



# ATOM Cloud Trial Guide

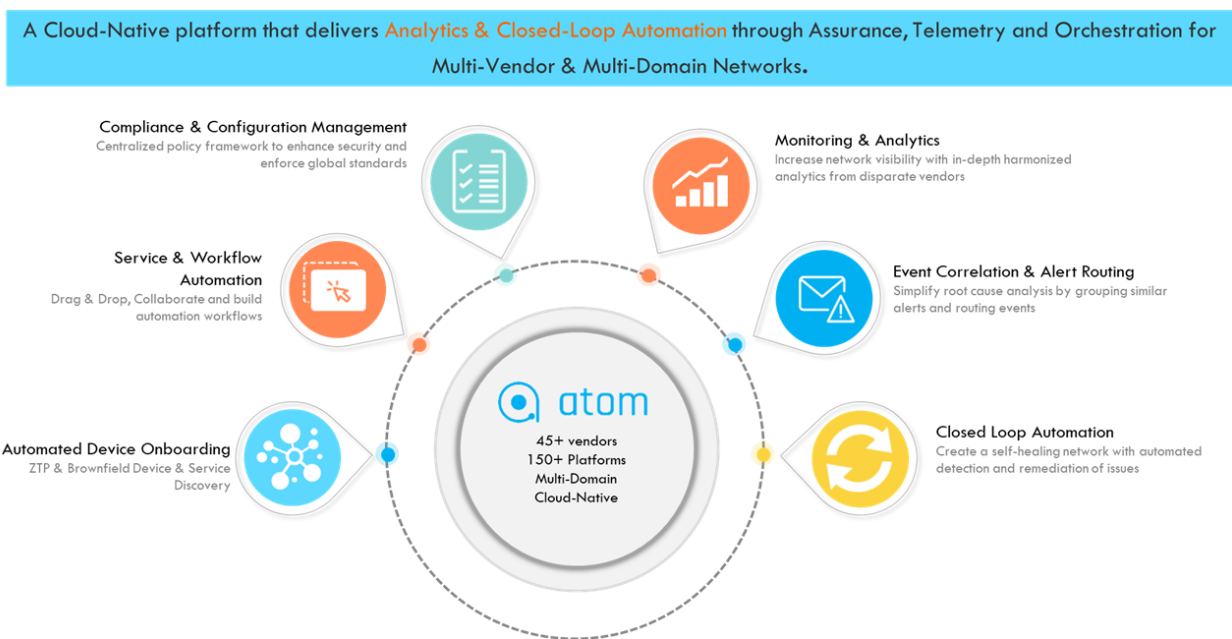


<b>Anuta ATOM Overview</b>	<b>4</b>
Key Features of ATOM Platform	4
<b>Scope of this Guide</b>	<b>6</b>
<b>Accessing the ATOM Cloud Instance</b>	<b>6</b>
<b>Anuta ATOM Cloud Walkthrough</b>	<b>8</b>
<b>Exercise 1: Resource and Configuration Management</b>	<b>10</b>
1.1 View Device Inventory	13
1.2 View Archived Configurations	14
1.3 View Configuration Diffs	16
1.4 View Configuration Data	17
1.5 Summary & Next Steps	18
<b>Exercise 2: Service Orchestration</b>	<b>19</b>
2.1 Provisioning L3 Service on a Cisco Router	19
2.1.1 Create a new service	21
2.1.1.1 Entering Form Details	21
2.1.1.2 Importing a form template	24
2.1.2 View task progress	25
2.1.3 Verify the service creation	28
2.1.4 Modify existing service	29
2.1.5 Delete the service	30
2.2 Provisioning EVPN VXLAN Service on a Juniper Router	31
2.3 Summary & Next Steps	32
<b>Exercise 3: Workflow Automation</b>	<b>32</b>
3.1 Juniper MX Upgrade Automation	33
3.1.1 Start a new workflow	34
3.1.2 Enter Workflow Form Details	36
3.2 Summary & Next Steps	40
<b>Exercise 4: Compliance Enforcement</b>	<b>40</b>
4.1 Compliance policy for CLI based devices	41
4.1.1 Simple Rules and Conditions	42
4.1.2 Variables in Rules and Conditions	45
4.1.3 Regex in Rules and Conditions	47
4.2 Compliance policy for Yang-based devices	50
4.3 Running Compliance Policies	52
4.4 Analysing Compliance Reports	54
4.5 Summary & Next Steps	58
<b>Continue to Explore</b>	<b>58</b>

# Anuta ATOM Overview

Anuta ATOM platform provides comprehensive end-to-end network automation, network monitoring, configuration and compliance management, network orchestration, and closed-loop automation for multi-domain and multi-vendor networks.

## Key Features of ATOM Platform



**Vendor Agnostic Platform:** Anuta ATOM supports 45+ vendors across 150+ platforms. All major vendors, including Cisco, Juniper, Arista, F5, and others, are supported. Anuta ATOM provides SDK, enabling customers and partners to develop device models not supported by ATOM currently.

**Automated Device onboarding:** Network devices can be onboarded on ATOM either manually or automatically through seed and sweep mechanisms. ATOM also provides zero-touch provisioning through DHCP or PnP. Once onboarded, ATOM provides a complete device lifecycle and inventory management.

**Configuration & Compliance management:** Upon onboarding the devices, ATOM provides configuration management and automated compliance enforcement. ATOM periodically archives and versions device configurations. Any out-of-band changes are detected, notified, and remediated on approval. ATOM's compliance policy builder enables the administrator to define and standardize configurations. Any violation of baseline behavior triggers automated remediation to fix non-compliance.

**Service Orchestration:** ATOM enables Service lifecycle management and service orchestration. L2VPN, L3VPN, Application delivery, or any custom service can be modeled and ordered using the ATOM platform.

**Low Code Workflow Automation:** ATOM provides an intuitive drag & drop framework to develop automation for even the most complex workflows such as software upgrades, Device RMA, network migration, troubleshooting, and diagnostic scenarios.

**Performance & Network Health Monitoring:** Anuta ATOM provides a single-pane-of-glass to monitor the entire network. ATOM can collect necessary device and network data through SNMP, SNMP Trap, Syslog, and streaming telemetry mechanisms. Operators can visualize the collected data through out-of-box and custom charts or share it with external databases.

**Alert Routing & Suppression:** ATOM supports alert deduplication, alert grouping, alert suppression, and alert routing. ATOM allows the grouping of similar alerts into a single notification. During significant outages, when many systems fail simultaneously, numerous alerts are triggered. Alert Manager in ATOM can be configured to group alerts by their cluster or alert name to send a single compact notification for similar alerts.

**Closed-Loop Automation:** ATOM enables closed-loop automation by relaying the monitoring platform's feedback to the automation platform. Network administrators can set thresholds and alerts for network events. The ATOM platform can automatically trigger remediation workflows based on the network administrator's approval on breach of thresholds.

**APIs and Integrations:** ATOM is an Open and API-driven platform. All operations in ATOM can be triggered through the ATOM's self-service portal or APIs by northbound solutions such as OSS/BSS, ITSM, Ticketing/Billing, etc. ATOM workflow automation can invoke APIs from external entities such as ServiceNow, Jira, IPAM, etc.

**RBAC & Multi-Tenancy:** ATOM Supports Role-based access control and multi-tenancy, which will allow customizing privileges to various functions in ATOM. Workflow automation also supports similar access control rules where the workflows created by one user will not be seen by another unless explicitly assigned to them. RBAC policies also offer control over the execution of workflows.

**Massively Scalable:** The ATOM platform is built on the latest technologies. It is a microservices-based stateless platform that can scale horizontally to support thousands of devices with high throughput and low-latency. ATOM is componentized and enables the deployment of selected components essential for desired functionality.

**HA & Full redundancy:** ATOM Software is microservices-based, containerized, and runs on the Kubernetes platform. All components of ATOM, except for databases, are stateless. Databases contain state information and are in HA. ATOM components support the active-active cluster model.

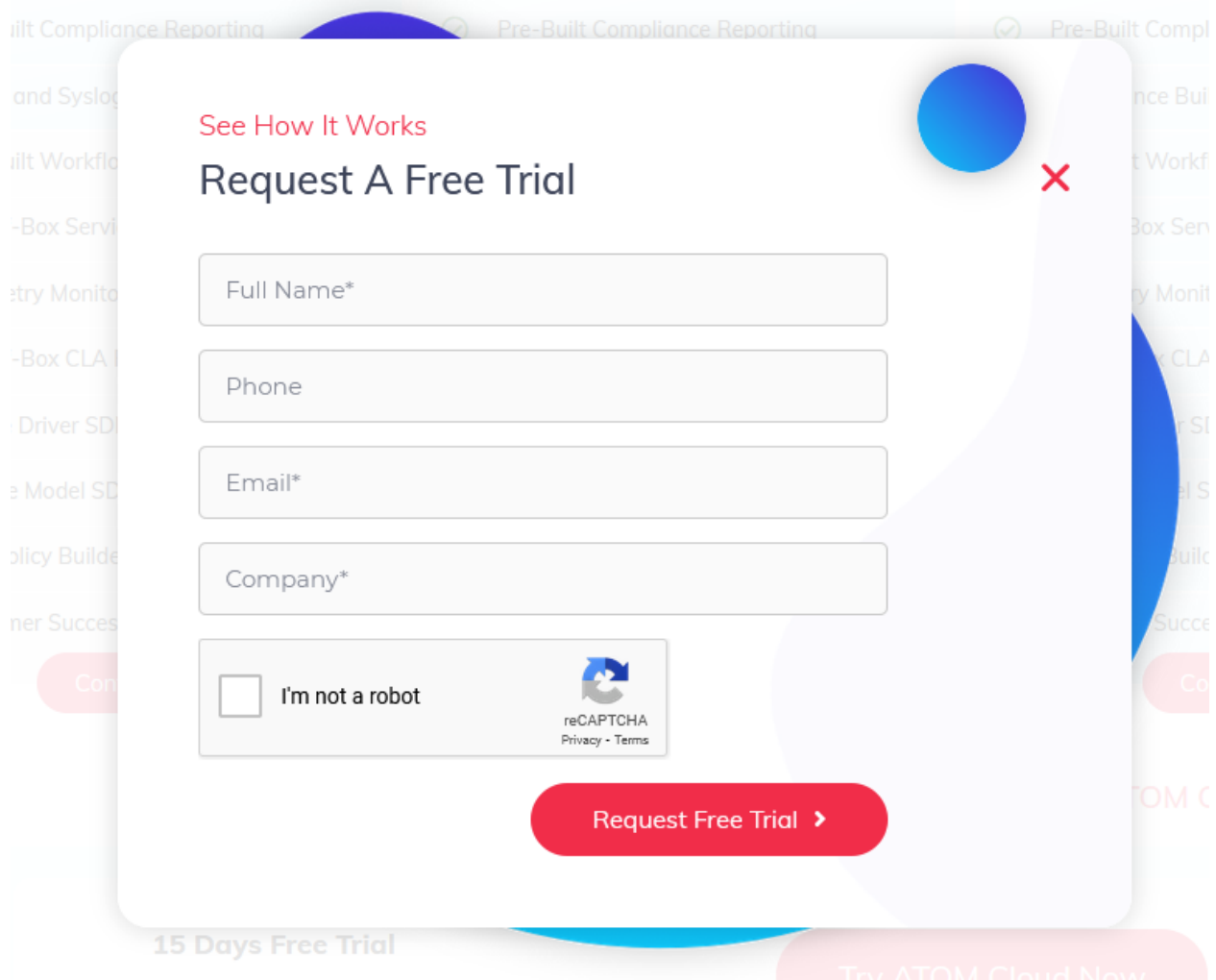
## Scope of this Guide

ATOM Trial Instance allows you to experience the following ATOM features.

1. Multi-Vendor Resource & Configuration Management
2. Service Orchestration
3. Workflow Automation
4. Compliance Management

## Accessing the ATOM Cloud Instance

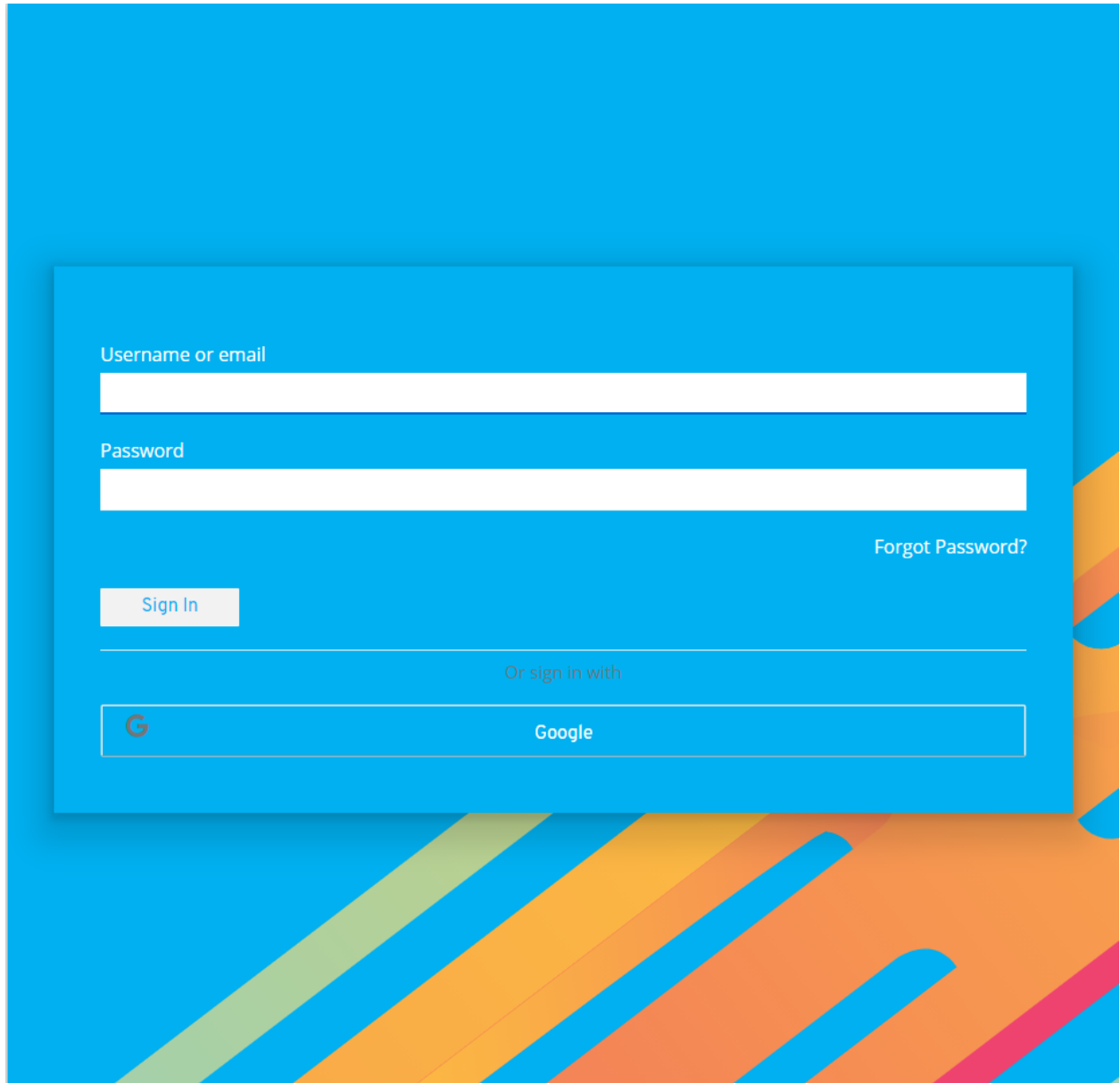
Visit the Anuta Networks website and [request an ATOM Cloud Instance](#).



On requesting a free trial, you will receive a set of emails related to your account.

1. The first email provides instructions to set your password.
2. The second email provides instance URL and login details.

Access the instance URL and login with your credentials.



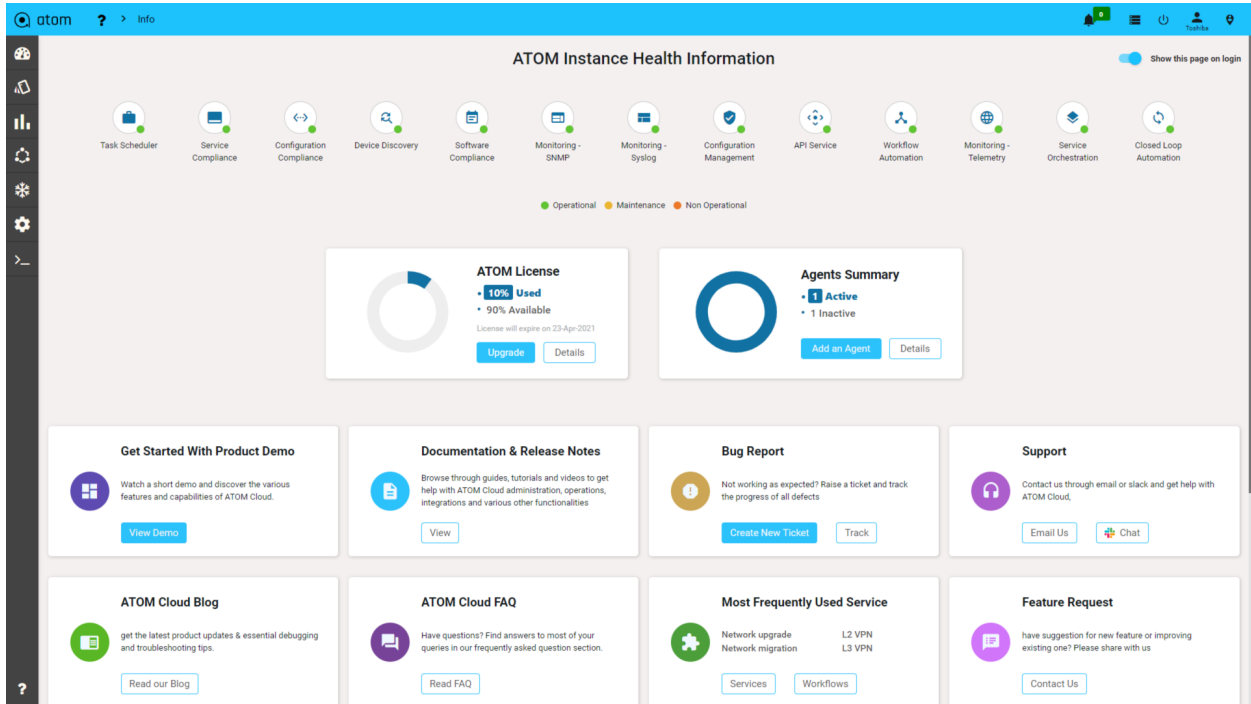
In case of any issues, please contact [support@anutanetworks.com](mailto:support@anutanetworks.com).

## Anuta ATOM Cloud Walkthrough

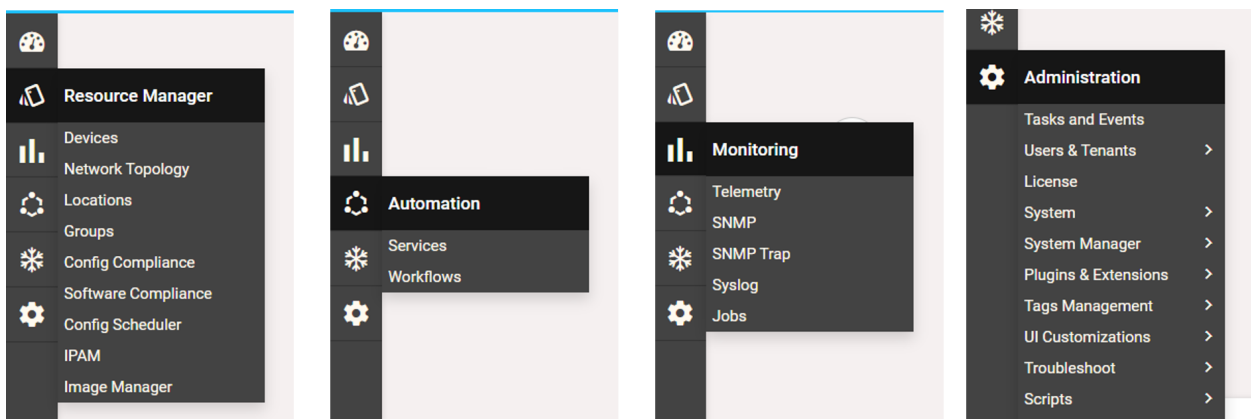
Before we test drive Anuta ATOM, let's briefly examine the lay of the land.



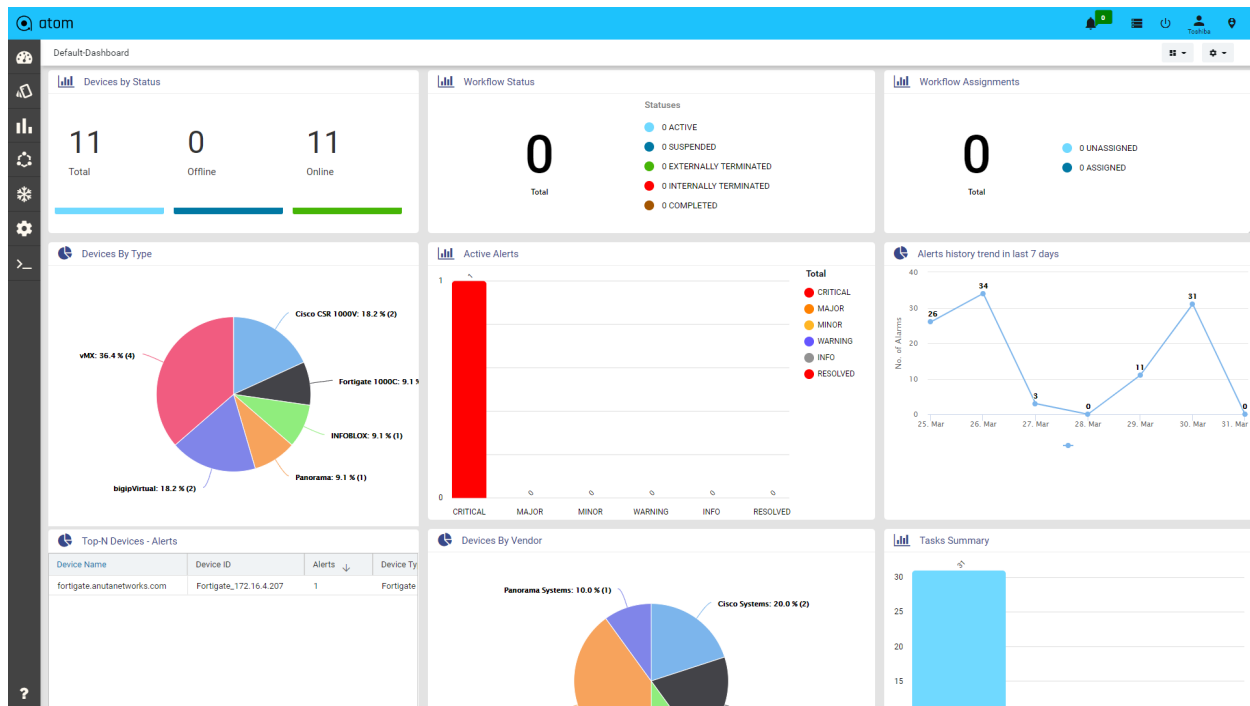
On every login, you will be presented with an ATOM Cloud info page. The page provides you with all essential information related to ATOM Cloud instance and agent health, license details, support information, and documentation links.



The menu bar on the left helps you traverse through various ATOM features.



ATOM dashboard provides you with a quick summary of all essential metrics. You can add new widgets or create new dashboards as required.



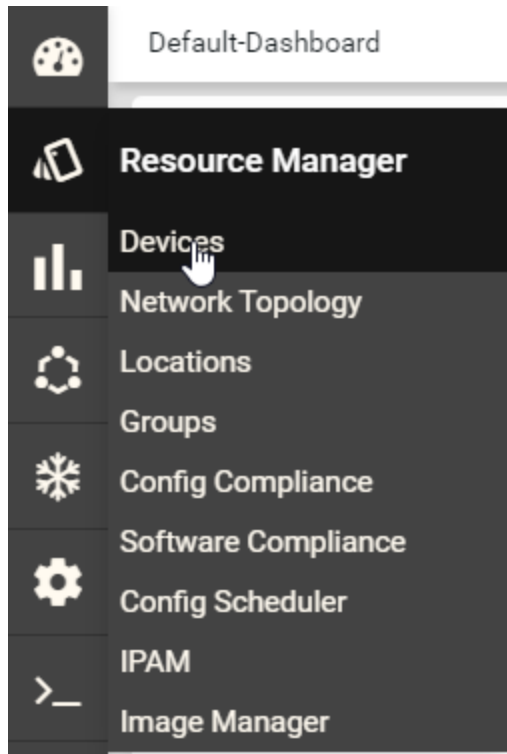
See [here](#) to learn more about viewing and customizing the dashboard.

With this essential knowledge in place, let's try out a few ATOM features.

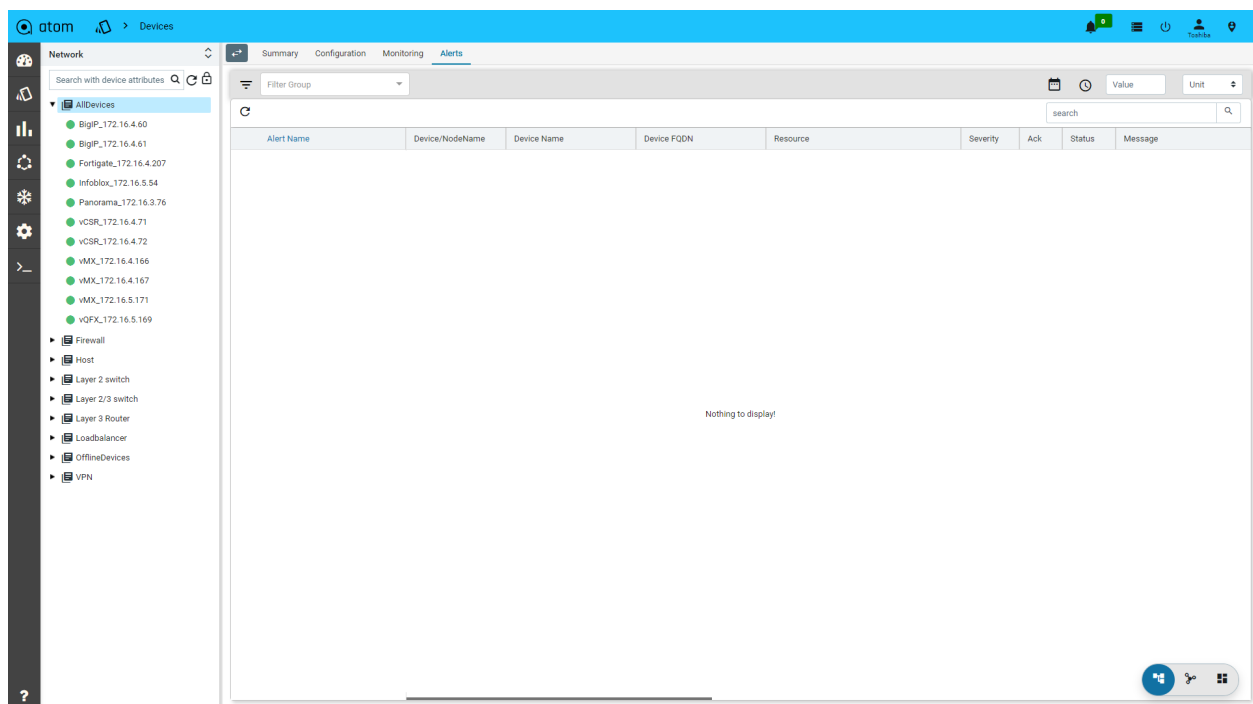
## Exercise 1: Resource and Configuration Management

ATOM can onboard network devices across 45+ vendors and 150+ platforms. (See the list of all [supported devices](#)). This trial instance has devices across Cisco, Juniper, Palo Alto, BigIP, Fortigate, and Infoblox.

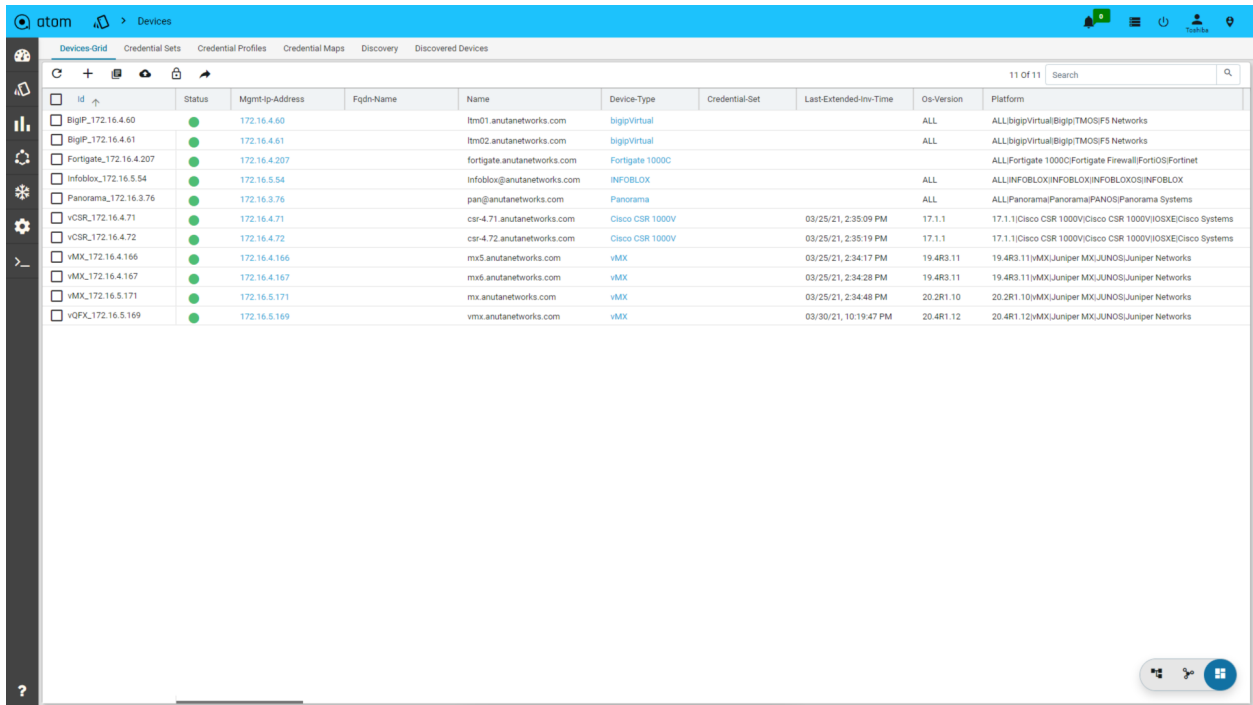
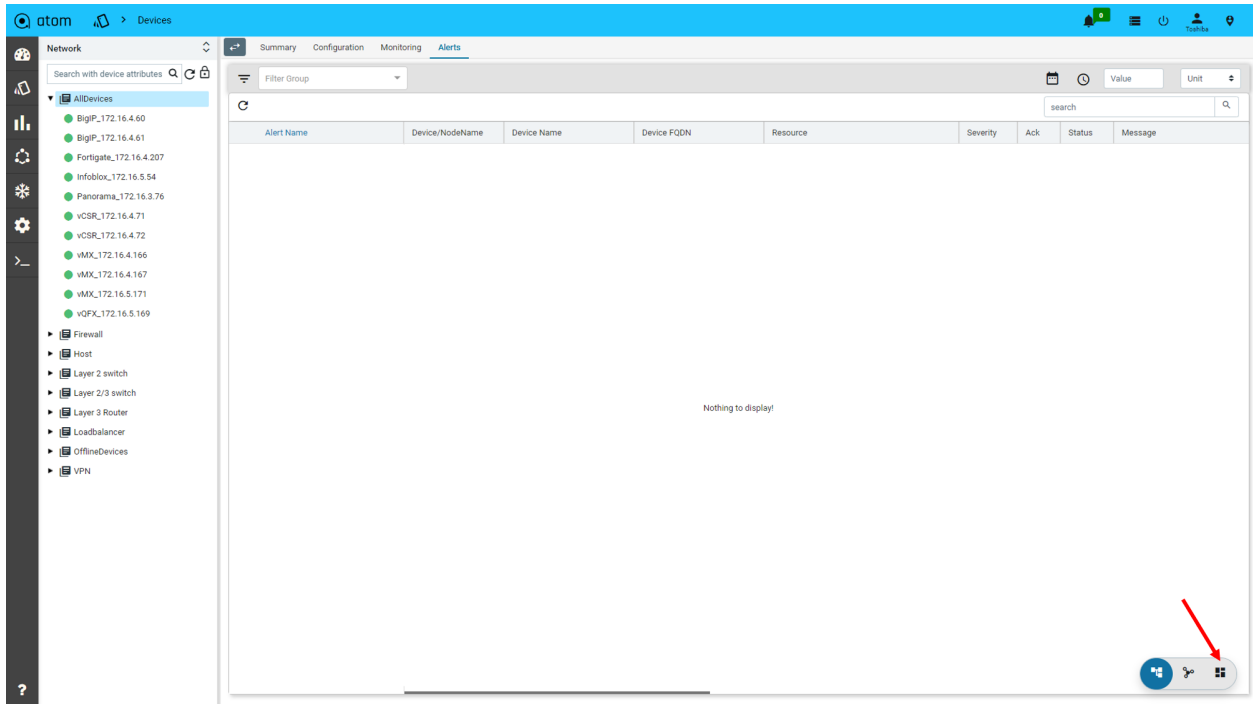
Click on devices at the menu bar to see a list of all devices onboarded to your instance.



You can now see a list of all devices onboarded to your ATOM platform.



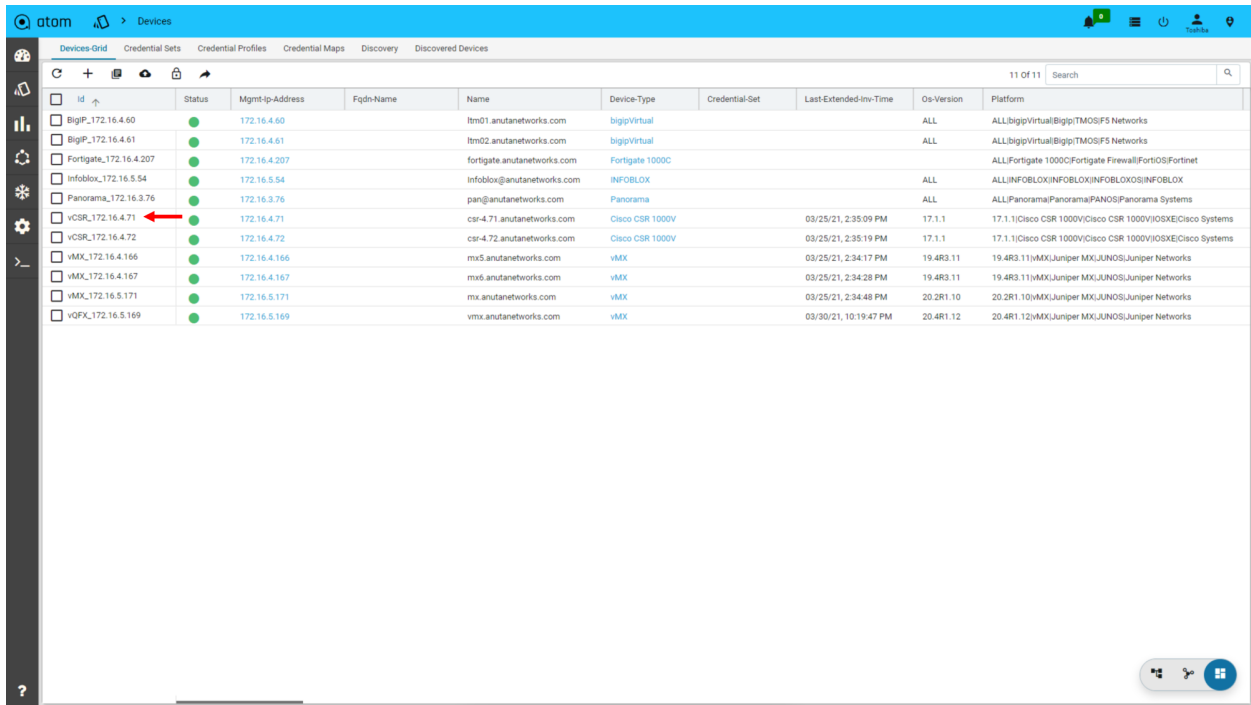
Click on the device grid icon on the bar at the bottom right corner to view device inventory in a tabular view.



# View Device Inventory

Let's take a look at one of the devices.

Click the first virtual CSR device.



The screenshot shows the 'atom' interface with a table of device inventory. The table has the following columns: Id, Status, Mgmt-IP-Address, Fqdn-Name, Name, Device-Type, Credential-Set, Last-Extended-Inv-Time, Os-Version, and Platform. A red arrow points to the first virtual CSR device in the list.

Id	Status	Mgmt-IP-Address	Fqdn-Name	Name	Device-Type	Credential-Set	Last-Extended-Inv-Time	Os-Version	Platform
BigIP_172.16.4.60	●	172.16.4.60		itm01.anutanetworks.com	bigip/Virtual			ALL	ALLbigipVirtualBigip(TMOS)F5 Networks
BigIP_172.16.4.61	●	172.16.4.61		itm02.anutanetworks.com	bigip/Virtual			ALL	ALLbigipVirtualBigip(TMOS)F5 Networks
Fortigate_172.16.4.207	●	172.16.4.207		fortigate.anutanetworks.com	Fortigate 1000C			ALL	ALLFortigate 1000CFortigate FirewallFortiOSFortinet
infoblox_172.16.5.54	●	172.16.5.54		infoblox@anutanetworks.com	INFOBLOX			ALL	ALLINFOBLOXINFOBLOXINFOBLOXOSINFOBLOX
Panorama_172.16.3.76	●	172.16.3.76		pan@anutanetworks.com	Panorama			ALL	ALLPanoramaPanoramaPANOSPanorama Systems
vCSR_172.16.4.71	●	172.16.4.71		csr-4.71.anutanetworks.com	Cisco CSR 1000V		03/25/21, 2:35:09 PM	17.1.1	17.1.1Cisco CSR 1000V/Cisco CSR 1000V/IOSXE/Cisco Systems
vCSR_172.16.4.72	●	172.16.4.72		csr-4.72.anutanetworks.com	Cisco CSR 1000V		03/25/21, 2:35:19 PM	17.1.1	17.1.1Cisco CSR 1000V/Cisco CSR 1000V/IOSXE/Cisco Systems
vMX_172.16.4.166	●	172.16.4.166		mx5.anutanetworks.com	vMX		03/25/21, 2:34:17 PM	19.4R3.11	19.4R3.11vMXJuniper MX/JUNOS/Juniper Networks
vMX_172.16.4.167	●	172.16.4.167		mx6.anutanetworks.com	vMX		03/25/21, 2:34:28 PM	19.4R3.11	19.4R3.11vMXJuniper MX/JUNOS/Juniper Networks
vMX_172.16.5.171	●	172.16.5.171		mx.anutanetworks.com	vMX		03/25/21, 2:34:48 PM	20.2R1.10	20.2R1.10vMXJuniper MX/JUNOS/Juniper Networks
vDFX_172.16.5.169	●	172.16.5.169		vmx.anutanetworks.com	vMX		03/30/21, 10:19:47 PM	20.4R1.12	20.4R1.12vMXJuniper MX/JUNOS/Juniper Networks

Click on the summary tab to view device inventory including, device type, OS version and interface, and compliance status.

**Details | csr-4.71.anutanetworks.com**

collector-id  
agent1\_toshiba

config-parse-status  
SUCCESSFUL

vendor-string  
Cisco Systems

device-family-string  
Cisco CSR 1000V

sys-descr  
Cisco IOS Software [Amsterdam] Virtual XE Software (X86\_64\_LINUX\_IOSD-UNIVERSALK9-M), Version 17.1.1, RELEASE SOFTWARE (fc3) Technical Support: http://www.cisco.com/techsupport Copyright (c) 1986-2019 by Cisco Systems, Inc. Compiled Fri 22-Nov-19 03:3

device-type  
Cisco CSR 1000V

id  
vCSR\_172.16.4.71

ostype-string  
IOSXE

priv-status  
OFFLINE

name  
csr-4.71.anutanetworks.com

mgmt-ip-address  
172.16.4.71

manage-by-management-station  
false

status  
ONLINE

sys-object-id

**Device-Details-Summary-Dashboard**

**Alerts**  
No data available

**Interface Status**  
0 Up, 0 Down

**Config Compliance Status**  
No Data  
Violation Count

**Others**  
0

**Health**  
No Data  
CPU Utilisation (%), Memory Utilisation (...), Temperature (C)

**Actions**  
[Run Device Inventory](#) | [Run Extended Inventory](#) | [Run Topology Inventory](#) | [Retrieve Configs](#) | [Run Diagnostics](#)

**Recent Activity**

Retrieval Status	Parse Status	Operation Name	Retrieval Id	Parsing Id	Tags
FAILED		Job.config pull	NuqID3q9Kt2aGYscy3akc_w		
RETRIEVED	SUCCESSFUL	Job.config pull	LDPh3jwZTISJZVL0ffNBNT1g	OuGmfZ_3r8EeekUJFKUw	
RETRIEVED	SUCCESSFUL	Job.config pull	GC39rQiyGARJWLry61CgZk6A	M182OpN_6pSs50qMxAqqtY1A	
RETRIEVED	SUCCESSFUL	Base config	0	iEdrw7CIPwQbmsrZWJyh-ZVA	
RETRIEVED		SERVMODEL.network_access	LBzKQF42MQ1qL_SudcFZHCA		
RETRIEVED	SUCCESSFUL	Job.config pull	BqHFIU70DrRFqvc33TCLmIQ	A1fyOmHuaFQ9-ACNV03257g	
RETRIEVED	SUCCESSFUL	Job.config pull	GG7NT19aqQ09yMOna3Sbz9g4	M8jrn8jsDoIT9WLuOOIS100vg	
RETRIEVED	SUCCESSFUL	Job.config pull	EoTXU0387TRaUWgghkswQ0Q	P848eJQdR6SPGm70-Wpr_pmg	
RETRIEVED	SUCCESSFUL	Job.config pull	OxC3eelw-kRR0wrm4M-1VAca	NzBL9kT9p_QKk9bTFo7-k63q	

## View Archived Configurations

The next tab will display a list of archived configurations. ATOM periodically archives device configurations. The status of each retrieval is also displayed.

otom Network vCSR\_172.16.4.71

Summary Configuration Monitoring Alerts

Archive Change Log Config Data

11 of 11 Keyword

Device-Id	Device-IP	Host-Name	Retrieval-Status	Parse-Status	Operation-Name	Parsing-Id	Retrieval-Id	Retrieval-Time
vCSR_172.16.4.71	172.16.4.71	csr-4.71.anutanetw...	●		Job.config pull	Be8YyoLDeqW_CsmKSMBooQAAARNwGBBMqW	NuqD3q9kk...	03/29/21, 3:25:05 PM
vCSR_172.16.4.71	172.16.4.71	csr-4.71.anutanetw...	●	●	Job.config pull	Be3Ycrw6NvIEIP-6Cg883gAAARNwGBBMqW	GC39QIyoA...	03/29/21, 3:11:33 PM
vCSR_172.16.4.71	172.16.4.71	csr-4.71.anutanetw...	●	●	Job.config pull	BeXTYdNfBEIC9Upwa3V9wAAARNwGBBMqW	GGih1IQMcU...	03/29/21, 3:10:01 PM
vCSR_172.16.4.71	172.16.4.71	csr-4.71.anutanetw...	●	●	Job.config pull	BeP8sLlccC-chWepBfYQAAARNwGBBMqW	OvC3eelw-k...	03/29/21, 3:09:01 PM
vCSR_172.16.4.71	172.16.4.71	csr-4.71.anutanetw...	●	●	Job.config pull	BeDhBA8TefakmaRATf6NFQAAARNwGBBMqW	EoTKXUQ38...	03/29/21, 12:34:33 PM
vCSR_172.16.4.71	172.16.4.71	csr-4.71.anutanetw...	●	●	Job.config pull	Be0tCSXfS04qVMmM13ic8GAAARNwGBBMqW	LDP6jwZT...	03/29/21, 12:04:00 PM
vCSR_172.16.4.71	172.16.4.71	csr-4.71.anutanetw...	●	●	Job.config pull	BeW9bYrSpHRMNOAQ0B5vKPAARNwGBBMqW	EXDeLvhg_0...	03/29/21, 12:00:31 PM
vCSR_172.16.4.71	172.16.4.71	csr-4.71.anutanetw...	●	●	Job.config pull	BeN52CaLdp0wFP21y1rvAAARNwGBBMqW	BqHf1u7ODr...	03/29/21, 10:49:47 AM
vCSR_172.16.4.71	172.16.4.71	csr-4.71.anutanetw...	●	●	Job.config pull	BePBXKOa09wXJ2S5j7H59TAAARNwGBBMqW	GG7NTf9aq...	03/26/21, 1:56:58 PM
vCSR_172.16.4.71	172.16.4.71	csr-4.71.anutanetw...	●		SERVMODEL.network_access	Be8TMMHfEvpFwMxvJ5_TmWAAARNwGBBMqW	LDzXQZf4z...	03/25/21, 3:09:18 PM
vCSR_172.16.4.71	172.16.4.71	csr-4.71.anutanetw...	●	●	Base config	Be8kM60JLA0r9cD3SH3g8VwQAAARNwGBBMqW	0	03/25/21, 2:36:48 PM

Select any configuration to view.

otom Network vCSR\_172.16.4.71

Summary Configuration Monitoring Alerts

Archive Change Log Config Data

Selected 1

Device-Id	Device-IP	Host-Name	Retrieval-Status	Parse-Status	Operation-Name	Parsing-Id
vCSR_172.16.4.71	172.16.4.71	csr-4.71.anutanetw...	●	●	Job.config pull	Be3Ycrw6NvIEIP-6Cg883gAAARNwGBBMqW

configuration-details

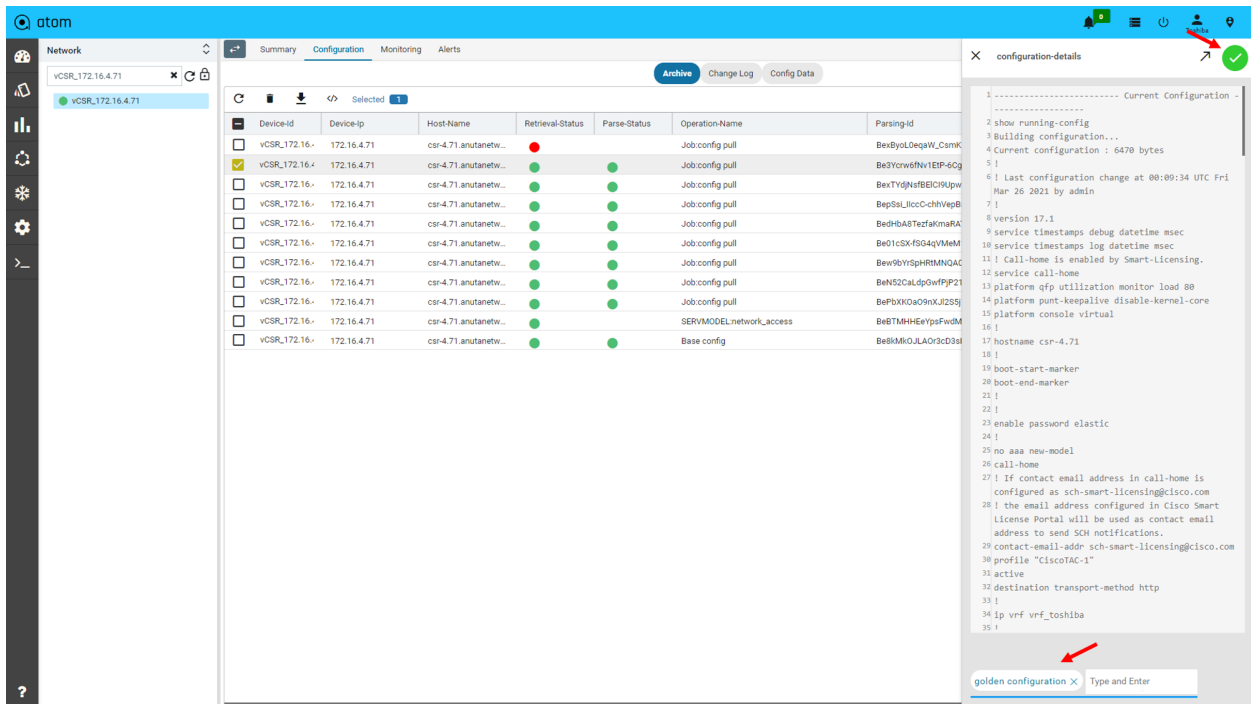
```

1 ..... Current Configuration .....
2 show running-config
3 Building configuration...
4 Current configuration : 6476 bytes
5 |
6 ! Last configuration change at 00:09:34 UTC Fri
7   Mar 26 2021 by admin
8 |
9 version 17.1
10 service timestamps debug datetime msec
11 service timestamps log datetime msec
12 ! Call-home is enabled by Smart-licensing.
13 service call-home
14 platform pfq utilization monitor load 80
15 platform punt-keepalive disable-kernel-core
16 platform console virtual
17 |
18 hostname csr-4.71
19 |
20 boot-start-marker
21 boot-end-marker
22 |
23 enable password elastic
24 |
25 no aaa new-model
26 call-home
27 ! If contact email address in call-home is
28   configured as sch-smart-licensing@cisico.com
29   the email address configured in Cisco Smart
30   License Portal will be used as contact email
31   address to send SCH notifications.
32 contact-email-addr sch-smart-licensing@cisico.com
33 profile "CiscoTAC-1"
34 active
35 destination transport-method http
36 |
37 ip vrf vrf_toshba
38 |

```

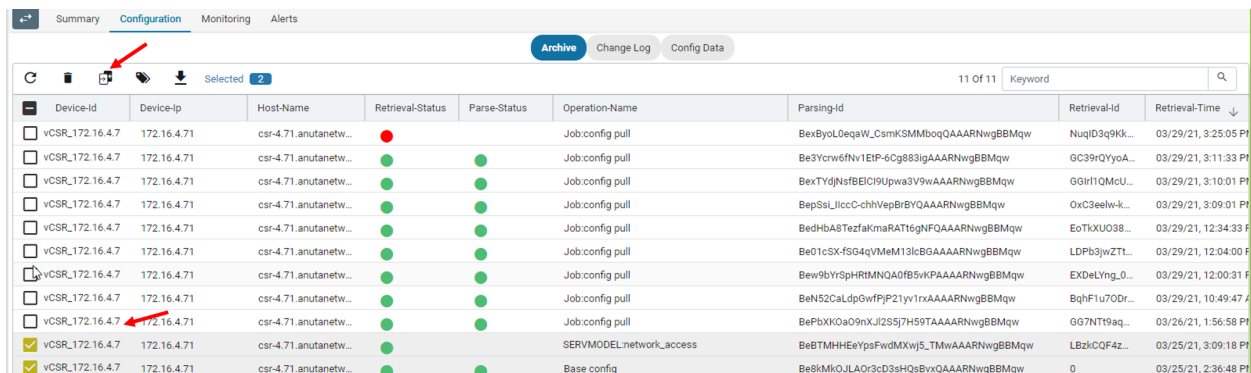
Type and Enter

You can tag every archived configuration. You can use this tag to restore configuration at a later point in time. Provide a tag name at the right bottom corner and then save the changes.

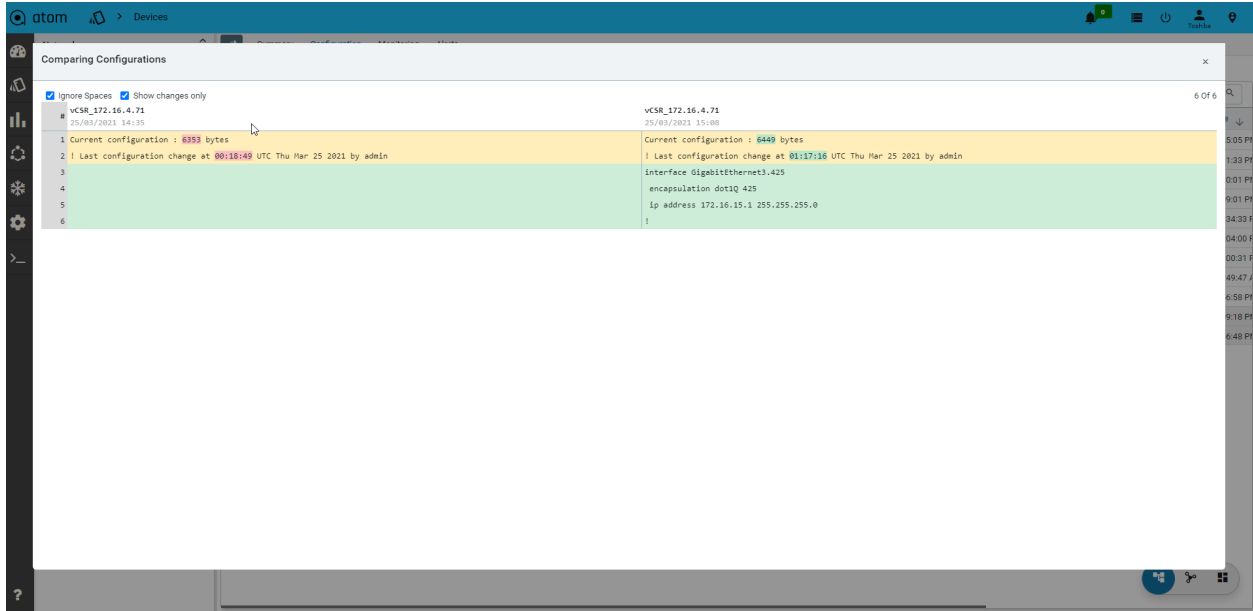


## View Configuration Diffs

Select the following two configurations from the timeline and click on compare icon on the toolbar to view the difference between them.



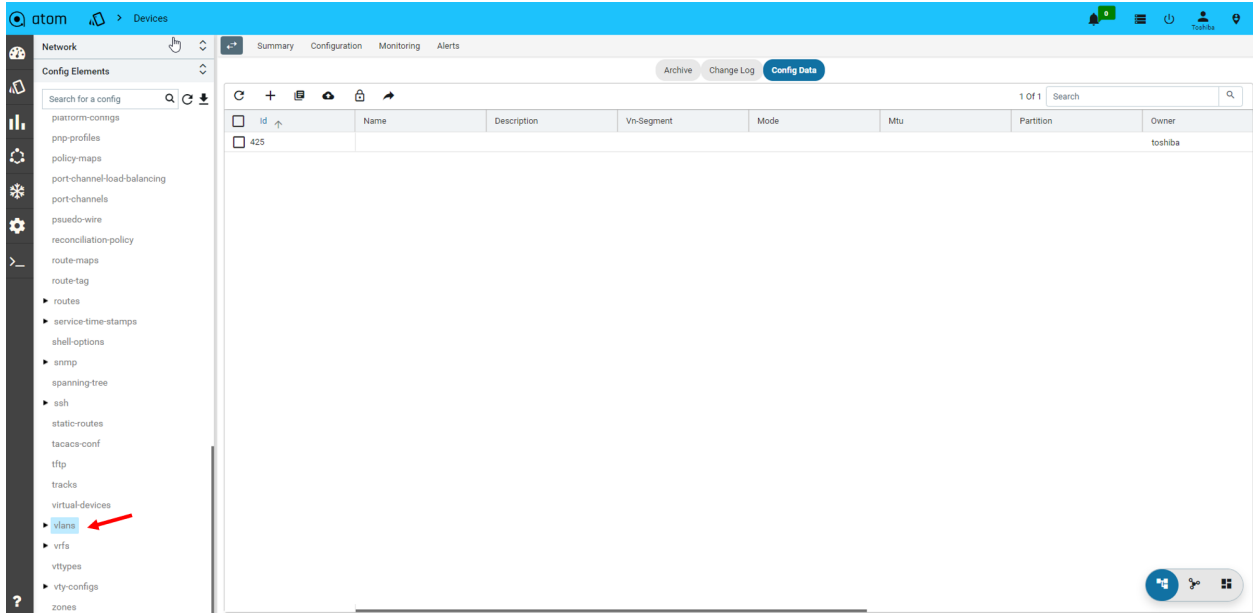




## View Configuration Data

The config data button in the configuration tab provides you with a simplified view of the device configuration. The entire configuration of the device is modeled into related items. This view is available for CLI and Yang/NetConf based devices.

Let's check for all VLANs configured in this device. To view all VLANs in the current device, click on the "Config Data" button. Scroll down in "Config Elements" and click on "VLANs."



## Summary & Next Steps

Through this exercise, you learned ATOM's resource and configuration management capabilities.

Some of the key capabilities are listed below.

Resource Management	Configuration Management
<ol style="list-style-type: none"> <li>1. Automatically onboard Greenfield networks through ZTP</li> <li>2. Automatically discover brownfield network and services.</li> <li>3. Automatically group devices based on custom rules (such as type, location, etc.)</li> <li>4. View L2 Topology</li> </ol>	<ol style="list-style-type: none"> <li>1. Archival</li> <li>2. Versioning</li> <li>3. Restoration</li> <li>4. RMA</li> <li>5. Diff</li> <li>6. Config Data Model</li> </ol>

Check out the [configuration compliance section](#) in the [user guide](#) to learn more on these topics

## Exercise 2: Service Orchestration

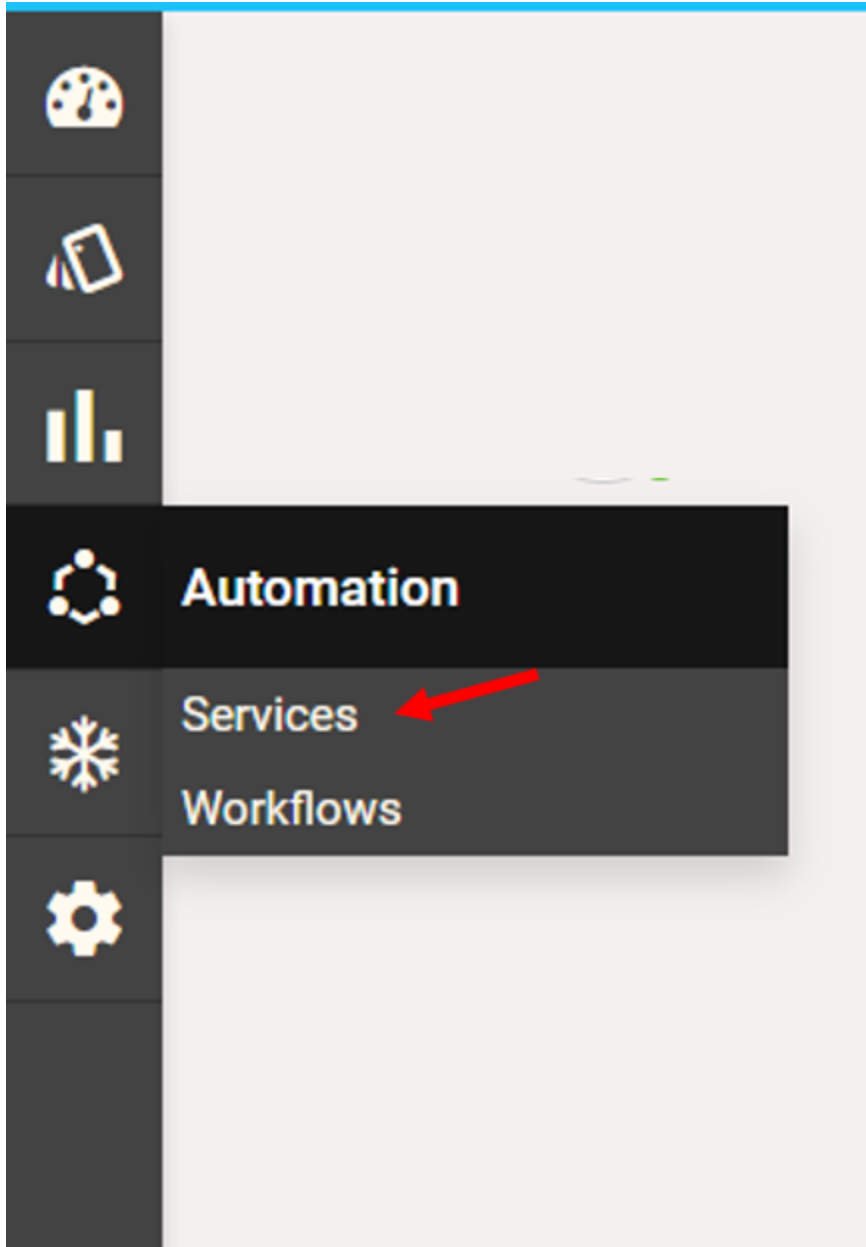
ATOM provides service lifecycle management for multi-vendor devices. ATOM provides numerous out-of-box services. Custom services specific to business interests can also be developed using ATOM SDK.

In this exercise, we will be provisioning, modifying, and deleting L3 and EVPN services.

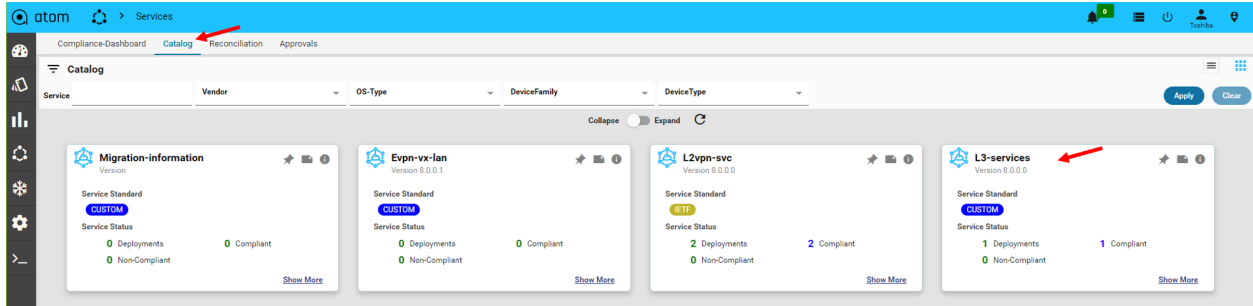
### Provisioning L3 Service on a Cisco Router

Please refer to the [L3 service automation use-case guide](#) to get a detailed understanding of the L3 service capabilities.

In the menu, Click on automation and then services.



Go to the service catalog and click on the L3 service card.



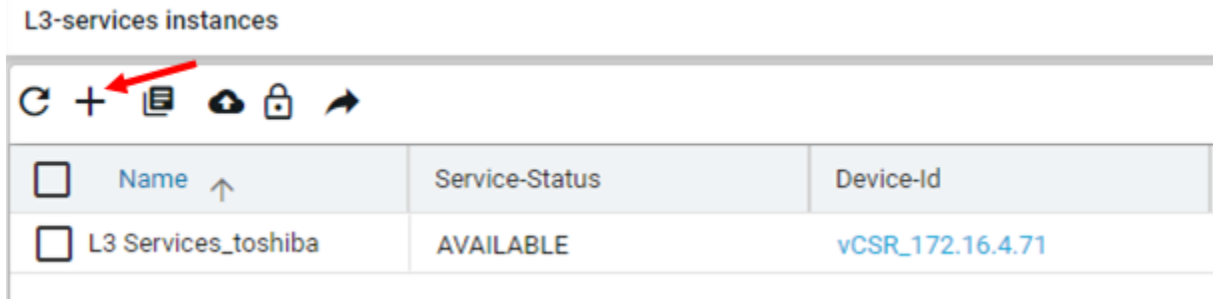
This page displays all L3 service instances. You can see an existing L3 service.

L3-services instances

Name	Service-Status	Device-Id	Interface-Mode	Interface	Description	Vif	Vlan-Id	Ip-Address	Net
<input type="checkbox"/> L3 Services_toshiba	AVAILABLE	vCSR_172.16.4.71	sub_interface	GigabitEthernet3			425	172.16.15.1	256

## Create a new service

Let's create another L3 Service. Click on "+" to create a new I3 service.



## Entering Form Details

You are now provided with a form. ATOM will provision a new L3 service based on the details provided in this form. Enter the details as below and submit.

You can also import a template with prefilled form values(see below)

Field	Value
Name	Trial L3 Service
Device ID	Select a vCSR from the dropdown
Interface-mode	Sub-Interface
Interface	GigabitEthernet3
Description	TrialService
Vrf	TrialVRF
Vlan-Id	522
Ip-Address	172.1.16.24
Netmask	255.255.255.0
Ipv6-Address	Leave it blank
Ipv6-Prefix-Length	Leave it blank

### Create L3-Service

• -mandatory information

Name •

string

Trial L3 Service

Device-Id •

device-id

vCSR\_172.16.4.71

Interface-Mode •

sub-interface l3-interface vlan

Sub-Interface

L3-Interface

Vlan

Interface

interface

GigabitEthernet3

Description

string

description

Vrf

string

TrialVRF

Vlan-Id •

1..4096

522

Ip-Address

Must be a valid IP Address. Ex :172.16.1.24.

172.1.16.24

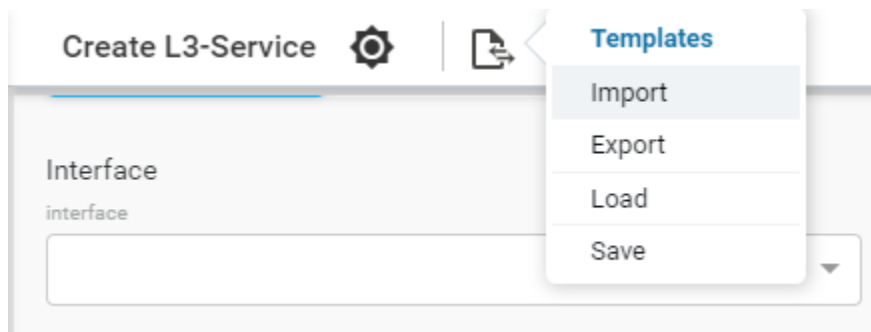
Netmask

Must be a valid IP Address. Ex :172.16.1.24.

255.255.255.0

Importing a form template

ATOM allows operators to import an existing template. Download the L3 service template from [here](#) and import it.



Most of the form values are prefilled. Enter device and interface configuration and submit.




atom > Services


### Create L3-Service

• -mandatory information

**Name** •  
string  
Trial L3 Service

**Device-Id** •   
device-id

**Interface-Mode** •  
sub-interface |3-interface |vlan  
 Sub-Interface  L3-Interface  Vlan

**Interface** •   
interface

**Description**  
string  
TrialService

**Vrf**  
string  
TrialVRF

**Vlan-Id** •  
1..4096  
522

**Ip-Address**  
Must be a valid IP Address. Ex :172.16.1.24.  
172.1.16.24

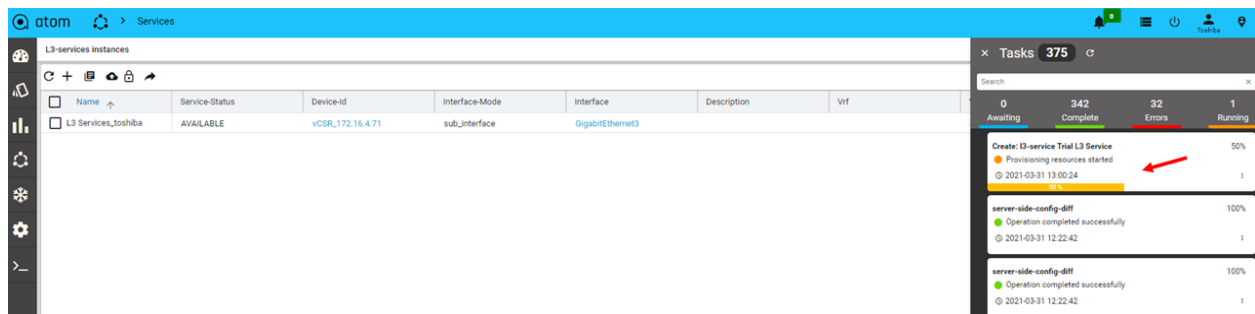
**Netmask**  
Must be a valid IP Address. Ex :172.16.1.24.  
255.255.255.0

View task progress

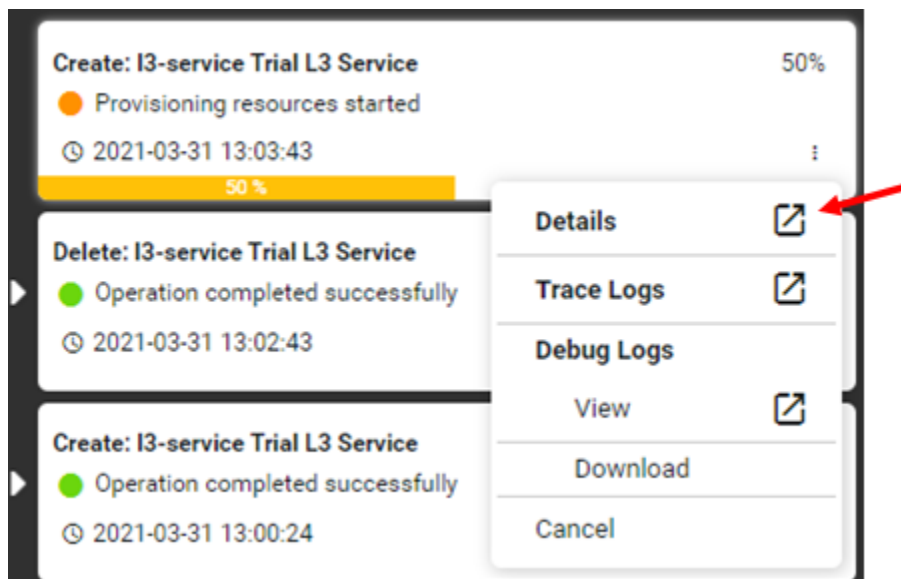
Open the tasks view to monitor the progress.



We can see our service is being provisioned. The progress bar shows that it's 50% done.



To view the details of the task, click on the three dots and then select details.



In the task details pane, you can view the logs and the commands that are yet to be provisioned.

**Create: l3-service Trial L3 Service**

Task ID: DzalVOWfI95v2Wk4uy5JqQv  
 User Name: toshiba  
 Time Taken: 3/10/2021, 1:03:43 · 100ms

Logs	Summary	Commands
<pre> Mar 31, 2021, 1:03:43 PM   Posted on kafka: {"taskId": "DzalVOWfI95v2Wk4uy5JqQv", "timestamp": 161716013929, "commit": true, "autoRollback": true, "force": false, "skipNotify": false, "verbose": false, "skipUniqueConstraintValidation": false, "stacktrace": "", "payload": ""}  &lt;input&gt;&lt;transaction-policy&gt;&lt;fail-fast&gt;true/&lt;fail-fast&gt;&lt;validation-scope&gt;COMMITTED_DATA/&lt;validation-scope&gt;&lt;command-sequence-policy&gt;DEPENDENCY_BASED/&lt;command-sequence-policy&gt;&lt;do-not-send-commands-to-devices&gt;false/&lt;do-not-send-commands-to-devices&gt;&lt;service-discover&gt; ", "operation": "", "systemTask": false, "taskStatusManaged": false, "actionContextPath": "", "errorMsg": "", "logUpdateReferences": false, "targetApi": "DEFAULT", "type": "CREATE", "yangState": "COMMIT_REQUESTED", "currentUser": "toshiba"} Mar 31, 2021, 1:03:43 PM   action-core-70f8ff9f68b-1gdbn: Processing from kafka Mar 31, 2021, 1:03:43 PM   {"taskId": "DzalVOWfI95v2Wk4uy5JqQv", "timestamp": 161716023997, "description": "", "serviceTemplate": "l3-services/l3-service", "serviceInstance": "Trial L3 Service", "operationName": "", "commandGenerationDisabled": false, "autoRollback": true, "serviceOperationType": "CREATE", "operationType": "CREATE", "verbose": false, "processDeletion": false, "logUpdateReferences": false} Mar 31, 2021, 1:03:44 PM   CREATE Service l3-service-TrialL3Service: l3-service Mar 31, 2021, 1:03:44 PM   get-data://controller/services/l3service/l3-service/l3-service-TrialL3Service (duration = 6 msec) Mar 31, 2021, 1:03:44 PM   entity-exists://controller/devices/device-vcsr_172.16.4.71/l3features/vrfs (duration = 9 msec) Mar 31, 2021, 1:03:44 PM   create-data://app/restconf/data/controller/devices/device-vcsr_172.16.4.71/l3features/vrfs (duration = 41 msec). Params:   - [0] createData = /app/restconf/data/controller/devices/device-vcsr_172.16.4.71/l3features/vrfs   - [1] payload = &lt;l3features:vrfs xmlns:l3features="http://anutanetworks.com/l3features"&gt;name: TrialVrf/&lt;/name&gt;vrfl-definition-mode: true/vrf-definition-mode: /l3features/vrfs Mar 31, 2021, 1:03:44 PM   entity-exists://controller/devices/device-vcsr_172.16.4.71/l3features/vlans (duration = 11 msec) Mar 31, 2021, 1:03:44 PM   create-data://app/restconf/data/controller/devices/device-vcsr_172.16.4.71/l3features/vlans (duration = 34 msec). Params:   - [0] createData = /app/restconf/data/controller/devices/device-vcsr_172.16.4.71/l3features/vlans   - [1] payload = &lt;l3features:vlan xmlns:l3features="http://anutanetworks.com/l3features"&gt;cid:522/id-name: TrialService/&lt;/name&gt;/l3features/vlan Mar 31, 2021, 1:03:44 PM   entity-exists://controller/devices/device-vcsr_172.16.4.71/interface/interfaces (duration = 13 msec) Mar 31, 2021, 1:03:44 PM   create-data://app/restconf/data/controller/devices/device-vcsr_172.16.4.71/interface/interfaces (duration = 76 msec). Params:   - [0] createData = /app/restconf/data/controller/devices/device-vcsr_172.16.4.71/interface/interfaces   - [1] payload = &lt;interface:interface xmlns:interface="http://anutanetworks.com/interface"&gt;long-name: GigabitEthernet3.522/long-name: name: GigabitEthernet3.522/&lt;/name&gt;description: TrialService/description: mode: sub-interface: mode: ip-address: 172.1.16.24/ip-address: n... (578 bytes) Mar 31, 2021, 1:03:44 PM   No commands generated for: toshiba:DzalVOWfI95v2Wk4uy5JqQv,,/controller/devices/device-vcsr_172.16.4.71/l3features/vlans/vlan522[DzalV84xLuQo2_AkY3QHmM..T]flags[csc-owner,csc-shutdown] (evaluated commands: []) Mar 31, 2021, 1:03:44 PM   Saving commands Mar 31, 2021, 1:03:44 PM   Resuming commit Mar 31, 2021, 1:03:44 PM   Service call stats: get-data = 2, data-exists = 3, create-data = 3 Mar 31, 2021, 1:03:44 PM   Executing on agent: default_agent Mar 31, 2021, 1:03:44 PM   Processing on agent: default_agent </pre>		

Download as Config

server-side-config-diff 100%

**Create: l3-service Trial L3 Service**

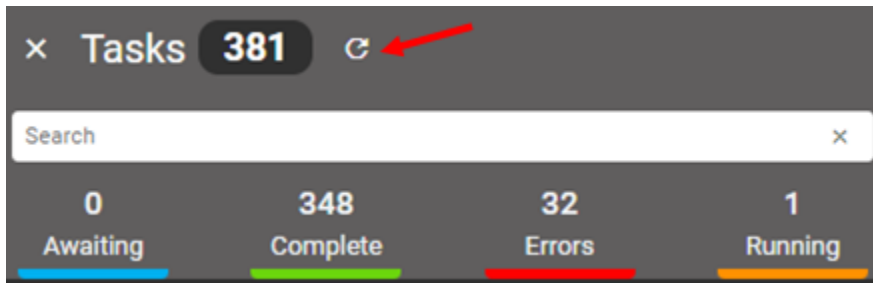
Task ID: DzalVOWfI95v2Wk4uy5JqQv  
 User Name: toshiba  
 Time Taken: 3/10/2021, 1:03:43 · 100ms

Logs	Summary	Commands
<p>Operation: CreateVrf</p> <p>Device Name/IP: csr-4.71.anutanetworks.com / 172.16.4.71</p> <p>Status: TO BE PROVISIONED</p> <p>Commands:</p> <pre> vrf definition TrialVRF  address family ipv4  exit address family </pre>		
<p>Operation: CreateInterface</p> <p>Device Name/IP: csr-4.71.anutanetworks.com / 172.16.4.71</p> <p>Status: TO BE PROVISIONED</p> <p>Commands:</p> <pre> interface GigabitEthernet3.522  description TrialService  vrf forwarding TrialVRF  encapsulation dot1q 522  ip address 172.1.16.24 255.255.255.0  no shutdown </pre>		

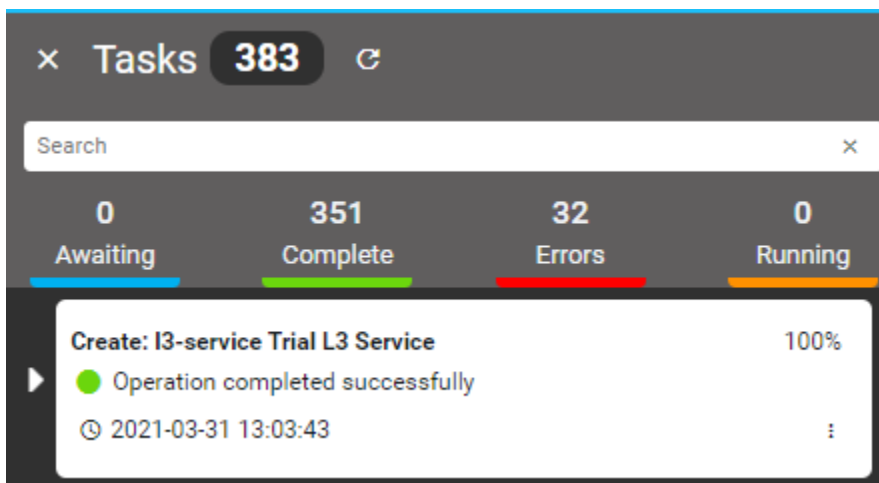
Download as Config

server-side-config-diff 100%

Refresh the task list to retrieve the latest status of the task.



Once the task is completed, close the task panel and refresh the service view.



L3-services instances

<input type="checkbox"/>	Name ↑	Service-Status	Device-Id	Interface-Mode	Interface
<input type="checkbox"/>	L3 Services_toshiba	AVAILABLE	vCSR_172.16.4.71	sub_interface	GigabitEthernet3
<input type="checkbox"/>	Trial L3 Service	AVAILABLE	vCSR_172.16.4.71	sub_interface	GigabitEthernet3

To view provisioned commands, follow the steps as described in this [section](#).

## Verify the service creation

ATOM automatically pulls configuration from the device after provisioning the service. To verify the service has been provisioned successfully, go to the archived configuration tab described in this [section](#).

In this archive, you can see that the last entry is related to the operation “Create: L3 Service”.

Device-Id	Device-Ip	Host-Name	Retrieval-Status	Parse-Status	Operation-Name	Parsing-Id	Retrieval-Id	Retrieval-Time
vCSR_172.16.4.7	172.16.4.71	csr-4.71.anutanetw...	●		Create: l3-service Trial L3 Service	BenUCgMj2Lq3nPZnKw2uTYTAAARNwgbBMqw	DzaLVOWF9...	03/31/21, 1:04:28 PM
vCSR_172.16.4.7	172.16.4.71	csr-4.71.anutanetw...	●	●	Job:config pull	Be3Ycrw6Nv1EIP-6Cg883igAAARNwgbBMqw	GC39rQYyoA...	03/29/21, 3:11:33 PM
vCSR_172.16.4.7	172.16.4.71	csr-4.71.anutanetw...	●	●	Job:config pull	BexTYdjNsfBEICi9Uwpa3V9wAAARNwgbBMqw	GGHr1QMcu...	03/29/21, 3:10:01 PM
vCSR_172.16.4.7	172.16.4.71	csr-4.71.anutanetw...	●	●	Job:config pull	BepSsLlccC-ehVepBrBYQAAARNwgbBMqw	OxC3eelw-k...	03/29/21, 3:09:01 PM
vCSR_172.16.4.7	172.16.4.71	csr-4.71.anutanetw...	●	●	Job:config pull	BedHbA8TezfaKmaRAT6gnFQAAARNwgbBMqw	EoTixU038...	03/29/21, 12:34:33 PM
vCSR_172.16.4.7	172.16.4.71	csr-4.71.anutanetw...	●	●	Job:config pull	Be01c5X-1SG4qVMeM13lcBGAAARNwgbBMqw	LDPb3jwZT...	03/29/21, 12:04:00 PM
vCSR_172.16.4.7	172.16.4.71	csr-4.71.anutanetw...	●	●	Job:config pull	BeW9bYrSpHRMnQa0f5vKPAAAARNwgbBMqw	EXDeLynq_0...	03/29/21, 12:00:31 PM
vCSR_172.16.4.7	172.16.4.71	csr-4.71.anutanetw...	●	●	Job:config pull	BeN52CaLdp6wFpJ21y1rxAAARNwgbBMqw	BqhFlu7ODr...	03/29/21, 10:49:47 AM
vCSR_172.16.4.7	172.16.4.71	csr-4.71.anutanetw...	●	●	Job:config pull	BePbXKOaO9nxJi2S5j7H59TAAARNwgbBMqw	GG7NT99aq...	03/26/21, 1:56:58 PM
vCSR_172.16.4.7	172.16.4.71	csr-4.71.anutanetw...	●	●	SERVMODEL:network_access	BeBTMHHEEypsFwdMXvj5_TMwAAARNwgbBMqw	LBzkCOF4z...	03/25/21, 3:09:18 PM
vCSR_172.16.4.7	172.16.4.71	csr-4.71.anutanetw...	●	●	Base config	Be8kMkOJLAOr3cD3sH0sBvxQAAARNwgbBMqw	0	03/25/21, 2:36:48 PM

Compare the last two configurations to verify if the correct configurations were provisioned in the device.

Device-Id	Device-Ip	Host-Name	Retrieval-Status	Parse-Status	Operation-Name
vCSR_172.16.4.7	172.16.4.71	csr-4.71.anutanetw...	●		Create: l3-service Trial L3 Service
vCSR_172.16.4.7	172.16.4.71	csr-4.71.anutanetw...	●	●	Job:config pull

Device-Id	Device-Ip	Host-Name	Retrieval-Status	Parse-Status	Operation-Name
vCSR_172.16.4.7	172.16.4.71	csr-4.71.anutanetw...	●		Create: l3-service Trial L3 Service
vCSR_172.16.4.7	172.16.4.71	csr-4.71.anutanetw...	●	●	Job:config pull

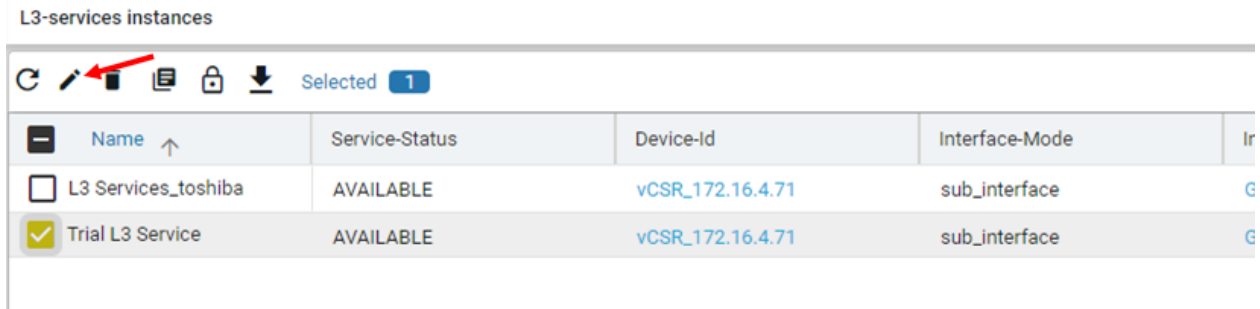
Device-Id	Device-Ip	Host-Name	Retrieval-Status	Parse-Status	Operation-Name
vCSR_172.16.4.7	172.16.4.71	csr-4.71.anutanetw...	●		Create: l3-service Trial L3 Service
vCSR_172.16.4.7	172.16.4.71	csr-4.71.anutanetw...	●	●	Job:config pull

## Modify existing service

Let's try modifying the service configuration. Follow the steps described in this [section](#) to return to the L3 service summary view. Here we can now see an entry for the previously provisioned service.

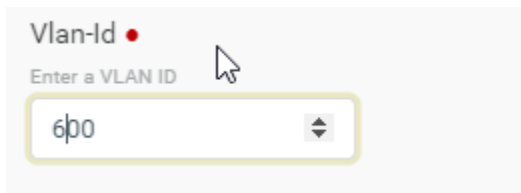
To modify the service, select the row and click on edit.

L3-services instances



Name	Service-Status	Device-Id	Interface-Mode	Ir
<input type="checkbox"/> L3 Services_toshiba	AVAILABLE	vCSR_172.16.4.71	sub_interface	G
<input checked="" type="checkbox"/> Trial L3 Service	AVAILABLE	vCSR_172.16.4.71	sub_interface	G

In the displayed form, modify VLAN from 522 to 600 and submit the form.



Vlan-Id •  
Enter a VLAN ID

This triggers a modification request, and ATOM modifies the VLAN on the device.

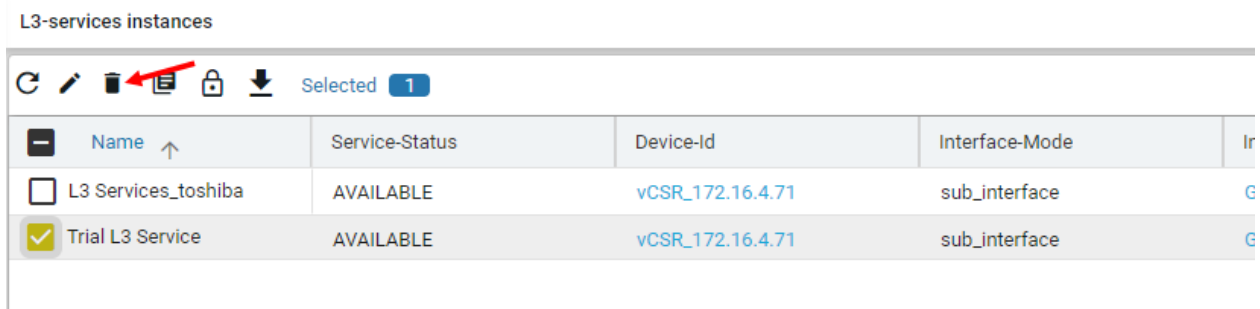
Monitor the task as described in this [section](#). Validate service configuration as described in this [section](#).

## Delete the service

Now let's proceed to the final step of a service lifecycle - Service Deletion.

To delete the service, select the row and click on delete.

L3-services instances



Name	Service-Status	Device-Id	Interface-Mode	Ir
<input type="checkbox"/> L3 Services_toshiba	AVAILABLE	vCSR_172.16.4.71	sub_interface	G
<input checked="" type="checkbox"/> Trial L3 Service	AVAILABLE	vCSR_172.16.4.71	sub_interface	G

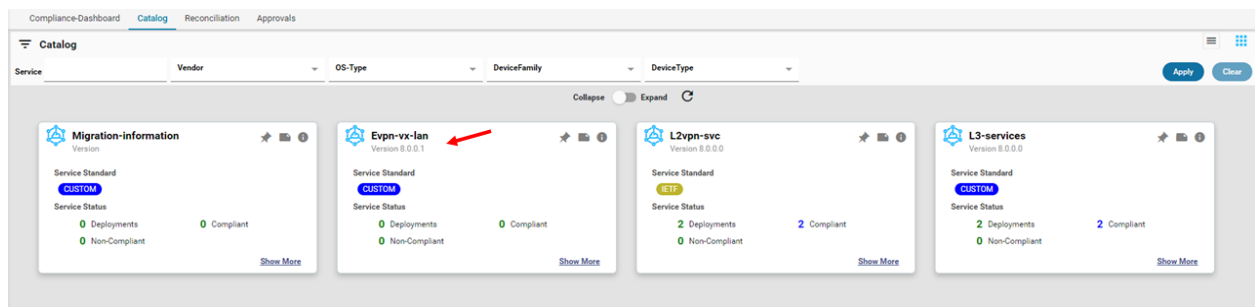
This triggers a deletion request, and ATOM deletes the selected L3 service.

Monitor the task as described in this [section](#). Validate service configuration as described in this [section](#).

## Provisioning EVPN VXLAN Service on a Juniper Router

Please refer to the [EVPN VXLAN service automation use-case guide](#) to get a detailed understanding of the EVPN VXLAN service capabilities.

Go to the service catalog as described in this [section](#) and click on EVPN VXLAN service.



Click on “+” to create a new service.



Fill the form with details as shown below and submit.

Field	Value
Vlan-ID	202
Description	S_EDU_NAT_202
Resource-Pool	Select rp
create-vrf	Select the checkbox

Rd	65301:101219
Rt	65301:101219
Vrf	OVERLAY_DC_202
Cidr	Select Evpn-vxlan-pool
Virtual-Gateway-Address	172.16.2.4

You can also import [this template](#) as defined in this [section](#).

Monitor the task as described in this [section](#). Validate service configuration as described in this [section](#).

## Summary & Next Steps

Through this exercise, you learned ATOM's service automation and orchestration capabilities.

Some of the key service orchestration capabilities are listed below.

Service Orchestration
<ol style="list-style-type: none"><li>1. Stateful automation</li><li>2. Dry Run before production</li><li>3. Atomic transactions</li><li>4. Approvals</li><li>5. Service Compliance</li></ol>

Check out the user guide to learn more on these topics.

## Exercise 3: Workflow Automation

ATOM Workflow Automation allows you to automate simple and complex method-of-procedures. The entire end-to-end procedure, including pre-checks, post-checks, and approvals, can be automated using this feature. ATOM provides a Workflow Builder to design and develop workflows. Workflow Builder is out-of-scope of this trial.

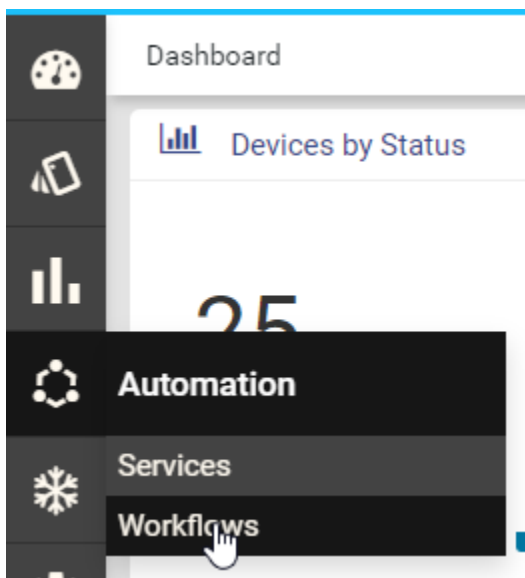


In this lesson, we'll execute a workflow that automatically upgrades a Juniper MX device.

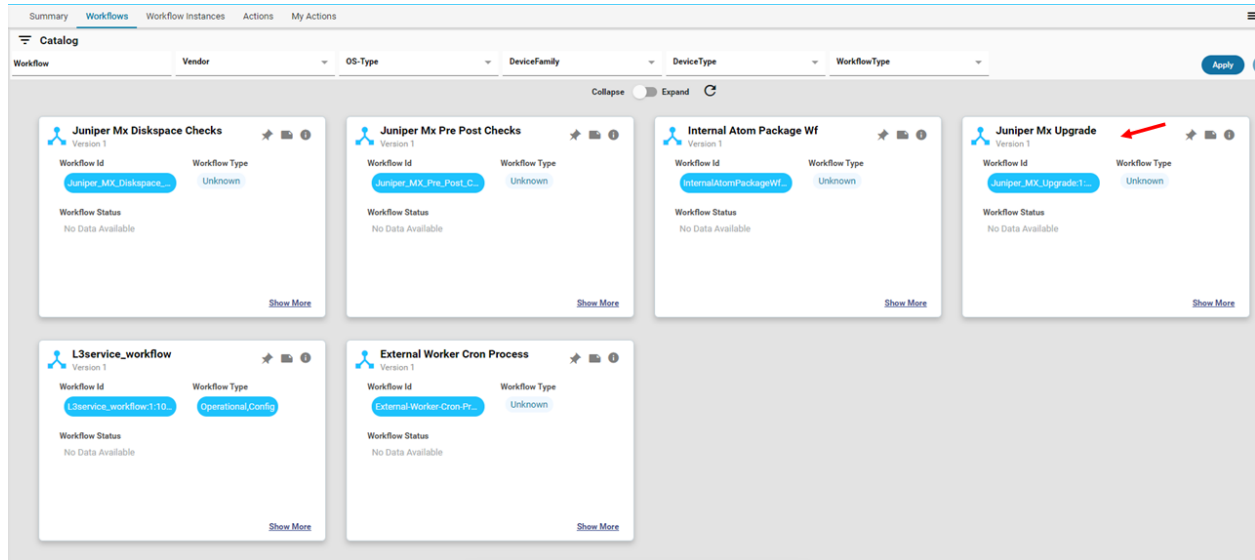
## Juniper MX Upgrade Automation

Please refer to the [Juniper vMX Workflow Automation use-case guide](#) to get a detailed understanding of the upgrade capabilities.

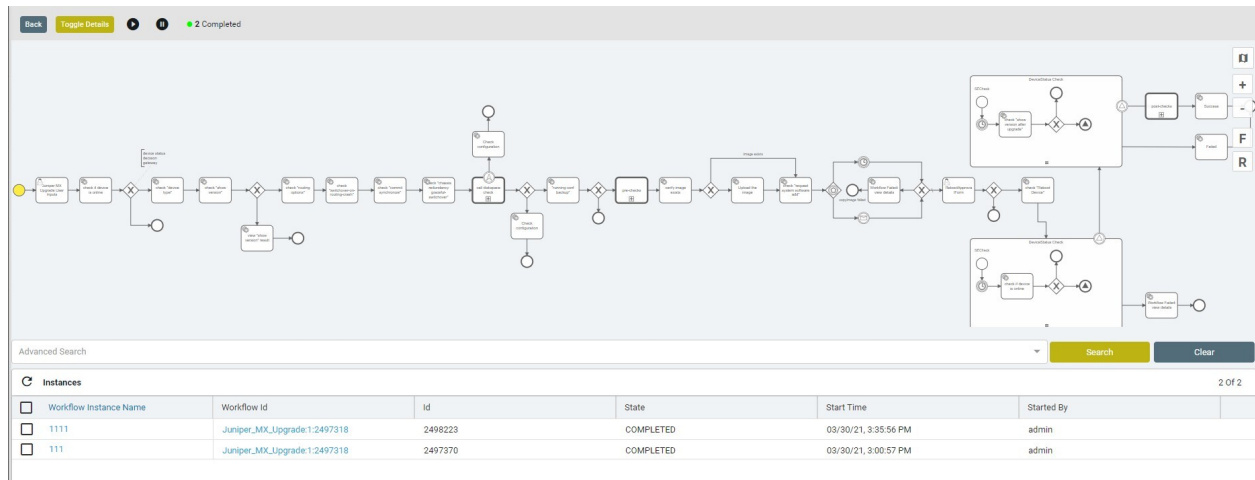
In the menu, Click on automation and then Workflows.



Go to the Workflow catalog and click on the Juniper MX Upgrade Workflow.

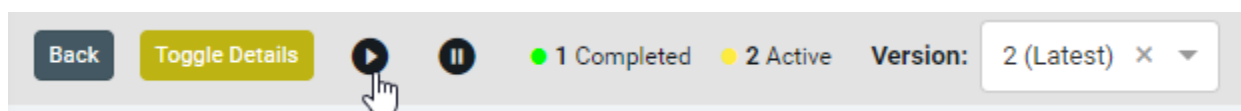


You will now enter the workflow summary page. Here you can visualize the entire workflow, all instances of the workflow and their corresponding statuses, and the workflow version.

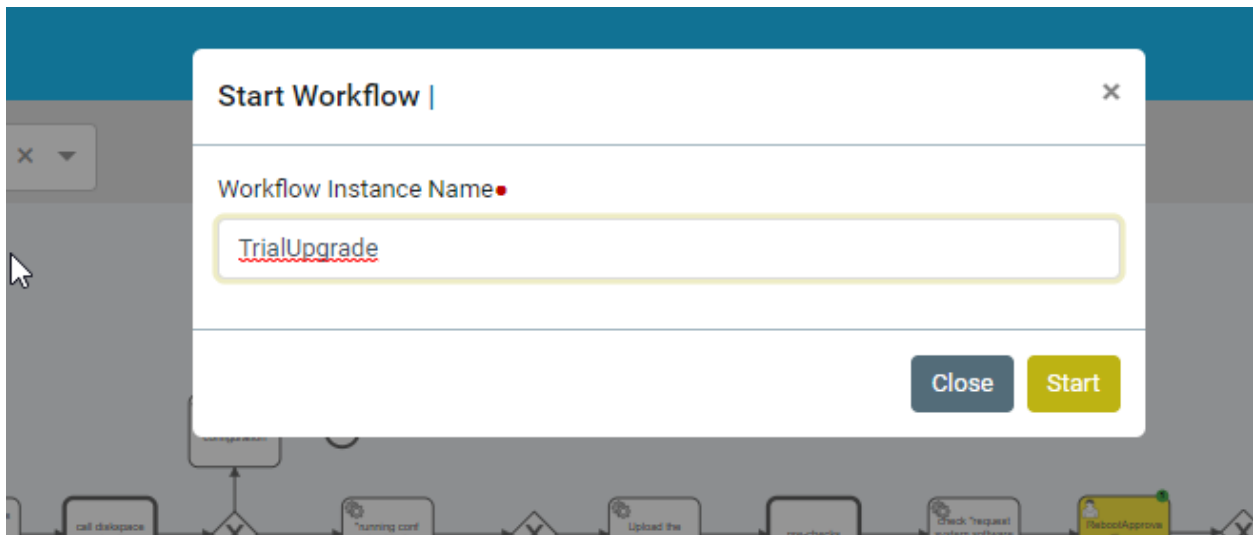


Start a new workflow

Execute this workflow by clicking the “start” button on the toolbar



Enter a name for this workflow instance and click on “start.”



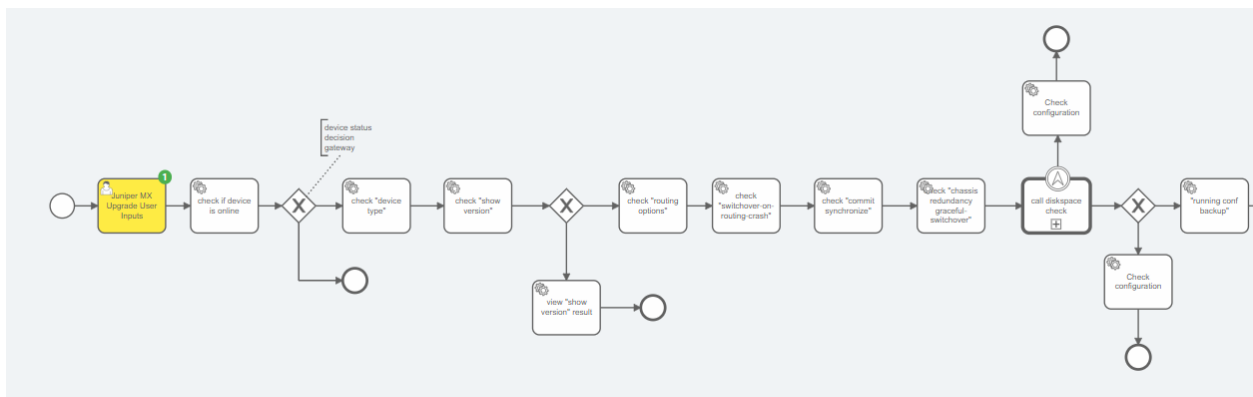
You can now see an active instance in the instances section.

#### Instances

<input type="checkbox"/> Workflow Instance Name	Workflow Id	Id
<input type="checkbox"/> TrialUpgrade	Juniper_MX_Upgrade:1:408022	410090

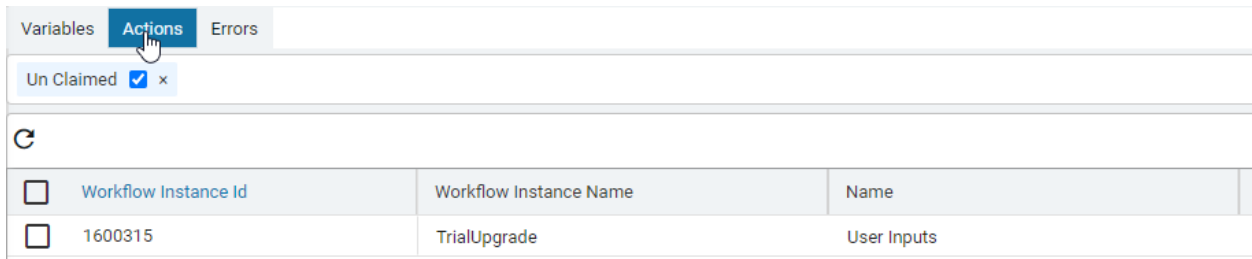
Click on the instance to see more details about the instance.

The workflow task that is currently being executed is highlighted in yellow. The upgrade workflow is waiting for input from the user (see the little human icon in the box? ).



## Enter Workflow Form Details

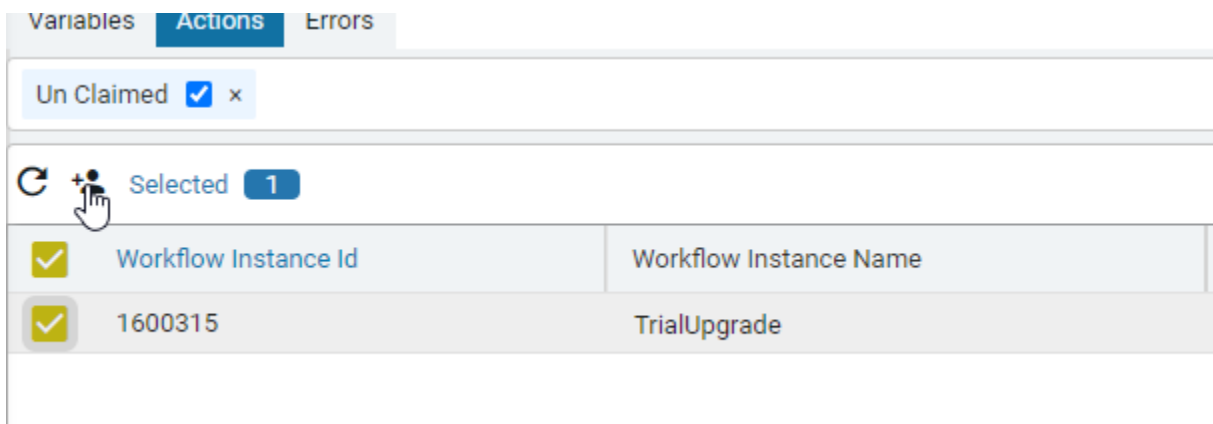
Click on Actions (present at the bottom of the page) to view all claimed and unclaimed tasks.s



The screenshot shows the 'Actions' tab selected. At the top, there are three tabs: 'Variables', 'Actions', and 'Errors'. Below them, a filter bar shows 'Un Claimed' with a blue checkmark and an 'x' icon. A table below displays workflow instances:

<input type="checkbox"/>	Workflow Instance Id	Workflow Instance Name	Name
<input type="checkbox"/>	1600315	TrialUpgrade	User Inputs

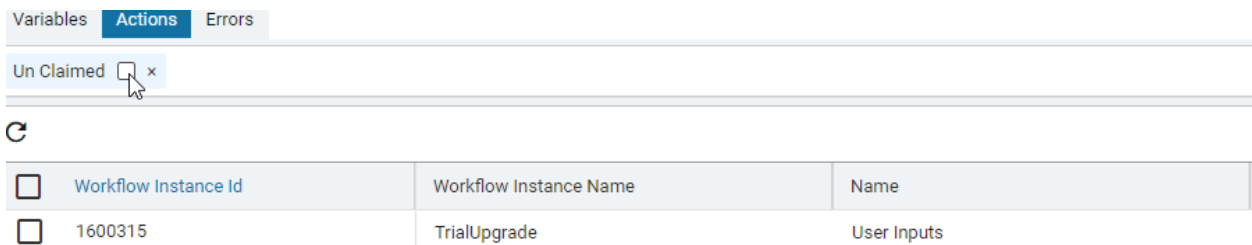
Select the tasks and click on “claim.”



The screenshot shows the 'Actions' tab with the 'Un Claimed' filter. A 'Selected' button with a person icon and the number '1' is visible. The table below shows the task selected with a yellow checkmark:

<input checked="" type="checkbox"/>	Workflow Instance Id	Workflow Instance Name	Name
<input checked="" type="checkbox"/>	1600315	TrialUpgrade	User Inputs

Unselect “Un Claimed” to view all claimed tasks



The screenshot shows the 'Actions' tab with the 'Un Claimed' filter unselected. The filter bar now shows 'Un Claimed' with an unchecked checkbox and an 'x' icon. The table below shows the task unselected with an unchecked checkbox:

<input type="checkbox"/>	Workflow Instance Id	Workflow Instance Name	Name
<input type="checkbox"/>	1600315	TrialUpgrade	User Inputs

Select the claimed task and complete it

Variables **Actions** Errors

Un Claimed  x

Selected **1**

<input checked="" type="checkbox"/>	Workflow Instance Id	Workflow Instance Name	Name
<input checked="" type="checkbox"/>	1600315	TrialUpgrade	User Inputs

You will now be presented with a form to collect all relevant data for the workflow. Most of the details are prefilled for this trial instance. Select the “vMX” device in the Device-Id and submit the form.



## Juniper MX Upgrade User Inputs



### Device •

Select a device



### Upgrade-OS-Version •

Enter OS version that needs to be upgraded

### Protocol •

Provide protocol Ex : scp

### Image-Server-Location •

Provide Server IP or Name

### Image-File-Path •

Provide image file path. starting '/' is not required

### Image-File-Name •

Provide image file name. starting '/' is not required

### Destination-Path •

Provide destination path. starting '/' is not required

### Username •

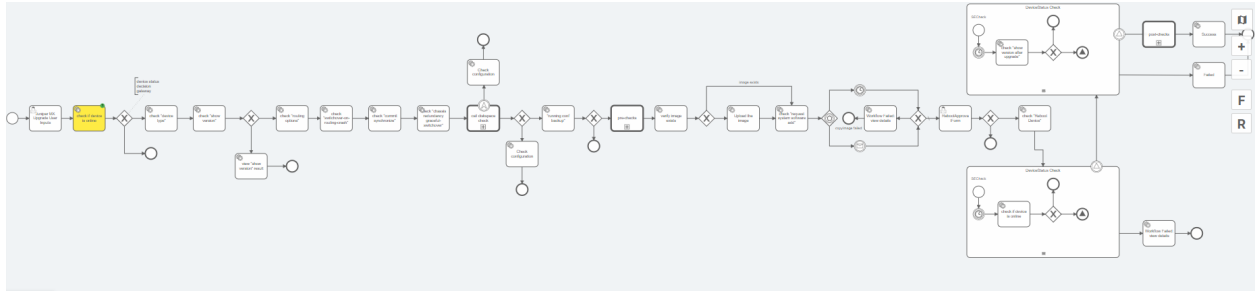
Provide server username

### Password

Provide server password



Follow the instance summary, and the workflow moves from 1 task to the next. This process should take few minutes.



The workflow will pause once again just before rebooting the vMX device to seek reboot approval.

Claim the task and open the approval form as described in this section.

Variables Actions Errors

Un Claimed  x

Selected 1

Workflow Instance Id	Workflow Instance Name	Name	Id
<input checked="" type="checkbox"/> 2512027	TrialUpgrade	RebootApprovalForm	2512519
<input type="checkbox"/> 2512027	TrialUpgrade	Juniper MX Upgrade User Inputs	2512042

Approve the request and submit the form.

●-mandatory information

**Rebootapproval ●**

Provide True/False to reboot the device

**Wait\_time**

Provide wait time to verify inventory checks(In min)

10

Once approved, the workflow will proceed and upgrade the vMX router.

## Summary & Next Steps

Through this exercise, you learned ATOM's Workflow Automation capabilities.

Some of the key workflow automation capabilities are listed below.

Workflow Automation
<ol style="list-style-type: none"><li>1. Automate the entire Method of procedures</li><li>2. Introduce Prechecks, post checks</li><li>3. Approvals</li><li>4. Sequential and Parallel automation</li><li>5. Integrate with service orchestration</li><li>6. Integrate with external elements such as ITSM solutions, IPAM, Ticketing/Billing, etc.</li></ol>

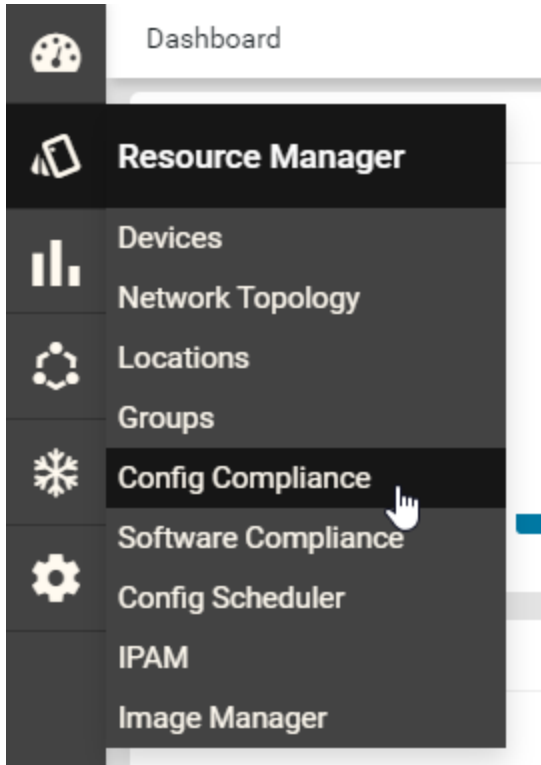
Check out the user guide to learn more on these topics.

## Exercise 4: Compliance Enforcement

ATOM enables operators to design global compliance policies. ATOM provides several out-of-box compliance policies that you can readily utilize in their network. ATOM also enables you to develop any custom use-cases specific to your business.

Go to the menu and select "config compliance" to view a list of all compliance policies.





This instance has three out-of-box policies.

1. Clock Synchronization
2. Disable CDP LLDP on Public IP Interfaces
3. Interface Configuration

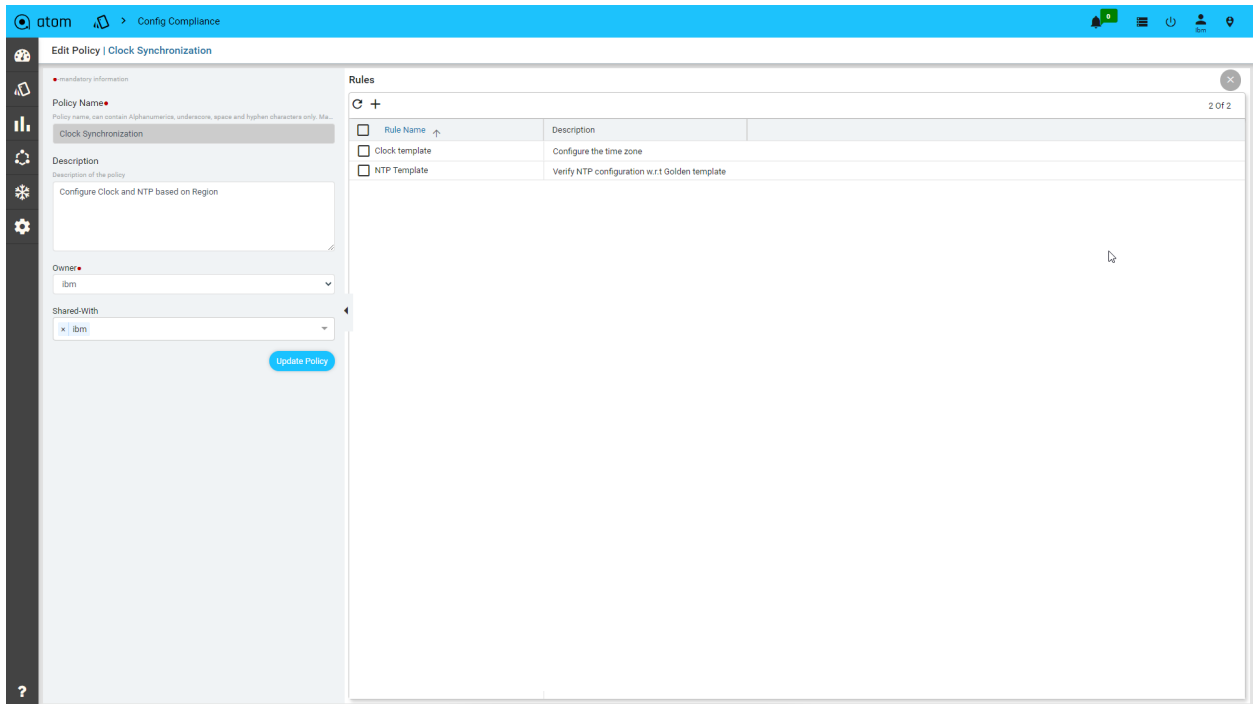
Compliance policies are a collection of rules and conditions on the success or failure of rules. Let's look at a few policies to understand them better.

## Compliance policy for CLI based devices

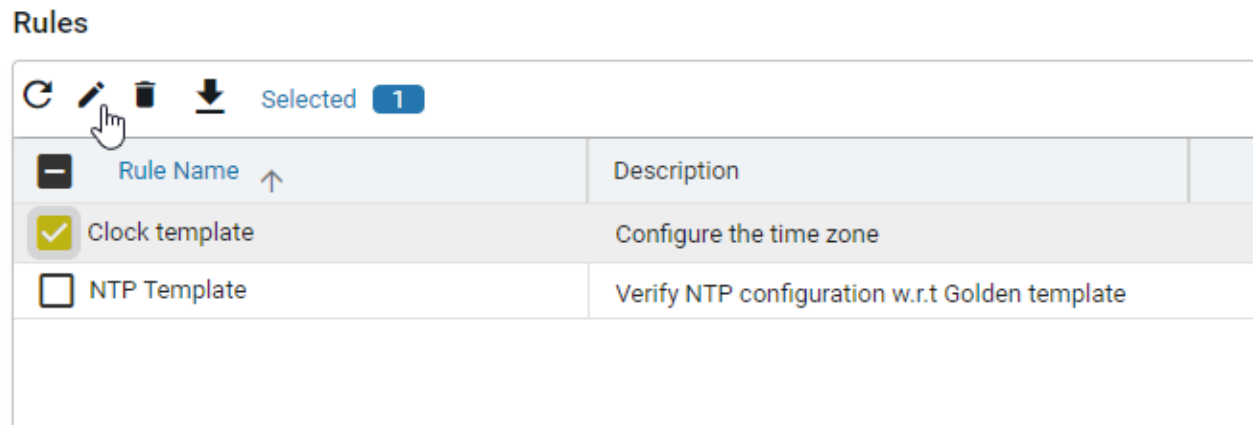
Select "Clock Synchronization" policy and click on edit



The policy has two rules.

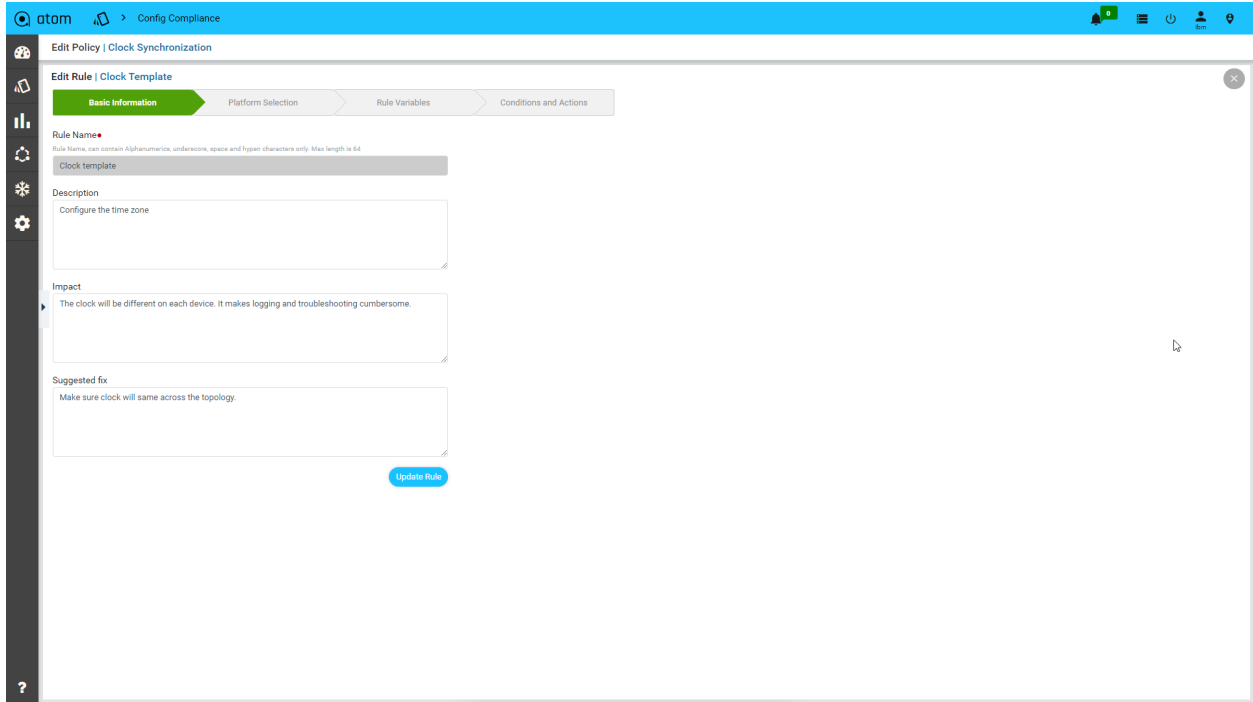


Let us examine each rule. Select Clock template and click on edit.

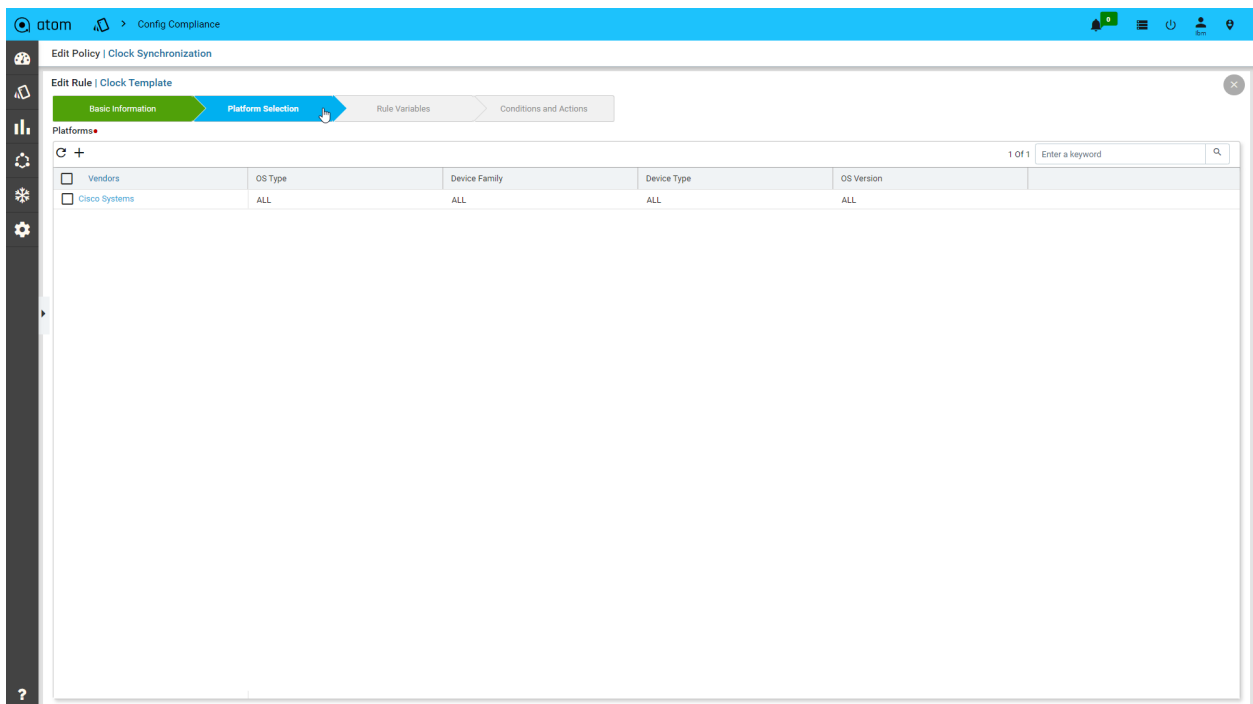


## Simple Rules and Conditions

Any Rule has four sections. The first section, "Basic Information," contains the rule description.

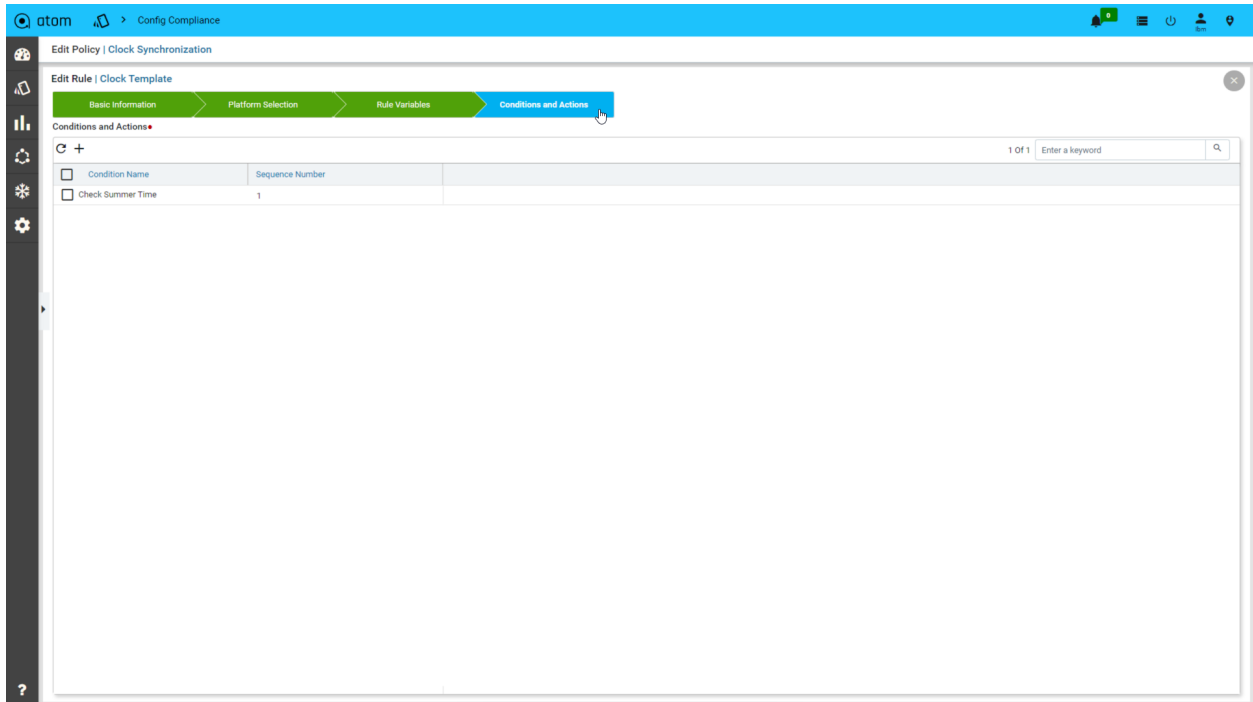


Next, select all platforms applicable to this rule. We have selected this rule to apply to all cisco devices.

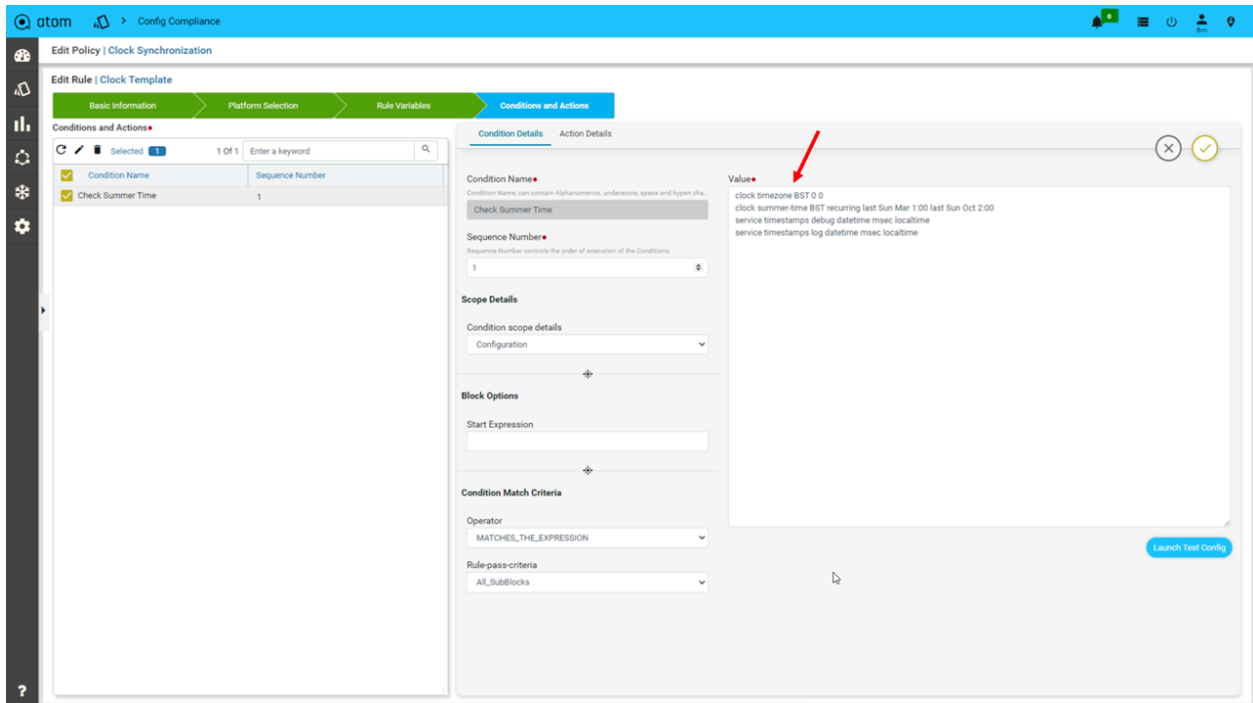


We have no rules variables for this rule. We'll come back to it soon.

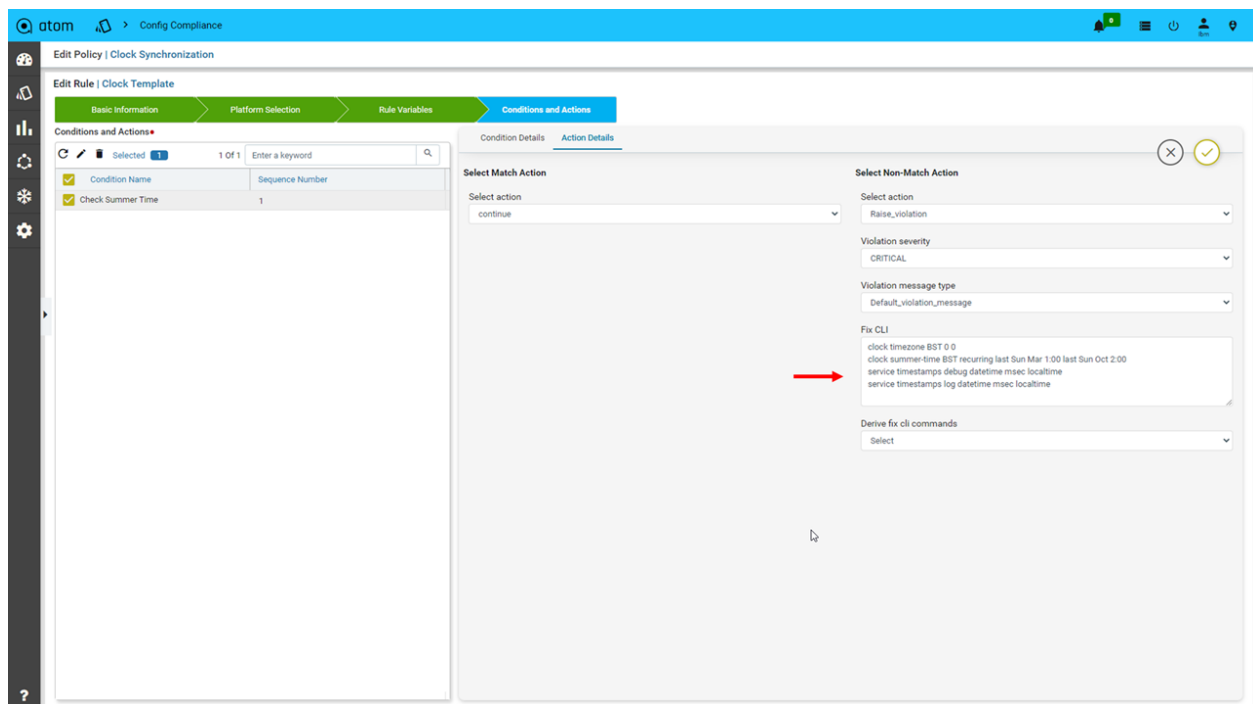
In the last tab, we will add conditions and corresponding actions. We have added a single condition. Select the condition and click on edit.



Here we have entered the condition to check in the “value” field.



This condition is matched, and appropriate action is taken on success (condition match) or failure (condition not-matched). In case of a match, we do not take action for this condition. For a non-match, we have described the corrective action to be taken.

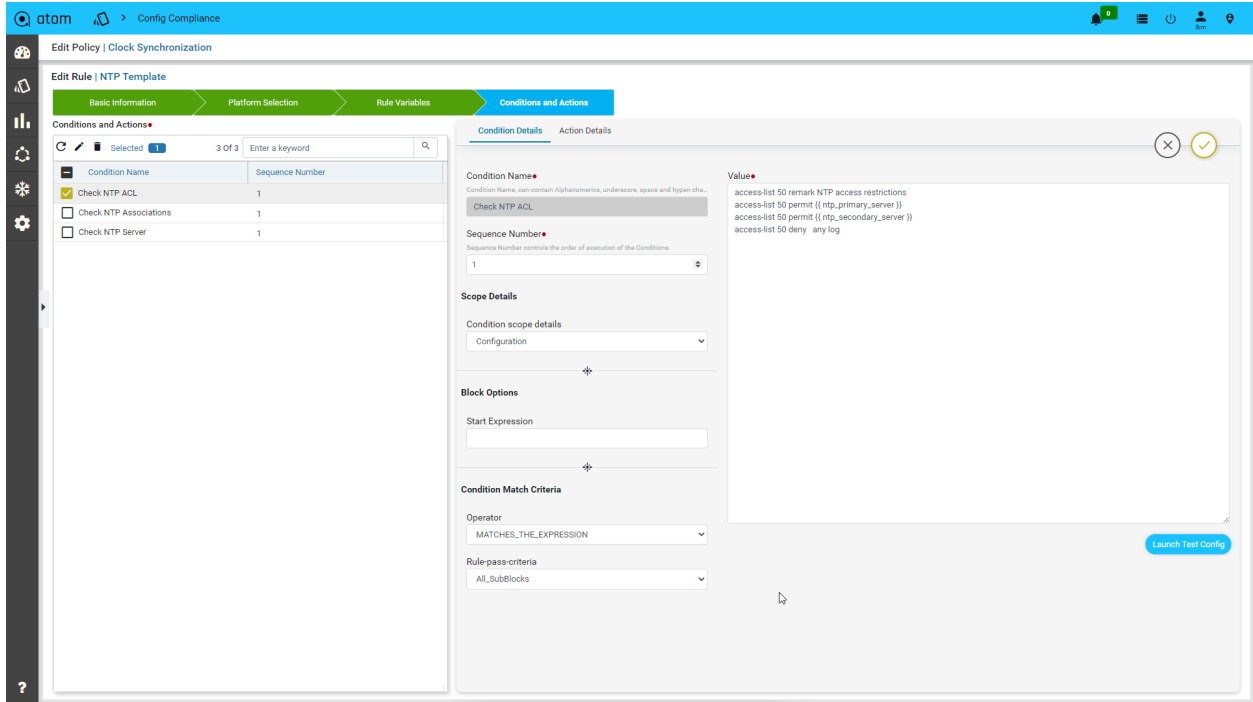


## Variables in Rules and Conditions

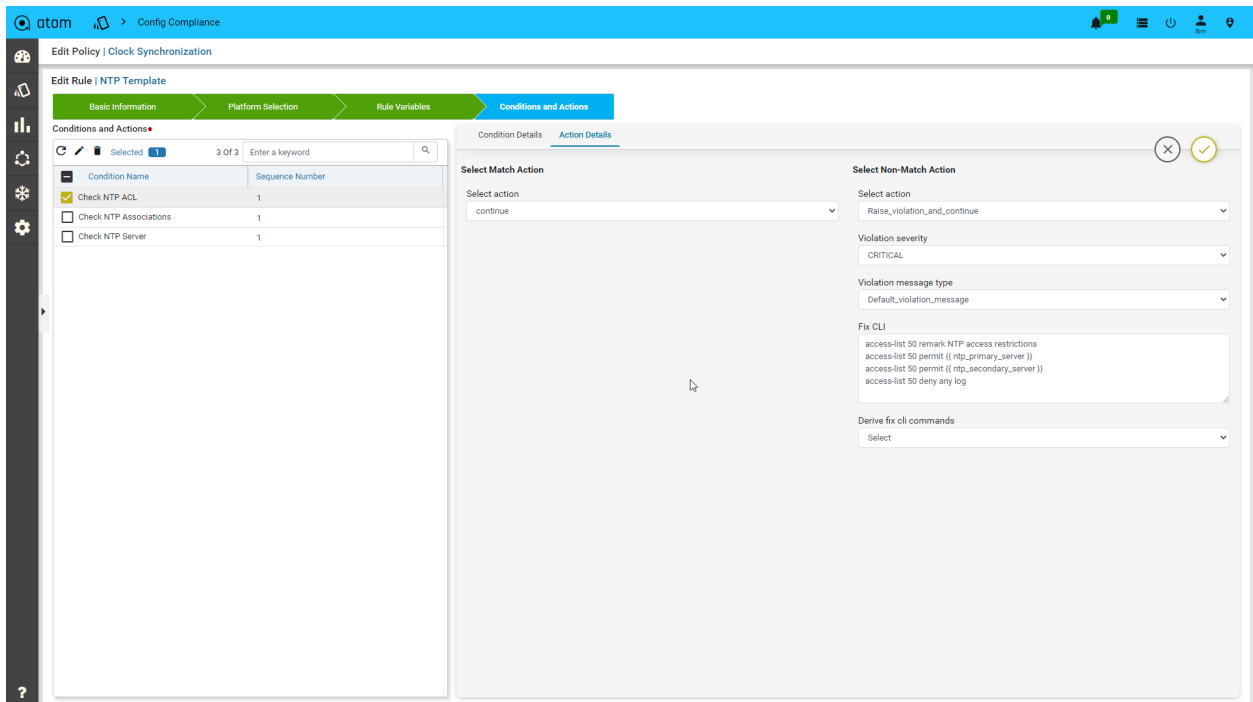
Let's now review NTP Template Rule. The rule structure is the same as the "Clock Template" for the most part. You will see a difference in the condition & action section. Let's go to the "Condition & Actions" tab.

You will see that the "NTP Template" rule has three conditions. Select the "Check NTP ACL" condition and click on edit.

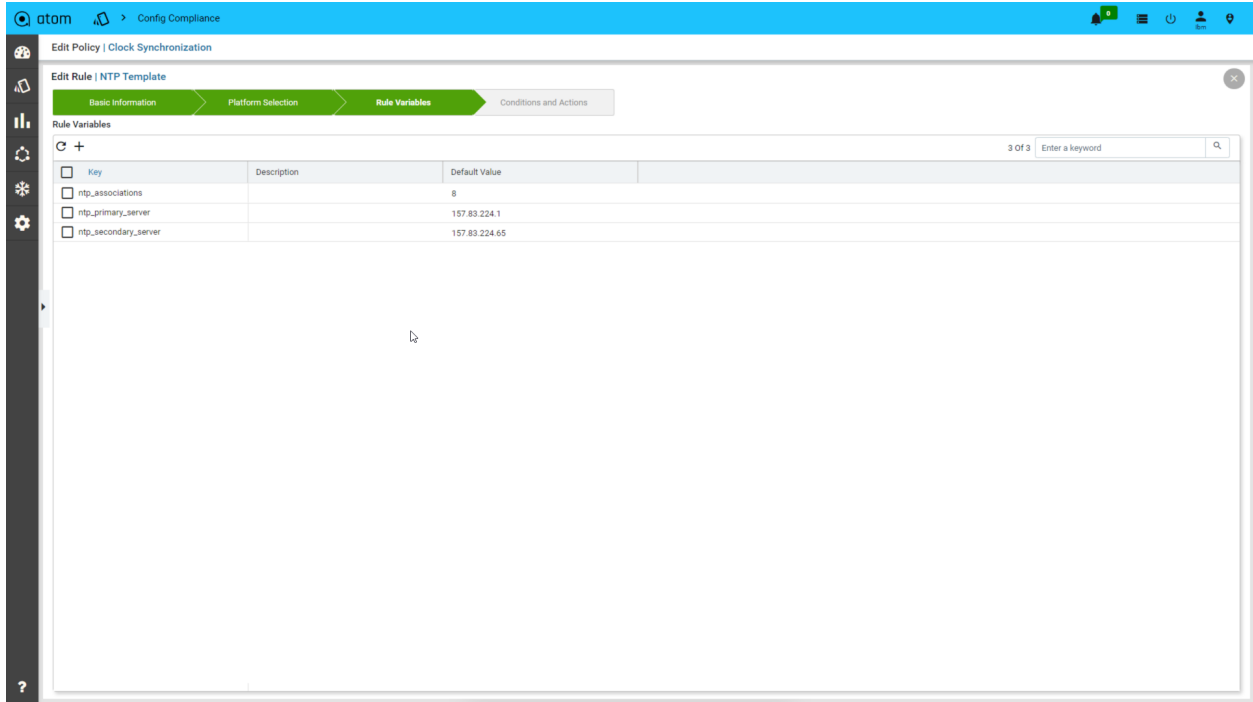
The "Value" field has 2 variables - ntp\_primary\_server & ntp\_secondary\_server. Variables are covered in double brackets like "{{ variable name }}" . In our condition, ntp\_primary\_server & ntp\_secondary\_server are variables whose values will be substituted at run time.



Actions can also have variables, as you can see below.

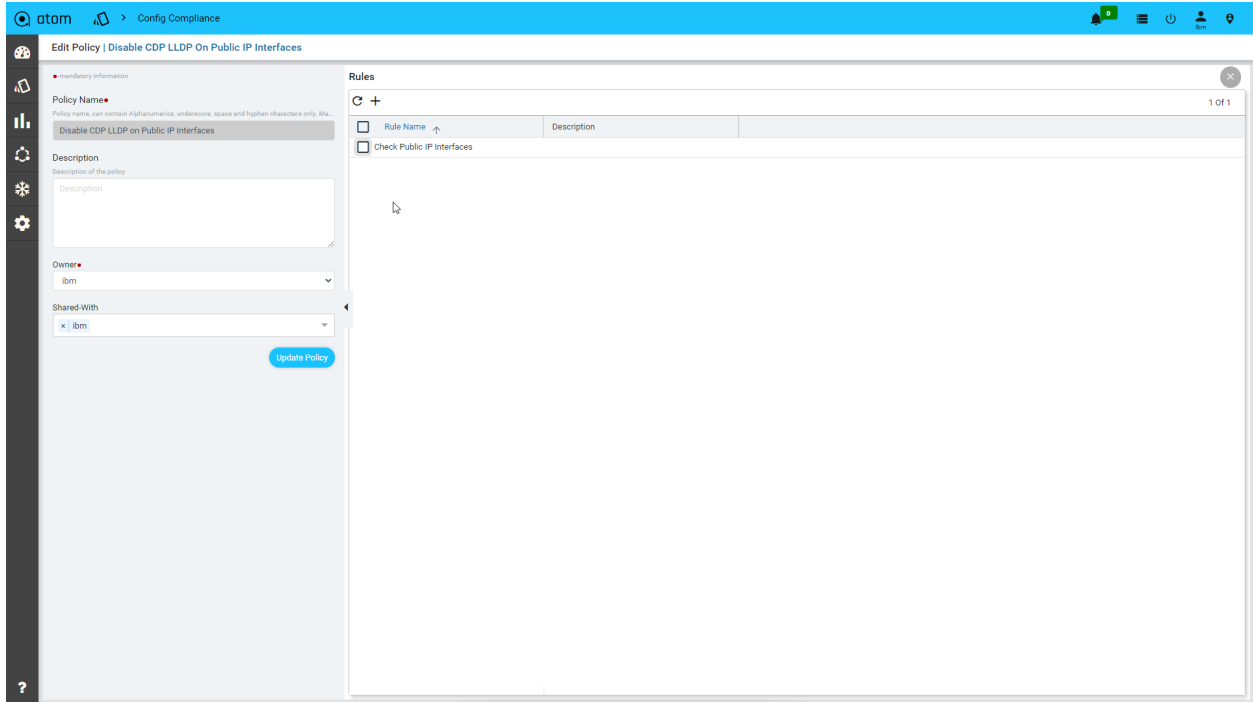


Default values of these variables are defined in the “Rule variables tab.”

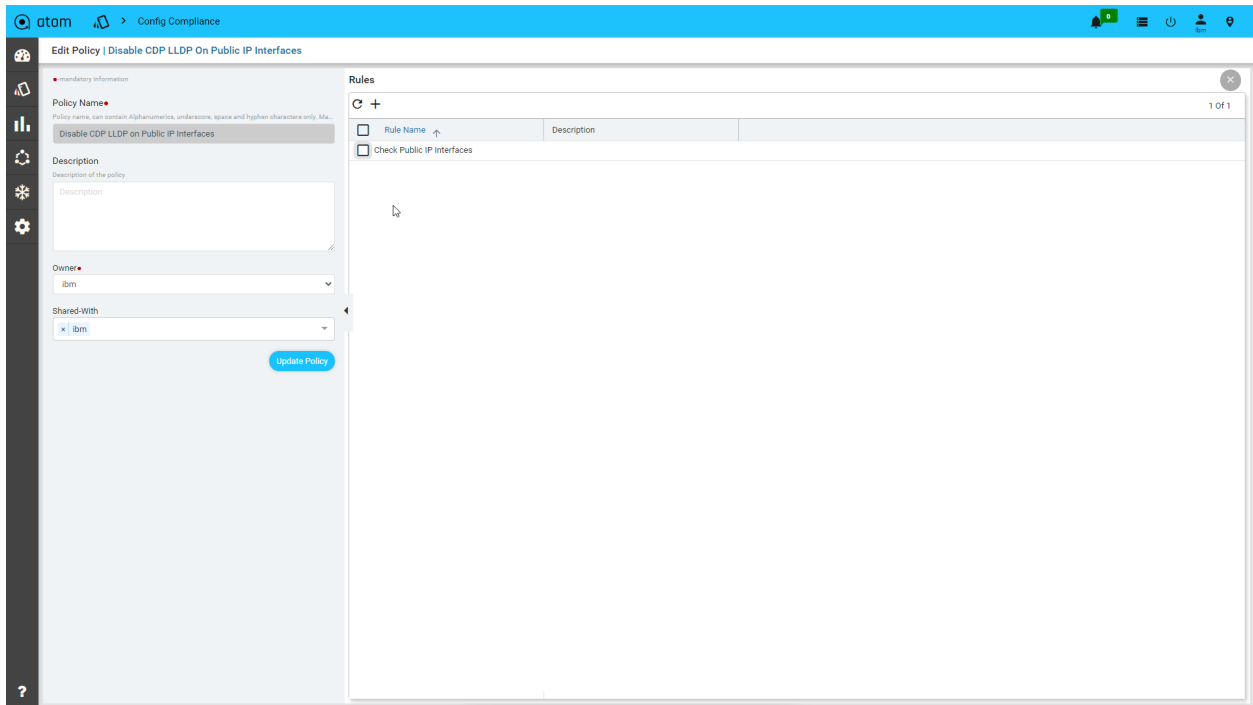


## Regex in Rules and Conditions

You can also use regex to match conditions. Go back to the compliance policy list and select “Disable CDP LLDP on Public IP Interfaces.”. This policy removes CDP/LLDP configuration from any interface with a public IP address.

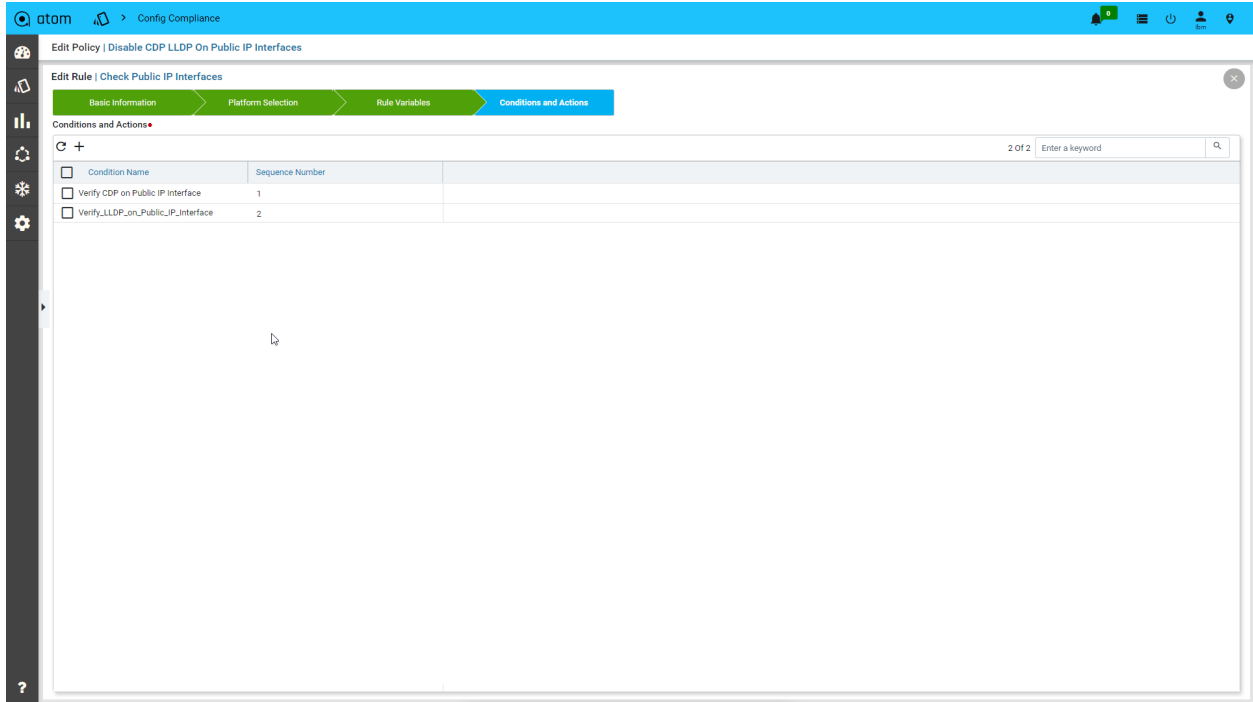


Select the rule “Check Public IP Interfaces” and click on the edit

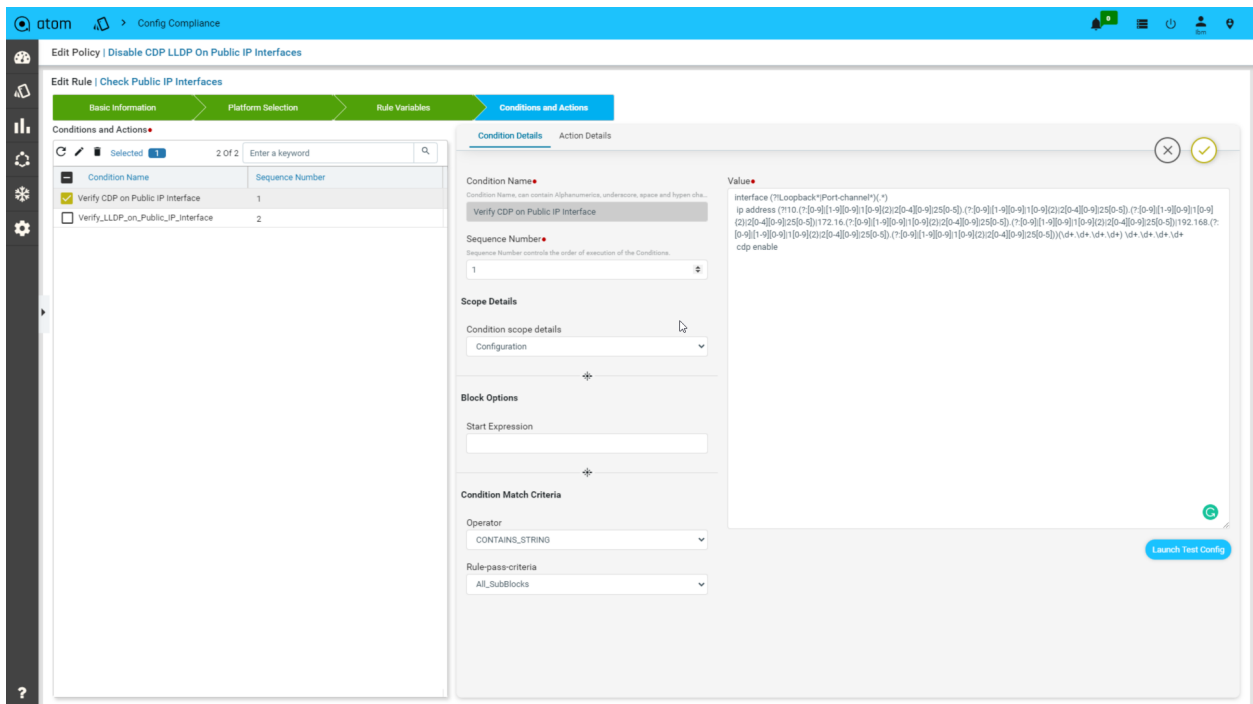


Next select, the “Verify CDP on Public IP Interface” condition

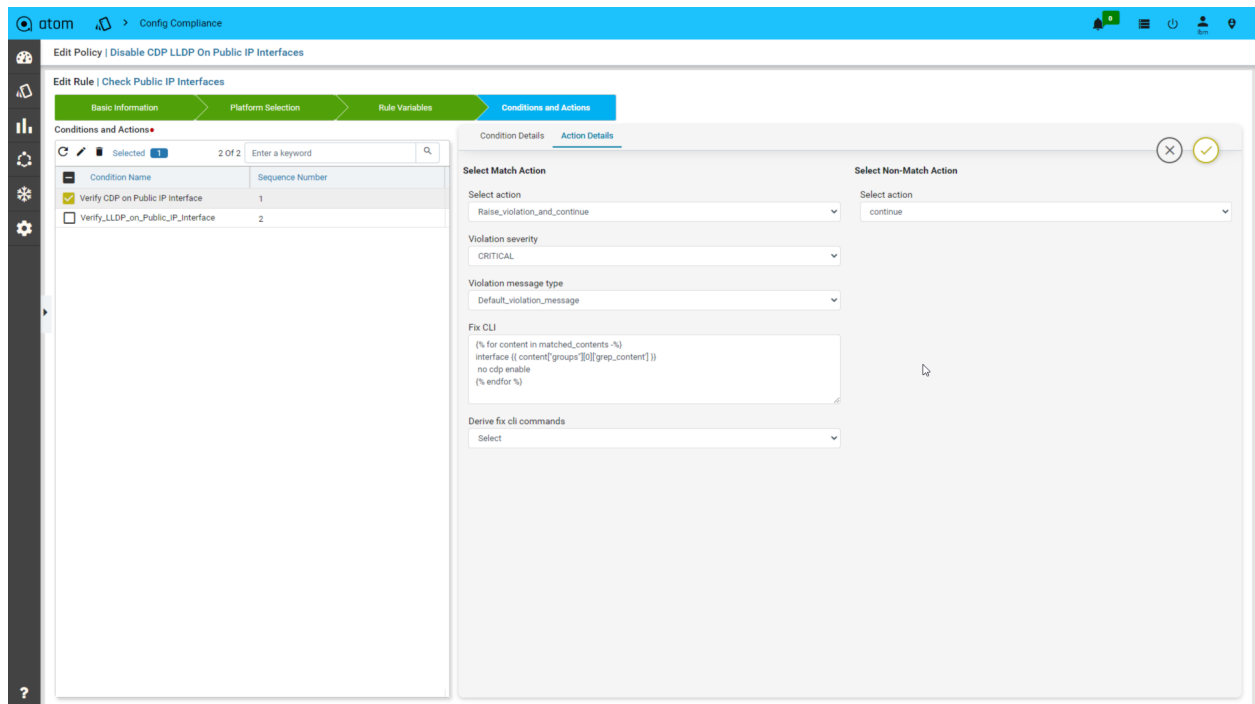




Here in the Value field, you would see a regex expression. The regex checks if the IP address of the interface is not private, i.e., it doesn't fall in 10.0.0.0/24, 172.16.0.0/20, or 192.168.0.0/16 block of IP addresses.



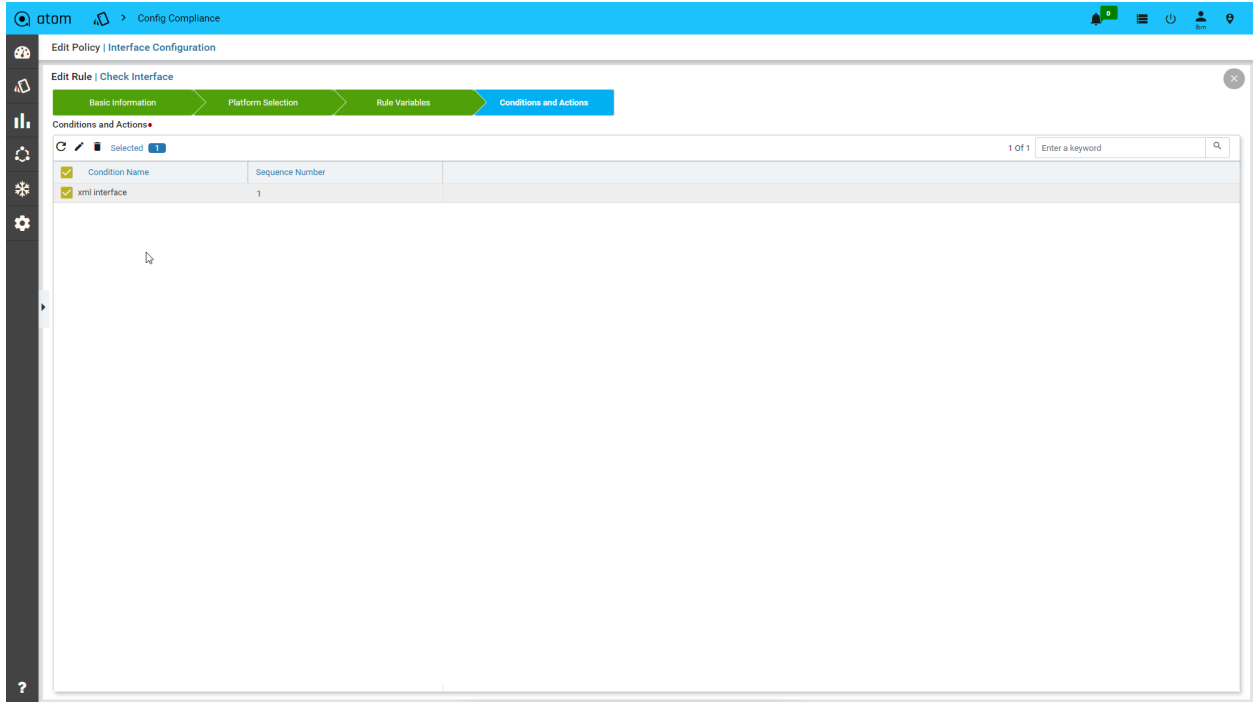
In case the IP address is public, then we raise a violation and disable CDP for all those interfaces.



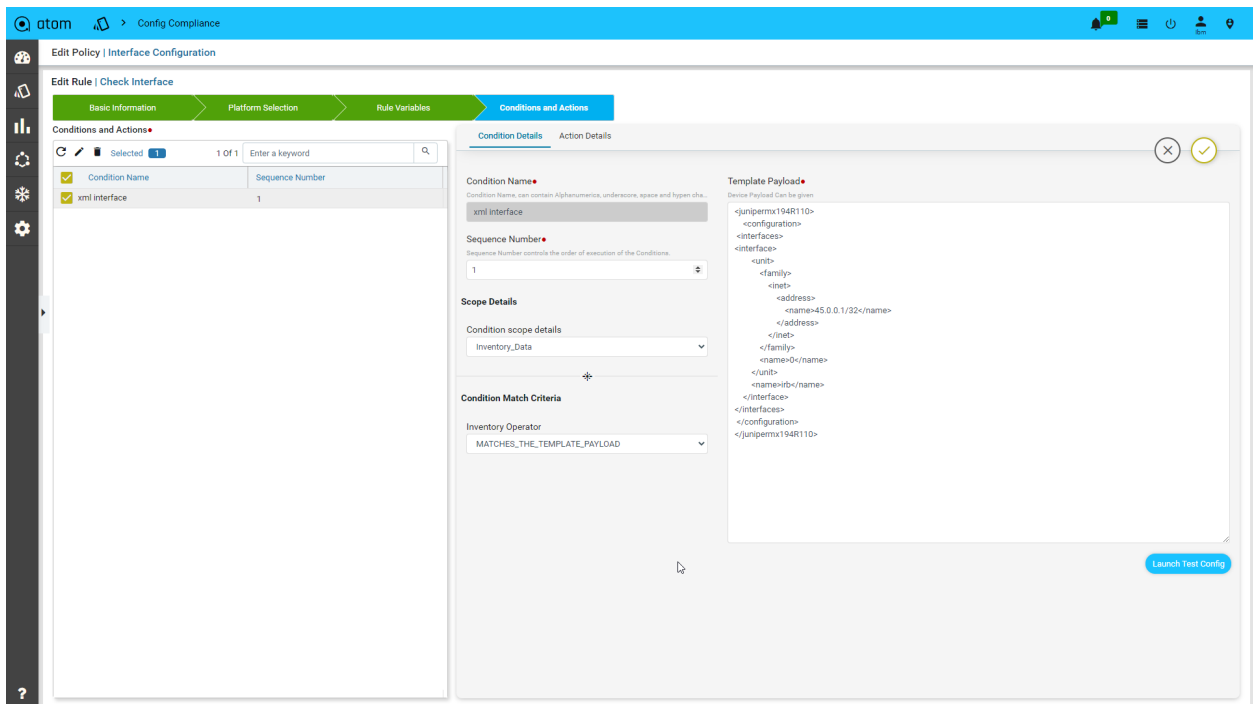
## Compliance policy for Yang-based devices

Compliance policy definition and enforcement can be done for CLI or YANG-based devices. All principles that we learned in the previous section are applicable for YANG devices as well. Variables and regex are supported for both CLI and YANG devices.

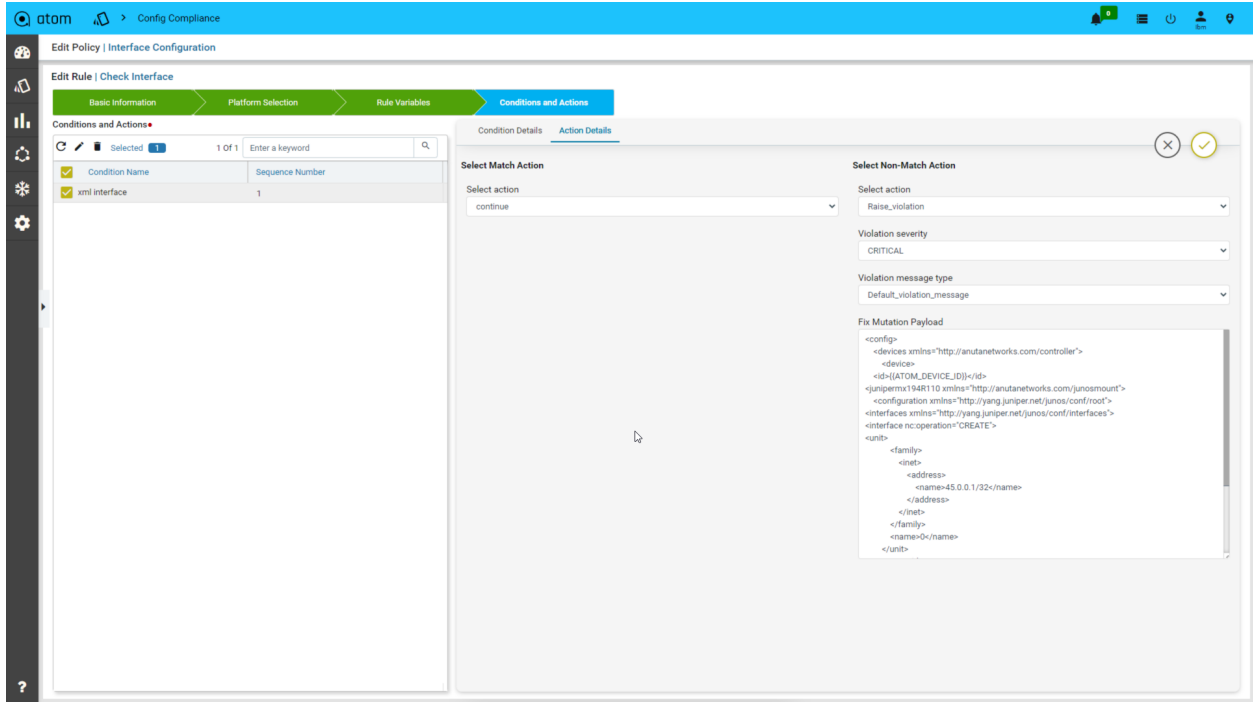
Edit "Interface Configuration" compliance policy and open the "XML interfaces" condition under the "Check Interfaces" Rule.



The interface configuration that we expect to be present in every device is defined in XML (YANG/NetConf device).

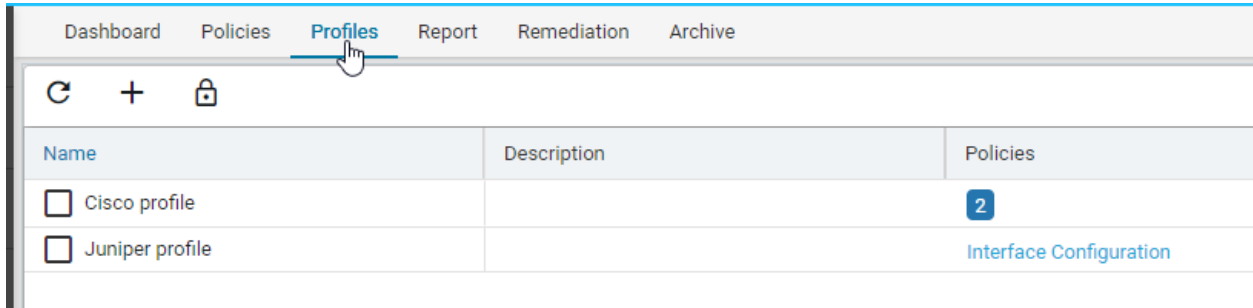


The fix CLI is also in XML format.



## Running Compliance Policies

Close all conditions, rules, and policies. Let's check the profile section. We have two profiles Cisco and Juniper.



Select the cisco profile and click on “edit” Two policies are added to this profile. You can also observe that the default values for “NTP Template” are already populated. We can modify the default values for this profile as needed.

Edit Profile

Select policies

Select devices and schedule

Profile name **\***  
Profile name. Can contain Alphanumeric, underscore, space and hyphen characters only. Max. 255 characters.

Cisco profile

Description  
Description of the profile

Description

Owner **\***

Select policies **\***

Selected 2 3 Of 3 Enter a keyword

Name	Description	Owner
<input checked="" type="checkbox"/> Clock Synchronization	Configure Clock and NTP based on Region	ibm
<input checked="" type="checkbox"/> Disable CDP LLD on Public IP Interfaces		ibm
<input type="checkbox"/> Interface Configuration		ibm

Enter rule variable

Clock Synchronization

NTP Template

ntp_associations	8
ntp_primary_server	157.83.224.1
ntp_secondary_server	157.83.224.65

We then select the devices on which the compliance policies have to be validated in the next tab. We can either choose to schedule the compliance run at a later point in time or choose to run now.

Edit Profile

Select policies

Select devices and schedule

Devices

Device Groups

Selected 2 25 Of 25 Enter a keyword

ID	Status	Name	Device Type	Ver
<input type="checkbox"/> 172.16.3.30	<span style="color: red;">●</span>	wnacrp-dtss-0-gw.anutanetworks.com	Cisco CSR 1000V	Cis
<input type="checkbox"/> 172.16.3.34	<span style="color: green;">●</span>	ana-cd-1-gw.anutacorp.com	Cisco CSR 1000V	Cis
<input type="checkbox"/> 172.16.3.42	<span style="color: green;">●</span>	n7-cbb-0-gw.anutanetworks.com	Cisco CSR 1000V	Cis
<input checked="" type="checkbox"/> 172.16.3.45	<span style="color: green;">●</span>	ana-buf-1-gw.anutanetworks.com	Cisco CSR 1000V	Cis
<input checked="" type="checkbox"/> 172.16.3.46	<span style="color: green;">●</span>	test567.anutanetworks.com	Cisco CSR 1000V	Cis
<input type="checkbox"/> 172.16.3.76	<span style="color: green;">●</span>	172.16.3.76	Panorama	Pal
<input type="checkbox"/> 172.16.3.77	<span style="color: green;">●</span>	172.16.3.77	Palo Alto	Pal
<input type="checkbox"/> 172.16.3.78	<span style="color: green;">●</span>	172.16.3.78	Palo Alto	Pal
<input type="checkbox"/> 172.16.4.156	<span style="color: green;">●</span>	gre01-vMX-4.156	vMX	Jur

Select Configuration

Current Config

Latest From Config Archive

Skip when config older than

0 Hours

Schedule

Frequency

0 Hours 0 Minutes

Start now

Select "Start Now" and then submit. This will request ATOM to validate compliance on the selected devices.



**Select Configuration**

Current Config

Latest From Config Archive

Skip when config older than

Hours

---

**Schedule**

Frequency

Hours  Minutes

Start now

Let's execute the Juniper Profile. Select the "Juniper Profile" and select "Run Profile."

Dashboard Policies **Profiles** Report Remediation Archive

Selected 1

Name	Description	Policies	Owner	Shared
<input type="checkbox"/> Cisco profile		2	ibm	ibm
<input checked="" type="checkbox"/> Juniper profile		Interface Configuration	ibm	ibm

ATOM will now validate all the selected Cisco and Juniper devices for compliance violations.

## Analysing Compliance Reports

Go to the Reports tab to analyze the reports for all our runs. Here, you can see all policies and rules that have been validated on all cisco and juniper devices.

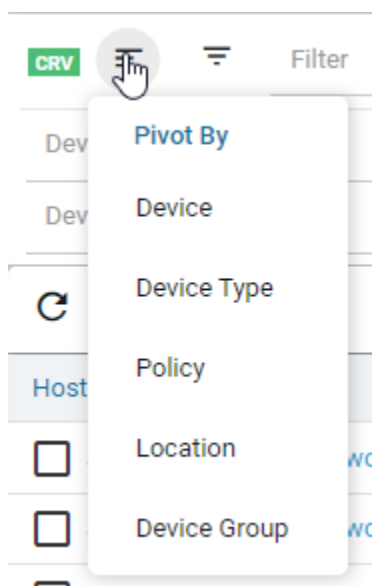
Dashboard Policies Profiles **Report** Remediation Archive

CRV Filter 0 Skipped Conditions 15 Compliant 0 Non Compliant 15 Total

Device Id Device Type Vendor Compliance Status Condition Status  
 Device groups Severity Execution Status Policy Rule Na

Host Name	Device Type	Severity	Device Compliance Status	Execution	Condition Status
<input type="checkbox"/> ana-buf-1-gw.anutanetworks.com	Cisco CSR 1000V	NA	●	●	●
<input type="checkbox"/> ana-buf-1-gw.anutanetworks.com	Cisco CSR 1000V	NA	●	●	●
<input type="checkbox"/> ana-buf-1-gw.anutanetworks.com	Cisco CSR 1000V	NA	●	●	●
<input type="checkbox"/> ana-buf-1-gw.anutanetworks.com	Cisco CSR 1000V	NA	●	●	●
<input type="checkbox"/> ana-buf-1-gw.anutanetworks.com	Cisco CSR 1000V	NA	●	●	●
<input type="checkbox"/> ana-buf-1-gw.anutanetworks.com	Cisco CSR 1000V	NA	●	●	●
<input type="checkbox"/> test567.anutanetworks.com	Cisco CSR 1000V	NA	●	●	●
<input type="checkbox"/> test567.anutanetworks.com	Cisco CSR 1000V	NA	●	●	●
<input type="checkbox"/> test567.anutanetworks.com	Cisco CSR 1000V	NA	●	●	●
<input type="checkbox"/> test567.anutanetworks.com	Cisco CSR 1000V	NA	●	●	●
<input type="checkbox"/> test567.anutanetworks.com	Cisco CSR 1000V	NA	●	●	●
<input type="checkbox"/> test567.anutanetworks.com	Cisco CSR 1000V	NA	●	●	●
<input type="checkbox"/> gre01-vmx-4.156	VMX	NA	●	●	●
<input type="checkbox"/> mx2.anutanetworks.com	VMX	NA	●	●	●
<input type="checkbox"/> sr01.rp-redirect	VMX	NA	●	●	●

To view by device, go to the filter tab and pivot by “Device.”

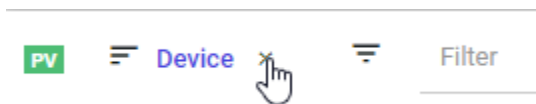


Here, you can visualize device-level reports.

Device Compliance Status	Severity	Execution	Host Name	Device ID	Device Type
<input type="checkbox"/> ●	NA	●	ana-buf-1-gw.anutanetworks...	<a href="#">172.16.3.45</a>	Cisco CSR 1000V
<input type="checkbox"/> ●	NA	●	test567.anutanetworks.com	<a href="#">172.16.3.46</a>	Cisco CSR 1000V
<input type="checkbox"/> ●	Critical	●	gre01-vmx-4.156	<a href="#">172.16.4.156</a>	vmx
<input type="checkbox"/> ●	Critical	●	mx2.anutanetworks.com	<a href="#">172.16.5.170</a>	vmx
<input type="checkbox"/> ●	Critical	●	sr01.rp-redirect	<a href="#">172.16.5.198</a>	vmx

ATOM provides a comprehensive filtering capability to view and generate granular reports. Try out the pivots and filters to see how the data changes.

Remove the device filter and go back to the unfiltered view.



In our run, we see that all cisco devices are compliant with the policies. However, 1 Juniper device is noncompliant.

Select the noncompliant juniper device and click on “Fix-CLI.”



Host Name	Device Type	Severity	Device Compliance Status	Execution	Condition Status	Device Id	Vendor	Policy Name
<input type="checkbox"/> ana-buf-1-gw.anutanetworks.com	Cisco CSR 1000V	NA	●	●	●	172.16.3.45	Cisco Systems	Clock Synchr...
<input type="checkbox"/> ana-buf-1-gw.anutanetworks.com	Cisco CSR 1000V	NA	●	●	●	172.16.3.45	Cisco Systems	Clock Synchr...
<input type="checkbox"/> ana-buf-1-gw.anutanetworks.com	Cisco CSR 1000V	NA	●	●	●	172.16.3.45	Cisco Systems	Clock Synchr...
<input type="checkbox"/> ana-buf-1-gw.anutanetworks.com	Cisco CSR 1000V	NA	●	●	●	172.16.3.45	Cisco Systems	Clock Synchr...
<input type="checkbox"/> ana-buf-1-gw.anutanetworks.com	Cisco CSR 1000V	NA	●	●	●	172.16.3.45	Cisco Systems	Disable CDP L...
<input type="checkbox"/> ana-buf-1-gw.anutanetworks.com	Cisco CSR 1000V	NA	●	●	●	172.16.3.45	Cisco Systems	Disable CDP L...
<input type="checkbox"/> test567.anutanetworks.com	Cisco CSR 1000V	NA	●	●	●	172.16.3.46	Cisco Systems	Clock Synchr...
<input type="checkbox"/> test567.anutanetworks.com	Cisco CSR 1000V	NA	●	●	●	172.16.3.46	Cisco Systems	Clock Synchr...
<input type="checkbox"/> test567.anutanetworks.com	Cisco CSR 1000V	NA	●	●	●	172.16.3.46	Cisco Systems	Clock Synchr...
<input type="checkbox"/> test567.anutanetworks.com	Cisco CSR 1000V	NA	●	●	●	172.16.3.46	Cisco Systems	Disable CDP L...
<input type="checkbox"/> test567.anutanetworks.com	Cisco CSR 1000V	NA	●	●	●	172.16.3.46	Cisco Systems	Disable CDP L...
<input checked="" type="checkbox"/> mx2.anutanetworks.com	vMX	Critical	●	●	●	172.16.5.170	Juniper Networks	Interface Con...
<input type="checkbox"/> sr01.meraki.net	vMX	NA	●	●	●	172.16.5.108	Juniper Networks	Interface Con...

This window displays all non-compliant policies and the configuration needed to be provisioned to rectify non-compliance. Enter a compliance job name, select “shared with,” select “start now” and submit it to start the remediation process.

The screenshot shows the 'Config Compliance' window in the 'atom' interface. The window is titled 'FIX CLI' and contains several fields and sections:

- Job name:** A text input field with a red arrow pointing to it.
- Devices:** A dropdown menu showing '172.16.5.170' with a red arrow pointing to it.
- Shared-With:** A dropdown menu with a red arrow pointing to it.
- Fix Configurations:** A section displaying XML code for a Juniper vMX configuration, including details for the 'interfaceae0' interface.
- Schedule:** A section at the bottom right with a 'Start now' checkbox and a red arrow pointing to it.

Monitor the remediation task as described in this [section](#).

## Summary & Next Steps

Through this exercise, you learned ATOM's Compliance Enforcement capabilities.

Some of the key compliance enforcement capabilities are listed below.

Compliance Enforcement
<ol style="list-style-type: none"><li>1. Enforcement for CLI and Yang/NetConf based devices</li><li>2. Comprehensive report generation</li><li>3. Automated Remediation</li><li>4. Service, Configuration and Software compliance capabilities</li></ol>

Check out the user guide to learn more on these topics.

Execute the Juniper profile again to verify.

## Continue to Explore

The above exercises give you a good insight into ATOM features and capabilities. The below resources will help you to learn more about ATOM's capabilities.

1. [Anuta ATOM deep-dive videos](#)
2. [ATOM Solution Briefs](#)
3. [Use Cases enabled by ATOM](#)
4. [ATOM User Guide](#)

