Optima User Guide

V1.0.0

Table of contents

Figure List

Overview

What is Optima:

Optima is a network automation tool used to orchestrate actions simultaneously on a large number of network elements. Optima reduces costs and time needed to modify and update network elements and adds reporting and reliability to the audit or change processes.

What does it offer:

- Service Provisioning rapidly at scale.
- Eliminate user error to manual processes/controls.
- Reduce errors through repeatable job chunks.
- Manage vulnerabilities to allow business to move forward.
- Time to market cut in half.
- Best practice & compliance via network programmability.

Getting started

To access to Optima, use the port 8000 on its host.

The first step is the authentication. You must enter the login and the password. The default login is admin and password is admin.

Note: Please change the default password to make

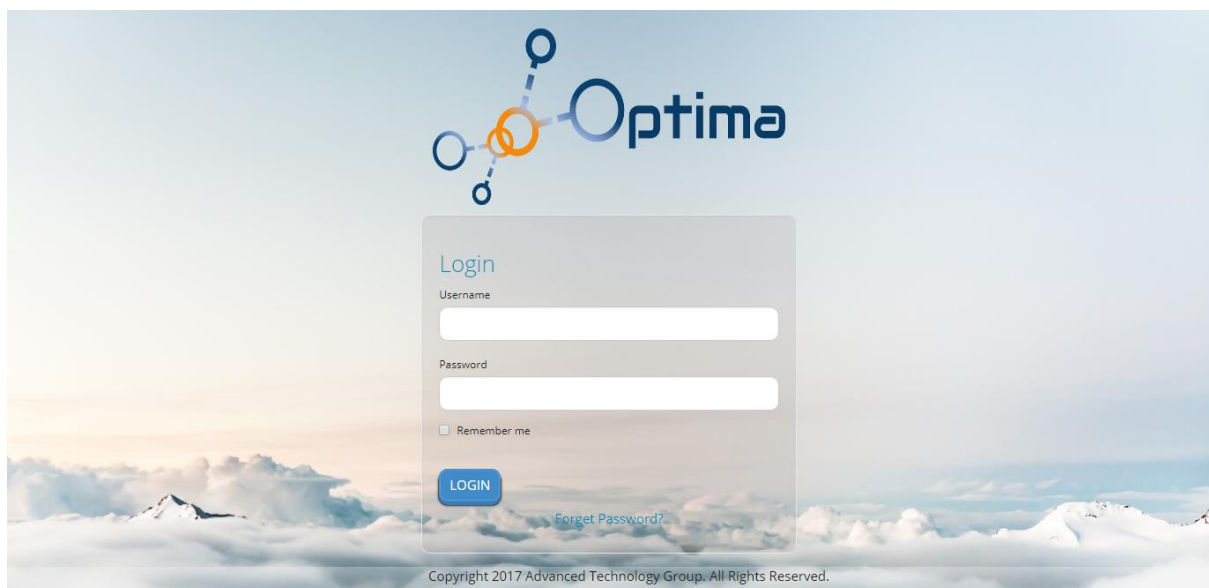When you are finished click Login.

Figure1: login page

Home page overview:

After logging in on the application, the user is redirected to the home page showing the main features of Optima.
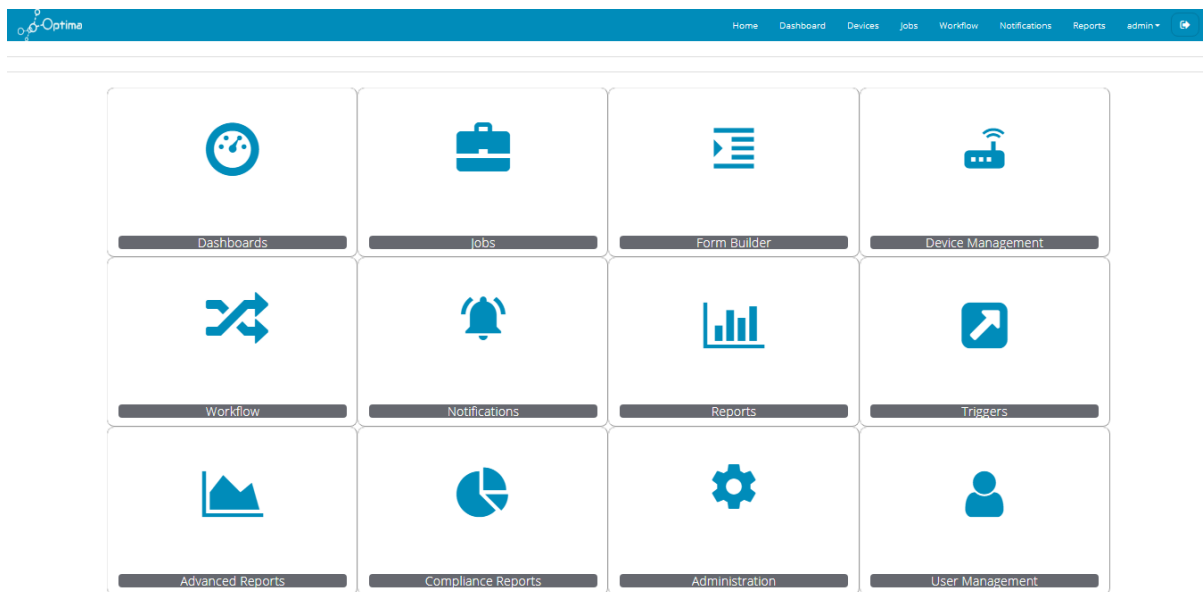
Figure2: Home page

Dashboards: this page gives an overview of Optima's actions and follows in real-time the changes that are made in status of each job and task. Also, details about agents, jobs and devices are displayed.

Jobs: In this page we can see the list of jobs by displaying the agent type (configuration parser, configuration sender, differ precheck, differ postcheck, image loader), description, insertion time, scheduled, scheduled date, and the status.

Form-builder: this page displays the different forms for each agent type. This is where update jobs are initiated.

Device management: Management of device inventory. Inventory is used for statistics and easier job/workflow updates

Workflow: Workflow listing and creation using a drag & drop interface

Notifications: Notification management using triggers and targeting different destination types

Reports: Real-time job and task status and result visualization

Triggers: Rule-based filters for events and status changes on Optima
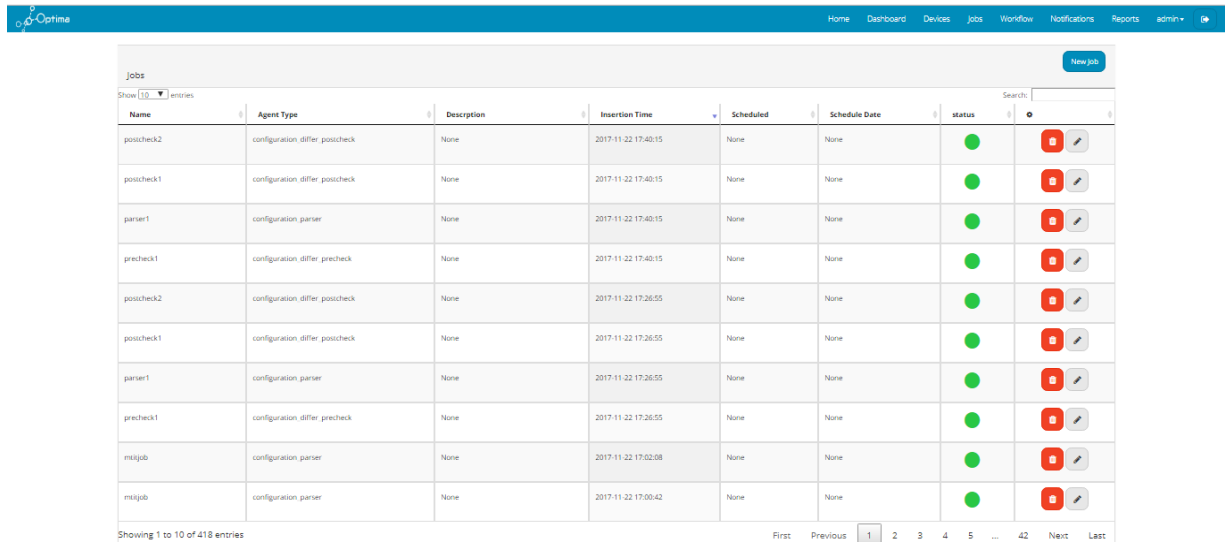
User management: RBAC-based user management with fine-grained permission model.

To access any functionality, click on its icon.

Jobs:

To see the job list click on jobs in home page.

The job list shows all the job previously created. You can edit each of these jobs by clicking on edit icon.

Figure3: job list page

Agent types

We have five types of agents:

Configuration Parser: it sends configurations to devices and waits the result of commands. The result is then parsed to look for specific keys.

Configuration Sender: sends configuration and simply saves the received output.

Differ precheck: Sends a set of commands and saves the result as well as the used commands for later usage

Differ postcheck: Each postcheck job is based on a precheck. It uses previously saved commands and compares the current state with the ancient to show the differences.

Image loader: Used to load and update OS images on remote devices. It takes care of the whole process of sending the image, making sure its transfer was completed successfully as well as triggering the image installation.

Create a first job:

To create a new job click on the button New job. This page has different tabs. Each of these tabs contains a form to create a job of a specific type.

Enter these information to create a job

The table below, shows the fields of forms, that they are common between agents, to create a job.

name	type	description	example
Job name	text	Name of the job	Find SNMP version
description	text	Description of the job	Security compliance test
credentials	Radio button	*note1	Use device credentials

6

hosts	Radio button	*note2	Load a host file
scheduling	Radio button	*note3	Job not scheduled

*note1: you can use device credentials or enter a login and password

*note2: you can choose the list of the router by uploading a file that contains this list or choosing it from database.

*note3: the job can be scheduled or not. If the job was scheduled, it will be executed after validation the form and if it is not scheduled, the job will be executed until the chosen date.

The tables below, show Parameters' field of each agent type.

Configuration Parser & Differ Precheck:

name	type	description	example
Strict matching	option	Select yes or no	yes
keys	text	Enter a key	ssh
Remote command	text	Enter a command	show ip ssh

Differ Postcheck:

Parameters: show list of job which the agent type is Differ precheck.

choose a job	Name	Agent Type	Description	Insertion Time	Scheduled	Schedule Time
○	precheck1	configuration_differ_precheck	None	2017-11-21 16:22:14	None	None
○	precheck1	configuration_differ_precheck	None	2017-11-21 14:35:09	None	None
○	precheck1	configuration_differ_precheck	None	2017-11-21 14:28:39	None	None
○	precheck1	configuration_differ_precheck	None	2017-11-21 14:22:33	None	None
○	precheck1	configuration_differ_precheck	None	2017-11-21 13:36:59	None	None
○	precheck1	configuration_differ_precheck	None	2017-11-21 13:17:30	None	None
○	precheck1	configuration_differ_precheck	None	2017-11-21 13:14:42	None	None
○	precheck1	configuration_differ_precheck	None	2017-11-21 12:47:20	None	None
○	precheck1	configuration_differ_precheck	None	2017-11-21 12:15:13	None	None
○	precheck1	configuration_differ_precheck	None	2017-11-21 11:40:20	None	None

Figure4: job list

Image loader:

name	type	description	example
Storage device	text		flash
FTP Server name	text	Enter the server name	ftp-server.local
FTP port	text	Enter the server port	23
FTP user	text	Enter the user	optima
FTP password	text	Enter the password	optima
Image loader	text	Name of the image	Cisco

In the bottom of the page, you check a checkbox to validate the job before submitting it.

When you are finished click Submit.

Device management
To access to device list click on device management in Home page.

Device categorization:
Devices are organized in the tree view by:

Device Classes

Groups

Locations

To add a new device Classes or groups or locations click on add icon.
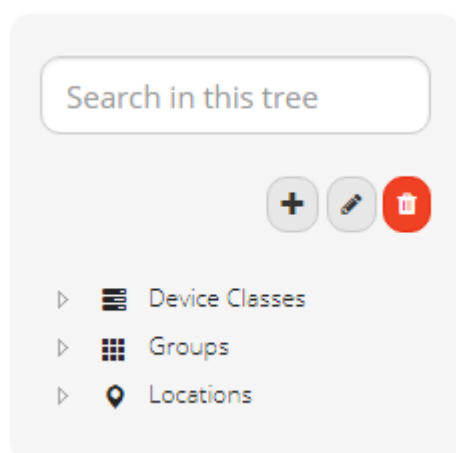

Figure5: device categorization

Device creation:
Before creating a device, specifying the category (device Classes, groups, locations) is required.

To create new device you choose the category. Then a device list appears. Click on the button New Device.

For example if you choose Device Classes category, the form that you should complete includes name, IP address, category (production, preproduction, test, maintenance), location, group, SNMP Community, SNMP Version, login, and password.

Figure6: form to create a device

Notifications & triggers:

The role to create notifications is to send email in order to notify users about status of jobs and devices.

Create triggers:

To create triggers click on Triggers in home page. The triggers list appears then click on button New trigger.

While creating a trigger, select rules that define it. These rules can be one or more conditions.

To create a trigger you define:

name	type	description	example
name	text	Name of the trigger	Failed jobs
enable	checkbox	Enable the trigger	True
rule	table	*note1	*note2

*note1: first select the type (device or job), attribute (for each type you choose one of its attribute), operation (equal or not equal), and value.

*note2: type: job

       attribute: status

       operation: equal

       value: FAILED

The trigger can use all or any of its rules.

To add a new rule, click on the add icon.

Figure7: form to create triggers

Create notifications:

After creating a trigger, you can create a notification.

To create a notification, click on the button New notification and then you specify:

name	type	description	example
name	text	Name of the notification	Failed jobs

Trigger	action	Name of the trigger	Failed jobs
subscriber	action	subscribers	admin
action	action	*note1	email
message	Text area	Enter the message	*note2
enable	checkbox	Enable the notification	true

*note1: the way that a user will be notified (email or sms).

*note2: the message that will be sent to a user.

Figure8: form to create notifications

11

Workflow:

Workflow nodes:
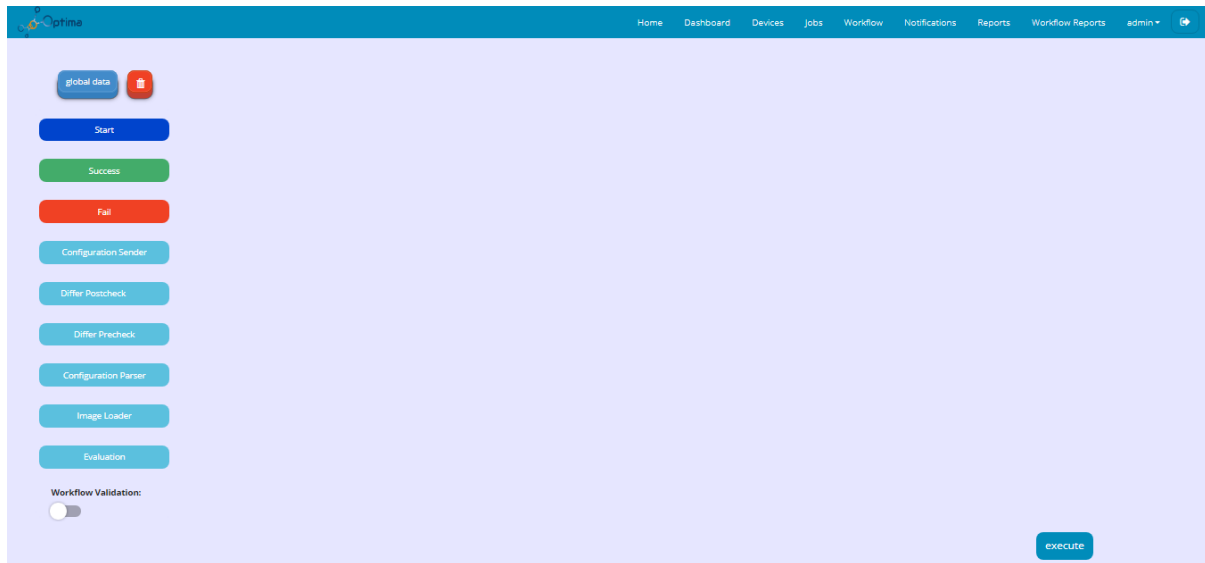
Figure9: workflow page

In the left of the page, you see the nodes. Each node represents an action that the workflow can execute.

This workflow contains two types of nodes:

Agent node: it is the agent type which is responsible to execute a job

Evaluation node: this node should be placed before the configuration parser's agent.

This node takes the key that it was defined in the configuration parser and execute this action if the key was found.

Figure10: evaluation node

name	type	description	example
Evaluation name	text	Name of evaluation	check ssh version 2
key	text	key	up
operator	option	operator	contains
value	text	Enter a value	FastEthernet0/0

12

You can add these nodes to the workflow by dragging them onto the canvas.

Every node has a form which you enter information about it.

The workflow should start with the start node and finish with the success or fail node.

Create a workflow:

To access to the workflow click on Workflow in home Page. A workflow list appears.

To create a new workflow click on the button new workflow.

To enter information about the new workflow click on the button global data.

To build a workflow, drag nodes onto the canvas. Link nodes together. These links define the path that the workflow can take at run time.

On the bottom of the page, click on the button to validate your workflow before submitting it.

When you are finished click Execute.
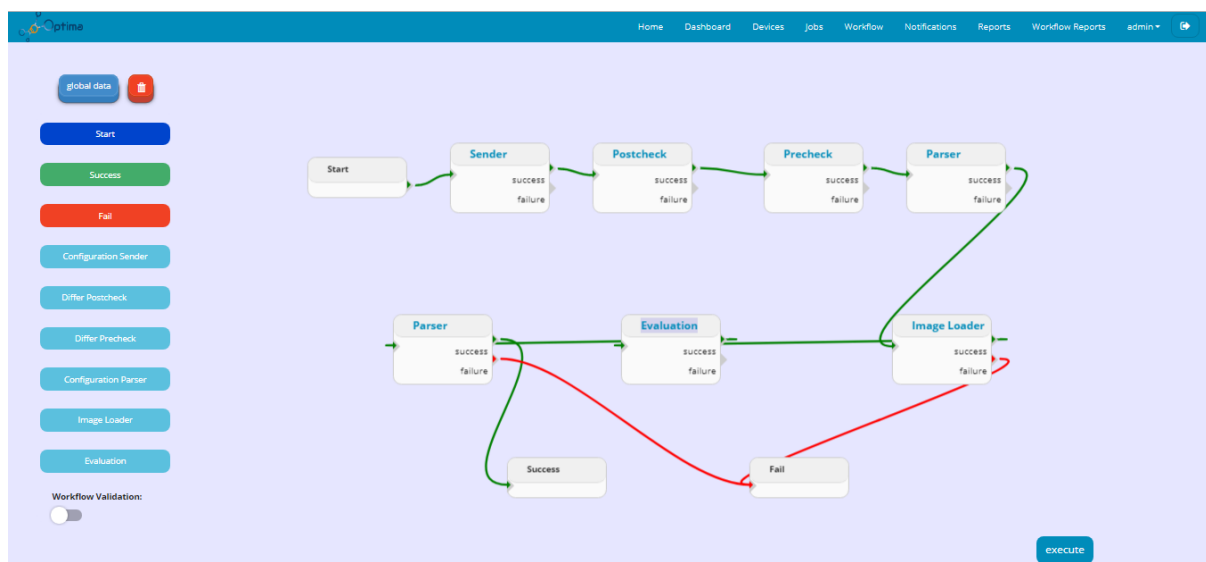
Figure11: building a workflow

User management:

The administrator can assign permissions to each user in the system.

Create a user:

To create a user account you click on button New User and then you specify:

name	type	description	example
name	text	The name of user	admin
password	password	The password of user	admin
Phone number	text	The phone number of user	0609874658
email	email	Email of user	admin@gmail.com
group	option	*note1	Admin_user

*note1: select a role to assign it to a user

Click Send. The user appears in user list.

Figure12: form to create user

Create user group:

The administrator can add a new user group. Enter a name and select a role

Click Send. The user group appears in user group list.

Create User Group

Name	
Roles	☐ admin_user ☐ admin_usr ☐ userMan

SEND

Figure13: from to create a user group

Create role:

The administrator can add a new role. Enter a name and select one or more permissions. You can give permission to users for each feature

Create Role

Name	
Permissions	Select some options ▼

SEND

Figure14: form to create a role

Reporting:

Job & Task report

To see job report, on the home page click reports. From this page you can see the list of jobs and their status.

You can see the details of logs with kibana by clicking on the button view logs.

Name	Agent Type	Insertion Time	Scheduled	Schedule Date	status	processing start time	processing end time	Details
Find Snmp Version	configuration_sender	2017-12-25 16:58:00	None	None	⚫	2017-12-25 16:58:00	2017-12-25 16:58:00	view logs
Find Snmp Version	configuration_parser	2017-12-25 16:58:00	None	None	🟢	2017-12-25 16:58:00	2017-12-25 16:58:00	view logs
Find Snmp Version	configuration_sender	2017-12-25 16:51:15	None	None	⚫	2017-12-25 16:51:15	2017-12-25 16:51:15	view logs
Find Snmp Version	configuration_parser	2017-12-25 16:51:15	None	None	🟢	2017-12-25 16:51:15	2017-12-25 16:51:15	view logs
Find Snmp Version	configuration_sender	2017-12-25 16:48:07	None	None	⚫	2017-12-25 16:48:07	2017-12-25 16:48:07	view logs
Find Snmp Version	configuration_parser	2017-12-25 16:48:07	None	None	🟢	2017-12-25 16:48:07	2017-12-25 16:48:07	view logs
Find Snmp Version	configuration_sender	2017-12-25 16:44:29	None	None	⚫	2017-12-25 16:44:29	2017-12-25 16:44:29	view logs
Find Snmp Version	configuration_parser	2017-12-25 16:44:29	None	None	🟢	2017-12-25 16:44:29	2017-12-25 16:44:29	view logs

Figure15: job report

You can view task report by clicking on the name of the job.

To see the logs click on button view logs.

Device	Insertion Time	Processing Start Time	Duration (s)	Status	Details
192.168.1.204	2017-12-25 16:58:00	2017-12-25 16:58:00	9	🟢	view logs
	NVRAM	FastEthernet0/0 192.168.1.204 YES NVRAM up up			
	up	FastEthernet0/0 192.168.1.204 YES NVRAM up up			
192.168.1.203	2017-12-25 16:58:00	2017-12-25 16:58:00	9	🟢	view logs
	NVRAM	FastEthernet0/0 192.168.1.203 YES NVRAM up up			
	up	FastEthernet0/0 192.168.1.203 YES NVRAM up up			
192.168.1.205	2017-12-25 16:58:00	2017-12-25 16:58:00	9	🟢	view logs
	NVRAM	FastEthernet0/0 192.168.1.205 YES NVRAM up up			
	up	FastEthernet0/0 192.168.1.205 YES NVRAM up up			

Figure16: task report

Centralized logging system (ELK system):

Centralized logging system allows you to search through all of your logs. It can be useful to manage information for reporting.

ELK system offers a set of application (Elasticsearch,logstash,Kibana) , each serving a distinct purpose.

This page you can see the details of logs.

Figure17: view logs by kibana

Compliance Report:

Create a compliance report

To to create a new compliance report, on the home page click compliance reports. In the page bellow you can click on New Compliance Report button and it will redirect uou to the creation page.

Here some details about how to creat a new compliance report .

Figure15: job report

You can view task report by clicking on the name of the job.

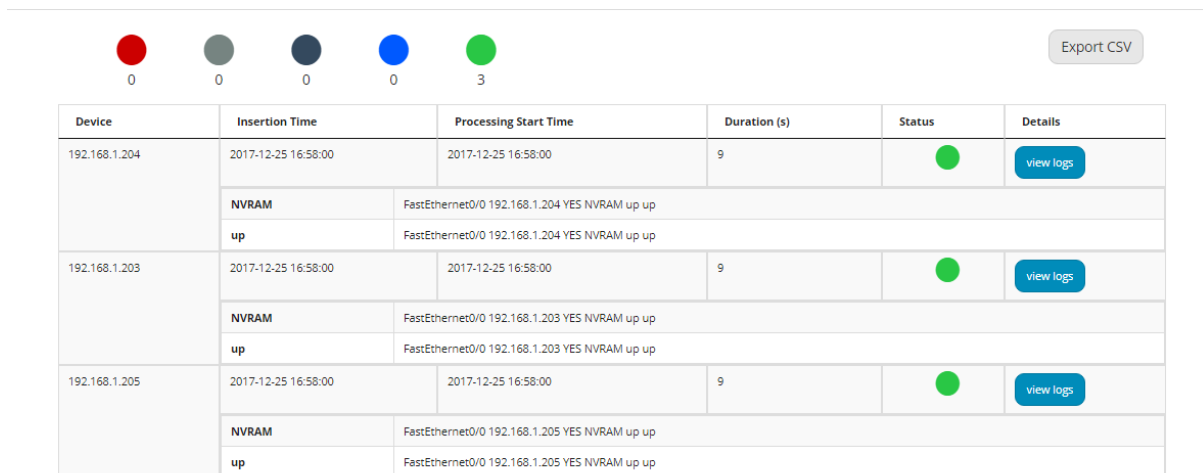To see the logs click on button view logs.

Figure16: task report

Centralized logging system (ELK system):

Centralized logging system allows you to search through all of your logs. It can be useful to manage information for reporting.

ELK system offers a set of application (Elasticsearch,logstash,Kibana) , each serving a distinct purpose.

name	type	description	example
Compliance name	text	Name of the compliance report	Compliance test
Description	text	Description of the compliance report	Testing a compliance report
credentials	Radio button	*note1	Use device credentials
hosts	Radio button	*note2	Load a host file

*note1: you can use device credentials or enter a login and password

*note2: you can choose the list of the router by uploading a file that contains this list or choosing it from database.

So in every compliance report created you can add many elements, for example:

Elements

+ Add More Elements

Name :

Description :

Remote Command :

+Add More Checks
Checks :

Validate

Name :

Description :

Remote Command :

+Add More Checks
Checks :

Validate   Remove

name	type	description	example
Compliance name	text	Name of the element	First element
Description	text	Description of the element	The first element of the created compliance report
Remote command	text	Enter a command	show ip ssh

in every compliance report, you can add one, or many checks, those are the main informations you need to fell in the checks table :

name	type	description	example
Check name	text	Name of the check	check if f1/0 is up
type	option	Type of the check	Depend or not depend
operator	option	operator	GetMatchedRegEx
value	text	Enter a value	FastEthernet0/0

On the bottom of the page click the button valide then create compliance report to create your report.

Visualisate a compliance report

When you click on compliance reports in the home page, it will redirect you to a page where is locate a list of all the created compliance reports templates, so when you click the name of a choosen compliance report, this will redirect you to the execution page where is all execusion times and the execute button of the compliance report then give you the results.

and you can click on the date of the execution you want to show its result as bellow:
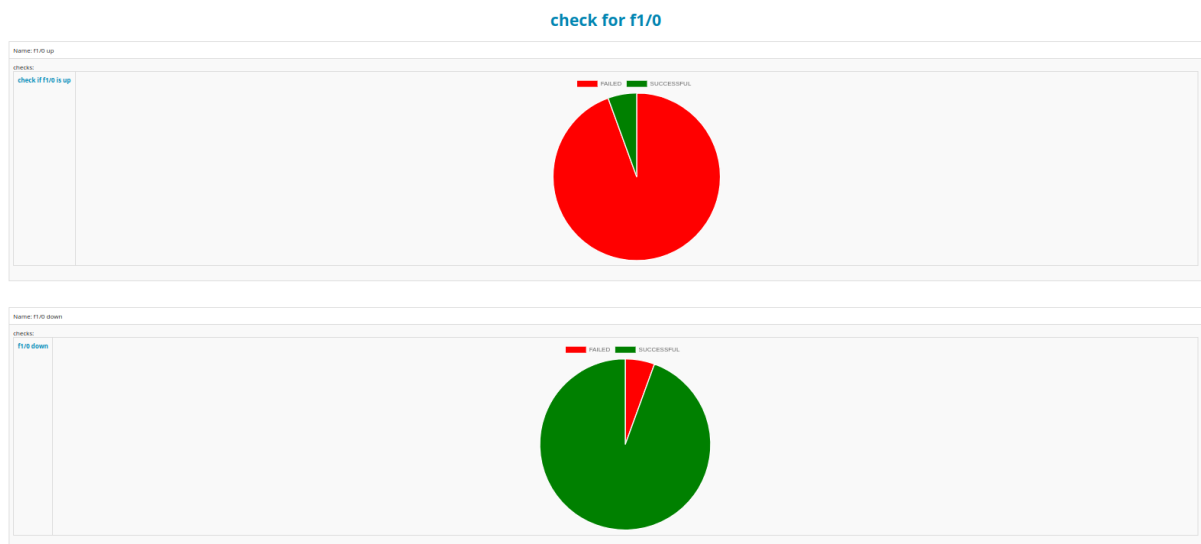
whenever you click on the red or green area on the given chart, it will show you successful or failed devices,
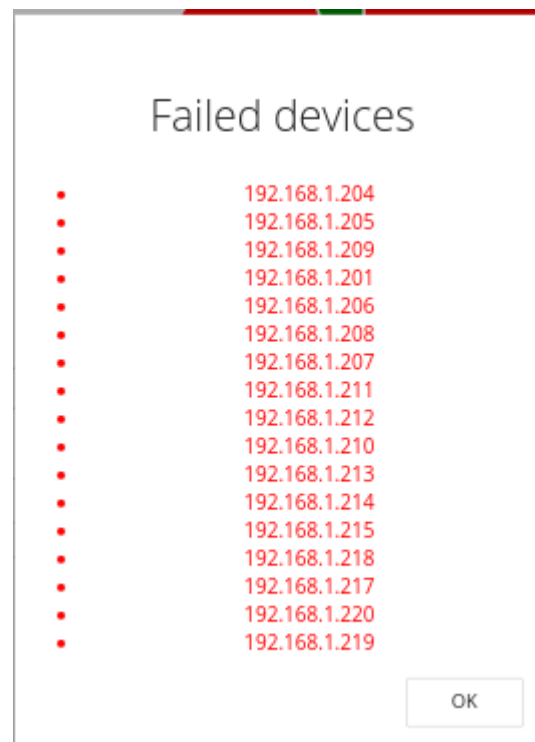
then the results of this check are shown as bellow :