

Argent for SNMP

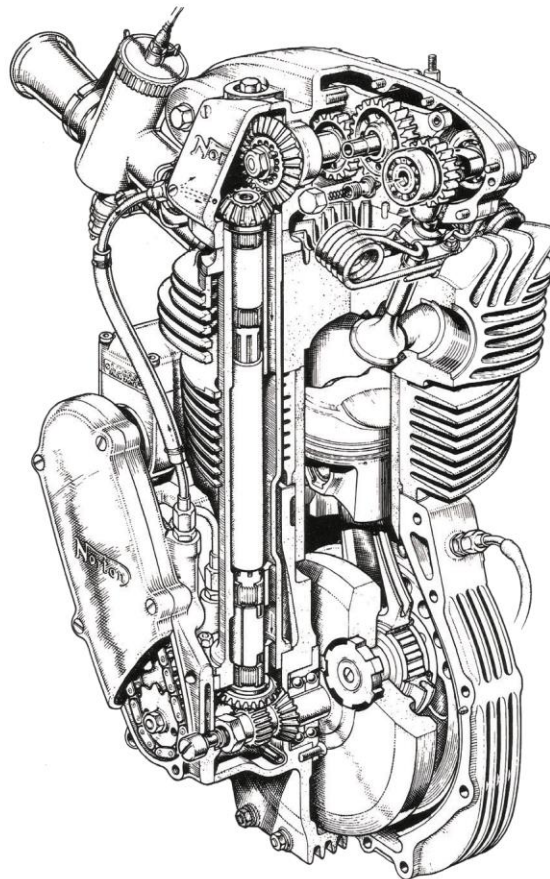


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Introduction

In today's complex network of switches, routers and servers, managing all these devices can be painful. Eventually, the network begins to have issues and slows down. It is critical for the system administrator to keep an eye on the entire network.

Most of the devices on the network support the network management protocol, allowing network devices to share management information more easily. There are various protocols available to support network management, including the popular Simple Network Management Protocol (SNMP), which comes pre-bundled with SNMP agents for most network devices.

Simple Network Management Protocol (SNMP) is an application-layer protocol for monitoring and managing network devices on a local area network (LAN) or wide area network (WAN).

Argent Omega for SNMP can communicate with network devices, despite having different hardware and software, allowing network administrators to track network performance, diagnose and manage network faults, and plan network capacity and growth.

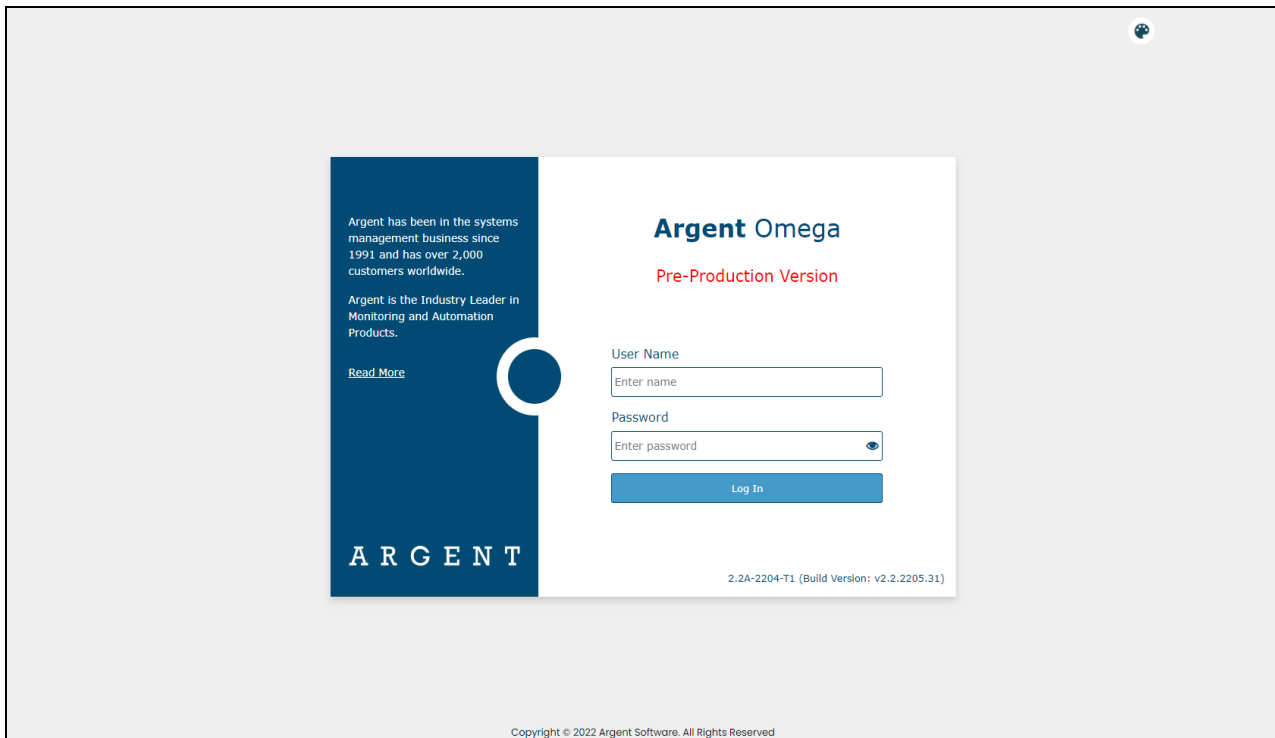
Argent Omega for SNMP Tool Sets provides Instant Best Practices for monitoring SNMP-compliant devices. Both sides of SNMP are supported by proactively checking SNMP statistics while also listening for SNMP Traps. All SNMP-enabled devices or applications such as bridges, hubs, switches, routers, network servers, power supplies, and environmental controls can be monitored.

Prerequisites

In order to use Meraki feature, Meraki API key must be specified in **Argent Omega** settings under **Generator Settings**. Meraki is the cloud-based management protocol for CISCO wireless access points (AP). One common usage is to find current wireless clients of a selected Meraki device.

The screenshot displays the Argent Omega web interface. The top navigation bar includes a hamburger menu, the logo 'ARGENT OMEGA (2.2A-2207-A)', and links for Home, Theme, Argent Instant Help, About, and Logout. The left sidebar contains a tree view of settings categories: Tool Sets, Alerts, Monitoring Groups, Relators, Macros, Calendars, Base Definitions, Holidays, Administration, License (Admin Only), Generator Settings, Argent Omega, Argent Alert Mechanism, Argent Forecaster, Argent SIEM-Complete, Security, Network Scan, Event Logs, and SuperMaps. The main content area is titled 'Generator Settings' and contains various configuration options. The 'Meraki API Key' field is highlighted with a red rectangular box. Other visible fields include 'Send Internal Events To Email Address' (testargent10@gmail.com), 'Shared Task Executor Process Pool Size' (10), 'Max Days To Automatically Resolve Events' (7), 'Keep Task Execution Info For Days' (60 Minutes), 'Prevent Firing The Same Internal Event Within Interval' (60 Seconds), 'Delay Firing Internal Event' (5 Minutes), 'Max Allowed Lapse For Active Generator' (15 Minutes), 'Auto Logout' (15 Minutes), 'Default Location' (MUMBAI), 'Default Contact' (Please Choose), 'Administrative Protection Password' (*****), 'Take Automatic Backup' (checkbox), 'Time' (00:00:00), 'Calendar' (Please Choose), and 'Recycle Service' (checkbox).

Log-On Screen



Argent Omega validates the authenticity of users through a Log-on screen.

There are three types of user accounts:

- Windows User Accounts
- Demo Accounts
- Internal Accounts

The Argent server is typically in an Active Directory Domain environment and the user is authenticated by Active Directory.

Local Windows user authentication is used instead if the Argent server is standalone or in a Workgroup. With Windows user accounts, the best approach is to create a separate user group for Windows users and assign the required rights.

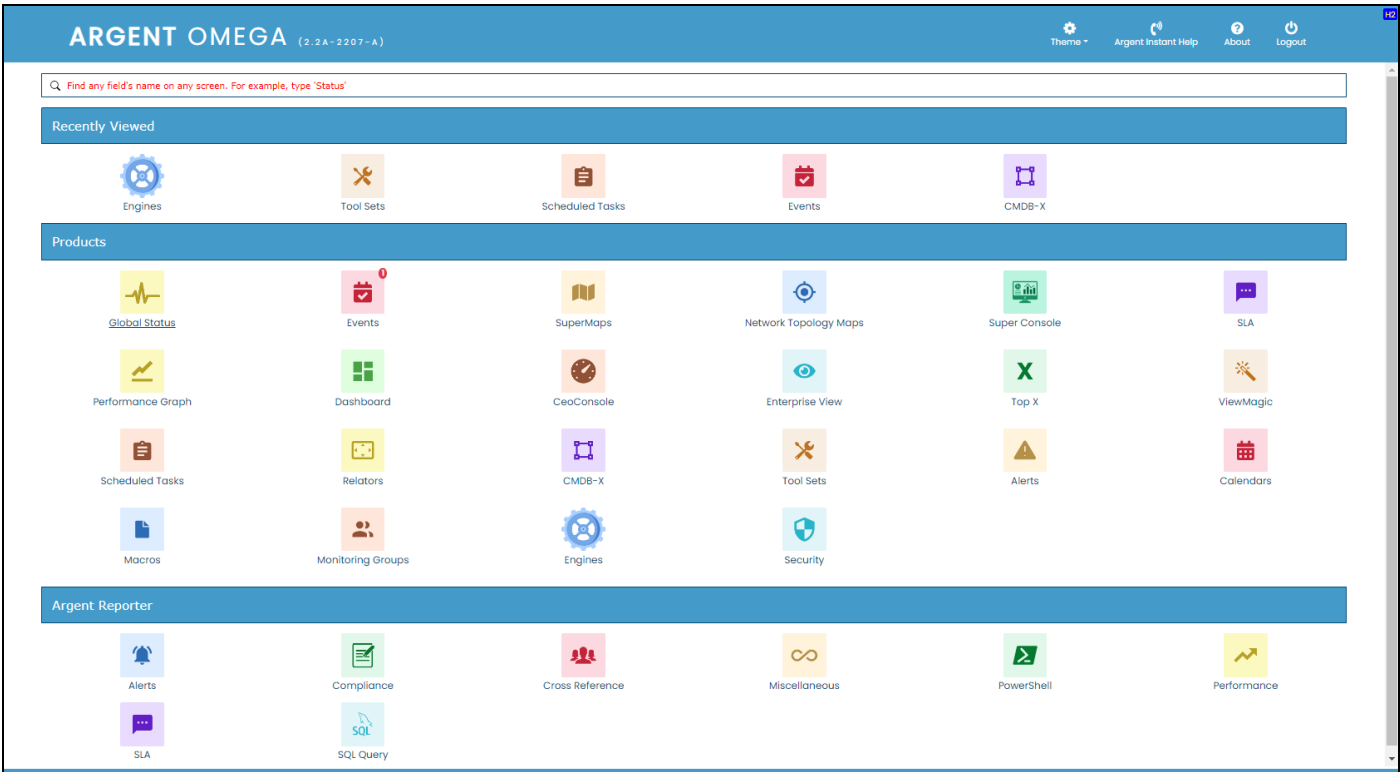
Demo accounts can be created in the **Argent Omega Security** section and are used for demonstration purposes. Demo accounts are read-only accounts and use Argent private authentication to login into Argent Omega. Demo accounts are usually only used temporarily for initial training and are limited to a few specific IP addresses. Argent engineers can create demo training accounts for you at no cost.

Internal accounts also can be created in the **Argent Omega Security** section, and **behave like normal Windows accounts**, using Argent's private authentication for login.

The Argent Omega username is case **insensitive** but the password is case sensitive.

Home Screen

The Argent Omega home screen will be displayed after login:



To begin using Argent Omega for SNMP, click on the CMDB-X icon to add monitored servers or devices.

CMDB-X

In the software industry, CMDB stands for Configuration Management DataBase.

Argent added the 'X' for eXtensible.

A recent example of why this feature is so important to you was a customer adding a custom field to their CMDB-X to record **the expiry date of the firewall license**.

The ability to add custom fields in this way allow customers to use the Argent CMDB-X as an IT Asset Management tool.

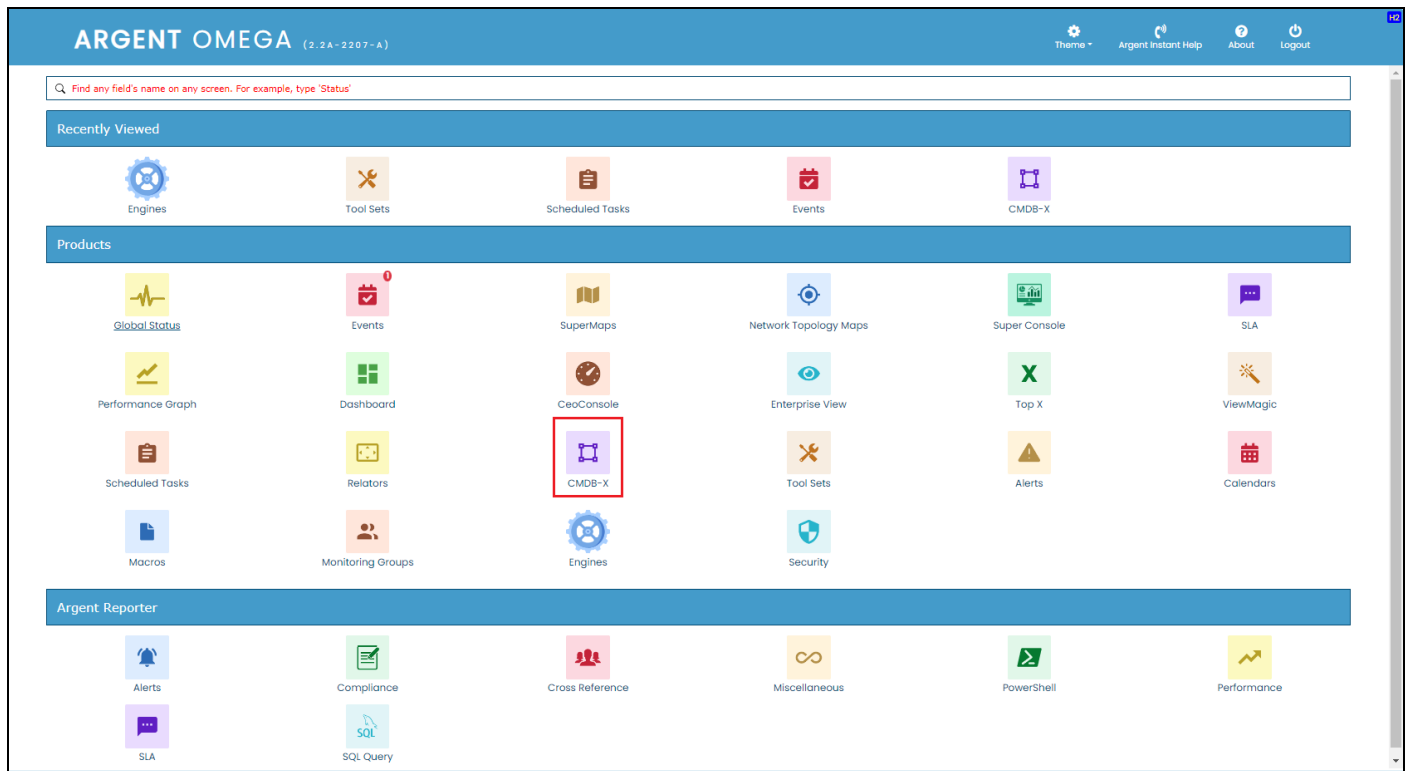
The Argent CMDB-X provides an easy and streamlined way to manage all critical servers and devices, as well as all server and device properties and licensing, **from a single screen**. The Argent CMDB-X makes it easy for you to add multiple servers and devices in one batch – 11 or 77,000 -- license them to multiple Argent Omega products and assign them to existing or new Locations and Network Groups, **all in one single click**.

The Argent CMDB-X provides complete network discovery of all servers and TCP/IP devices using Active Directory, Network Browser, ICMP Ping, Windows Cluster, and SNMP Discovery.

The Argent CMDB-X also has options to import from external Excel files.

The Argent CMDB-X has facilities to manually add or remove servers and devices, license single or multiple servers and devices in bulk groups, test connectivity to the monitored services or devices.

Select '**CMDB-X**' from the Home Screen:



The CMDB-X screen will be displayed as shown below:

ARGENT OMEGA

(2.2 A - 2207 - A)

Home

Theme

Argent Instant Help

About

Logout

Search

Server Or Device

Network Group

Scan Network

Properties

Network Group Or Machine	Type	Alias	Licensed	Suspend	Location	Contact
▶ Demo Group	Network Group					
▼ First Network Group	Network Group				MUMBAI	
192.168.106.97	Linux/UNIX		Yes		MUMBAI	
192.168.111.1	IP Device		Yes		MUMBAI	
192.168.111.2	IP Device		Yes		MUMBAI	
192.168.111.3	IP Device		Yes		MUMBAI	
192.168.111.4	IP Device	APC_UPS_003	Yes		MUMBAI	
192.168.111.5	IP Device		Yes		MUMBAI	
192.168.37.1	IP Device		Yes		MUMBAI	
AI-2019-009	Windows Server		Yes		MUMBAI	
AI-MFC-102-W10	Windows 10 Pro		Yes		MUMBAI	
ARGENT	URL Object		Yes		MUMBAI	
DND-MFC-SQL	Windows Server		Yes		MUMBAI	
FTP	FTP Object		Yes		MUMBAI	
FTP_1	FTP Object		Yes		MUMBAI	
POP	Mail Object				MUMBAI	
SMTP_1	Mail Object		Yes		MUMBAI	
TEST_365	Microsoft 365 Service Unit		Yes		MUMBAI	

Display Options

Refresh

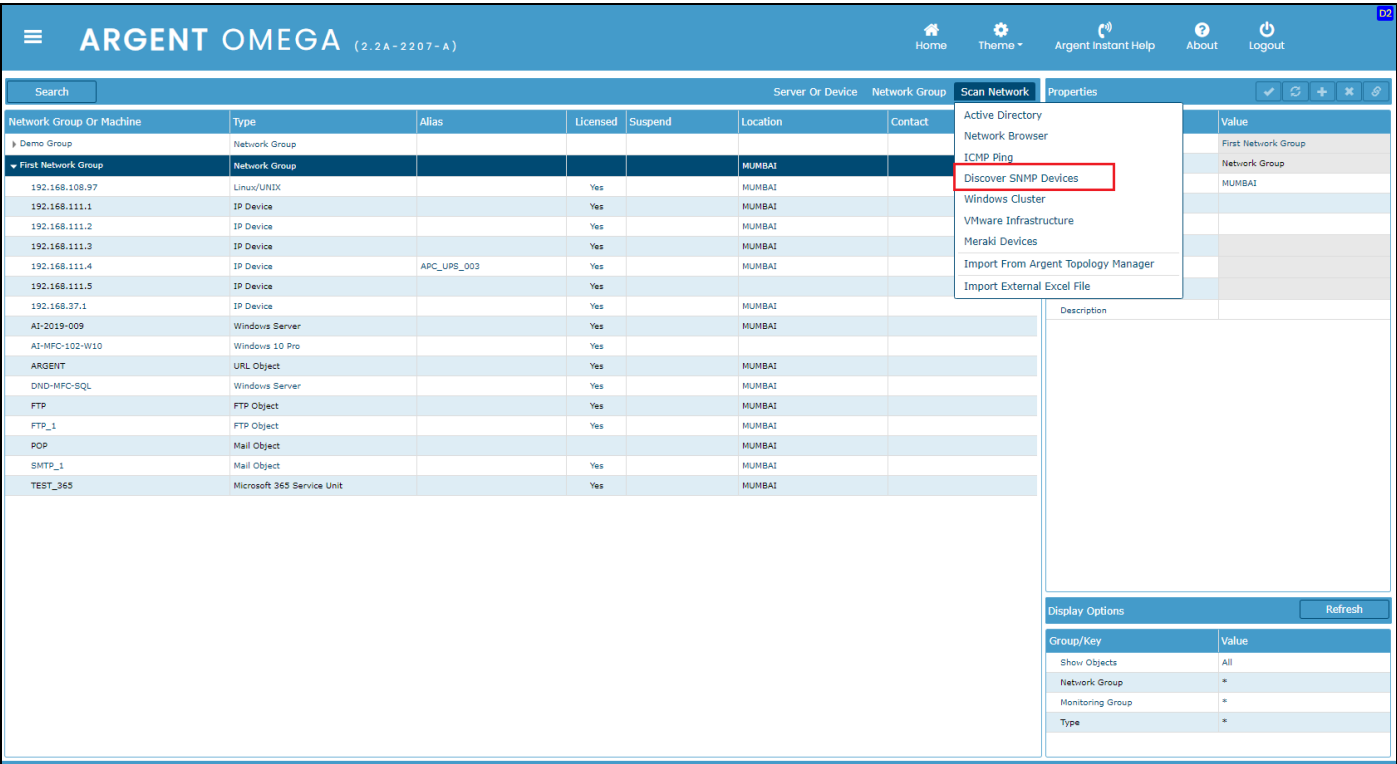
Group/Key	Value
Name	First Network Group
Type	Network Group
Location	MUMBAI
Contact	
▶ VMware Parameters	
▶ XenServer Parameters	
▶ SNMP Parameters	
▶ Extended Properties	
Description	

Argent Omega for SNMP supports monitoring the following types of servers and devices:

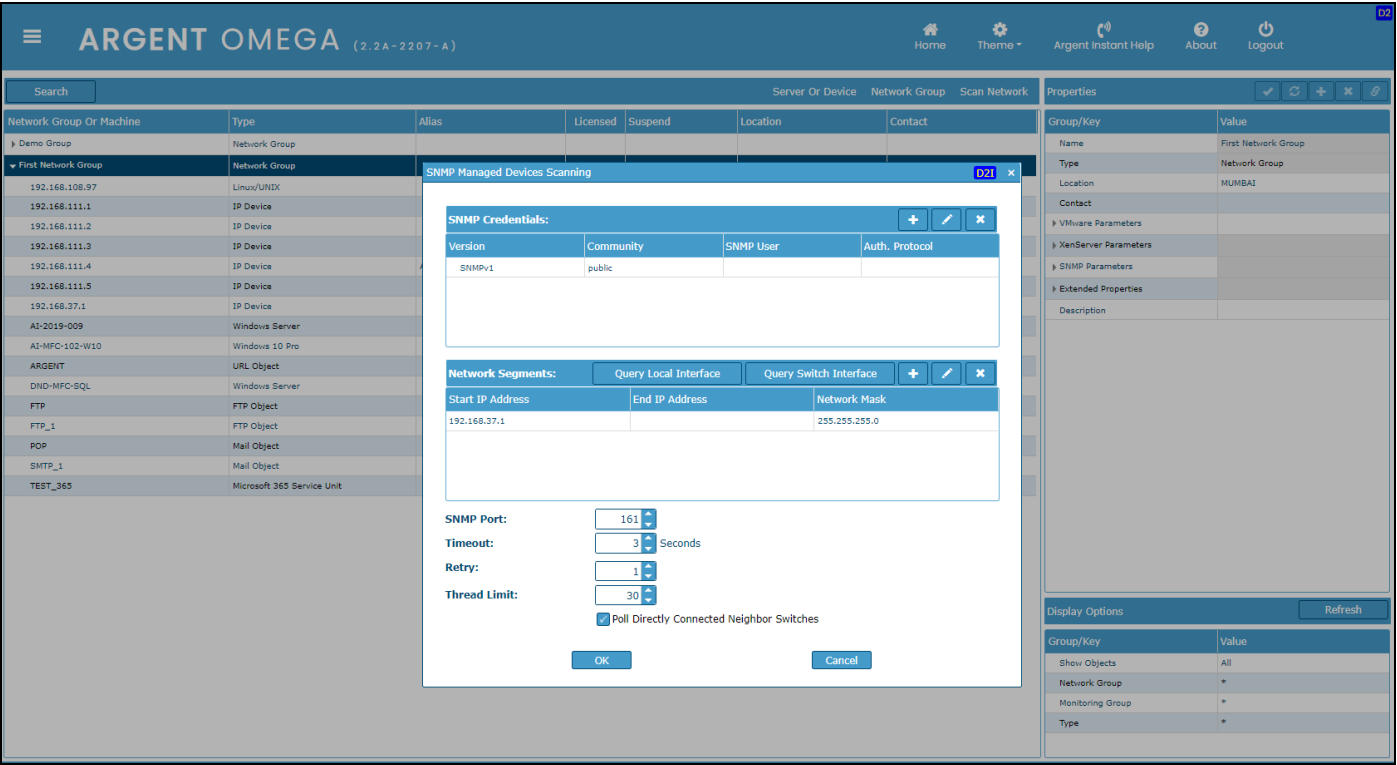
- IP Devices
- Linux
- Windows Server

To add SNMP-compliant devices to CMDB-X, either use network scan option **Discover SNMP Devices** or use Manually Add Server or Device context menu option.

For automatic discovery of SNMP devices, choose **Discover SNMP Devices** from **Scan Network** popup menu:



The following dialog will pop up, asking the SNMP parameters to scan SNMP devices.



The following SNMP parameters should be configured:

SNMP Version:

Default value is SNMPv1. It can be SNMPv1, SNMPv2c, or SNMPv3.

Community:

The Community string is like a user ID or password that allows access to a router's or other device's statistics. SNMP community strings are used only by devices that support the SNMPv1 and SNMPv2c protocol and the default value is **public**.

SNMPv3 uses username and password authentication, along with an encryption key.

SNMP User (For SNMPv3 Only):

SNMPv3 username

Auth. Password (For SNMPv3 Only):

SNMPv3 authentication password

Auth. Protocol (For SNMPv3 Only):

SNMPv3 authentication protocol. It can be MD, SHA, SHA256 or SHA512.

Encryption Password (For SNMPv3 Only):

SNMPv3 encryption password.

Encryption Algorithm (For SNMPv3 Only):

SNMPv3 encryption algorithm. It can be DES, AES, 3DES, AES192 or AES256.

Start IP Address:

IP address to start the scanning for SNMP devices.

End IP Address:

IP address to serve as the end of the IP range to scan for SNMP devices.

Network Mask:

Network mask.

SNMP Port:

Default value is 161.

Timeout:

Timeout in seconds. The range is (3, 60). The default value is 3.

Retry:

The range is (1, 10). The default value is 1.

Thread Limit:

This is the thread pool size performing the SNMP scanning. The range can be (1, 100). The default value is 30.

Check Poll Directly Connected Neighbor Switches option to query neighbor switches connected to the switch.

Press OK button to scan the network for SNMP devices using specified parameters. The scanning result will be shown in a list box as shown below:

ARGENT OMEGA

(2.2A-2207-A)

[Home](#)
[Theme ~](#)
[Argent Instant Help](#)
[About](#)
[Logout](#)

Search Server Or Device Network Group Scan Network							Properties
Network Group Or Machine	Type	Alias	Licensed	Suspend	Location	Contact	
> Demo Group	Network Group						
<> First Network Group	Network Group				MUMBAI		
192.168.108.97	Linux/UNIX		Yes		MUMBAI		
192.168.111.1	IP Device		Yes		MUMBAI		
192.168.111.2	IP Device		Yes		MUMBAI		
192.168.111.3	IP Device		Yes		MUMBAI		
192.168.111.4	IP Device	APC_UPS_003	Yes		MUMBAI		
192.168.111.5	IP Device		Yes				
192.168.37.1	IP Device		Yes		MUMBAI		
A1-2019-009	Windows Server		Yes		MUMBAI		
A1-MFC-102-W10	Windows 10 Pro		Yes				
ARGENT	URL Object		Yes		MUMBAI		
DND-MFC-SQL	Windows Server		Yes		MUMBAI		
FTP	FTP Object		Yes		MUMBAI		
FTP_1	FTP Object		Yes		MUMBAI		
POP	Mail Object				MUMBAI		
SMTTP_1	Mail Object		Yes		MUMBAI		
TEST_365	Microsoft 365 Service Unit		Yes		MUMBAI		
Group/Key	Value						
Show Objects	All						
Network Group	*						
Monitoring Group	*						
Type	*						

To manually add a SNMP device to CMDB-X, select **Manually Add Server or Device** from the right click menu:

Add the Name or IP of the device and select the Type:

The screenshot shows the ARGENT OMEGA (2.2 A - 2207 - A) interface. A modal dialog titled "Manually Add An Entry" is open, allowing the user to add a new entry. The dialog contains the following fields:

- Name: 192.168.111.18
- Alias: (empty)
- Domain: (empty)
- VM Hosting Environment: None
- Type: IP Address
- Network Group: Demo Group
- Location: MUMBAI

The background shows a table of network devices with columns: Network Group Or Machine, Type, Alias, Licensed, Suspend, Location, and Contact. The right panel shows the properties of the selected device, including Group/Key, Value, and various configuration options.

The new server will now be listed in the CMDB-X:

The screenshot shows the ARGENT OMEGA (2.2 A - 2207 - A) interface after the new entry has been added. The table of network devices now includes the following entry:


Network Group Or Machine	Type	Alias	Licensed	Suspend	Location	Contact
192.168.111.18	IP Address				MUMBAI	

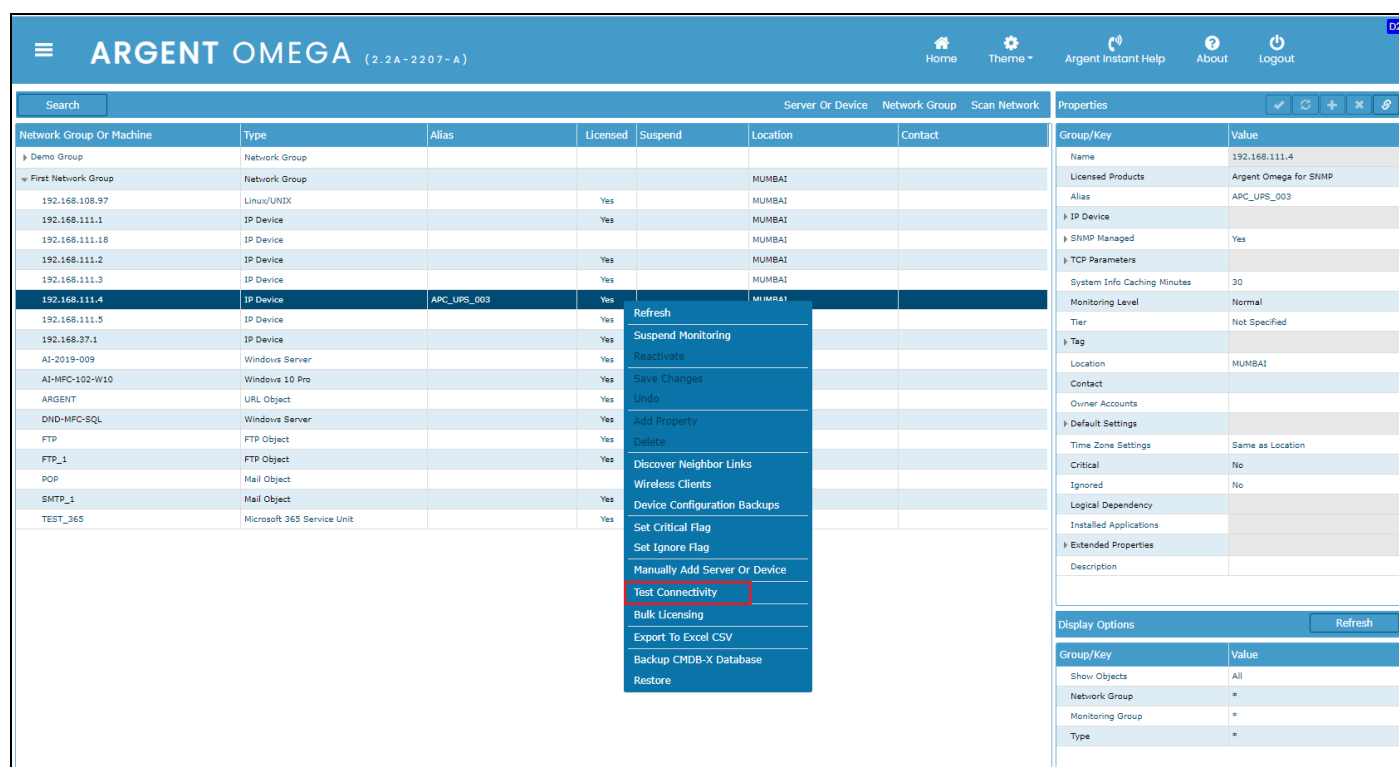
The right panel shows the properties of the selected device, including Group/Key, Value, and various configuration options.

The following SNMP specific CMDB-X properties need to be configured to monitor the device using Argent Omega for SNMP Tool Sets.

Connect Parameters	Select Default to connect using default parameters. Select Explicit to define the parameters explicitly. The following parameters need to be defined:
SNMP Version	It can be SNMPv1, SNMPv2c or SNMPv3. SNMPv3 requires authentication. If SNMPv3 is selected, valid authentication credentials should be specified.
Port	If not specified default 161 is used.
Community	This is the community string for SNMPv1 and SNMPv2. If not specified, default public is used.
User Account	SNMPv3 user name.
Auth Protocol	SNMPv3 authentication password.
Auth Password	SNMPv3 authentication protocol. It can be MD, SHA, SHA256 or SHA512.
Encrypt Algorithm	SNMPv3 encryption algorithm. It can be DES, AES, 3DES, AES192 or AES256.
Encrypt Password	SNMPv3 encryption password.

A connectivity test can be run to verify the licensed SNMP device configured in the CMDB-X.

Select **Test Connectivity** from the right click menu or click  from properties to execute the connectivity test:



The screenshot displays the Argent Omega (2.2A-2207-A) interface. The main table lists network devices with columns for Network Group, Type, Alias, Licensed, Suspend, Location, and Contact. A context menu is open over the device with IP 192.168.111.4, showing options like Refresh, Suspend Monitoring, Reactivate, Save Changes, Undo, Add Property, Delete, Discover Neighbor Links, Wireless Clients, Device Configuration Backups, Set Critical Flag, Set Ignore Flag, Manually Add Server Or Device, **Test Connectivity** (highlighted with a red box), Bulk Licensing, Export To Excel CSV, Backup CMDB-X Database, and Restore. The right sidebar shows the properties for the selected device, including Name, Licensed Products, Alias, IP Device, SNMP Managed, TCP Parameters, System Info, Monitoring Level, Tier, Location, Contact, Owner Accounts, Default Settings, Time Zone Settings, Critical, Ignored, Logical Dependency, Installed Applications, Extended Properties, and Display Options.

Select a server or device to execute the connectivity test and click OK:

Select Generator To Run Connectivity Test

Name:

AI-2019-009

OK

Cancel

The Results are shown:

ARGENT OMEGA (2.2 A - 2207 - A)

Home Theme Argent Instant Help About Logout

Search

Server Or Device Network Group Scan Network Properties

Network Group Or Machine	Type	Alias	Licensed	Suspend	Location	Contact
Demo Group	Network Group					
First Network Group	Network Group				MUMBAI	
192.168.108.97	Linux/UNIX					
192.168.111.1	IP Device					
192.168.111.18	IP Device					
192.168.111.2	IP Device					
192.168.111.3	IP Device					
192.168.111.4	IP Device					
192.168.111.5	IP Device					
192.168.37.1	IP Device					
AI-2019-009	Windows Server					
AI-MFC-102-W10	Windows 10 Pro					
ARGENT	URL Object					
DND-MFC-SQL	Windows Server					
FTP	FTP Object					
FTP_1	FTP Object					
POP	Mail Object					
SMTP_1	Mail Object					
TEST_365	Microsoft 365 Service Unit					

Connectivity Test Results

Argent Omega 2.2.2207.21 Copyright (c) 2022 Argent Software
For Argent Instant Help 7 by 24 with an Argent engineer, please see <http://help.Argent.com/help.php>
Target Machine: 192.168.111.4
Test At: AI-2019-009
Test Time: Tue, 26 Jul 2022 09:40:18 (UTC)
09:40:18 - Test 1: PING
09:40:18 - [VALID]

09:40:18 - Test 2: Access Of SNMP Manager
09:40:18 - [VALID] sysName = APC_UPS_003

Print

Close

Group/Key Value

Name 192.168.111.4

Licensed Products Argent Omega for SNMP

Alias APC_UPS_003

IP Device

SNMP Managed Yes

TCP Parameters

System Info Caching Minutes 30

Monitoring Level Normal

Tier Not Specified

Tag

Location MUMBAI

Contact

Owner Accounts

Default Settings

Time Zone Settings Same as Location

Critical No

Ignored No

Logical Dependency

Installed Applications

Extended Properties

Description

Display Options Refresh

Group/Key Value

Show Objects All

Network Group *

Monitoring Group *

Type *

Tests can also be run against other server or device types using the same method.

Display Wireless Clients For Meraki Access Point (AP)

Meraki is the cloud-based management protocol for CISCO wireless access points (AP). One common usage is to find out current wireless clients of a selected Meraki device. There is a scan option in CMDDB-X to scan Meraki devices.

The screenshot shows the ARGENT OMEGA (2.2A-2207-A) interface. The top navigation bar includes Home, Theme, Argent Instant Help, About, and Logout. The main content area is divided into a table on the left and a properties panel on the right. The table has columns for Network Group Or Machine, Type, Alias, Licensed, Suspend, Location, and Contact. The properties panel on the right shows various settings for the selected device, including Tier, Location, Contact, Owner Accounts, Default Settings, Time Zone Settings, Critical, Ignored, Logical Dependency, Installed Applications, Extended Properties, and Description. The 'Scan Network' menu is open, and 'Meraki Devices' is highlighted.

Note:

To use this facility, Meraki API key must be specified in **Argent Omega** settings under **Generator Settings**.

Click **Meraki Devices** popup menu option to scan all Meraki devices in the network.

The scanning result will be shown in a list box as shown below:

The screenshot shows the ARGENT OMEGA (2.2A-2207-A) interface with a 'Network Scanning Result' popup window. The popup window has a table with columns for Ignored, Machine, Type, Alias, and Domain. The table lists several IP devices with their respective IP addresses and aliases. Below the table, there is a 'Save to Network Group' section with a dropdown menu set to 'First Network Group' and a checkbox for 'Keep Original Network Group'. The 'Toggle' button is highlighted.

Press OK button to add the scanned devices under specified Network Group in CMDB-X.

To find out the wireless clients currently connected to a specific Meraki device, select the device and click **Wireless** Clients context menu option.

The screenshot shows the ARGENT OMEGA (2.2A-2207-A) interface. The main table lists network devices with columns: Network Group Or Machine, Type, Alias, Licensed, Suspend, Location, and Contact. A context menu is open for the selected device (192.168.4.183), showing options like Refresh, Suspend Monitoring, Reactivate, Save Changes, Undo, Add Property, Delete, Discover Neighbor Links, Wireless Clients (highlighted), Device Configuration Backups, Set Critical Flag, Set Ignore Flag, Manually Add Server Or Device, Test Connectivity, Bulk Licensing, Export To Excel CSV, Backup CMDB-X Database, and Restore. The right sidebar shows the Properties panel for the selected device, displaying various configuration details.

The wireless clients connected to the selected Meraki device will be listed in a popup dialog as shown below:

The screenshot shows the ARGENT OMEGA (2.2A-2207-A) interface with a popup dialog titled "Wireless Clients" (D2K) open. The dialog displays a table of wireless clients connected to the selected device. The table has columns: Client, Mac Address, IP, AP, SSID, First Seen, Last Seen, and Sent/Recv. The background interface shows the same network device table as the first screenshot, with the context menu still open.

Discover Neighbor Links option finds the neighbor switches connected to the switch device.

ARGENT OMEGA (2.2A-2207-A)

Home

Theme

Argent Instant Help

About

Logout

Search

Server Or DeviceNetwork GroupScan Network

Properties

Network Group Or Machine	Type	Alias	Licensed	Suspend	Location	Contact
▶ Demo Group	Network Group					
▼ First Network Group	Network Group				MUMBAI	
192.168.108.97	Linux/UNIX		Yes		MUMBAI	
192.168.111.1	IP Device		Yes		MUMBAI	
192.168.111.18	IP Device				MUMBAI	
192.168.111.2	IP Device		Yes		MUMBAI	
192.168.111.3	IP Device		Yes		MUMBAI	
192.168.111.4	IP Device	APC_UPS_003	Yes		MUMBAI	
192.168.111.5	IP Device		Yes			
192.168.37.1	IP Device		Yes		MUMBAI	
AI-2019-009	Windows Server				MUMBAI	
AI-MFC-102-W10	Windows 10 Pro					
ARGENT	URL Object				MUMBAI	
DND-MFC-SQL	Windows Server					
FTP	FTP Object				MUMBAI	
FTP_1	FTP Object				MUMBAI	
POP	Mail Object				MUMBAI	
SMTP_1	Mail Object				MUMBAI	
TEST_365	Microsoft 365 Service Unit				MUMBAI	

Refresh

Suspend Monitoring

Reactivate

Save Changes

Undo

Add Property

Delete

Discover Neighbor Links

Wireless Clients

Device Configuration Backups

Set Critical Flag

Set Ignore Flag

Manually Add Server Or Device

Test Connectivity

Bulk Licensing

Export To Excel CSV

Backup CMDB-X Database

Restore

Group/Key

Value

Name

192.168.37.1

Licensed Products

Argent Omega Baseline,Argent Omega for SNMP

Alias

▶ IP Device

▶ SNMP Managed

Yes

▶ TCP Parameters

System Info Caching Minutes

720

Monitoring Level

Normal

Tier

Not Specified

▶ Tag

Location

MUMBAI

Contact

Owner Accounts

▶ Default Settings

Time Zone Settings

Same as Location

Critical

No

Ignored

No

Logical Dependency

Installed Applications

▶ Extended Properties

Description

Display Options

Refresh

Group/Key

Value

Show Objects

All

Network Group

*

Monitoring Group

*

Type

*

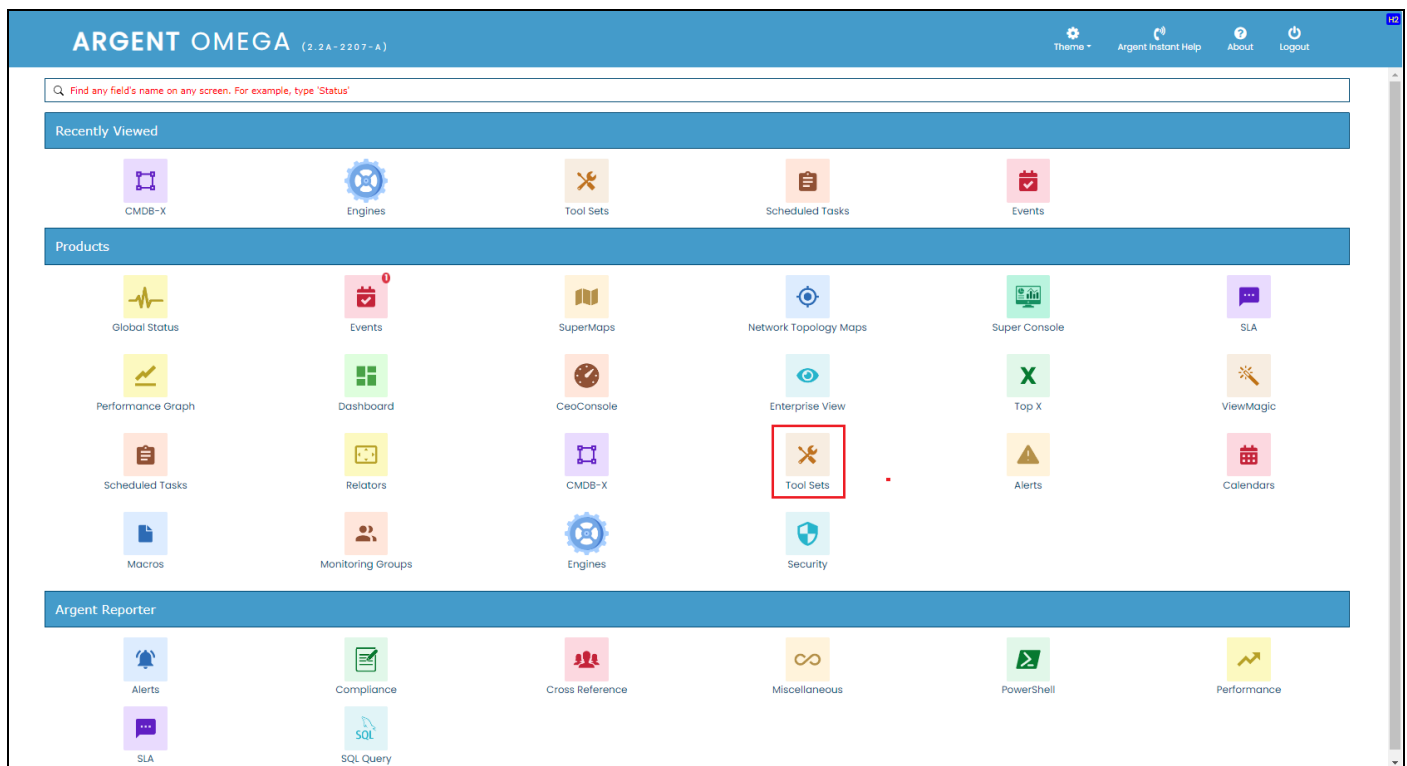
Argent Software

Proprietary Information – All Rights Reserved

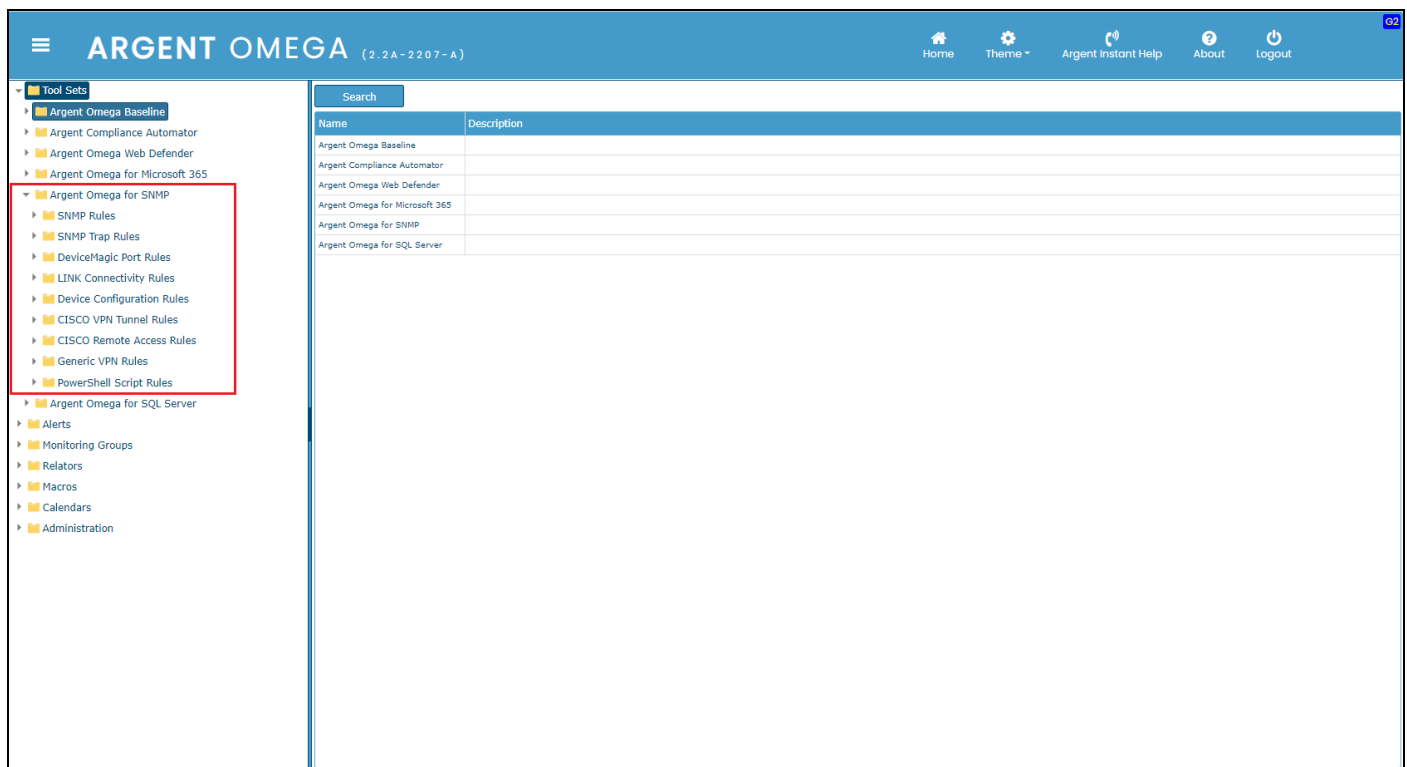
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Agent Omega for SNMP Tool Sets

Select **Tool Sets** from the Home Screen:



Under **Tool Sets**, select **Argent Omega for SNMP**. You can find the following Rules there.



Argent Omega for SNMP consists of different types of Rules:

- * SNMP Rules
- * SNMP Trap Rules
- * DeviceMagic Port Rules
- * Link Connectivity Rules
- * Device Configuration Rules
- * CISCO VPN Tunnel Rules
- * CISCO Remote Access Rules
- * Generic VPN Rules
- * PowerShell Script Rules

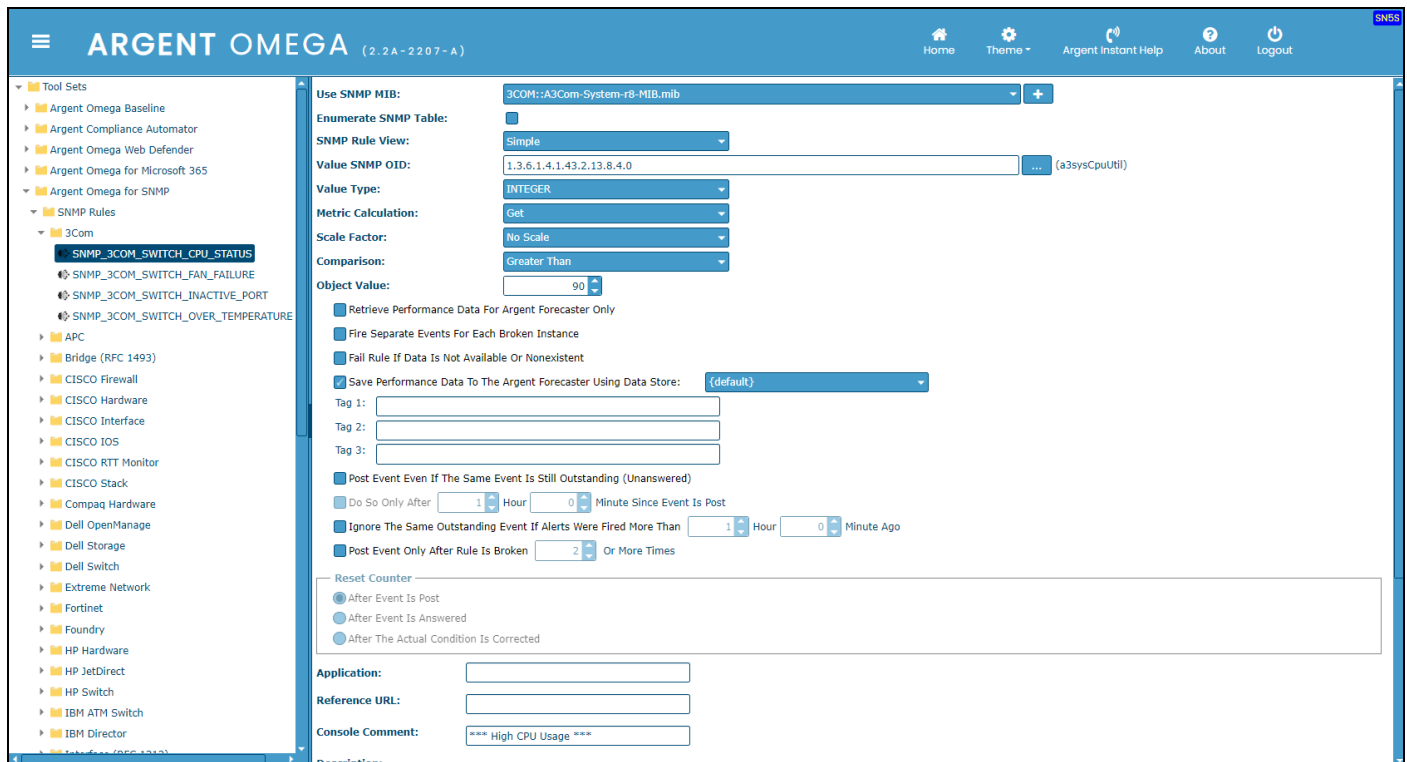
SNMP Rules

Any SNMP-compliant device can be monitored using SNMP Rules. These Rules allow the polling of OID's by either manually specifying the value or using the Argent OID Browser. OID values can also be added by using the device-specific MIB file. You can create your own custom SNMP rules based on any manufacturer's SNMP information (MIB file). You can also have Argent to do this for you.

The Tool Sets of Argent Omega for SNMP provides built-in Rules to monitor common SNMP-complaint devices such as CISCO, 3Com, APC, Dell, Fortinet, HP, Novell, Compaq Server Hardware, IBM Server Hardware etc.

The hardware devices vary widely, from Compaq server hardware to air conditioning units and PBXs. Using SNMP Rules, all common server hardware's important aspects are monitored, such as the motherboard, the power supply and even the fans in the servers.

Following is the SNMP Rule screen:

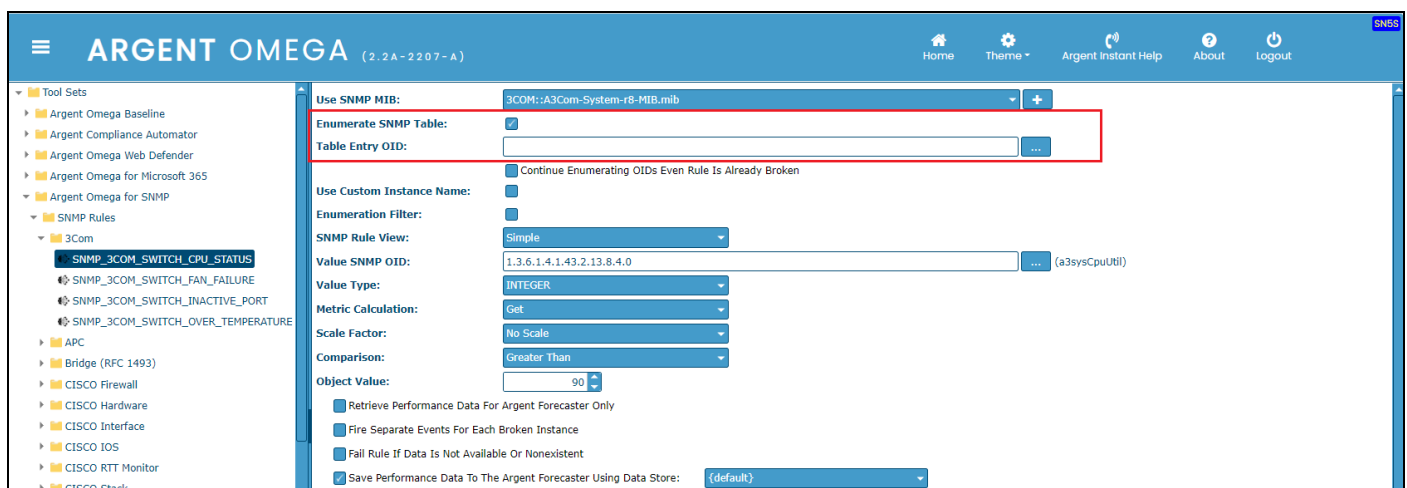


The following options need to be configured to monitor a SNMP-complaint device:

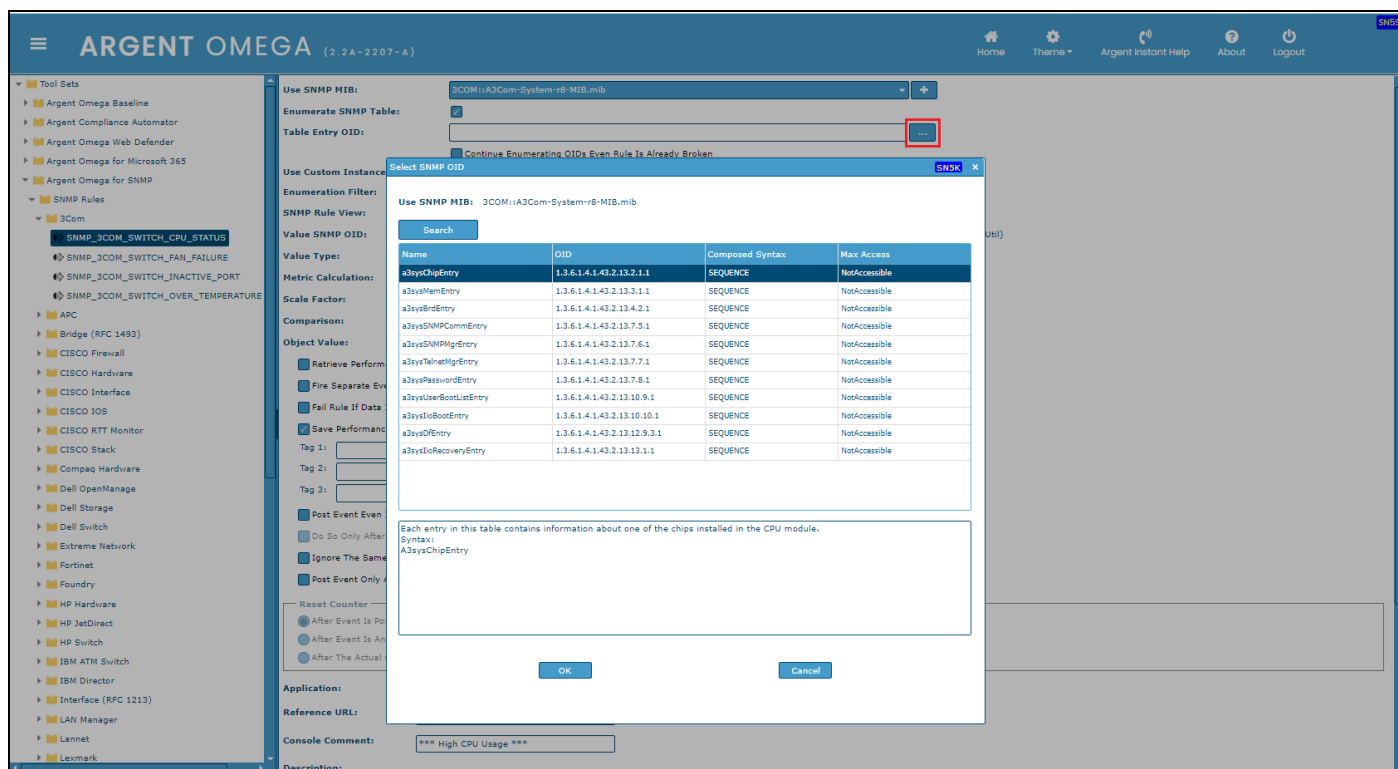
Select MIB file from **Use SNMP MIB** combo box. The MIB files govern what is possible to do or see via SNMP for a particular device. The MIBs of all common SNMP devices are already loaded in the combo box. Click “+” button to upload a new MIB file to the combo box.

Check **Enumerate SNMP Table** option if the Rule needs to enumerate SMTP tables defined in specified MIB file. SNMP table can be defined as an ordered collection of objects consisting of zero or more rows.

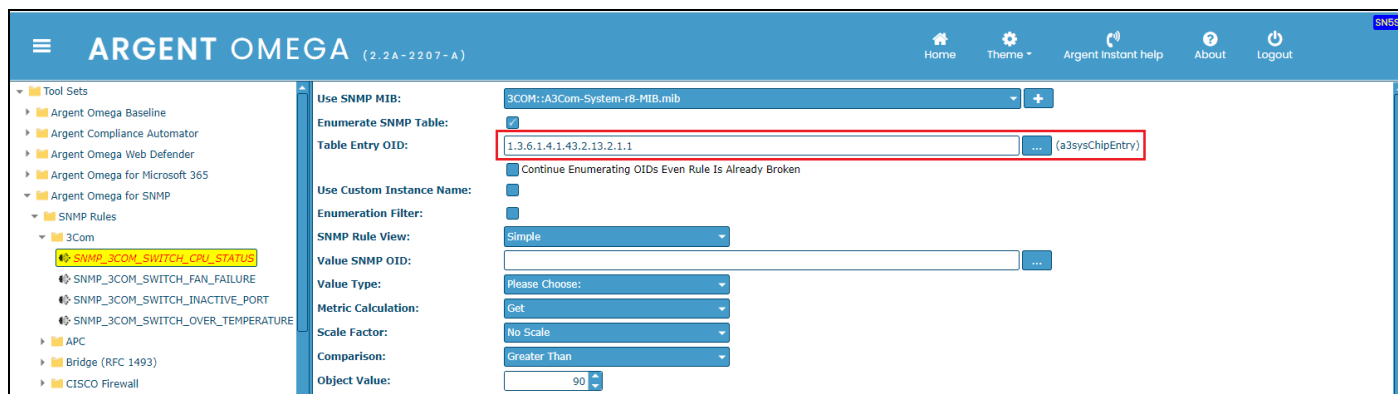
The table and each object in the table are identified by using an OID or Object Identifier. The information on a specific network entity will be retrieved from SNMP tables. If **Enumerate SNMP Table** option is checked, SNMP Table OID must be specified in **Table Entry OID** field.



You can either manually enter the OID or use the browse button to browse Table Entry OIDs of specific MIB file.



Select the table entry and click OK.



If **Enumerate SNMP Table** is checked, check the option **Use Custom Instance Name** to define custom instance name in Performance Data. Normally the object name (Example: upsBatteryStatus, upsOutputPercentLoad etc.) is taken as instance name. By checking **Use Custom Instance Name** option, the actual instance (object name) name will be appended with value of specified SNMP OID. The SNMP OID can be specified in **Instance OID** field. There is also a provision to browse the Instance OID.

If **Enumerate SNMP Table** is checked, check **Enumeration Filter** option if you want to apply filter for querying OID values from SNMP table. The Rule will be validated only if the specified filter condition is satisfied. You can apply filter on specific SNMP OID. The type of the OID value and filter condition also needs to be specified. Specify OID in **Filter On SNMP OID** field to which filter is applied.

Select OID value type from **Filter OID Type** combo box.

Select filter condition from **Filter Condition** combo box.

SNMP Rule View defines the way in which SNMP parameters are configured in the Rule to retrieve SNMP OID values. There are three types of views, namely: **Simple**, **Multi-Level**, and **Advanced**.

Simple

This is the simplest view to configure SNMP parameters.

The screenshot shows the ARGENT OMEGA web interface for configuring an SNMP rule. The left sidebar lists various device categories like 3Com, APC, Cisco, and Dell. The main panel is titled 'SNMP Rule View' and contains several configuration fields:

- Use SNMP MIB:** A dropdown menu showing '3COM::A3Com-System-r8-MIB.mib'.
- Enumerate SNMP Table:** A checkbox that is currently unchecked.
- SNMP Rule View:** A dropdown menu set to 'Simple'.
- Value SNMP OID:** A text field containing '1.3.6.1.4.1.43.2.13.8.4.0'.
- Value Type:** A dropdown menu set to 'INTEGER'.
- Metric Calculation:** A dropdown menu set to 'Get'.
- Scale Factor:** A dropdown menu set to 'No Scale'.
- Comparison:** A dropdown menu set to 'Greater Than'.
- Object Value:** A text field containing '90'.
- Post Event Even If The Same Event Is Still Outstanding (Unanswered):** A checkbox that is checked.
- Do So Only After:** A dropdown menu set to '1' Hour.
- Ignore The Same Outstanding Event If Alerts Were Fired More Than:** A dropdown menu set to '1' Hour.
- Post Event Only After Rule Is Broken:** A dropdown menu set to '2' Or More Times.
- Reset Counter:** A section with three radio buttons: 'After Event Is Post', 'After Event Is Answered', and 'After The Actual Condition Is Corrected'.
- Application:** A text field.
- Reference URL:** A text field.
- Console Comment:** A text field containing '*** High CPU Usage ***'.
- Description:** A text field.

Following Parameters need to be configured:

Value SNMP OID: Object ID to query. Either manually enter the OID or browse by clicking browse button.

Value Type: Type of OID value

Metric Calculation: Different SNMP Metric Calculation Methods are available such as Get, Delta Since Last Poll, Delta Per Second, Delta Per Minute, Delta Per Hour and Delta Wait.

Scale Factor: Scale of measurement of metric value

Comparison: Operator to compare the given threshold against the metric value.

Object Value: Threshold to compare

Multi-Level

This Rule View option contains more options for setting the Limit Value.

The screenshot displays the ARGENT OMEGA (2.2A-2207-A) web interface. On the left is a navigation tree with categories like PowerShell Script Rules, WMI Script Rules, LINUX Script Rules, and UNIX Script Rules. Under UNIX Script Rules, the '3Com' folder is expanded, showing rules such as 'SNMP_3COM_SWITCH_CPU_STATUS' (highlighted in yellow). The main panel shows the configuration for 'SNMP Rule View: Multi-Level'. Key settings include: 'Use SNMP MIB: 3COM::A3Com-System-r8-MIB.mib', 'Enumerate SNMP Table: []', 'Value SNMP OID: 1.3.6.1.4.1.43.2.13.8.4.0', 'Value Type: Please Choose', 'Metric Calculation: Get', 'Scale Factor: No Scale', and 'Comparison: Equal To'. A red box highlights the 'Acceptable Limit Value' through 'Major Overload Value' fields, each with a numeric input and a '+' button. Below these are checkboxes for 'Retrieve Performance Data For Argent Forecaster Only', 'Fire Separate Events For Each Broken Instance', and 'Fail Rule If Data Is Not Available Or Nonexistent'. A 'Save Performance Data To The Argent Forecaster Using Data Store' dropdown is set to '(default)'. There are also input fields for 'Tag 1', 'Tag 2', and 'Tag 3'. Further down are checkboxes for 'Post Event Even If The Same Event Is Still Outstanding (Unanswered)', 'Do So Only After' (1 Hour, 0 Minute), 'Ignore The Same Outstanding Event If Alerts Were Fired More Than' (1 Hour, 0 Minute), and 'Post Event Only After Rule Is Broken' (2 Or More Times). At the bottom, a 'Reset Counter' section has radio buttons for 'After Event Is Post', 'After Event Is Answered', and 'After The Actual Condition Is Corrected'.

Advanced

Multiple conditions can be specified in Advanced Rule view. Rule broken logic can be selected from **Sub-Rule Logic** combo box.

This screenshot shows the ARGENT OMEGA (2.2A-2207-A) interface with the 'SNMP Rule View' set to 'Advanced'. A red box highlights the 'Sub-rule Logic' dropdown, which is currently set to 'Rule Is Broken If Any Is True'. Below it, the 'Selected SNMP OIDs' dropdown is also set to 'Rule Is Broken If Any Is True'. The rest of the configuration panel is identical to the previous screenshot, including the MIB, OID, and various checkboxes and input fields for event handling and performance data.

Rule conditions can be added by clicking “+” button. A sub-rule definition dialog will be popped up; there you can define the Rule condition.

There are two Sub-rule Types available in Advanced Rule View, **SNMP OID** and **Formula Expression**. All the required details for both can be specified in the sub window SN5A.

In **SNMP OID** type, Rule condition can be defined based on retrieved SNMP OID value.

The screenshot shows the 'Select A SNMP OID' dialog box with the title bar 'SN5A'. The 'Sub-rule Type' dropdown is set to 'SNMP OID' and is highlighted with a red rectangle. Below it, the 'Value SNMP OID' field is empty with a search icon. The 'Value Type' dropdown is set to 'Please Choose:'. The 'Metric Calculation' dropdown is set to 'Get'. The 'Scale Factor' dropdown is set to 'No Scale'. The 'Comparison' dropdown is set to 'Equal To'. The 'Object Value' field contains '0'. The 'Variable Name' field is empty, and the 'Use As Variable Only' checkbox is unchecked. 'OK' and 'Cancel' buttons are at the bottom.

All parameters described in the **Simple** view (Value SNMP OID, Value Type, Metric Calculation, Scale Factor, Comparison, and Object Value) needs to be configured here. The extra parameter is Variable Name. Instead of alerting, it is possible to keep the metric value in a user-defined variable by checking **Use As Variable** option. You can use the variable later in **Formula Expression** for metric calculation. Specify the variable name in **Variable Name** field.

Formula Expression offers added flexibility in monitoring SNMP Metrics.

For example, if your environmental monitor returns the temperature of the server room in Celsius, you can convert this metric to Fahrenheit. Or you could measure the uptime of a server or device by converting TIMETICKS to hours. (TIMETICKS are hundredths of a second). Or you could add together several SNMP metrics to get a total traffic figure.

The screenshot shows the 'Select A SNMP OID' dialog box with the title bar 'SN5A'. The 'Sub-rule Type' dropdown is set to 'Formula Expression' and is highlighted with a red rectangle. The 'Formula Name' field contains 'Disk Status'. The 'Formula' text area contains the expression 'VAR_DISK_USAGE * 100 / VAR_DISK_CAPACITY'. The 'Scale Factor' dropdown is set to 'No Scale'. The 'Comparison' dropdown is set to 'Greater Than'. The 'Object Value' field contains '90'. 'OK' and 'Cancel' buttons are at the bottom.

Specify a name in **Formula Name** field.

Specify the formula expression in **Formula** field. The formula specified in the screenshot

$\text{VAR_DISK_USAGE} * 100 / \text{VAR_DISK_CAPACITY}$, where VAR_DISK_USAGE and

VAR_DISK_CAPACITY are variables defined using SNMP OID sub-rule type.

Scale Factor defines the scale of measurement of result metric value.

Comparison defines the operator to compare the given threshold against the result metric value.

Object Value defines the threshold to compare.

The following is a sample Advanced type Rule configured.

Retrieve Performance Data For Argent Forecaster Only option only saves performance metrics to Argent Forecaster, does not alert the Rule.

Fire Separate Events For Each Broken Instance option fires separate Alerts for each broken condition.

SNMP Trap Rules

SNMP Traps are unsolicited SNMP information packets sent from any SNMP-compliant device to an SNMP manager, such as Argent Omega.

Traps can be sent for many reasons, such as hard drive failures, cooling fans that aren't spinning at the right speed (or spinning at all), network interfaces suddenly dropping, or even for simple informational reasons like the SNMP service starting.

SNMP Rules run in Relators at scheduled intervals, so something like a fan problem that comes and goes quickly might not be noticed. On the other hand, if the device sends an SNMP Trap that the fan isn't running correctly, Argent can notify you immediately.

You can configure SNMP Trap Monitor definitions to listen for specific traps, even for specific information within a trap, and which alerts to fire if that trap arrives. If a trap that arrives matches an SNMP Trap Monitor definition that's in Production Mode, the selected alerts are fired.

The Argent for SNMP comes equipped with a large number of pre-defined SNMP Trap Monitor definitions for a wide variety of devices.

ARGENT OMEGA (2.2A-2207-A)

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Tool Sets

- Argent Omega Baseline
- Argent Compliance Automator
- Argent Omega Web Defender
- Argent Omega for Microsoft 365
- Argent Omega for SNMP
 - SNMP Rules**
 - SNMP Trap Rules**
 - Barracuda
 - TRP_CISCO_PIX_ADDR_SPOOF_DETECT
 - TRP_CISCO_PIX_DOS_ATTACK
 - TRP_CISCO_PIX_INVALID_PAK_ATTACK
 - TRP_CISCO_PIX_PACKET_FWD_ATTACK
 - TRP_CISCO_PIX_RECON_DETECT
 - TRP_CISCO_PIX_SVC_SPOOF_DETECT
 - TRP_CISCO_PIX_THIRDPARTY_ATTACK_1
 - Extreme Network
 - Fortigate
 - Juniper
 - SonicWall
 - VPN
 - DeviceMagic Port Rules
 - LINK Connectivity Rules
 - Device Configuration Rules
 - CISCO VPN Tunnel Rules
 - CISCO Remote Access Rules
 - Generic VPN Rules
 - PowerShell Script Rules
 - Argent Omega for SQL Server

Use SNMP MIB: CISCO::CISCO-FIREWALL-MIB.mib

Enterprise OID: 1.3.6.1.4.1.9.9.147.2.0

Trap Name: cfwSecurityNotification

Trap Type: enterpriseSpecific

Custom Trap Identification: Rule Is Broken If All Are True

Sub-rule Logic: Rule Is Broken If All Are True

Selected Trap Message Variable OIDs

Object Name	OID	Condition
cfwBasicSecurityEventType	1.3.6.1.4.1.9.9.147.1.1.1.2.1.3	= 6

Automatic Resolution ☐ Condition Is Corrected If Receiving A SNMP Trap Specified Below

Message Display: Full Detail

Trap Event Format: System Default

☐ Save Performance Data To The Argent Forecaster Using Data Store: (default)

Tag 1:

Tag 2:

Tag 3:

☐ Post Event Even If The Same Event Is Still Outstanding (Unanswered)

☐ Do So Only After 1 Hour 0 Minute Since Event Is Post

☐ Ignore The Same Outstanding Event If Alerts Were Fired More Than 1 Hour 0 Minute Ago

☐ Post Event Only After Rule Is Broken 2 Or More Times

The following options needs to be configured to handle SNMP Traps:

Select MIB file from **Use SNMP MIB** combo box. The MIB files govern what is possible to do or see via SNMP for a particular device. The MIBs of all common SNMP devices are already loaded in the combo box. Click “+” button to upload a new MIB file to the combo box.

Specify trap Enterprise OID in **Enterprise OID** field.

Whenever an SNMP Trap is sent, it includes an Enterprise OID. This includes the manufacturer ID, and maybe even a particular class or section of traps related to the sending application.

For example, if a server running Dell OpenManage detects a power supply failure, it can send a trap to Argent. The Enterprise OID will start with ".1.3.6.1.4.1.674.10892.1." In this example, "674" is Dell's manufacturer ID, and "10892" is part of OpenManage.

Traps can be filtered by specific trap names and types. Specify **Trap Name** and **Trap Type** to define Trap filter. This is to differentiate between trap events, say, a trap indicating a power supply failure and a trap showing that a fan was inserted, we need to get a little more specific. Otherwise, any trap with a specified Enterprise OID would create the same alert. You can also browse and select Trap Name from selected MIB file.

Rule broken logic can be selected from **Sub-Rule Logic** combo box.

The screenshot shows the ARGENT OMEGA (2.2A-2207-A) configuration interface. The sidebar on the left contains a tree view of tool sets, with 'Trap Checkpoint Firewall Event' highlighted. The main panel displays configuration fields for an SNMP trap rule. The 'Sub-rule Logic' dropdown is highlighted with a red box, showing options: 'Rule Is Broken If Any Is True' and 'Rule Is Broken If All Are True'. Other fields include 'Use SNMP MIB', 'Enterprise OID', 'Trap Name', 'Trap Type', 'Custom Trap Identification', 'Selected Trap Message Variable OIDs', 'Automatic Resolution', 'Message Display', 'Trap Event Format', and 'Save Performance Data To The Argent Forecaster Using Data Store'.

Sub-rule condition can be added by clicking “+” button. A sub-rule definition dialog will pop up; there, you can define the Rule condition. Add sub-rule conditions in the same way we did in SNMP Rules.

Condition Is Corrected If Receiving A SNMP Trap Specified Below option can be used to trigger a condition corrected event when receiving a specific SNMP trap.

In many cases, one SNMP Trap is effectively canceled out by another SNMP Trap. For instance, if the power fails and your UPS kicks on, it could send a trap indicating it's running on battery power. If this condition were to remain uncorrected too long, of course, the UPS's battery would run out and the computers would simply stop completely.

If utility power is restored (hopefully before the battery dies), the UPS could send a trap indicating as such. You can configure Argent to mark the event generated by the "on battery" trap when the "back on normal power" trap comes through. Check the option **Condition Is Corrected If Receiving A SNMP Trap Specified Below**, then define the Trap Enterprise OID List and Trap SNMP Filter sections in the same way you did above, but with the settings for the "normal power" trap.

ARGENT OMEGA (2.2A-2207-A)

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Tool Sets

- Argent Omega Baseline
 - Service Level Agreement Rules
 - System Down Rules
 - Windows Service Rules
 - Windows Program Rules
 - Windows Performance Rules
 - PowerShell Script Rules
 - WMI Script Rules
 - LINUX Script Rules
 - UNIX Script Rules
 - Solaris
 - AIX
 - HP-UX
 - SCO
- Argent Compliance Automator
- Argent Omega Web Defender
- Argent Omega for Microsoft 365
- Argent Omega for SNMP
 - SNMP Rules
 - SNMP Trap Rules
 - Barracuda
 - CheckPoint
 - TRP_CHECKPOINT_FIREWALL_EVENT
 - CISCO
 - Extreme Network
 - Fortigate
 - Juniper
 - SonicWall

Custom Trap Definition

Sub-rule Logic: Please Choose:

Selected Trap Message Variable OIDs

Object Name	OID	Condition
-------------	-----	-----------

Automatic Resolution ☒ Condition Is Corrected If Receiving A SNMP Trap Specified Below

Trap Name:

Trap Type: enterpriseSpecific 60

Sub-rule Logic: Rule Is Broken If Any Is True

Selected Trap Message Variable OIDs (Auto Resolution)

Object Name	OID	Condition
-------------	-----	-----------

DeviceMagic Port Rules

Device Magic Rules monitor the switches without dealing with individual explicit MIBs and OIDs.

Device Magic monitors the following for switch host as well as individual ports:

- Up/Down Status
- In/Out Bandwidth Usage (MBPS)
- Packet Latency and Packet Loss

ARGENT OMEGA (2.2A-2207-A)

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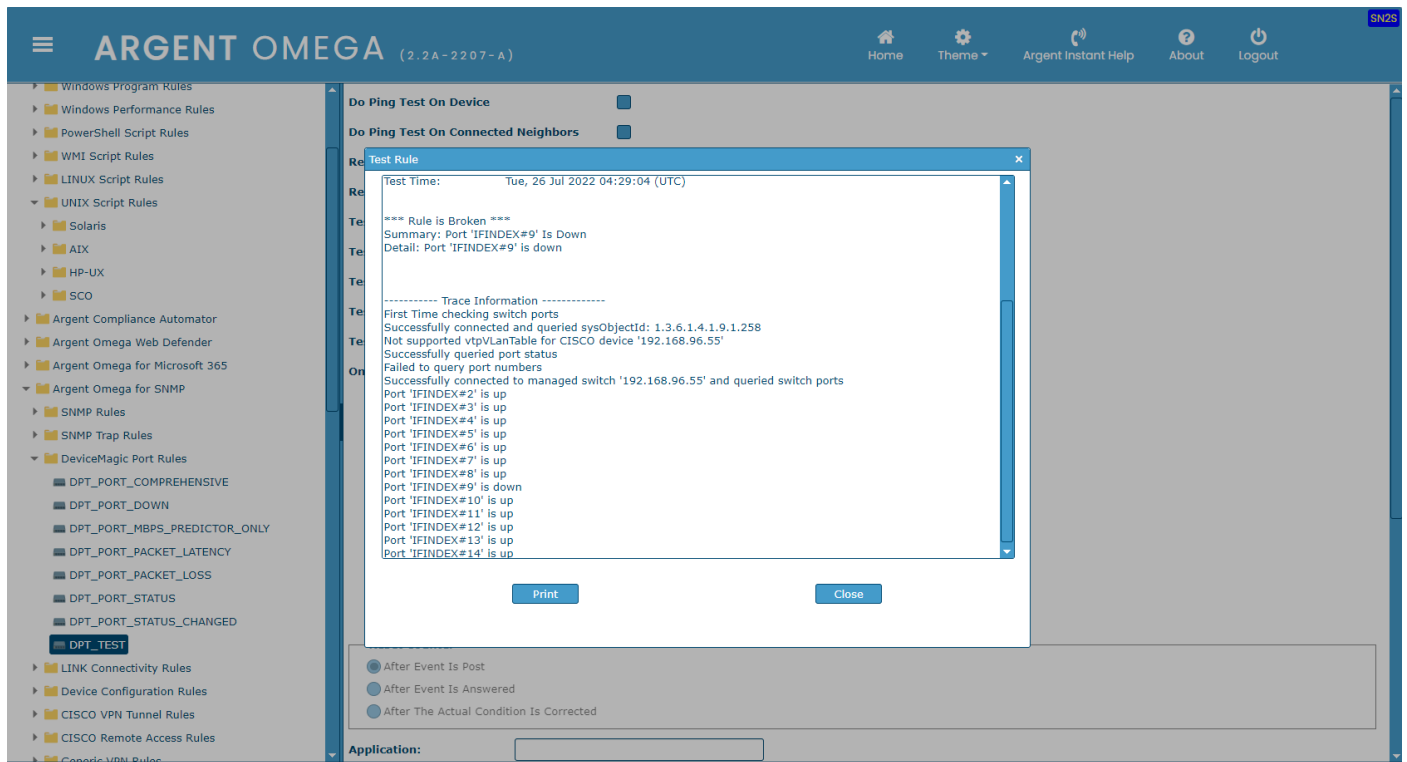
HP-UX
SCO
Argent Compliance Automator
Argent Omega Web Defender
Argent Omega for Microsoft 365
Argent Omega for SNMP
SNMP Rules
SNMP Trap Rules
DeviceMagic Port Rules
DPT_PORT_COMPREHENSIVE
DPT_PORT_DOWN
DPT_PORT_MBPS_PREDICTOR_ONLY
DPT_PORT_PACKET_LATENCY
DPT_PORT_PACKET_LOSS
DPT_PORT_STATUS
DPT_PORT_STATUS_CHANGED
LINK Connectivity Rules
Device Configuration Rules
CISCO VPN Tunnel Rules
CISCO Remote Access Rules
Generic VPN Rules
PowerShell Script Rules
Argent Omega for SQL Server
Alerts
Correction
Notification
Alert Macro
Monitoring Groups
Relators

Do Ping Test On Device ☒
Do Ping Test On Connected Neighbors ☐
Report Down Switch Ports ☒
Report Switch Port When Status Changes ☒
Test Ping Blast Packet Loss ☐
Test Ping Blast Packet Latency ☐
Test Port In Mbps ☐
Test Port Out Mbps ☐
Test Port In/Out Mbps ☐
Only Test Ports Matching Criteria ☐
Fail Rule If Data Is Not Available Or Nonexistent ☐
Save Performance Data To The Argent Forecaster Using Data Store: (default)
Tag 1:
Tag 2:
Tag 3:
Post Event Even If The Same Event Is Still Outstanding (Unanswered) ☐
Do So Only After 1 Hour 0 Minute Since Event Is Post
Ignore The Same Outstanding Event If Alerts Were Fired More Than 1 Hour 0 Minute Ago
Post Event Only After Rule Is Broken 2 Or More Times
Reset Counter
After Event Is Post
After Event Is Answered
After The Actual Condition Is Corrected
Application:

Check the option **Do Ping Test On Device** to check the connectivity of a SNMP device by doing a Ping test.

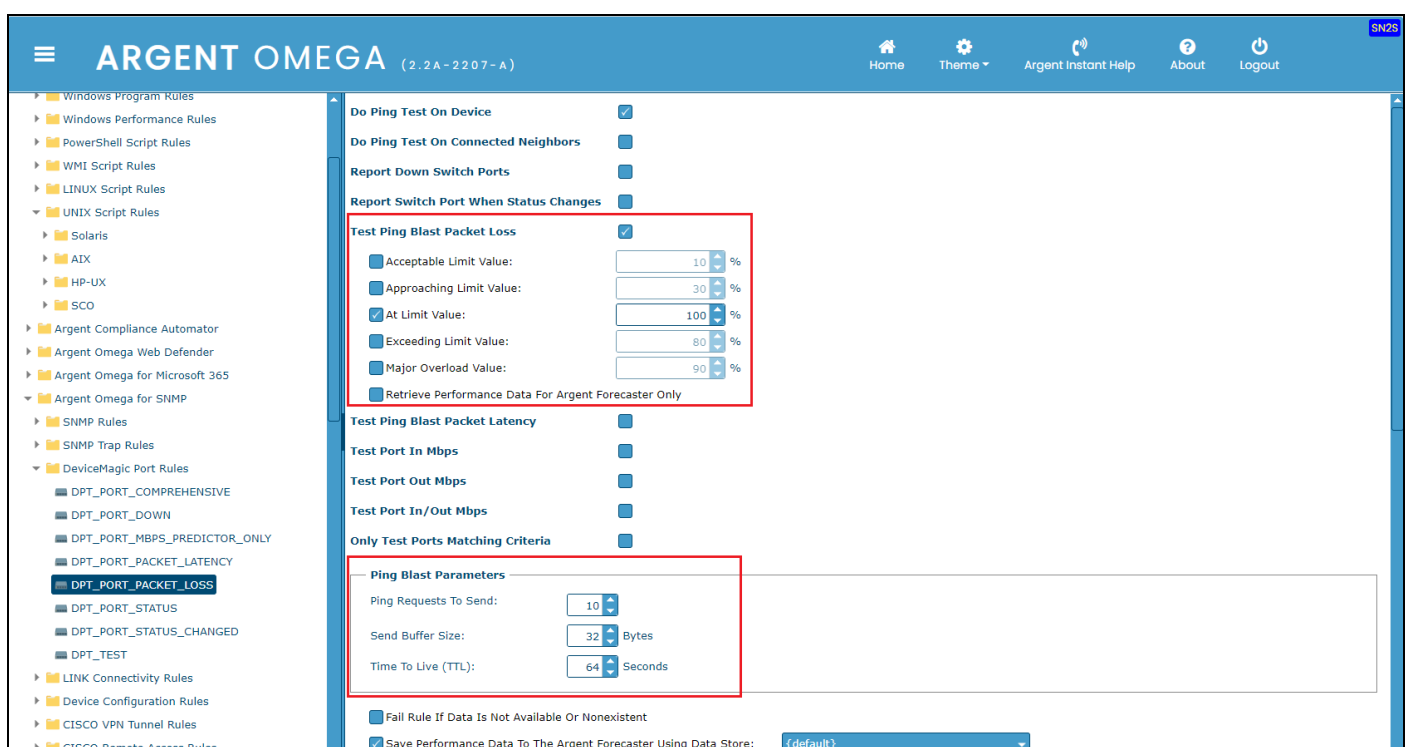
Check the option **Do Ping Test On Connected Neighbors** to check the connectivity of neighbor switches connected to a switch by doing a Ping test.

Check the option **Report Down Switch Ports** to Alert when the status of any switch ports is down. Sample Rule result is below:

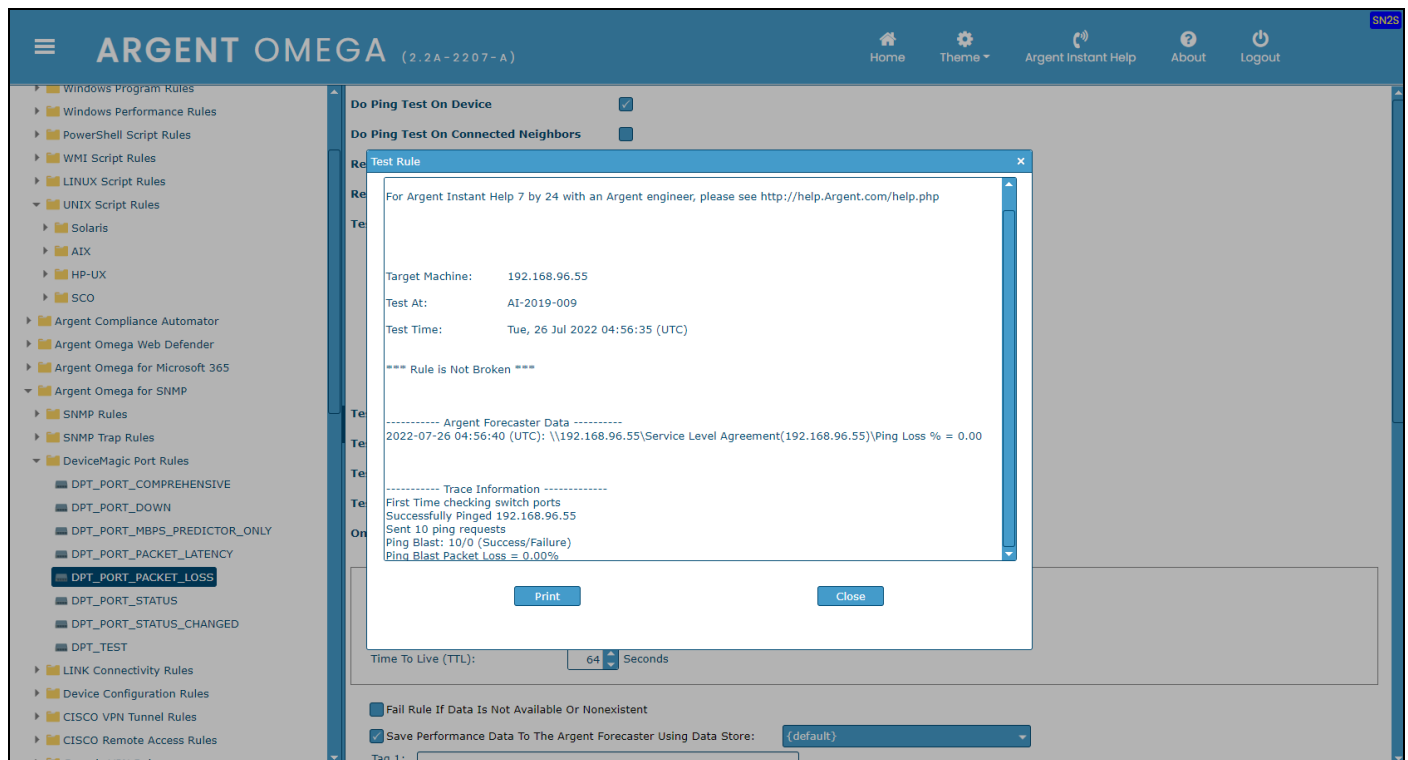


Check the option **Report Switch Port When Status Changes** to Alert when the status (Up or Down) of any switch port is changed.

Check the option **Test Ping Blast Packet Loss** to check packet loss (%) for a device connected to each port of an SNMP managed switch. The packet loss % threshold value needs to be configured. Also, the ping blast parameters, such as number of ping requests, packet buffer size and Time to Live (TTL), need to be configured. Time to live (TTL) refers to the amount of time or “hops” that a packet is set to exist inside a network before being discarded by a router.



The following is an example of the Rule result:



The screenshot shows the ARGENT OMEGA (2.2A-2207-A) interface. On the left is a sidebar with a tree view of rule categories. The main panel displays a configuration for a rule, with a 'Test Rule' dialog box open in the center. The dialog box contains the following text:

```
For Argent Instant Help 7 by 24 with an Argent engineer, please see http://help.Argent.com/help.php

Target Machine: 192.168.96.55
Test At: AI-2019-009
Test Time: Tue, 26 Jul 2022 04:56:35 (UTC)

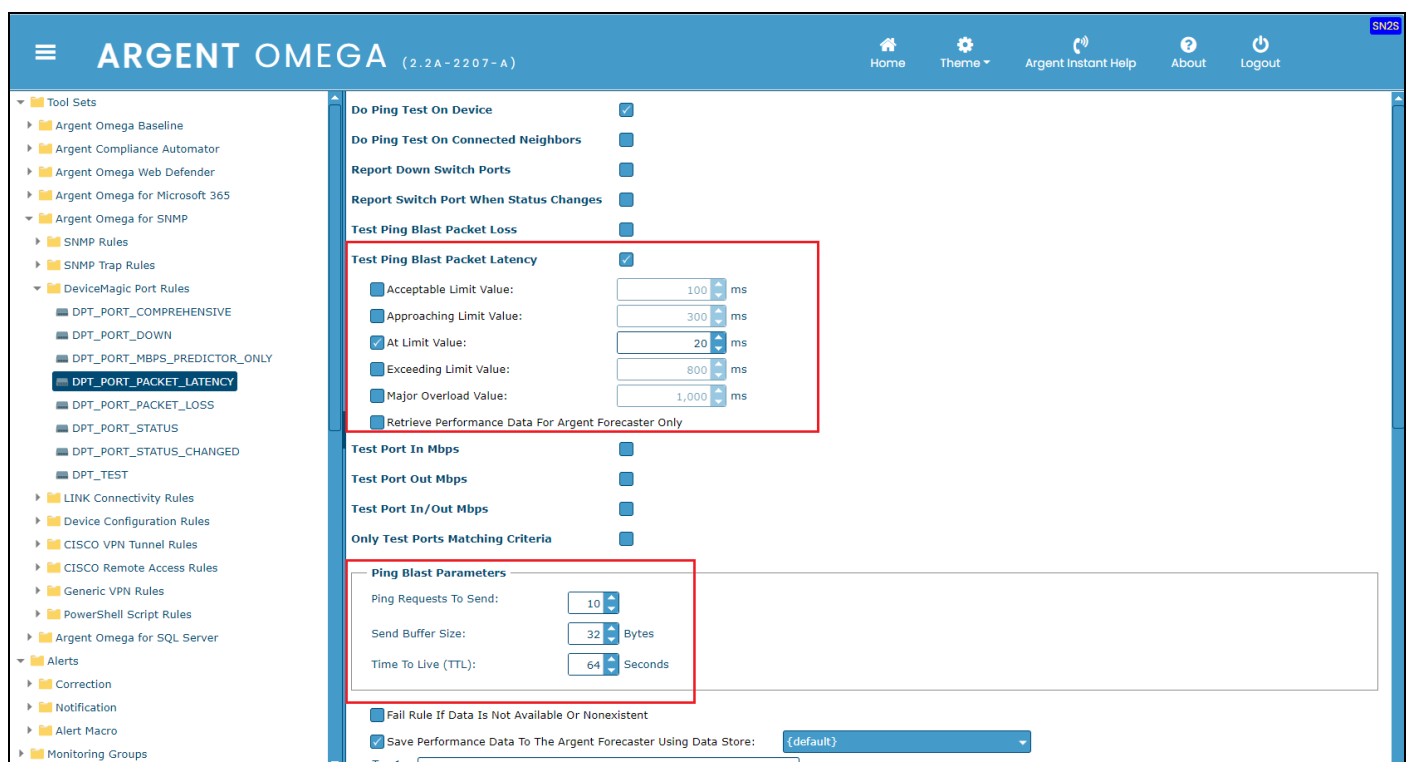
*** Rule is Not Broken ***

----- Argent Forecaster Data -----
2022-07-26 04:56:40 (UTC): \\192.168.96.55\Service Level Agreement(192.168.96.55)\Ping Loss % = 0.00

----- Trace Information -----
First Time checking switch ports
Successfully Pinged 192.168.96.55
Sent 10 ping requests
Ping Blast: 10/0 (Success/Failure)
Ping Blast Packet Loss = 0.00%
```

Below the dialog box, there are buttons for 'Print' and 'Close'. At the bottom of the main panel, there are settings for 'Time To Live (TTL): 64 Seconds', a checkbox for 'Fail Rule If Data Is Not Available Or Nonexistent', and a dropdown for 'Save Performance Data To The Argent Forecaster Using Data Store: {default}'.

Check the option **Test Ping Blast Packet Latency** to check the packet latency (ms) for a device connected each port of an SNMP-managed switch. The packet latency milliseconds threshold value needs to be configured. Also, the ping blast parameters, such as number of ping requests, packet buffer size and Time to Live (TTL), also needs to be configured. Time to live (TTL) refers to the amount of time or “hops” that a packet is set to exist inside a network before being discarded by a router.



The screenshot shows the ARGENT OMEGA (2.2A-2207-A) interface. On the left is a sidebar with a tree view of rule categories. The main panel displays a configuration for a rule, with the 'Test Ping Blast Packet Latency' rule selected. The configuration includes a table of limits and a section for 'Ping Blast Parameters'.

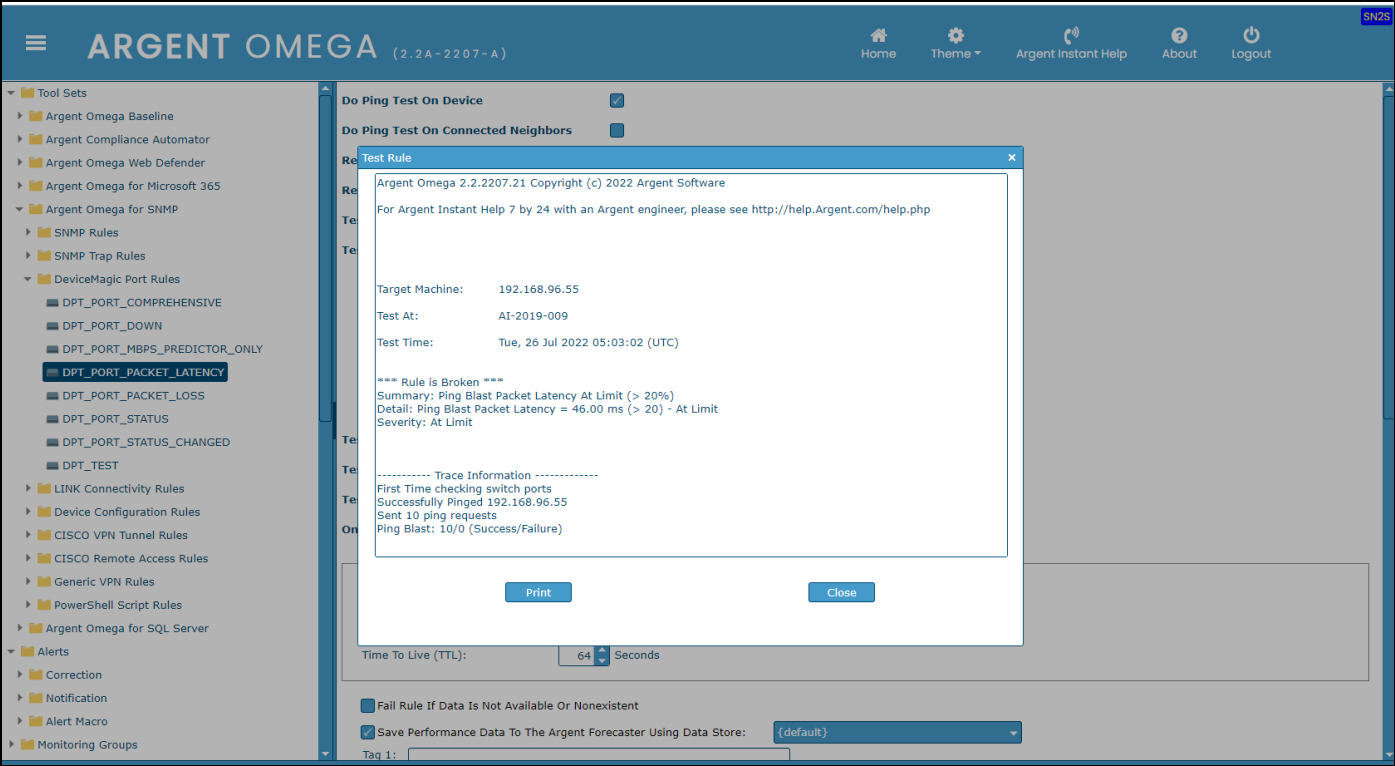
Limit Type	Value	Unit
Acceptable Limit Value:	100	ms
Approaching Limit Value:	300	ms
At Limit Value:	20	ms
Exceeding Limit Value:	800	ms
Major Overload Value:	1,000	ms

Below the table, there is a checkbox for 'Retrieve Performance Data For Argent Forecaster Only'. The 'Ping Blast Parameters' section includes the following settings:

- Ping Requests To Send: 10
- Send Buffer Size: 32 Bytes
- Time To Live (TTL): 64 Seconds

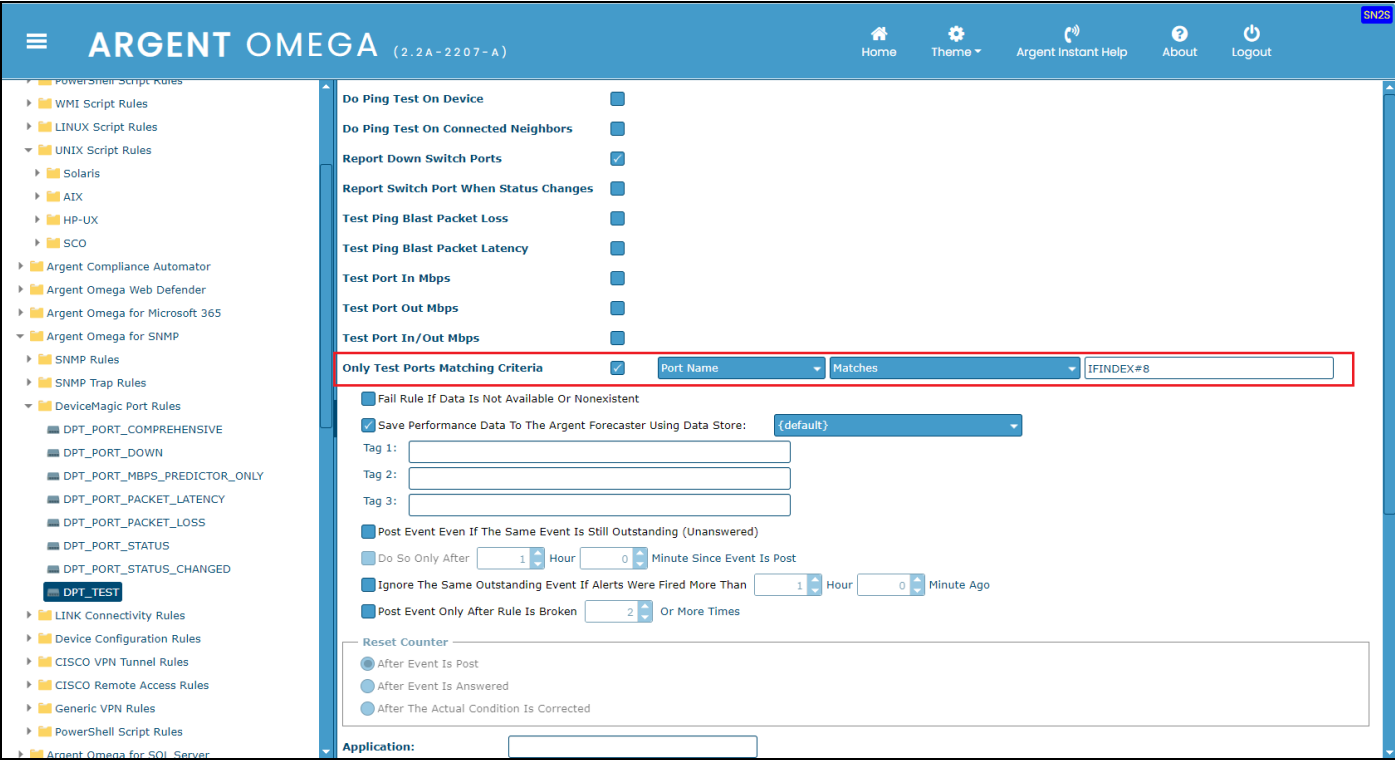
At the bottom of the main panel, there are settings for 'Fail Rule If Data Is Not Available Or Nonexistent', a dropdown for 'Save Performance Data To The Argent Forecaster Using Data Store: {default}', and a 'Tag 1:' field.

The following is an example of the Rule result:



Use options **Test Port In Mbps**, **Test Port Out Mbps** and **Test Port In/Out Mbps** to test a switch port's In/Out bandwidth usage.

Use option **Only Test Ports Matching Criteria** to check the switch ports that matches specified criteria.



The following is an example of the Rule result:

The screenshot shows the ARGENT OMEGA (2.2A-2207-A) interface. On the left is a sidebar with a tree view of rules, including 'PowerShell Script Rules', 'WMI Script Rules', 'Linux Script Rules', 'UNIX Script Rules', 'Solaris', 'AIX', 'HP-UX', 'SCO', 'Argent Compliance Automator', 'Argent Omega Web Defender', 'Argent Omega for Microsoft 365', 'Argent Omega for SNMP', 'SNMP Rules', 'SNMP Trap Rules', 'DeviceMagic Port Rules', 'DPT_PORT_COMPREHENSIVE', 'DPT_PORT_DOWN', 'DPT_PORT_MBPS_PREDICTOR_ONLY', 'DPT_PORT_PACKET_LATENCY', 'DPT_PORT_PACKET_LOSS', 'DPT_PORT_STATUS', 'DPT_PORT_STATUS_CHANGED', 'DPT_TEST', 'LINK Connectivity Rules', 'Device Configuration Rules', 'CISCO VPN Tunnel Rules', 'CISCO Remote Access Rules', 'Generic VPN Rules', 'PowerShell Script Rules', and 'Argent Omega for SQL Server'. The main panel shows a 'Test Rule' dialog box. The dialog has a title bar 'Test Rule' and a close button. It contains the following text: 'Test At: AI-2019-009', 'Test Time: Tue, 26 Jul 2022 05:23:10 (UTC)', '*** Rule is Not Broken ***', '----- Trace Information -----', 'First Time checking switch ports', 'Successfully connected and queried sysObjectid: 1.3.6.1.4.1.9.1.258', 'Not supported vtpVlanTable for CISCO device '192.168.96.55'', 'Successfully queried port status', 'Failed to query port numbers', 'Successfully connected to managed switch '192.168.96.55' and queried switch ports', 'IGNORED IFINDEX#2. Port name: IFINDEX#2', 'IGNORED IFINDEX#3. Port name: IFINDEX#3', 'IGNORED IFINDEX#4. Port name: IFINDEX#4', 'IGNORED IFINDEX#5. Port name: IFINDEX#5', 'IGNORED IFINDEX#6. Port name: IFINDEX#6', 'IGNORED IFINDEX#7. Port name: IFINDEX#7', 'Port 'IFINDEX#8' is up', 'IGNORED IFINDEX#9. Port name: IFINDEX#9', 'IGNORED IFINDEX#10. Port name: IFINDEX#10', 'IGNORED IFINDEX#11. Port name: IFINDEX#11', 'IGNORED IFINDEX#12. Port name: IFINDEX#12', 'IGNORED IFINDEX#13. Port name: IFINDEX#13', 'IGNORED IFINDEX#14. Port name: IFINDEX#14'. There are 'Print' and 'Close' buttons at the bottom of the dialog.

LINK Connectivity Rules

These Rules fire alerts if either a new connection to neighbor switch is established or existing neighbor switch connection is lost.

The screenshot shows the ARGENT OMEGA (2.2A-2207-A) interface. On the left is a sidebar with a tree view of rules, including 'Argent Compliance Automator', 'Argent Omega Web Defender', 'Argent Omega for Microsoft 365', 'Argent Omega for SNMP', 'SNMP Rules', 'SNMP Trap Rules', 'DeviceMagic Port Rules', 'LINK Connectivity Rules', 'LINK_ANY_CHANGE', 'LINK_LOSS_NEIGHBOR', 'LINK_NEW_LINK', 'Device Configuration Rules', 'CISCO VPN Tunnel Rules', 'CISCO Remote Access Rules', 'Generic VPN Rules', 'PowerShell Script Rules', 'Argent Omega for SQL Server', 'Alerts', 'Correction', 'Notification', 'Alert Macro', 'Monitoring Groups', 'Relators', 'Macros', 'Email Recipients', 'SMS Recipients', 'Windows Services', and 'Windows Processes'. The main panel shows the configuration for a 'LINK ANY CHANGE' rule. The rule is configured to fire if a connection to a neighbor switch is lost or discovered. The configuration includes options for 'Lose Connection To Neighbor Switch' and 'New Connection Is Discovered', a 'Fail Rule If Data Is Not Available Or Nonexistent' checkbox, a 'Save Performance Data To The Argent Forecaster Using Data Store' dropdown, and a 'Reset Counter' section with radio buttons for 'After Event Is Post', 'After Event Is Answered', and 'After The Actual Condition Is Corrected'. The 'Application' field is empty, the 'Reference URL' field is empty, and the 'Console Comment' field contains '*** Neighbor Links Changed ***'. The 'Description' field contains 'This sample Rule fire alerts if either a new neighbor link is established or neighbor link is lost'.

Check option **Lose Connection To Neighbor Switch** to fire alert if an existing neighbor switch connection is lost.

Check option **New Connection Is Discovered** to fire alert if a new neighbor switch connection is established.

Device Configuration Rules

Cisco and Cisco-like devices can be configured to allow running command **show running-config** or **show run** to compile the current configuration and dump out to terminal.

This facility uses the same mechanism to backup the device's configuration to the central Argent SQL database. Customers can then view all the versions that have been backed up.

This new facility is a completely automated control and patch management solution for all Cisco and Cisco-like devices.

The device backup can be configured in CMDB-X section.

The screenshot shows the ARGENT OMEGA (2.2 A - 2207 - A) interface. The main table lists various network devices and their properties. A 'Device Backup' dialog box is open, showing a list of protocols: Not Configured, Not Configured, SSH, Telnet, and SCP. The 'Device Backup' property in the CMDB-X table is highlighted in red, indicating it needs to be configured.

Network Group Or Machine	Type	Alias	Licensed	Suspend	Location	Contact
Demo Group	Network Group					
First Network Group	Network Group				MUMBAI	
192.168.108.97	Linux/UNIX		Yes		MUMBAI	
192.168.111.1	IP Device		Yes		MUMBAI	
192.168.111.18	IP Device				MUMBAI	
192.168.111.2	IP Device		Yes		MUMBAI	
192.168.111.3	IP Device		Yes		MUMBAI	
192.168.111.4	IP Device	APC_UPS_003	Yes		MUMBAI	
192.168.111.5	IP Device					
192.168.37.1	IP Device					
A1-2019-009	Windows Server					
A1-MFC-102-W10	Windows 10 Pro					
ARGENT	URL Object					
DND-MFC-SQL	Windows Server					
FTP	FTP Object					
FTP_1	FTP Object		Yes		MUMBAI	
POP	Mail Object				MUMBAI	
SMTP_1	Mail Object		Yes		MUMBAI	
TEST_365	Microsoft 365 Service Unit		Yes		MUMBAI	

Group/Key	Value
Name	192.168.37.1
Licensed Products	Argent Omega Baseline,Argent Omega for SNMP
Alias	
IP Device	
IP Address	
Vendor	
Make	
Model	
Use Meraki	No
Access Point	No
Guest SSID	
Device Backup	Not Configured
Ports	
Neighbors	
SNMP Managed	Yes
TCP Parameters	
System Info Caching Minutes	720
Monitoring Level	Normal
Tier	Not Specified
Tag	
Location	MUMBAI
Contact	

Select the protocol and click OK. The following highlighted CMDB-X properties needs to be configured:

CISCO VPN Tunnel Rules

Merely deploying a VPN alone does not guarantee smooth IT operations. You constantly need to monitor VPN connections (VPN Tunnel Monitoring) for possible bandwidth constraints and security threats.

Customers can see the full picture of VPN activities including:

- Who - logon user
- Where - remote IP and geolocation of city, region, and country
- When - start time, end time, and duration of the VPN session
- What - protocol, in/out total bytes, and calculated bandwidth usage

Argent Omega offers the following set of Rules to monitor CISCO VPN Tunnels:

Global Statistics Rules

Configure Global Statistics Rules to monitor following parameters

- Site-to-Site VPN tunnel count
- In/Out Bandwidth Usage
- Bad VPN connections and connections that drop too many packets

The screenshot displays the ARGENT OMEGA (2.2A-2207-A) web interface. The left sidebar shows a tree view of rule categories, including 'Global Statistics' and 'VPN Tunnel Activity'. The main panel shows the configuration for a rule titled 'Rule Is Broken If Any Of Following Condition Is True'. The rule is configured with several conditions: 'Active Tunnel Count Exceeds' (threshold 10), 'Average In Bandwidth Usage Exceeds' (threshold 100 Megabits/s), 'Average Out Bandwidth Usage Exceeds' (threshold 100 Megabits/s), 'Average In/Out Bandwidth Usage Exceeds' (threshold 100 Megabits/s), 'In Drop Packets Exceeds' (threshold 100 Packets/s), and 'Out Drop Packets Exceeds' (threshold 100 Packets/s). The rule is set to 'Save Performance Data To The Argent Forecaster Using Data Store: (default)'. The 'Post Event Even If The Same Event Is Still Outstanding (Unanswered)' option is checked. The 'Do So Only After' is set to 1 Hour and 0 Minute. The 'Ignore The Same Outstanding Event If Alerts Were Fired More Than' is set to 1 Hour and 0 Minute. The 'Post Event Only After Rule Is Broken' is set to 2 Or More Times. The 'Reset Counter' section has three options: 'After Event Is Post', 'After Event Is Answered', and 'After The Actual Condition Is Corrected'. The 'Application' and 'Reference URL' fields are empty.

Check **Active Tunnel Count Exceeds** option to alert if Site-to-Site VPN tunnel count exceeds threshold. Need to specify the threshold as well.

Use options **Average In Bandwidth Usage Exceeds**, **Average Out Bandwidth Usage Exceeds** and **Average In/Out Bandwidth Usage Exceeds** to monitor the bandwidth consumptions.

Use options **In Drop Packets Exceeds** and **Out Drop Packets Exceeds** to monitor the VPN connections that drop too many packets.

ARGENT OMEGA (2.2A-2207-A)

Home Theme Argent Instant Help About Logout

Rule Is Broken If Any Of Following Condition Is True

- ☐ Active Tunnel Count Exceeds 100
- ☐ Average In Bandwidth Usage Exceeds 100 Megabits/s
- ☐ Average Out Bandwidth Usage Exceeds 100 Megabits/s
- ☐ Average In/Out Bandwidth Usage Exceeds 100 Megabits/s
- ☒ In Drop Packets Exceeds 10 Packets/s
- ☒ Out Drop Packets Exceeds 10 Packets/s

☐ Retrieve Performance Data For Argent Forecaster Only

☐ Fail Rule If Data Is Not Available Or Nonexistent

☒ Save Performance Data To The Argent Forecaster Using Data Store: {default}

Tag 1:

Tag 2:

Tag 3:

☐ Post Event Even If The Same Event Is Still Outstanding (Unanswered)

☐ Do So Only After 1 Hour 0 Minute Since Event Is Post

☐ Ignore The Same Outstanding Event If Alerts Were Fired More Than 1 Hour 0 Minute Ago

☐ Post Event Only After Rule Is Broken 2 Or More Times

Reset Counter

- ☐ After Event Is Post
- ☐ After Event Is Answered
- ☐ After The Actual Condition Is Corrected

Application:

Reference URL:

VPN Tunnel Activity Rules

Configure VPN Tunnel Activity Rules to Alert for the following VPN activities:

- New VPN connection created
- Existing VPN connection terminated
- VPN connection coming from location that should have no employees working
- Multiple connections coming from the same remote IP, which is unusual unless both residents work for the same company

ARGENT OMEGA (2.2A-2207-A)

Home Theme Argent Instant Help About Logout

Rule Is Broken If Any Of Following Condition Is True

- ☐ Active Tunnel Count Exceeds 100
- ☒ VPN Connection Comes From Locations Not Allowed: MUMBAI
- ☒ Multiple VPN Connections Come From Same IP Address: MUMBAI
- ☐ New VPN Tunnel Is Established
- ☐ VPN Tunnel Has Been Terminated

☐ Retrieve Performance Data For Argent Forecaster Only

☐ Fail Rule If Data Is Not Available Or Nonexistent

☒ Save Performance Data To The Argent Forecaster Using Data Store: {default}

Tag 1:

Tag 2:

Tag 3:

☐ Post Event Even If The Same Event Is Still Outstanding (Unanswered)

☐ Do So Only After 1 Hour 0 Minute Since Event Is Post

☐ Ignore The Same Outstanding Event If Alerts Were Fired More Than 1 Hour 0 Minute Ago

☐ Post Event Only After Rule Is Broken 2 Or More Times

Reset Counter

- ☐ After Event Is Post
- ☐ After Event Is Answered
- ☐ After The Actual Condition Is Corrected

Check **VPN Connection Come From Locations Not Allowed** option to alert if VPN connection comes from specific locations. Locations need to be selected from combo box.

Check **Multiple VPN Connections Come From Same IP Address** option to alert if multiple VPN tunnels come from the same IP address.

Check **New VPN Tunnel Is Established** option to alert when a new VPN tunnel is created.

Check **VPN Tunnel Has Been Terminated** option to alert when an existing tunnel is terminated.

Peer Lost Rules

This Rule monitors the connectivity health of Site-to-Site VPN Tunnels. A spike of peer lost errors indicates deteriorating network connections. Configure this to alert if the number of peer lost failures exceeds the threshold within a specific period.

The screenshot shows the ARGENT OMEGA (2.2A-2207-A) web interface. The left sidebar contains a tree view of tool sets, with 'CISCO_TUNNEL_PEER_LOST_SPIKE' selected under 'Peer Lost'. The main configuration area for this rule is displayed. The rule is configured to trigger if 'Rule Is Broken If Peer Lost Failures Exceed 10 In Past 5 Minutes'. The configuration includes options for 'Fail Rule If Data Is Not Available Or Nonexistent', 'Save Performance Data To The Argent Forecaster Using Data Store', and 'Post Event Even If The Same Event Is Still Outstanding (Unanswered)'. The 'Do So Only After' field is set to 1 Hour 0 Minute Since Event Is Post. The 'Ignore The Same Outstanding Event If Alerts Were Fired More Than' field is set to 1 Hour 0 Minute Ago. The 'Post Event Only After Rule Is Broken' field is set to 2 Or More Times. The 'Reset Counter' section has three radio buttons: 'After Event Is Post' (selected), 'After Event Is Answered', and 'After The Actual Condition Is Corrected'. The 'Application' field is empty. The 'Reference URL' field is empty. The 'Console Comment' field contains '*** VPN Peer Lost Spike ***'. The 'Description' field contains 'This sample Rule detects spike of VPN peer-lost failure'.

Check **Rule Is Broken If Peer Lost Failures Exceed** option and specify the threshold.

CISCO Remote Access Rules

CISCO Remote Access enables you to keep track of all users who connect remotely to your organization's network, which is an important aspect of monitoring logins, logoffs, user's bandwidth usage, user's session duration, etc.

Argent Omega offers the following set of Rules to monitor remote access VPN users:

Global Statistics

Configure Global Statistics Rules to monitor following parameters of remote access VPN:

- Remote access VPN session count
- Bandwidth used by download over VPN
- Bandwidth used by upload over VPN
- Bad VPN connections and connections that drop too many packets

The screenshot shows the ARGENT OMEGA (2.2A-2207-A) web interface. The left sidebar lists various rule categories, with 'Global Statistics' expanded. The main panel shows the configuration for 'CISCO_RA_GLOBAL_TOO_MANY_SESSION'. The 'Rule Is Broken If Any Of Following Condition Is True' section has several checkboxes, with 'Active Session Count Exceeds' selected and a threshold of 100. Other conditions include bandwidth usage and packet drops. The 'Post Event' section has options for when to post an event, including 'Do So Only After' and 'Ignore The Same Outstanding Event'. The 'Reset Counter' section has three radio button options. The 'Application' and 'Reference URL' fields are at the bottom.

Check **Active Session Count Exceeds** option to alert if Site remote access VPN session count exceeds threshold. Need to specify the threshold as well.

Use options **Average In Bandwidth Usage Exceeds**, **Average Out Bandwidth Usage Exceeds** and **Average In/Out Bandwidth Usage Exceeds** to monitor the bandwidth consumptions.

Use options **In Drop Packets Exceeds** and **Out Drop Packets Exceeds** to monitor the VPN connections that drop too many packets.

Remote Access Activity Rules

Configure Remote Access Activity Rules to Alert for the following VPN activities

- Extreme bandwidth usage
- Very long duration (forgot to sign off?)
- VPN connection coming from location that should have no employees working
- Multiple connections coming from the same remote IP, which is unusual unless both residents work for the same company

ARGENT OMEGA (2.2A-2207-A)

Home Theme

Successfully Updated CISCO VPN Activity Rule: CISCO_VPN_USER_FROM_ALLOWED_LOCATIONS

Rule Is Broken If Any Of Following Condition Is True

- ☒ Incoming Bandwidth Usage Exceeds 100 Megabits/s
- ☒ Outgoing Bandwidth Usage Exceeds 100 Megabits/s
- ☒ In/Out Bandwidth Usage Exceeds 100 Megabits/s
- ☒ Session Duration Exceeds: 01:00:00
- ☒ VPN Connection Comes From Locations Not Allowed: MUMBAI
- ☒ Multiple VPN Connections Come From Same IP Address

☒ VPN User: Matches *

☒ Client Vendor String: Matches *

☐ Retrieve Performance Data For Argent Forecaster Only

☐ Fail Rule If Data Is Not Available Or Nonexistent

☐ Save Performance Data To The Argent Forecaster Using Data Store: {default}

Tag 1:

Tag 2:

Tag 3:

☐ Post Event Even If The Same Event Is Still Outstanding (Unanswered)

☐ Do So Only After 1 Hour 0 Minute Since Event Is Post

☐ Ignore The Same Outstanding Event If Alerts Were Fired More Than 1 Hour 0 Minute Ago

☐ Post Event Only After Rule Is Broken 2 Or More Times

Reset Counter

- ☒ After Event Is Post
- ☐ After Event Is Answered
- ☐ After The Actual Condition Is Corrected

Application:

Use options **Incoming Bandwidth Usage Exceeds**, **Outgoing Bandwidth Usage Exceeds** and **In/Out Bandwidth Usage Exceeds** to monitor the extreme bandwidth usage.

Check **Session Duration Exceeds** option to Alert for sessions that exceed specified duration.

Check **VPN Connection Come From Locations Not Allowed** option to alert if VPN connection comes from specific locations. Locations need to be selected from combo box.

Check **Multiple VPN Connections Come From Same IP Address** option to alert if multiple VPN tunnels come from the same IP address.

The Rule provides the options to filter the sessions of specific VPN User and Client Vendor String.

ARGENT OMEGA (2.2A-2207-A)

Rule Is Broken If Any Of Following Condition Is True

- ☐ Incoming Bandwidth Usage Exceeds 100 Megabits/s
- ☐ Outgoing Bandwidth Usage Exceeds 100 Megabits/s
- ☐ In/Out Bandwidth Usage Exceeds 100 Megabits/s
- ☐ Session Duration Exceeds: 01:00:00
- ☒ VPN Connection Comes From Locations Not Allowed: MUMBAI
- ☐ Multiple VPN Connections Come From Same IP Address

☒ VPN User: Matches Jack

☐ Client Vendor String: Matches

☐ Retrieve Performance Data For Argent Forecaster Only

☐ Fail Rule If Data Is Not Available Or Nonexistent

☐ Save Performance Data To The Argent Forecaster Using Data Store: (default)

Tag 1:

Tag 2:

Tag 3:

☐ Post Event Even If The Same Event Is Still Outstanding (Unanswered)

☐ Do So Only After 1 Hour 0 Minute Since Event Is Post

☐ Ignore The Same Outstanding Event If Alerts Were Fired More Than 1 Hour 0 Minute Ago

☐ Post Event Only After Rule Is Broken 2 Or More Times

Reset Counter

☐ After Event Is Post

☐ After Event Is Answered

☐ After The Actual Condition Is Corrected

Application:

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Admin User: ANYTIME-SUPPORT\Giri (Client IP: ::1 Security: Smart)

Logon Failure Rules

This Rule detects spikes of VPN logon failures, which could indicate ongoing hacking activity.

ARGENT OMEGA (2.2A-2207-A)

Rule Is Broken If Logon Failures Exceed 30 In Past 5 Minutes

☐ Fail Rule If Data Is Not Available Or Nonexistent

☐ Save Performance Data To The Argent Forecaster Using Data Store: (default)

Tag 1:

Tag 2:

Tag 3:

☒ Post Event Even If The Same Event Is Still Outstanding (Unanswered)

☐ Do So Only After 1 Hour 0 Minute Since Event Is Post

☐ Ignore The Same Outstanding Event If Alerts Were Fired More Than 1 Hour 0 Minute Ago

☐ Post Event Only After Rule Is Broken 2 Or More Times

Reset Counter

☐ After Event Is Post

☐ After Event Is Answered

☐ After The Actual Condition Is Corrected

Application:

Reference URL:

Console Comment: *** VPN Authentication Failure Spike ***

Description: This sample Rule detects spike of VPN authentication failure spike

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Admin User: ANYTIME-SUPPORT\Giri (Client IP: ::1 Security: Smart)

Generic VPN Rules

Argent Omega for SNMP provides a set of Generic VPN Rules that target any non-CISCO VPN devices. The following vendors are supported out-of-the-box:

- Check Point
- Fortinet
- Juniper
- SonicWall
- Zyxel

The Rule gathers common performance metrics, such as total tunnels and in or out bandwidth usage. More importantly, it provides unique security features for real-time alerts for potential hacking, including:

- VPN tunnel creation
- VPN tunnel termination
- VPN connection coming from locations from which no employees should be working
- Multiple connections coming from the same remote IP, which is unusual unless both residents work for the same company

The screenshot displays the Argent Omega (2.2A-2207-A) web interface. On the left, a sidebar menu lists various tool sets, with 'Generic VPN Rules' highlighted under 'Argent Omega for SNMP'. The main panel shows the configuration for a rule with 'Device Vendor' set to 'SonicWall'. The rule is defined by several conditions: 'Active Tunnel Count Exceeds' (100), 'Average In Bandwidth Usage Exceeds' (100 Megabits/s), 'Average Out Bandwidth Usage Exceeds' (100 Megabits/s), 'Average In/Out Bandwidth Usage Exceeds' (100 Megabits/s), 'VPN Connection Comes From Locations Not Allowed' (selected), 'Multiple VPN Connections Come From Same IP Address', 'New VPN Tunnel Is Established', and 'VPN Tunnel Has Been Terminated'. Below these conditions, there are checkboxes for 'Retrieve Performance Data For Argent Forecaster Only', 'Fail Rule If Data Is Not Available Or Nonexistent', and 'Save Performance Data To The Argent Forecaster Using Data Store: (default)'. Three tags are defined: Tag 1, Tag 2, and Tag 3. Further down, there are checkboxes for 'Post Event Even If The Same Event Is Still Outstanding (Unanswered)', 'Do So Only After' (1 Hour 0 Minute Since Event Is Post), 'Ignore The Same Outstanding Event If Alerts Were Fired More Than' (1 Hour 0 Minute Ago), and 'Post Event Only After Rule Is Broken' (2 Or More Times). At the bottom, the 'Reset Counter' section has three options: 'After Event Is Post', 'After Event Is Answered', and 'After The Actual Condition Is Corrected'.

PowerShell Script Rules

This Rule allows you to create custom PowerShell scripts to monitor SNMP enabled devices. There are two built in Rules that demonstrate this function:

- How to enumerate SNMP OID table using PowerShell Script

The screenshot shows the 'Argent Omega' web interface (version 2.2A-2207-A) with the 'PS_GET_PORT_STATUS' rule selected in the left sidebar. The main panel displays the PowerShell script for enumerating the SNMP OID table. The script is as follows:

```
1 $rootOid = "1.3.6.1.2.1.2.2.1.1"
2
3 $snmp = $PSPPlayer.GetSnmpContext()
4
5 $thisOid = $rootOid
6
7 $success = $true
8
9 while($success) {
10
11     $success = $snmp.GetNextSingleValue($thisOid, $false, $false)
12
13     $ifIndex = $snmp.value
14
15     $thisOid = $snmp.oid
16
17     $indexOid = $snmp.GetTableIndex($rootOid)
18
19     if (([string]::IsNullOrEmpty($indexOid)) {
20         $PSPPlayer.WriteStatus("End of branch")
21         break
22     }
23     else {
24         $statusOid = "1.3.6.1.2.1.2.2.1.8." + $indexOid
25
26         $success = $snmp.GetSingleValue($statusOid, $false, $false)
27
28         if ($success) {
29             $value = $snmp.value -as [int]
30             switch($value) {
31                 1 { $PSPPlayer.WriteStatus("Port# " + $ifIndex + " : Up") }
32                 2 { $PSPPlayer.WriteStatus("Port# " + $ifIndex + " : Down") }
33                 3 { $PSPPlayer.WriteStatus("Port# " + $ifIndex + " : Testing") }
34                 default { $PSPPlayer.WriteStatus("Port# " + $ifIndex + " : Unknown (" + $snmp.value + ")") }
35             }
36         }
37         else {
38             $PSPPlayer.WriteStatus("Port# " + $ifIndex + " : (Failed to query " + $statusOid + ")")
39         }
40     }
41 }
```

Below the script, the 'Timeout' is set to 30 seconds.

- How to read a single SNMP device metric using PowerShell Script

The screenshot shows the 'Argent Omega' web interface (version 2.2A-2207-A) with the 'PS_GET_SYSDESCR' rule selected in the left sidebar. The main panel displays the PowerShell script for reading a single SNMP device metric. The script is as follows:

```
1 $snmp = $PSPPlayer.GetSnmpContext()
2
3 $success = $snmp.GetSingleValue("1.3.6.1.2.1.1.1.0", $false, $false)
4
5 if ($success) {
6     $PSPPlayer.WriteStatus("SysDescr Value = " + $snmp.Value)
7 }
8 else {
9     $PSPPlayer.WriteStatus("Failed to query OID")
10 }
```

Below the script, the 'Timeout' is set to 30 seconds. The configuration options for the rule are as follows:

- ☐ Rule Is Broken If Script Timeout
- ☐ Save Performance Data To The Argent Forecaster Using Data Store: (default)
- Tag 1:
- Tag 2:
- Tag 3:
- ☐ Post Event Even If The Same Event Is Still Outstanding (Unanswered)
- ☐ Do So Only After Hour Minute Since Event Is Post
- ☐ Ignore The Same Outstanding Event If Alerts Were Fired More Than Hour Minute Ago
- ☐ Post Event Only After Rule Is Broken Or More Times
- Reset Counter:
 - ☒ After Event Is Post
 - ☐ After Event Is Answered
 - ☐ After The Actual Condition Is Corrected
- Application:
- Reference URL: