollectionInterval>
 <Priority>Medium</Priority>
 <PreserveRunCount>1</PreserveRunCount>
 <CredentialFallback>false</CredentialFallback>
 <RunDiscoveryBeforeExecution>false</RunDiscoveryBeforeExecution>
 <RunDAVBeforeExecution>false</RunDAVBeforeExecution>
 <RunPromptCollectionBeforeExecution>false</RunPromptCollectionBeforeExecution>
 <DeviceSelection all="true" />
 <DatasetList>
  <Dataset>_show running_config</Dataset>
 </DatasetList>
 <DataPrivacy>
  <IsIPPrivacyEnabled>false</IsIPPrivacyEnabled>
  <IsHostPrivacyEnabled>false</IsHostPrivacyEnabled>
 </DataPrivacy>
</CollectionProfile>
```

Discovery Classification

```
<Request requestId="123">
<Manage>
<Modify operationId="11">
 <ApplicationPreferencesSettings>
      <Discovery>
```

```
        <SnmpTimeout>3</SnmpTimeout>
        <SnmpRetry>1</SnmpRetry>
        <MaxThreadCount>100</MaxThreadCount>
        <MaxCredentialSets>10</MaxCredentialSets>
        <MaxDiscoveryTime>600</MaxDiscoveryTime>
        <MaxDeviceDiscoveryTime>180</MaxDeviceDiscoveryTime>
        <IpPhoneDiscovery>false</IpPhoneDiscovery>
        <NmapTimeout>30</NmapTimeout>
        <SerialNumDuplicateCheckEnabled>false</SerialNumDuplicateCheckEnabled>
        <IncludePlatformList>[]</IncludePlatformList>
        <TryPingFirst>true</TryPingFirst>
        <ExcludePlatformList>[_EXCLUDE_CSCus90617]</ExcludePlatformList>
        <EnableCLIdiscovery>false</EnableCLIdiscovery>
        <CLIDiscoveryTimeOut>3</CLIDiscoveryTimeOut>
        <EnableSnmpConfigPush>false</EnableSnmpConfigPush>
      </Discovery>
    </ApplicationPreferencesSettings>
</Modify>
</Manage>
</Request>
```

Enabling/Disabling the WebSocket Connection

Now, with this XML API, you can control (enabling/disabling) WebSocket Connection from CSPC.

Enabling

```
<Request requestId="4444" xmlns="http://www.parinetworks.com/api/schemas/1.1">
 <Manage>
  <Modify operationId="1">
  <WebSocketSettings>
   <Enable>Yes</Enable>
  </WebSocketSettings>
  </Modify>
 </Manage>
 </Request>
```

Disabling

```
<Request requestId="4444" xmlns="http://www.parinetworks.com/api/schemas/1.1">
 <Manage>
  <Modify operationId="1">
  <WebSocketSettings>
   <Enable>No</Enable>
  </WebSocketSettings>
  </Modify>
 </Manage>
 </Request>
```

Note: If you get any error while closing the connection, try to execute same XML one more time.

GET WebSocket Status

```
<Request requestId="4444" xmlns="http://www.parinetworks.com/api/schemas/1.1">
 <Manage>
  <Get operationId="1">
  <WebSocketSettings>
  </WebSocketSettings>
  </Get>
 </Manage>
 </Request>
```

Add External Platform Components Credentials

```
<Request requestId="63" xmlns="http://www.parinetworks.com/api/schemas/1.1">
<Manage>
 <Add operationId="1">
  <AddExternalComponents>
  <DeviceCredential identifier="CIMC_snmpv3”>      —— Provide credential name
    <Type>CIMC</Type>      —— Provide valid Type ex: CIMC, PFSENSE, ESXI
    <IpExpressionList>
      <IpExpression>x.x.x.x</IpExpression> —— Give valid IP address
    </IpExpressionList>
```

```
        <SNMPV3UserName>ucsSNMPV3user</SNMPV3UserName>          —- Provide SNMPV3
credentials details if SNMPV3 enabled
        <SNMPV3AuthProtocol>SHA</SNMPV3AuthProtocol>
        <SNMPV3AuthPassPhrase>xxxxx</SNMPV3AuthPassPhrase>
        <SNMPV3PrivProtocol>AES-128</SNMPV3PrivProtocol>
        <SNMPV3PrivPassPhrase>xxxxx</SNMPV3PrivPassPhrase>
        <SNMPV3EngineId>authpriv</SNMPV3EngineId>
        <Protocol>snmpv3</Protocol>
    </DeviceCredential>
    <DeviceCredential identifier="ESXI_snmpv3">
        <Type>ESXI</Type>
        <IpExpressionList>
            <IpExpression>x.x.x.x</IpExpression>
        </IpExpressionList>
        <SNMPV3UserName>xxxx</SNMPV3UserName>
        <SNMPV3AuthProtocol>SHA</SNMPV3AuthProtocol>
        <SNMPV3AuthPassPhrase>XXXXX</SNMPV3AuthPassPhrase>
        <SNMPV3PrivProtocol>AES-128</SNMPV3PrivProtocol>
        <SNMPV3PrivPassPhrase>XXXXX</SNMPV3PrivPassPhrase>
        <SNMPV3EngineId>authpriv</SNMPV3EngineId>
        <Protocol>snmpv3</Protocol>
    </DeviceCredential>
    <DeviceCredential identifier="pfsense_snmpv2">
        <Type>PFSENSE</Type>
        <IpExpressionList>
         <IpExpression>x.x.x.x</IpExpression>          —— Provide SNMPV2 credentials details if SNMPV2
enabled
        </IpExpressionList>
        <ReadCommunity>public</ReadCommunity>
        <Protocol>snmpv2c</Protocol>
    </DeviceCredential>
     </AddExternalComponents>
   </Add>
 </Manage>
</Request>
```

Upload Health Information

```
<Request  xmlns="http://www.parinetworks.com/api/schemas/1.1" requestId="63">
 <Job>
  <Schedule operationId="1">
   <JobSchedule runnow="true" />
   <HealthMonitorJob jobName="HMJ1">
    <IncludeSystemDetails>true</IncludeSystemDetails>
    <IncludeCollectorLogs>true</IncludeCollectorLogs>
            <IncludeAddOnHealth>true</IncludeAddOnHealth>
 <IncludeExternalDeviceData>true</IncludeExternalDeviceData> —— Set
 IncludeExternalDeviceData to true to include 3rd external components data
     <UploadData>true</UploadData>
   </HealthMonitorJob>
  </Schedule>
 </Job>
</Request>
```

Error Message for Smart DAV based on SSH/Telnet

```
<Request xmlns="http://www.parinetworks.com/api/schemas/1.1" requestId="cp_schedule">
<Job>
<Schedule operationId="1">
<JobSchedule runnow="true">
</JobSchedule>
<DAVJob jobName="SBTestDavJobXML">
<DeviceSelection all="true"/>
<OverrideEnableFailed>true</OverrideEnableFailed>
<RunDAVForUnreachable>true</RunDAVForUnreachable>
<RunDiscoveryBeforeExecution>false</RunDiscoveryBeforeExecution>
<Pingable>true</Pingable>
</DAVJob>
</Schedule>
</Job>
</Request>
```

Region Based Collection via User Groups

For creating static device group based on the user fields during import seedfile:

```
<?xml version="1.0" encoding="UTF-8"?>
<Request xmlns="http://www.parinetworks.com/api/schemas/1.1" requestId="seedfile">
  <Job>
    <Schedule operationId="1">
      <JobSchedule runnow="true" />
      <ImportSeedFileJob jobName="q20">
        <Description>a1</Description>
        <DeviceGroup></DeviceGroup>
        <SeedFileDescr />
        <GroupByUserField>true</GroupByUserField>
        <SeedFileFormat>CISCO_CNC_CSV</SeedFileFormat>
        <FileDetails>
          <SeedFileName>Seed11.csv</SeedFileName>
        </FileDetails>
        <TriggerDiscovery>true</TriggerDiscovery>
        <TriggerDav>false</TriggerDav>
        <EntitlementId>CSP0001040260</EntitlementId>
      </ImportSeedFileJob>
    </Schedule>
  </Job>
</Request>
```

Service Name for Service Prioritize

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<Request xmlns="http://www.parinetworks.com/api/schemas/1.1" requestId="1111">
 <Manage>
  <Add>
   <ServiceRegistration>
   <Application type="add-on" name = "ADDONNAME"> </Application>
   </ServiceRegistration>
  </Add>
 </Manage>
```

```
</Request>
```

Add Credentials

```
----------------------------------
  <Request xmlns="http://www.parinetworks.com/api/schemas/1.1" requestId="">
   <Manage>
    <Add operationId="1" replace="true">
     <DeviceCredentialList>
      <DeviceCredential identifier="My_sql">
       <Protocol>sql</Protocol> ------------Protocol
       <Port>1433</Port> ---------------Port number
       <DBServer>Microsoft SQL</DBServer>------Database server
       <DBIpaddress>*.*.*.*</DBIpaddress> -------- IP address Database
       <DBName>***</DBName>--------Database name
       <UserName>***</UserName>--------- database user name
       <Password>****</Password>----------------database password
       <IpExpressionList>
        <IpExpression>*.*.*.*</IpExpression> ---------IP address
       </IpExpressionList>
      </DeviceCredential>
     </DeviceCredentialList>
    </Add>
   </Manage>
  </Request>
```

Add SQL Datasets

```
<Request xmlns="http://www.parinetworks.com/api/schemas/1.1" requestId="44444">
 <Manage>
  <Add operationId="1">
   <DatasetList>
    <Dataset identifier="Name">
     <Title>Title</Title>
```

```
        <Description />
        <CategoryName>Sql</CategoryName>
        <CreatedUser>xyz</CreatedUser>
        <Locked>false</Locked>
        <CollectionType>SQL</CollectionType>
        <VersionedDatasetList>
          <VersionedDataset identifier="cisco">
            <SQL>
              <Command>command</Command>---------- Provide sql query/command
            </SQL>
          </VersionedDataset>
        </VersionedDatasetList>
      </Dataset>
    </DatasetList>
   </Add>
  </Manage>
</Request>
```

Schedule the Job with Service Name

```
<Request xmlns="http://www.parinetworks.com/api/schemas/1.1" requestId="3333">
 <Job  service_name="NOS">
  <Schedule  operationId="1">
   <JobSchedule runnow="true"/>
   <DiscoveryJob identifier="ipList">
    <DiscoveryOptionsList>
     <DiscoveryOptions>
      <IPAddressList>
       <IPAddress>5.0.1.2</IPAddress>
      </IPAddressList>
     </DiscoveryOptions>
    </DiscoveryOptionsList>
   </DiscoveryJob>
  </Schedule>
 </Job>
</Request>
```

Add File Dataset

```
<Request requestId="44444" xmlns="http://www.parinetworks.com/api/schemas/1.1">
<Manage>
<Add operationId="1"><DatasetList>
<Dataset identifier="file">
 <Title>file</Title>
 <CategoryName>File</CategoryName>
 <CreatedUser>admin</CreatedUser>
 <CreationTime>1522161616000</CreationTime>
 <Locked>false</Locked>
 <CollectionType>FILE</CollectionType>
 <CollectionInterval>0</CollectionInterval>
 <ApplicablePlatforms>[ CISCO ]</ApplicablePlatforms>
 <VersionedDatasetList>
  <VersionedDataset identifier="cisco">
   <File>
    <Name><![CDATA[File Name]]></Name>
    <Location><![CDATA[File path]]></Location>
    <GenerateFileCommand><![CDATA[Command to generate file]]GenerateFileCommand>
    <DownloadFileCommand><![CDATA[Command to download the
file]]></DownloadFileCommand>
    <IntegrityRule> INTEG_RULE</IntegrityRule>
   </File>
  </VersionedDataset>
 </VersionedDatasetList>
</Dataset>
</DatasetList>
</Add>
</Manage>
</Request>
```

API to Export and Get File name

REST API call to export and get the filename

https://localhost:8001/cspc/xml/

@POST
@Consumes({MediaType.APPLICATION_XML})
Input:
XML Request :

```
<Request xmlns="http://www.parinetworks.com/api/schemas/1.1" requestId="44444">
 <Export>
  <CollectionList>
   <Collection>
    <CollectionProfile identifier="_cpname"/>
    <ExportFromRestAPI>true</ExportFromRestAPI>
   </Collection>
  </CollectionList>
 </Export>
</Request>
```

Response/output :

```
<Response requestId="44444">
 <Status code="SUCCESSFUL" />
 <Export>
  <CollectionList>
   <JobId>32</JobId>
   <FileName>CPExport_1534231458802_export.zip</FileName>
  </CollectionList>
 </Export>
</Response>
```

API to Download the Collection Profile Run Data

REST API GET call to download the collection profile run data
https://localhost:8001/cspc/file/filename.zip?fileStoreType=export&jobid=32

Additional Device Properties

Add Family OS type and Technology Properties

```
<Request xmlns="http://www.parinetworks.com/api/schemas/1.1" requestId="44444">
 <Manage>
  <Add operationId="1">
   <DevicePropertiesList>
    <AdditionalDeviceProperties>
     <IpAddress>10.10.10.10</IpAddress>
     <Family>family1</Family>
     <OSType>abcd</OSType>
     <TechnologyList>
      <Technology>tech1</Technology>
      <Technology>tech2</Technology>
     </TechnologyList>
    </AdditionalDeviceProperties>
   </DevicePropertiesList>
  </Add>
 </Manage>
</Request>
```

Modify Additional Device Properties

```
<Request xmlns="http://www.parinetworks.com/api/schemas/1.1" requestId="44444">
 <Manage>
  <Modify operationId="1">
   <DevicePropertiesList>
    <AdditionalDeviceProperties>
     <IpAddress>10.10.10.10</IpAddress>
     <Family>family2</Family>
     <OSType>abcde</OSType>
     <TechnologyList>
      <Technology>tech3</Technology>
      <Technology>tech4</Technology>
     </TechnologyList>
    </AdditionalDeviceProperties>
   </DevicePropertiesList>
  </Modify>
 </Manage>
```

```
</Request>
```

Delete Additional Device Properties

```
<Request xmlns="http://www.parinetworks.com/api/schemas/1.1" requestId="44444">
 <Manage>
  <Get operationId="1">
   <DevicePropertiesList>
    <AdditionalDeviceProperties>
     <IpAddressList>
      <IpAddress>10.10.10.10</IpAddress>
      <IpAddress>10.10.10.11</IpAddress>
     </IpAddressList>
    </AdditionalDeviceProperties>
   </DevicePropertiesList>
  </Get>
 </Manage>
</Request>
```

Get Additional Device Properties

```
<Request xmlns="http://www.parinetworks.com/api/schemas/1.1" requestId="44444">
 <Manage>
  <Delete operationId="1">
   <DevicePropertiesList>
    <AdditionalDeviceProperties>
     <IpAddressList>
      <IpAddress>5.0.1.1</IpAddress>
      <IpAddress>5.0.1.2</IpAddress>
     </IpAddressList>
    </AdditionalDeviceProperties>
   </DevicePropertiesList>
  </Delete>
 </Manage>
```

```
</Request>
```

Adding WMI Datasets

```
<Request xmlns="http://www.parinetworks.com/api/schemas/1.1" requestId="44444">
   <Manage>
      <Add operationId="1">
         <DatasetList>
            <Dataset identifier="_netstat_wmi">
               <Title>netstat_wmi</Title>
               <CategoryName>wmi</CategoryName>
               <TagName />
               <CreatedUser>admin</CreatedUser>
               <Locked>false</Locked>
               <CollectionType>WMI</CollectionType>
               <CollectionInterval >0</CollectionInterval>
               <ApplicablePlatforms>[ CISCO ]</ApplicablePlatforms>
               <VersionedDatasetList>
                  <VersionedDataset identifier="cisco">
                     <WMI>
                        <Namespace>CIMV2</Namespace>
                        <Query type="PS/WMI">Command to be added</Query>
                     </WMI>
                  </VersionedDataset>
               </VersionedDatasetList>
            </Dataset>
         </DatasetList>
      </Add>
   </Manage>
</Request>
```

Adding LDAP Datasets

```
<Request xmlns="http://www.parinetworks.com/api/schemas/1.1" requestId="44444">
    <Manage>
        <Add operationId="1">
            <DatasetList>
                <Dataset identifier="_ldap_dataset">
                <Title>ldap_dataset</Title>
                <CategoryName>ldap</CategoryName>
                <TagName />
                <CreatedUser>admin</CreatedUser>
                <Locked>false</Locked>
                <CollectionType>LDAP</CollectionType>
                <CollectionInterval>0</CollectionInterval>
                <ApplicablePlatforms>[ Custom ]</ApplicablePlatforms>
                <VersionedDatasetList>
                    <VersionedDataset identifier="_ACNS">
                        <LDAP>
                            <SearchBase></SearchBase>
                            <SearchFilter></SearchFilter>
                            <SearchScope></SearchScope>
                            <AttributesToReturn></AttributesToReturn>
                            <MaskRule> </MaskRule>
                            <Timeout></Timeout>
                        </LDAP>
                    </VersionedDataset>
                </VersionedDatasetList>
            </Dataset>
        </DatasetList>
    </Add>
</Manage>
</Request>
```

Uploading Valid SSL Certificate

To upload SSL certificate to CSPC Keystore, Perform the following :

Step 1 Choose any one the following:

- Customer who wants to upload SSL certificate of their choice may provide SSL certificate purchased from a trusted certificate authority

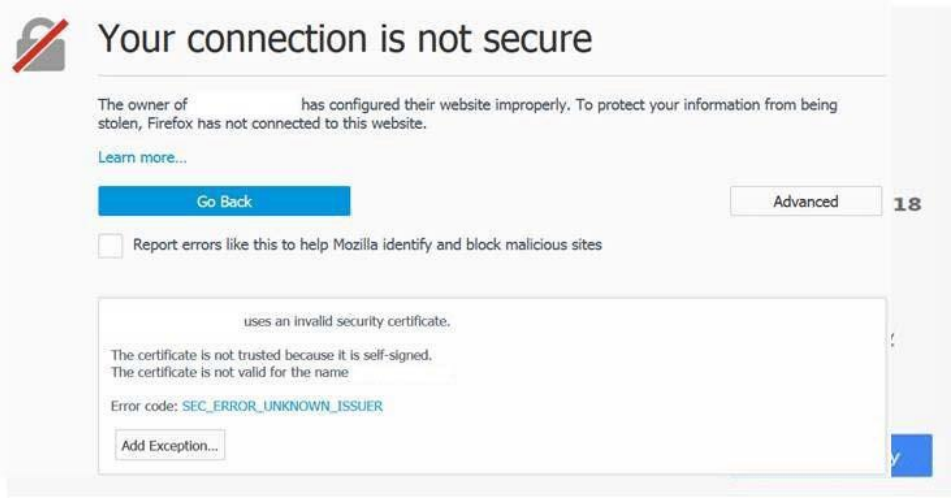
OR

- Customers can provide their own self signed certificate

For the above two scenario's you can directly start from Step 4.

Note All the Self signed certificates provides a warning message on the browser.

Figure F-1 Warning Message



You will not get this waring if we use the SSL certificate provided by the trusted signing authority like Symantec (Verisign) or Digicert.

Generating a Self-signed certificate

Self-signed certificate needs Private key and Certificate signing request (CSR)

Step 2 Generate the Private key and Certificate Signing Request (CSR) using the below Command in CSPC CLI. Customer must provide the input field details

```
#openssl req -new -newkey rsa:2048 -nodes -keyout localhost.key -out
localhost.csr


Generating a 2048 bit RSA private key
. ..............+++
.....................................................................
. ..............+++
writing new private key to 'localhost.key'
-----
You are about to be asked to enter information that will be incorporated
into your certificate request.
What you are about to enter is what is called a Distinguished Name or
a DN.
There are quite a few fields, but you can leave some
blank.For some fields there will be a default value,
If you enter '.', the field will be left blank.
-----
Country Name (2 letter code) [XX]:IN
State or Province Name (full name) []:TN
Locality Name (eg, city) [Default City]:Trichy
Organization Name (eg, company) [Default Company Ltd]:KSKTech
Organizational Unit Name (eg, section) []:IT
Common Name (eg, your name or your server's hostname) []:cspc
Email Address []:ksk@wxyz.com


Please enter the following 'extra' attributes
to be sent with your certificate request
A challenge password []:password
An optional company name []:AEY
```

Above command generates two files localhost.key (Key file) and localhost.csr (CSR file)

- Scenario 1: Some customer may request us to generate only the key & CSR file and they will create the certificate using the generated key /CSR files. Provide the above files (localhost.csr & localhost.key) to the customer, they will generate and provide the certificate. The certificate file will be either .crt or .cer. (.cer file generally belongs to Microsoft Platform) and proceed to Step 4.
- Scenario 2: Customer may request us to create the certificate from the generated key and CSR file (localhost.csr & localhost.key), continue with Step 3

Step 3 Create certificate using below command

```
# openssl x509 -req -days 500 -in localhost.csr -signkey localhost.key
-out localhost.crt
Signature ok
```

```
subject=/C=IN/ST=TN/L=Trichy/O=KSKTech/OU=IT/CN=cspc/emailAddress=
ksk@wxyz.com

Getting Private key
```

Above command generates the self-signed certificate file, localhost.crt

This step is optional:

Use the following command to check the certificate provided by the customer before creating the keystore

```
/opt/cisco/ss/adminshell/applications/CSPC/jreinstall/bin/keytool
-printcert -v -file localhost.crt
```

Step 4 Creating the keystore use the following command

```
#openssl pkcs12 -export -in localhost.crt -inkey localhost.key >
localhost.p12

Enter ExportPassword:cspcgxt

Verifying - Enter Export Password:cspcgxt

Above command generates.p12 file
```

Note Use "cspcgxt" as password (if some other password is used then you need to create a separate keystore and need to edit the server.xml file entries “keystoreFile” and “keystorePass”.

Step 5 Importing the created keystore into CSPC's keystore using command

```
/opt/cisco/ss/adminshell/applications/CSPC/jreinstall/bin/keytool
-importkeystore -srckeystore localhost.p12 -srcstoretype pkcs12
-destkeystore $CSPCHOME/webui/tomcat/conf/cspcgxt -deststoretype jks

Enter destination keystore password:cspcgxt

Enter source keystore password:cspcgxt

Entry for alias 1 successfully imported.

Import command completed: 1 entries successfully imported, 0 entries
failed or canceled
```

Step 6 Deleting the existing alias from the CSPC keystore

*checking the CSPC keystore for details using command

```
/opt/cisco/ss/adminshell/applications/CSPC/jreinstall/bin/keytool
-list -v -keystore $CSPCHOME/webui/tomcat/conf/cspcgxt

Your keystore contains 2 entries

Alias name: tomcat

Alias name: 1
```

You have to delete the tomcat Alias since it contains the CSPC self-signed certificate using below command

```
/opt/cisco/ss/adminshell/applications/CSPC/jreinstall/bin/keytool
-delete -alias tomcat -keystore    $CSPCHOME/webui/tomcat/conf/cspcgxt

Enter keystore password:cspcgxt
```

```
/opt/cisco/ss/adminshell/applications/CSPC/jreinstall/bin/keytool
-list -v -keystore $CSPCHOME/webui/tomcat/conf/cspcgxt
```

```
Enter keystore password:cspcgxt
```

Now the CSPC keystore has only 1 Alias,

```
Keystore type: JKS
```

```
Keystore provider: SUN Your keystore contains 1 entry
```

```
Alias name: 1
```

Changing Alias name to tomcat (this step is optional) using the command below.

```
/opt/cisco/ss/adminshell/applications/CSPC/jreinstall/bin/keytool
-changealias -alias 1 -destalias tomcat -keystore
$CSPCHOME/webui/tomcat/conf/cspcgxt
```

```
Enter keystore password: cspcgxt
```

Step 7 Verifying the Alias name change,

```
/opt/cisco/ss/adminshell/applications/CSPC/jreinstall/bin/keytool
-list -v -keystore $CSPCHOME/webui/tomcat/conf/cspcgxt
```

```
Enter keystore password: cspcgxt
```

```
Keystore type: JKS
```

```
Keystore provider: SUN. Your keystore contains 1 entry
```

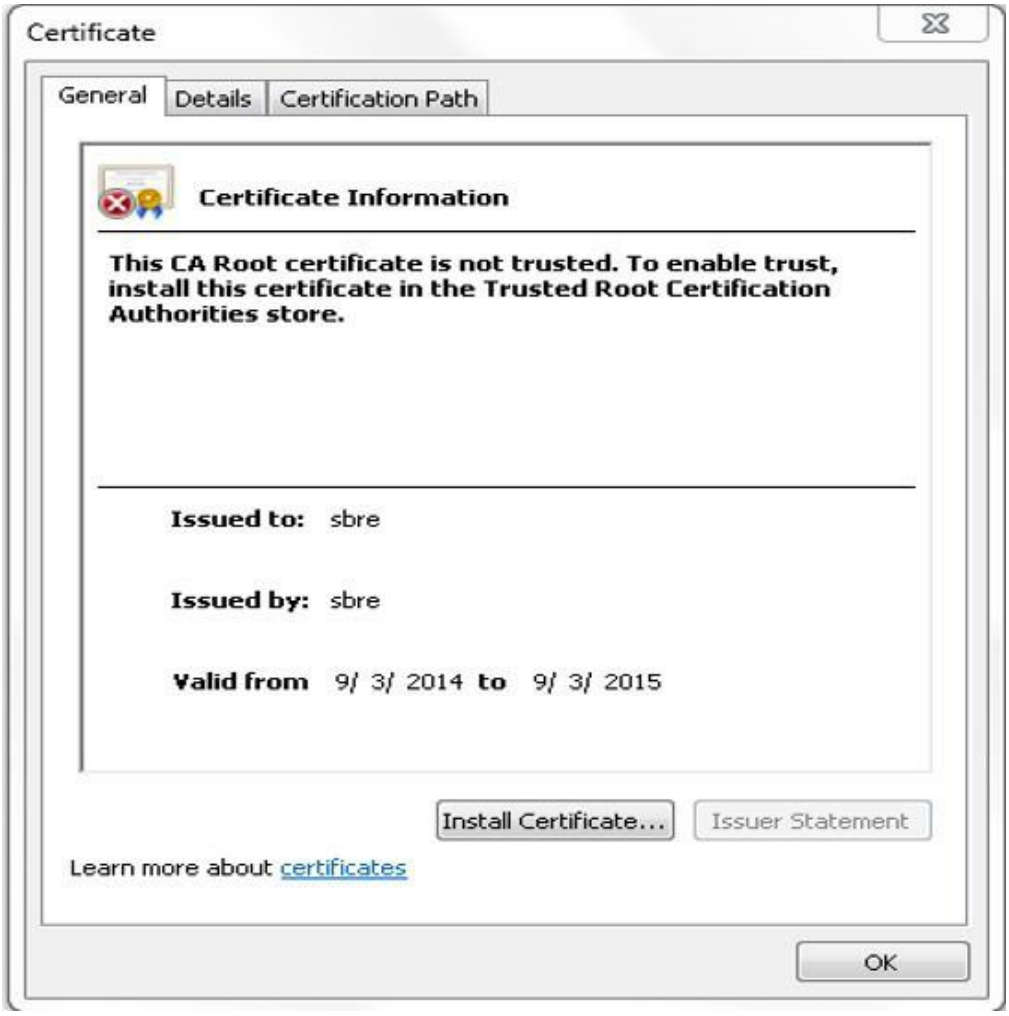
```
Alias name: tomcat
```

Step 8 Restart the CSPC service using below command

```
# service cspc restart
```

Step 9 Verify the uploaded SSL certificate in a browser below screen appears

Figure F-2 Certificate Information



RSA SHA 256 Fingerprint

To generate the RSA SHA 256 fingerprint for the corresponding host key, perform the following:

Step 1 Login to the host box where you want to perform backup or restore and execute the below command

```
ssh-keygen -l -f /etc/ssh/ssh_host_rsa_key
```

Sample Output

```
db:db:97:37:b9:af:df:fc:c5:af:b6:b4:1a:85:02:7f (MD5 checksum)
zU7R1r/JZaWFLmF1jKVm5ZrtuOaGvTyQzVU60RI73n0 (base64-encoded SHA256
checksum )
```

Note In OpenSSH 7.0 and earlier versions this fingerprint was a hexadecimal MD5 checksum. Now it is base64- encoded SHA256 checksum.

CSPC - Automated Fault Management (AFM) Tool Integration

CloudRay deployment with CSPC, NCE should follow the steps to establish the secured SSL based communication channel between CSPC and CloudRay.

Step 1 Create a new user with group type "**External Client User**", on CSPC.

Step 2 Configure the above created user's username and password, on CloudRay JMS client.

Step 3 Replace the existing `pariTrustStore` with the latest one available in `$CSPCHOME/bin`. on CloudRay JMS client. This step is mandatory only if the `pariTrustStore` is modified on CSPC.

Step 4 Add the below firewall rule just before the loopback interface rules that would allow to accept the connections from CloudRay on port 61617, on CSPC.

Step 5 This should be a permanent entry and finally restart the iptables.

```
iptables -A INPUT -p tcp -m tcp --dport 61617 -j ACCEPT
```

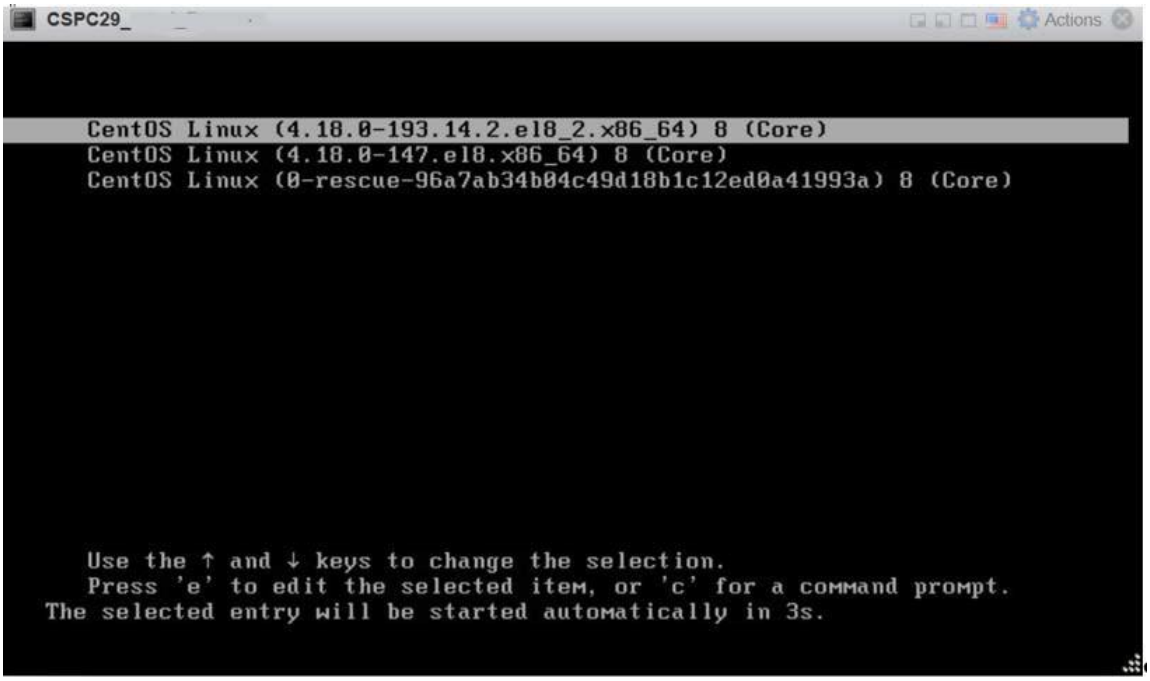
Reset Root Password and Deployment of ESXi 7.0

Recovering Root Password

To recover the root password, perform the following:

Step 1 Reboot the server from console and as the boot process starts, press `e` to edit the first boot option.

Figure I-1 Console



Step 2 Enter grub **Username** (root) and **Password**.

Step 3 Search the kernel for the line that starts with `linux`, change `ro` to `rw init=/sysroot/bin/sh`

Step 4 Press `CTRL+x` or `F10` to boot single user mode

Step 5 Access the system using command `chroot /sysroot`

Step 6 Execute command `passwd` to change the root password

Step 7 Execute the following commands to force the system file to relabel and reboot.

```
touch /.autorelabel
exit
logout
reboot
```

Deploying CSPC 2.11 OVA on ESXi 7.0

To deploy CSPC 2.11 OVA on ESXi 7.0 and modify the configurations post deployment

Step 1 Log in to the VMware vSphere Web Client and navigate to the VMs tab.

Step 2 Add the **Deploy OVF Template** action button via the **Actions** drop-down list.

Step 3 Click the newly added **Deploy OVF Template** button.

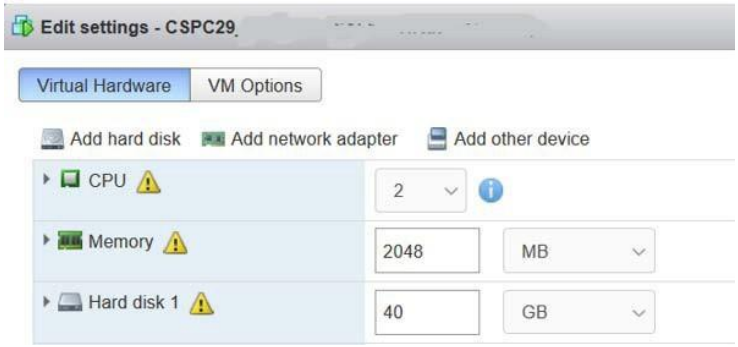
Step 4 Click on **Browse** to upload CSPC ova from local path.

Step 5 Accept end user license and select Deployment Type as **Ultrasmal**l.

Step 6 Click **Finish**, once CSPC OVA is deployed.

Step 7 **Power off** VM to change ultrasmall to small, medium, or large deployment types.

Step 8 Right click and then click **Edit settings**.



You can reconfigure Vcpus, Memory, and Storage for small, medium, and large as below:

.

Deployment Type	Vcpus	Memory	Storage
Small	4GB	4GB	250GB
Medium	8GB	8GB	500GB
Large	12GB	16GB	1TB

Step 9 Click **Save** and **Power on** the VM.

Frequently Asked Questions

Q. Does adding credentials manage a device?

A. No.

Q. Can credentials be added by DNS Name?

A. No.

Q. Can CNC seed files be imported?

A. Yes.

Q. Can Ciscoworks DCR files be imported?

A. Yes, but only the XML Version and only if the IP Addresses were exported from Ciscoworks, not the DNS Names.

Q. Does importing a credentials file ever manage a device?

A. No.

Q. Can credentials be exported?

A. Yes, in Pari credentials and CNC CSV formats.

Q. Is it better to enumerate IP address or to use wild cards?

A. It is better to use wild cards.

Q. Is the order of credentials important?

A. Yes, the order of credentials is used to choose the preferred protocol for a dataset type and also to choose between multiple matching wildcards.

Q. Does Discovery of Known Devices discover anything?

A. No, but it will filter out any devices it cannot collect device properties from using the SNMP credentials.

Q. How come all my devices weren't added?

A. Because Discovery of Known Devices filters out any devices it cannot collect device properties from using the SNMP credentials.

Q. Are SNMP credentials necessary to manage a device?

A. Yes.

Q. Can I select Cisco or third party vendor products where the data is collected?

A. Yes, by default CSPC discovery engine collects all devices that are SNMP/CLI enabled, If you want a set of devices not to be collected, then add those to ignore list. Refer to Exclude Platform

Q. Can I disable remote access for SW uploads to CSPC?

A. Yes, you can uncheck the uploads to remote server. Refer to Export Options in Profile Details

Q. I have legacy products that may be LDoS or past SW Maintenance and are sweating assets. Will CSPC still collect the data from these legacy products?

A. Yes

Q. I have procured third part products, will CSPC collect data from those?

A. Yes, CSPC collects the data and those will be considered as Cisco products.

Q. Will data be collected and processed for analytics from third party products that now are Cisco?

A. Yes, below is list of PID supported for collection by CSPC. You can see the supported third party PIDs.

Figure J-1 Third Party PIDs

Physical Type	Product Family	PID	OS Type	Name
Chassis	Cisco SD-WAN	vBond	Viptela	vBond Orchestrator
Chassis	Cisco SD-WAN	vManage	Viptela	vManage NMS
Chassis	Cisco SD-WAN	vSmart	Viptela	vSmart Controller
Chassis	Cisco vEdge Router	VEDGE-100-AC	Viptela	Cisco vEdge Router Model
Chassis	Cisco vEdge Router	VEDGE-1000-AC-K9	Viptela	Cisco vEdge Router Model
Chassis	Cisco vEdge Router	VEDGE-100B-AC-K9	Viptela	Cisco vEdge Router Model
Chassis	Cisco vEdge Router	VEDGE-100M-AT-K9	Viptela	Cisco vEdge Router Model
Chassis	Cisco vEdge Router	VEDGE-100M-GB-K9	Viptela	Cisco vEdge Router Model
Chassis	Cisco vEdge Router	VEDGE-100M-NA-K9	Viptela	Cisco vEdge Router Model
Chassis	Cisco vEdge Router	VEDGE-100M-NT-K9	Viptela	Cisco vEdge Router Model
Chassis	Cisco vEdge Router	VEDGE-100M-SP-K9	Viptela	Cisco vEdge Router Model
Chassis	Cisco vEdge Router	VEDGE-100M-VZ-K9	Viptela	Cisco vEdge Router Model
Chassis	Cisco vEdge Router	VEDGE-100WM-AT-K9	Viptela	Cisco vEdge Router Model
Chassis	Cisco vEdge Router	VEDGE-100WM-GB-K9	Viptela	Cisco vEdge Router Model
Chassis	Cisco vEdge Router	VEDGE-100WM-NA-K9	Viptela	Cisco vEdge Router Model
Chassis	Cisco vEdge Router	VEDGE-100WM-NT-K9	Viptela	Cisco vEdge Router Model
Chassis	Cisco vEdge Router	VEDGE-100WM-SP-K9	Viptela	Cisco vEdge Router Model
Chassis	Cisco vEdge Router	VEDGE-100WM-VZ-K9	Viptela	Cisco vEdge Router Model
Chassis	Cisco vEdge Router	VEDGE-2000-AC-K9	Viptela	Cisco vEdge Router Model
Chassis	Cisco vEdge Router	VEDGE-CLOUD	Viptela	VEDGE-CLOUD