Deployment Guide

RUCKUS WAN Gateway – Pack Manager

June 2023

Rev. 1

Table of Contents

Changes in Revision 1

- Minor corrections.
- Added information on how to configure Pack Manager.
- Added section on Fleet Reports and Custom Reports.

Intended Audience

The audience for this document is customers and operators deploying multiple RWG instances and requiring a central console to monitor and manage those instances. It is expected that the reader already possesses a working knowledge on the RUCKUS WAN Gateway.

For more information on how to configure RUCKUS products, please refer to the appropriate RUCKUS user guide available on the RUCKUS support site at https://support.ruckuswireless.com/

The RWG documentation is embedded into the product.
You can access the embedded documentation at https://{your RWG_IP_address}/admin/manual/help_online

Overview

Pack Manager

Pack Manager is a console to manage and monitor multiple RWG nodes from a central location. Using Pack Manager, you can monitor the health of the RWG nodes, push or pull configuration changes to multiple RWGs, provision entire RWG nodes or upgrade the RWG software in the nodes.

Additional licenses are required to manage the RWG nodes. Pack Manager can also act as a regular RWG node.

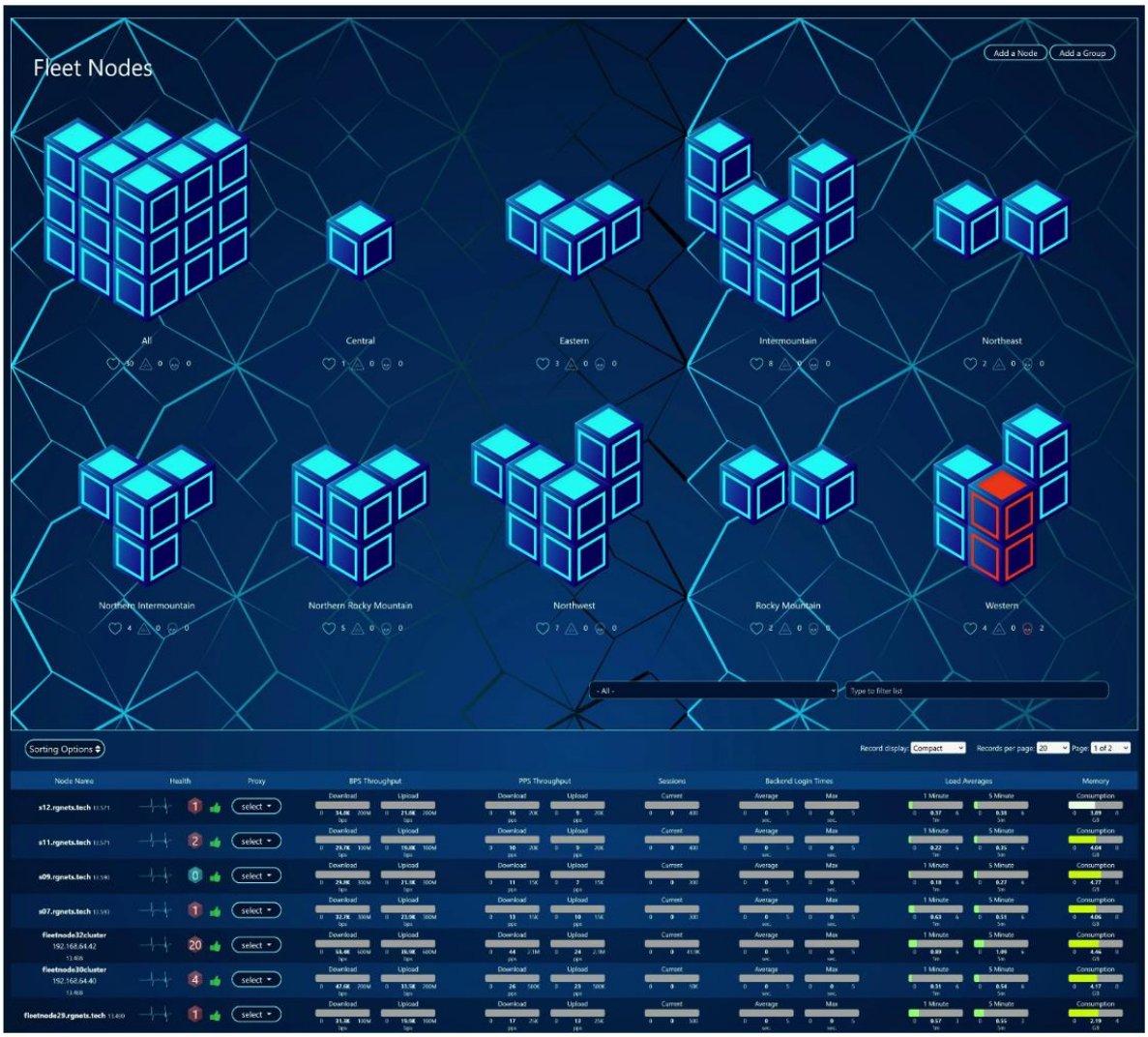


FIGURE 1 – PACK MANAGER DASHBOARD

Configuring Pack Manager

Define the Pack Manager

This deck assumes that RWG is already installed in the node that will run Pack Manager, and it includes a Pack Manager Subscription License for each node that will be managed (RWG-PML-SUB-01 or RWG-PML-SUB-01).

Currently, the RWG UI says Fleet Manager instead. This will change to Pack Manager in a future release. In the following slides, the terms Pack Manager and Fleet Manager will always describe the same feature.

Navigate to **System/Fleet** and click **Create New** under **Fleet Nodes**. This will add the RWG node itself as a Fleet Node and define it as the Fleet Manager.

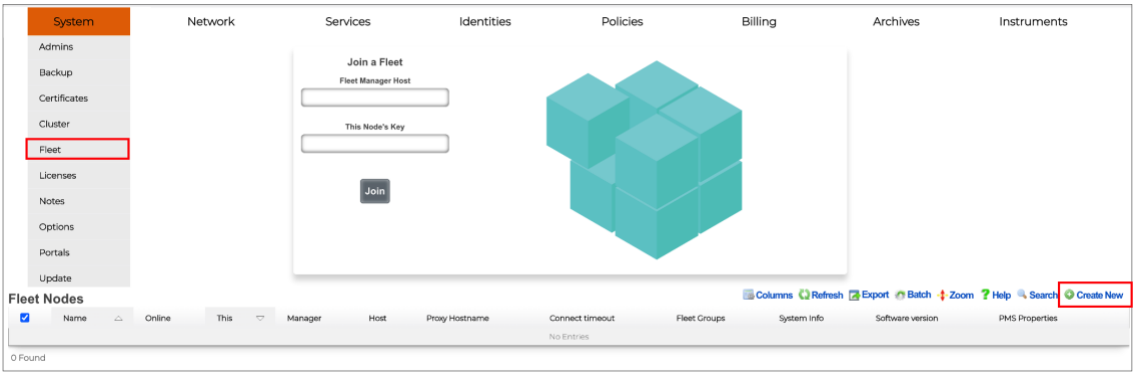


FIGURE 2 – START THE PACK MANAGER CONFIGURATION

Enter the following information:

- **Name**: Enter a name for this node.
- **This**: Keep the checkbox marked. It indicates this entry is and actual Fleet Manager node (i.e., this is not an entry for a remote node)
- **Manager**: Keep the checkbox marked. It indicates this is the Fleet Manager.
- **Host**: Enter the FQDN for the node.

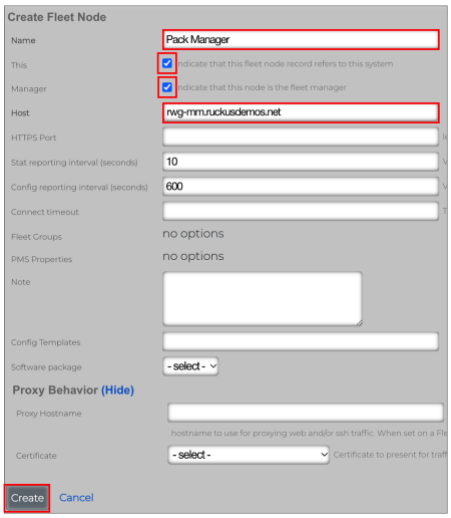


FIGURE 3 – CREATE FLEET NODE

Click **Create** to finish. A new entry shows in the Fleet Nodes table. The **Online** icon should be green.

FIGURE 4 – THE FLEET NODE IS ONLINE

Right after the creation of the new entry, the RWG web interface will restart automatically.

FIGURE 5 – RESTARTING WEB SERVER

When the web interface becomes operational, proceed to the next step.

Enable the Fleet Manager Portal

Navigate to **System/Portals** and click **Create New** in the **Operator Portals** section.

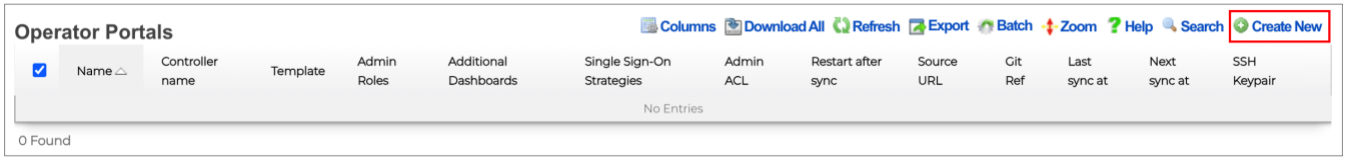


FIGURE 6 – CREATE THE FLEET MANAGER PORTAL

Enter the following information:

- **Name**: Enter a name for the portal entry.
- **Controller name**: This name will be appended to the URL for access to the Fleet Manger portal.
- **Template**: Select **Fleet Manager**.
- **Initial contents**: Select **Create directory structure only**.

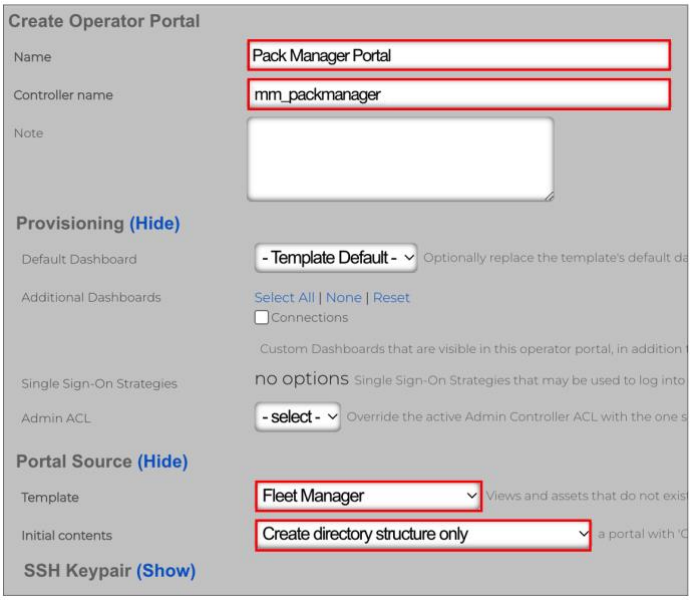


FIGURE 7 – CREATE OPERATOR PORTAL

Scroll down to continue. Mark all checkboxes under the section **Module Configuration**.

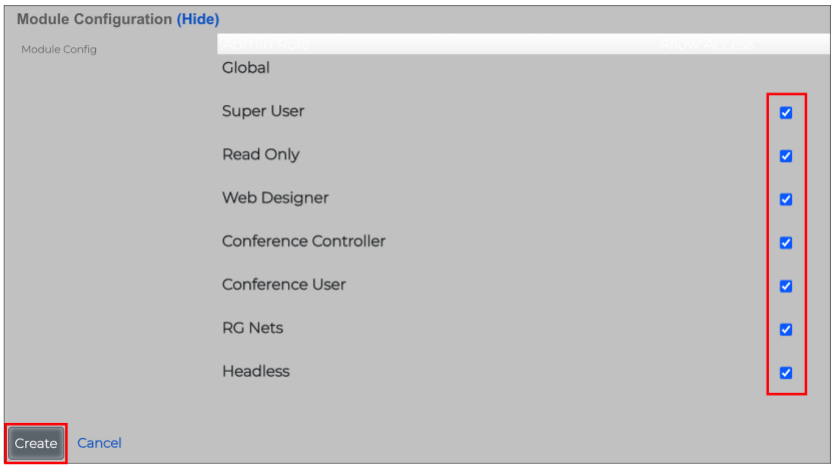


FIGURE 8 – MODULE CONFIGURATION

Click **Create** to finish.

A new entry will show under Operator Portals.

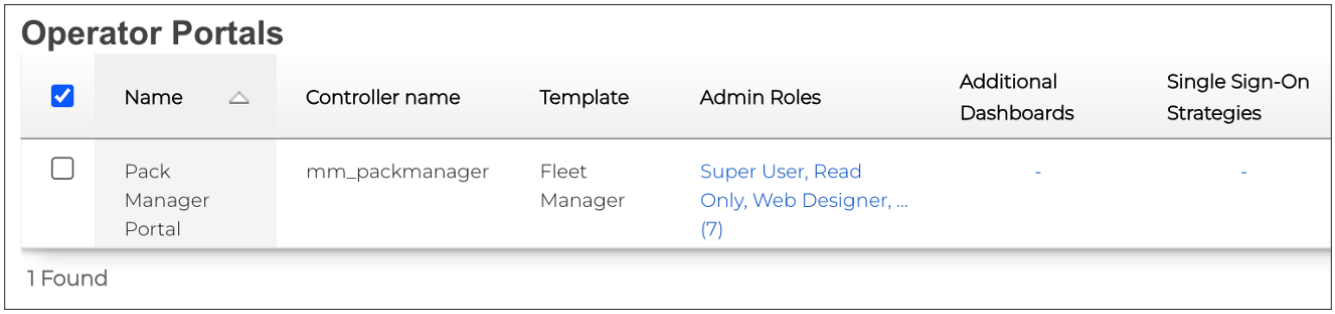


FIGURE 9 – THE PACK MANAGER PORTAL IS CREATED

Right after the creation of the portal, the RWG web interface will restart again.

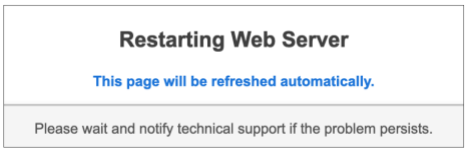


FIGURE 10 – RESTARTING WEB SERVER

When the web interface becomes operational again, proceed to the next step.

You can launch the Fleet Manager using two methods:

- **From inside the RWG Node**: Click on **Launch** in the section **Operator Portals** under **System/Portals**:

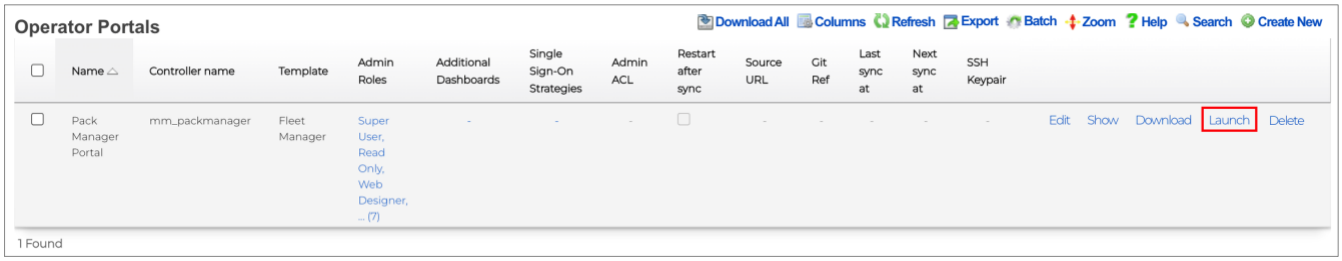


FIGURE 11 – LAUNCH FROM INSIDE THE RWG NODE

- **From another browser window or any external host:** Use the FQDN for the RWG instance, followed by the controller's name as shown in Figure 7. In our example the URL will be:

  https://rwg-mm.ruckusdemos.net/mm_packmanager

Use the same credentials of the RWG instance where Pack Manager was enabled:

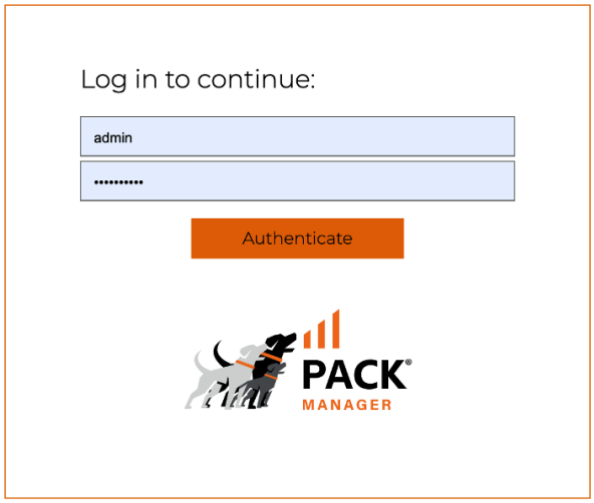


FIGURE 12 – LOG IN TO PACK MANAGER

Initially, no RWG nodes show in the Pack Manager dashboard:

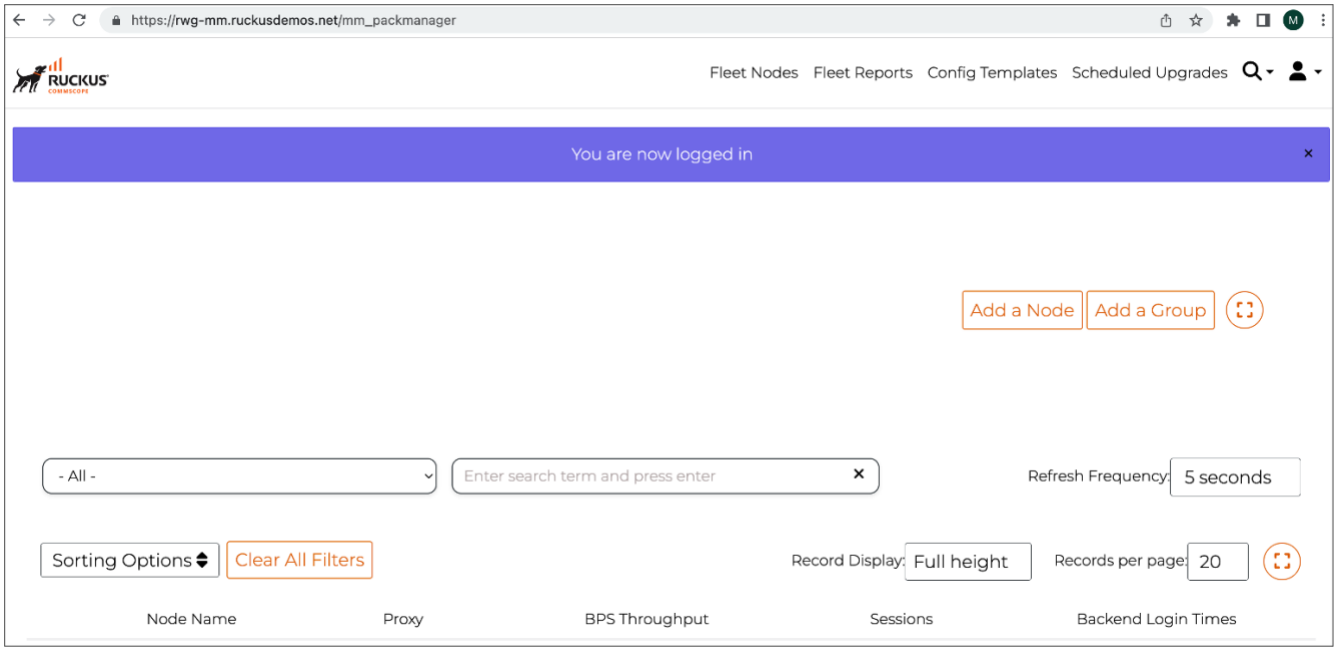


FIGURE 13 – MAIN DASHBOARD

Onboarding RWG Nodes into Pack Manager

Adding new RWG Nodes to Pack Manager

We will follow these steps to add RWG nodes to Pack Manager:

- Create a Fleet Group in Pack Manager.
- Create a Fleet Node entry in Pack Manager.
- Configure the RWG node to join the fleet.

Step 1 – Create a Fleet Group

Login to Pack Manager, click **Add a Group** in the main dashboard, then enter the following information:

- **Name**: Type a name for the Fleet Group.
- **Admins**: Select the administrators for the group.
- **Admin Roles**: Super User will show by default. Change the roles if required.
- **Config Templates**: Select all templates.

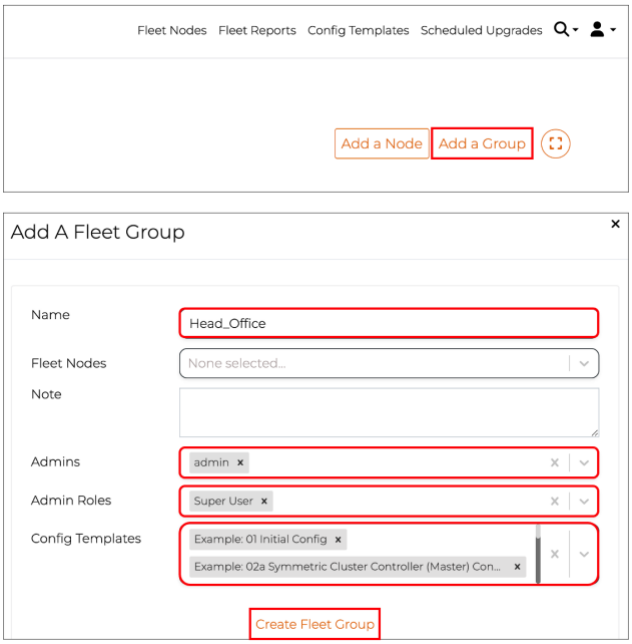


FIGURE 14 – ADD A FLEET GROUP

Click **Create Fleet Group** to finish.

To edit or delete a group, go to the RWG UI, and navigate to **System/Fleet/Fleet Group**.

Step 2 – Create a Fleet Node Entry in Pack Manager

Click **Add a Node** in the main dashboard, then enter the following information:

- **Name**: Type a name for the RWG node.
- **Host**: Enter the RWG FQDN or IP address.
- **Ignore SSL cert errors**: mark the checkbox.
- **Fleet Groups**: select a group for the RWG node.

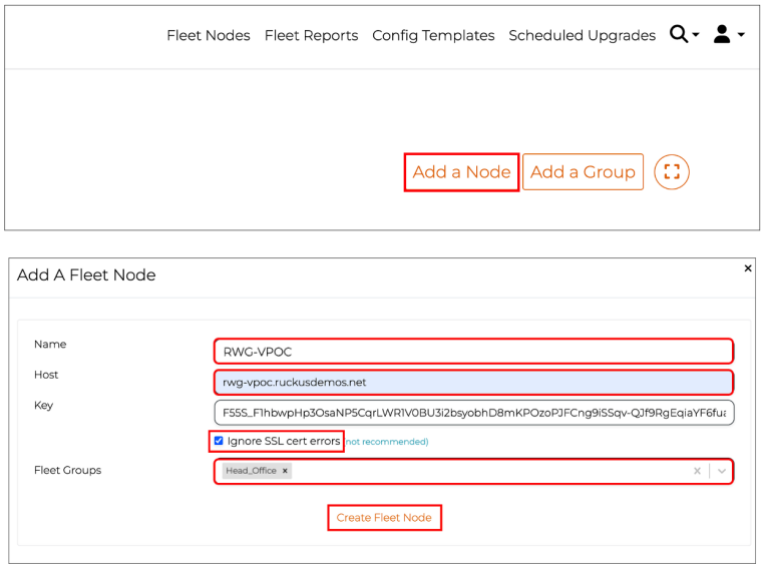


FIGURE 15 – ADD A FLEET NODE

Click **Create Fleet Node** to finish.

Next, click **Copy API key**. It will be used to make the RWG node to join the fleet.

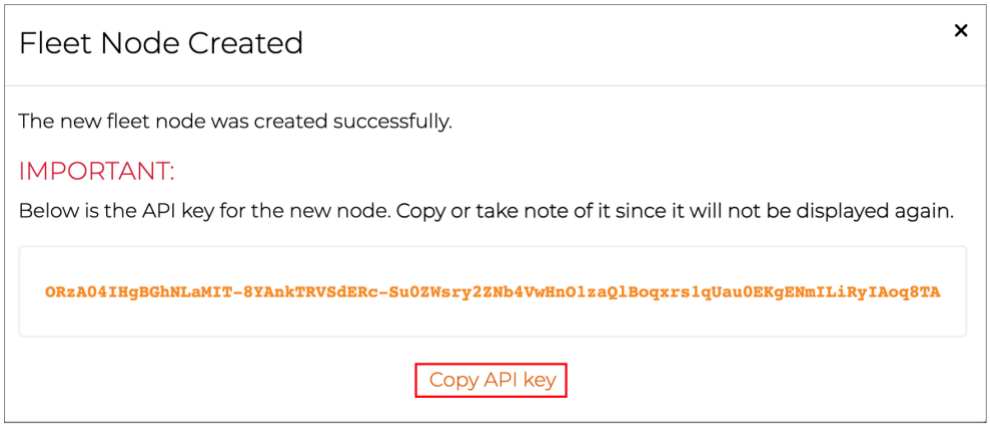


FIGURE 16 – COPY API KEY

Step 3 – Configure the RWG Node to Join the Fleet

Login to the remote RWG node, then navigate to **System/Fleet**. Enter the following information:

- **Fleet Manager Host**: Enter the FQDN or IP address for Pack Manager.
- **This Node's Key**: Enter the API key copied from Pack Manager.

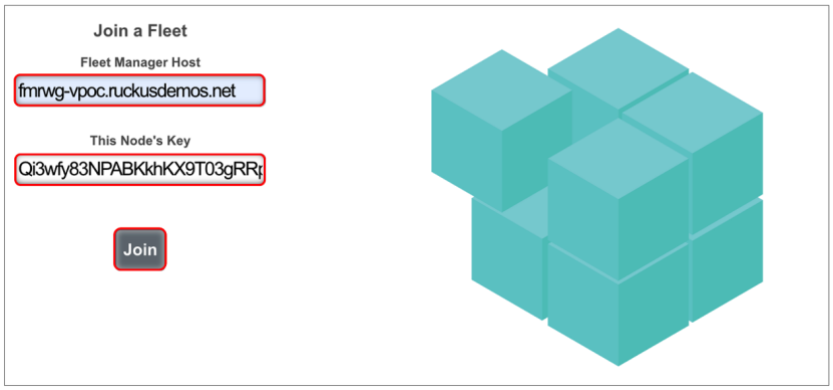


FIGURE 17 – JOIN THE FLEET

Click **Join**. After a few seconds, you should receive the message **Successfully Joined Fleet.** The web server in the remote RWG node will restart automatically.

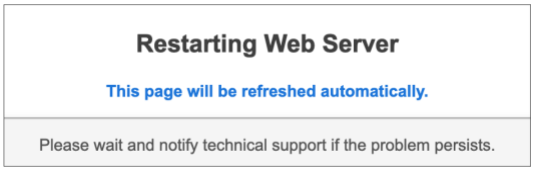


FIGURE 18 – RESTARTING WEB SERVER

The dashboard in Pack Manager shows the status of all RWG nodes. Each node is represented by a 3D cube, grouped in their fleet group.

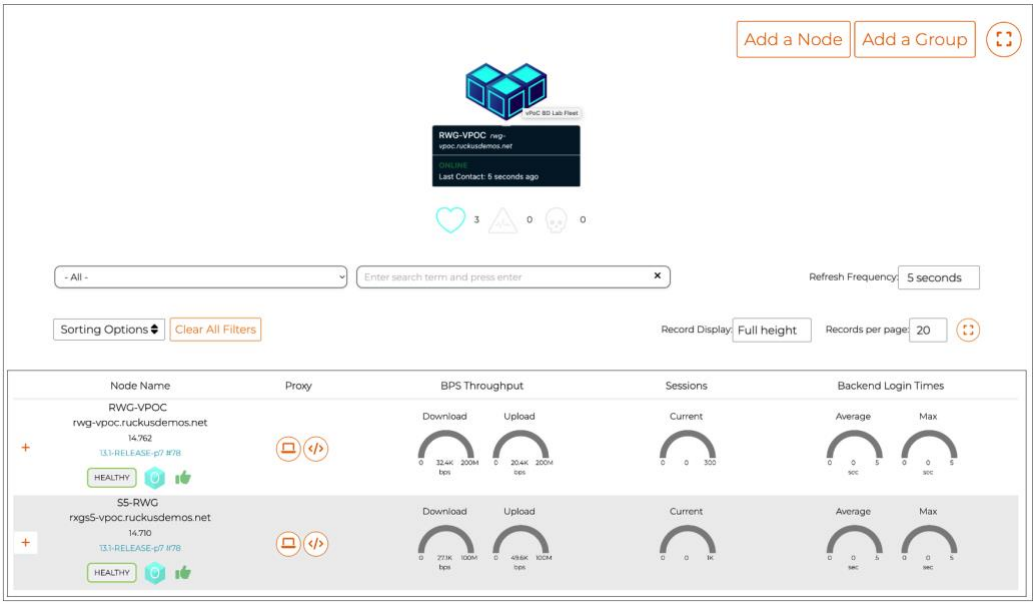


FIGURE 19 – PACK MANAGER DASHBOARD

Click the + sign to see additional gauges for the node.

Click the icon to go that RWG node's UI.

Click the icon to start a SSH proxy and copy the SSH command.

Check the Pack Manager License Pool

Navigate to System/Licenses to see the license pool and the Fleet Nodes subscription licenses consumed by the RWG nodes.

License Summary

Licensed	Current	Limit
Build	14.762	17.728
Cluster Nodes	0	10
Fleet Nodes	2	20
Custom Portals	0	10
Groups	0	10
Identities	0	6250
Policies	2	10
Login Sessions	0	50
RADIUS Supplicants	0	50
Connection States	210	100000
Transit IPs	0	150
VLANs	0	75
Uplinks	1	10

FIGURE 20 – CHECKING THE PACK MANAGER SUBSCRIPTION LICENSES

Pack Manager Reports

Custom Reports Overview

We can use Pack Manager to retrieve custom reports created in the RWG nodes. The reports can be aggregated from several RWG nodes or from a single node, and they can be exported using .CSV, .XLXS and .XML.

It is possible to run ad-hoc reports directly from Pack Manager, or retrieve the existing reports generated periodically by the RWG nodes. RWG includes 60+ different custom reports.

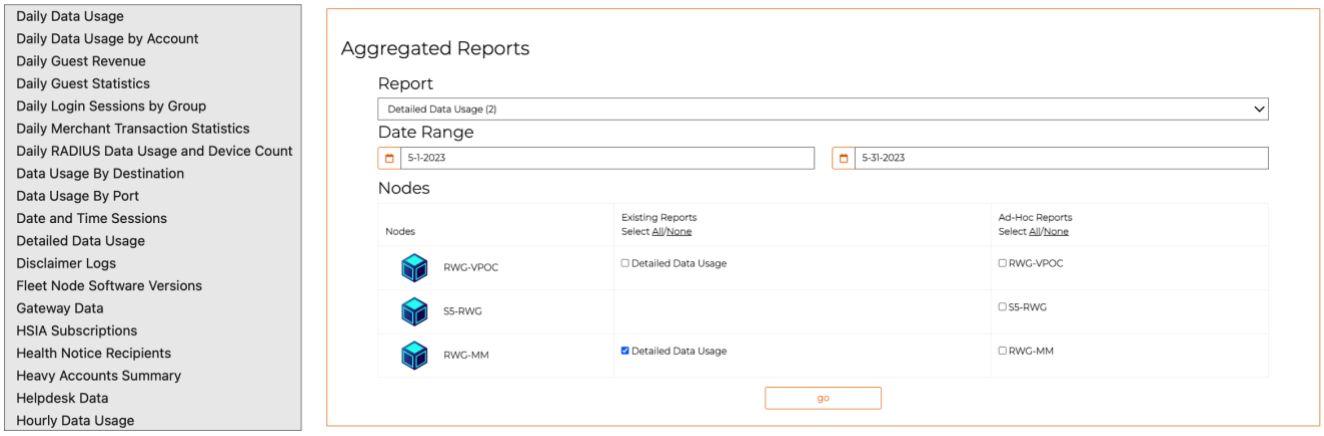


FIGURE 21 – SAMPLE OF CUSTOM REPORT TYPES AND AGGREGATED REPORT PANEL

First, the customs reports need to be created in the remote RWG nodes. On the RWG UI, navigate to **Archives/Reports/Custom Reports**, then click **Create New** at the **Custom Reports** section:

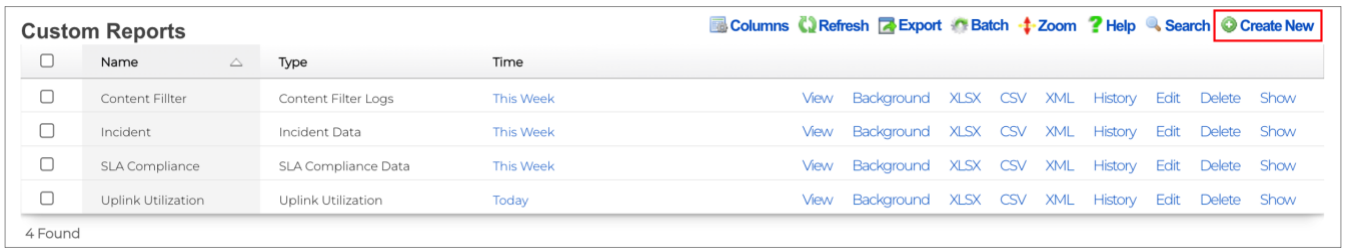


FIGURE 22 – CUSTOM REPORTS

The following example creates a report for Detailed Data Usage. Enter the following information:

- **Name**: Enter a name for the report.
- **Type**: Select **Detailed Data Usage**.
- **Time**: Select **Today**.
- **Uplinks**: Mark the **Uplink** checkbox.

At least one filter needs to be selected. The required filter varies depending on the selected report.

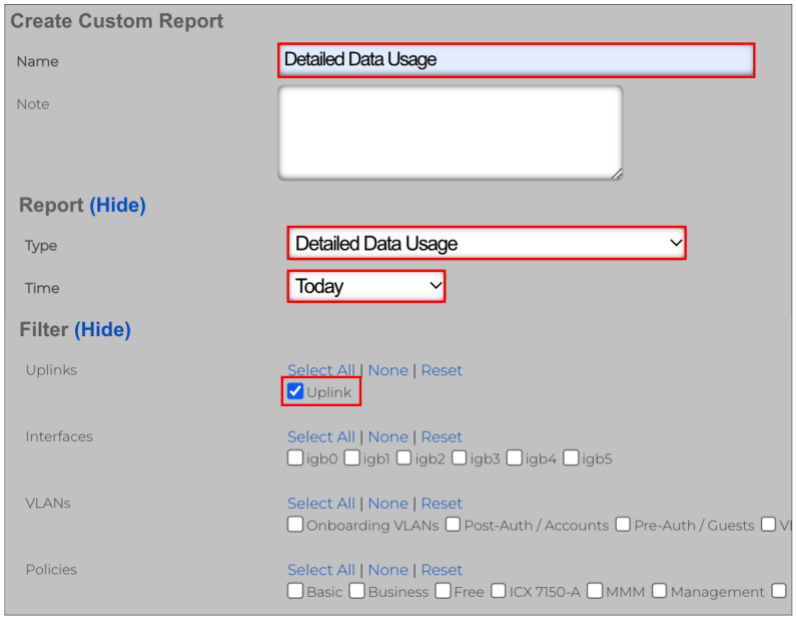


FIGURE 23 – CREATE CUSTOM REPORT

Scroll down to continue.

Enter the following information:

- **Recurring method**: Select the recurrence for report generation.
- **Next execution at**: Select the date and time for the first execution. Here, we clicked **Now**.
- **Store on fleet manager**: Mark the checkbox. Even if the reports are not stored in Pack Manager, they can be retrieved remotely using Fleet Reports.

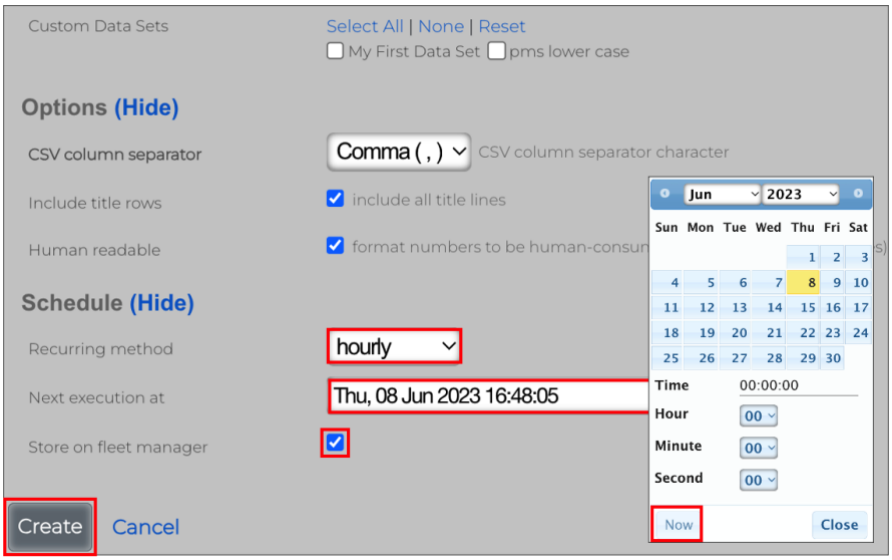


FIGURE 24 – SCHEDULE CONFIGURATION

Click **Create** to finish.

A new custom report shows in the table:

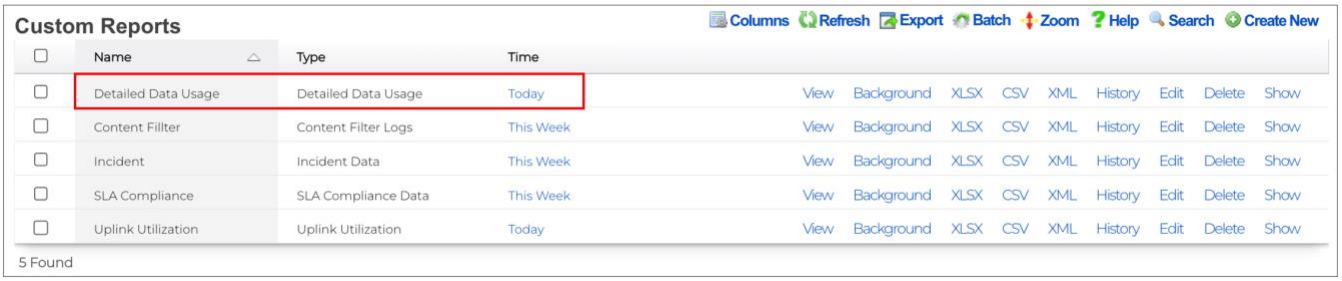


FIGURE 25 – THE DETAILED DATA USAGE REPORT SHOWS IN THE TABLE

Click **View** to see the report or **XLSX**, **CSV** or **XML** to download the report.

Time	Direction	Bytes	Packets
06/09/23 12:59:48 AM	up	306 KB	2.28 Thousand
06/09/23 12:59:48 AM	down	2.94 MB	25.8 Thousand
06/09/23 12:59:48 AM	down	510 KB	2.07 Thousand
06/09/23 12:54:15 AM	up	1.88 KB	21
06/09/23 01:59:56 AM	up	20 MB	226 Thousand
06/09/23 01:59:56 AM	down	2.93 MB	25.8 Thousand
06/09/23 01:59:56 AM	down	1.04 GB	801 Thousand
06/09/23 02:59:06 AM	up	6.35 MB	86.6 Thousand

FIGURE 26 – VIEWING THE REPORT IN RWG

Accessing Reports from Pack Manager

On the Pack Manager UI, click **Fleet Reports** at the top menu:

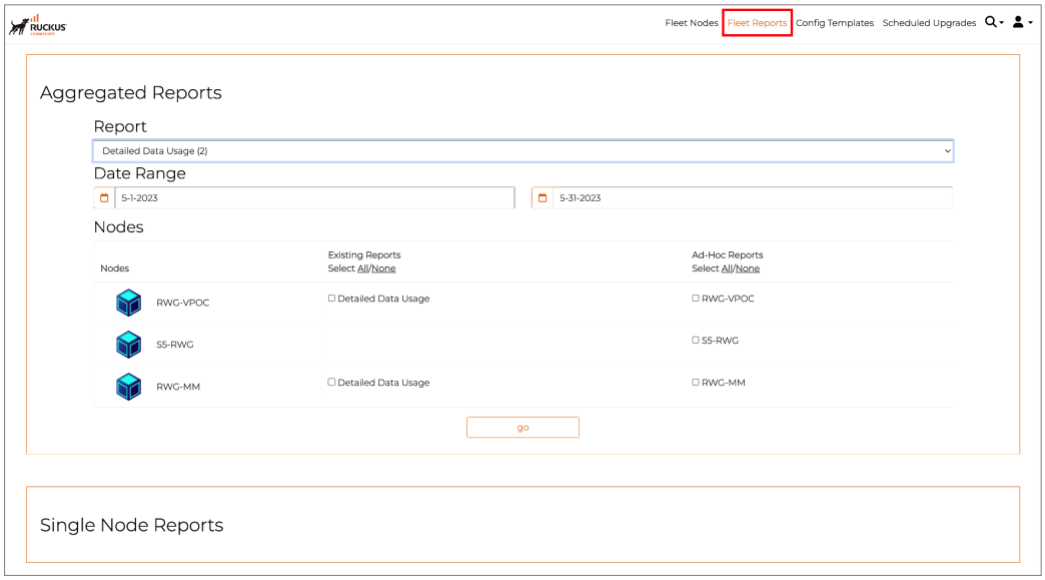


FIGURE 27 – FLEET REPORTS

Aggregated Reports

The top section is used for aggregated reports. It includes the following elements:

- **1. Report selection:** any of the 60+ customs report types can be selected. The number (2) indicates how many RWG nodes contain that report.
- **2. Date Range:** used to define the period that will be included in the report.
- **3. Existing Reports:** Retrieves reports generated by RWG according to the defined recurrence.
- **4. Ad-Hoc Reports:** Used for real time reports.
- **5. Nodes:** Mark the checkboxes to select the RWG nodes and click **go** to get the reports. When multiple RWG nodes are selected, the report concatenates the data from all nodes.

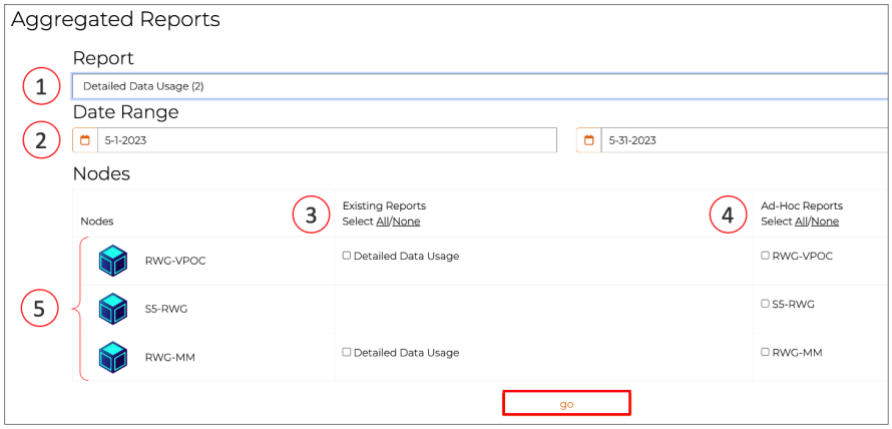
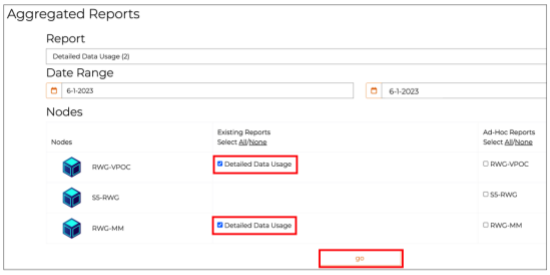
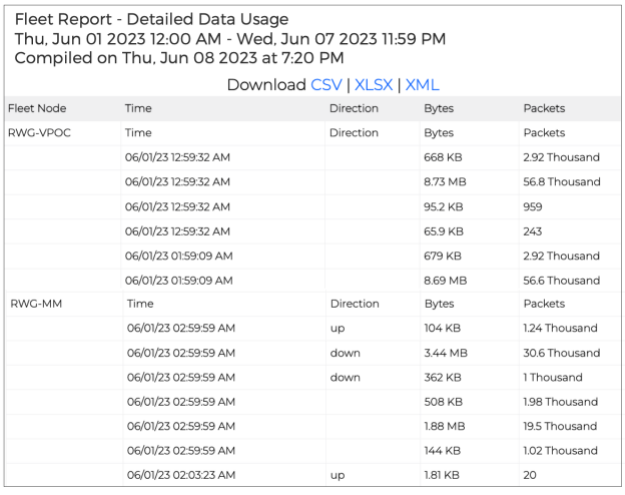


FIGURE 28 – AGGREGATED REPORTS

Example of Aggregated Report – Detailed Data Usage

Report for 2 RWG nodes, showing 1 day only, viewed directly in Pack Manager.





Fleet Report - Detailed Data Usage
Thu, Jun 01 2023 12:00 AM - Wed, Jun 07 2023 11:59 PM
Compiled on Thu, Jun 08 2023 at 7:20 PM

Download CSV | XLSX | XML

Fleet Node	Time	Direction	Bytes	Packets
RWG-VPOC	Time	Direction	Bytes	Packets
	06/01/23 12:59:32 AM		668 KB	2.92 Thousand
	06/01/23 12:59:32 AM		8.73 MB	56.8 Thousand
	06/01/23 12:59:32 AM		95.2 KB	959
	06/01/23 12:59:32 AM		65.9 KB	243
	06/01/23 01:59:09 AM		679 KB	2.92 Thousand
	06/01/23 01:59:09 AM		8.69 MB	56.6 Thousand
RWG-MM	Time	Direction	Bytes	Packets
	06/01/23 02:59:59 AM	up	104 KB	1.24 Thousand
	06/01/23 02:59:59 AM	down	3.44 MB	30.6 Thousand
	06/01/23 02:59:59 AM	down	362 KB	1 Thousand
	06/01/23 02:59:59 AM		508 KB	1.98 Thousand
	06/01/23 02:59:59 AM		1.88 MB	19.5 Thousand
	06/01/23 02:59:59 AM		144 KB	1.02 Thousand
	06/01/23 02:03:23 AM	up	1.81 KB	20

FIGURE 29 – VIEWING AN AGGREGATED REPORT IN PACK MANAGER

Single Node Reports

The bottom section of Fleet Reports is used for single node reports only. It includes the following elements:

- 1. Select an available report for the desired RWG node. Some nodes might not have any report available.
- 2. Click **View** to see the report, or download the report in the .XLSX, .CSV or .XML formats.

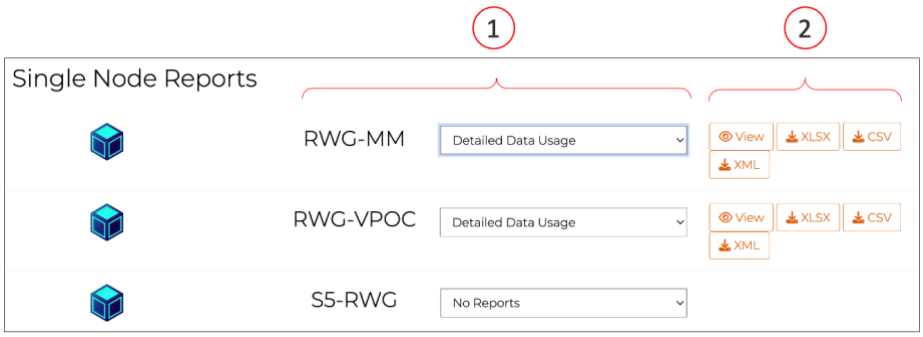
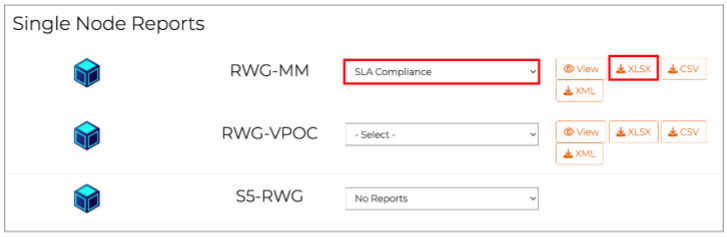


FIGURE 30 – SINGLE NODE REPORTS

Example of Single Node Report - SLA Compliance



Fleet Report - SLA Compliance Data
Mon, May 01 2023 12:00 AM - Wed, May 31 2023 11:59 PM
Compiled on Thu, Jun 08 2023 at 6:58 PM

Fleet Node	MARSHA	FileDate	SLAType	CustomDesc	NoOccurrences	Actual	CreditApplied
RWG-MM	MARSHA	FileDate	SLAType	CustomDesc	NoOccurrences	Actual	CreditApplied
		2023-06-08T17:13:38.546-05:00	GUEST		Y	1	N
		2023-06-08T17:13:38.546-05:00	FCR		Y	1	N
		2023-06-08T17:13:38.546-05:00	AHT		Y	0	N
		2023-06-08T17:13:38.546-05:00	TVU		N	0	N
		2023-06-08T17:13:38.546-05:00	NOTIFY		N	1	N
		2023-06-08T17:13:38.546-05:00	WORK		Y	1	N
		2023-06-08T17:13:38.546-05:00	MTTR1		Y	0	N
		2023-06-08T17:13:38.546-05:00	MTTR2		Y	0	N
		2023-06-08T17:13:38.546-05:00	MTTR3		Y	0	N

FIGURE 31 – VIEWING A SINGLE NODE REPORT IN .XLSX FORMAT

Configuration Templates

Configuration templates are YAML definitions used to bootstrap a new RWG node or change the configuration of existing RWGs. The templates can be created manually, or generated automatically for any RWG scaffold, or for the entire RWG configuration. Using config templates makes it very easy to share the entire configuration for a complete MDU or HSP solution. The example below shows the YAML file for the **VLAN Interfaces** scaffold:

```
---
Vlan:
- name: VLAN 100
  interface: igb5
  tag: 100
  autoincrement_mode: none
- name: VLAN 200
  interface: igb5
  tag: 200
  autoincrement_mode: none
  addresses:
  - subnet 200
- name: VLAN 150
  interface: igb5
  tag: 150
  autoincrement_mode: none
  addresses:
  - subnet 150
```

FIGURE 32 – CONFIG TEMPLATE FOR VLAN INTERFACES

Generate a Config Template for a Scaffold

To generate a config template, navigate to the desired scaffold, then click **Export/rWg Config Template**:

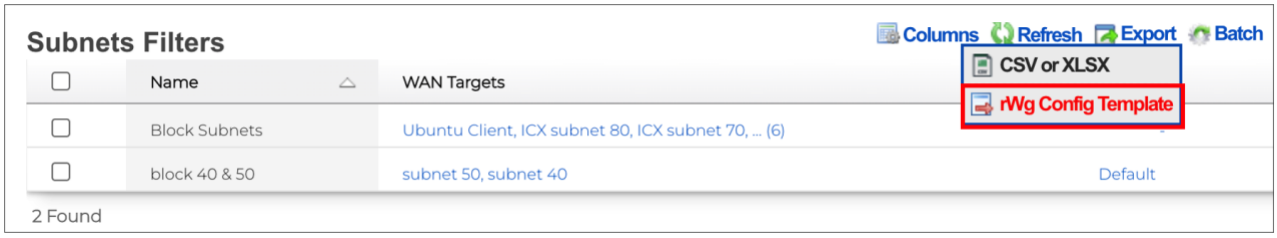


FIGURE 33 – GENERATE THE TEMPLATE FOR SUBNETS FILTERS

Accept the defaults and click **Export**. The YAML file will be downloaded to your computer.

FIGURE 34 – EXPORT THE CONFIG TEMPLATE

```
---
SubnetsFilter:
- name: Block Subnets
  wan_targets:
  - ICX subnet 90
  - ICX subnet 80
  - ICX subnet 70
  - ICX subnet 60
  - Ubuntu Client
  - ISP 1
- name: block 40 & 50
  wan_targets:
  - subnet 50
  - subnet 40
  policies:
  - Default
```

FIGURE 35 – TEMPLATE FOR SUBNET FILTERS

Generate a Config Template for the Entire RWG

It is also possible to generate a config template for the entire RWG. Navigate to **System/Backup**, then click **Generate Template** at the **Config Templates** section:

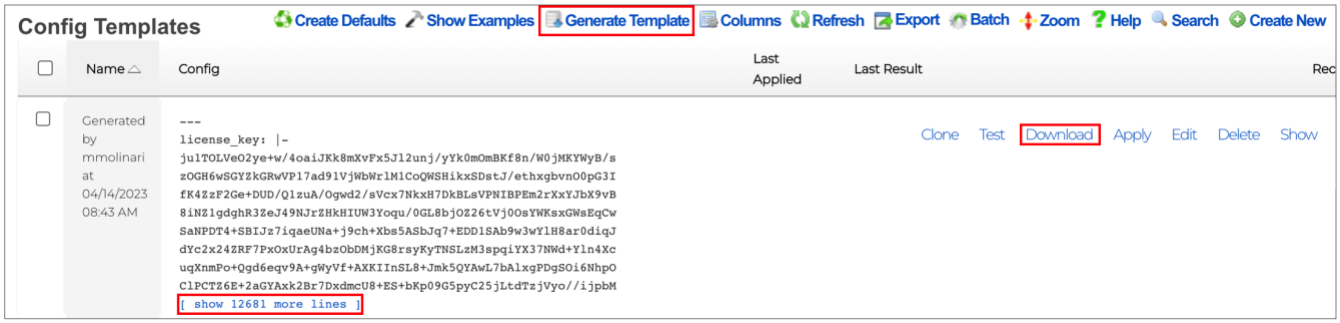


FIGURE 36 – GENERATE TEMPLATE FOR THE ENTIRE SMARTZONE

After a few seconds, a new template entry will show under the Config Templates section. You can click **show more lines** to see details or **Download** to get the YAML file.

Create Config Templates in Pack Manager

Login to Pack Manager and click **Config Templates** in the top menu, then click **Add a Config Template**.

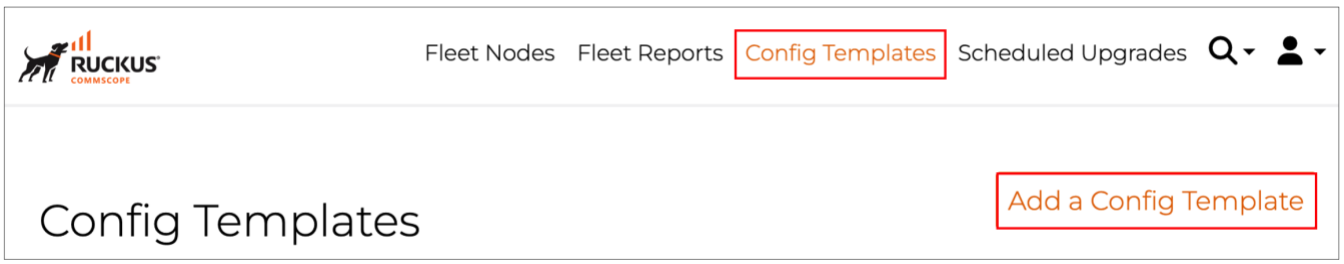


FIGURE 37 – CONFIG TEMPLATES

Enter the following information:

- **Name**: Enter a name for the configuration template
- **Upload Local Config**: Select the path for the .yml file to be uploaded to Pack Manager. You can also enter the YAML definitions manually or edit existing definitions.
- **Fleet Node**: If you plan to pull the configuration template from the RWG node UI, select the RWG nodes that will pull the template. You don't need this step to push the templates using the Pack Manager UI.

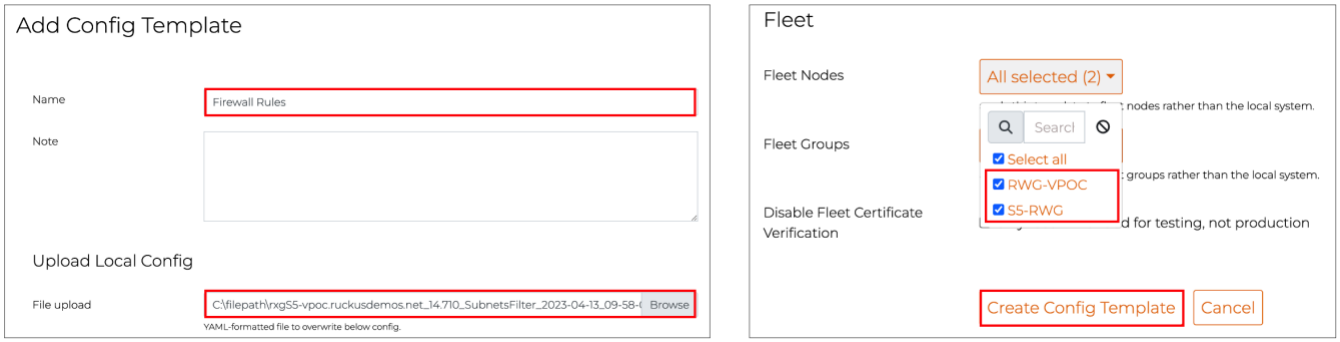


FIGURE 38 – ADD CONFIG TEMPLATE

Click **Create Config Template** to finish.

A new entry shows in the table:

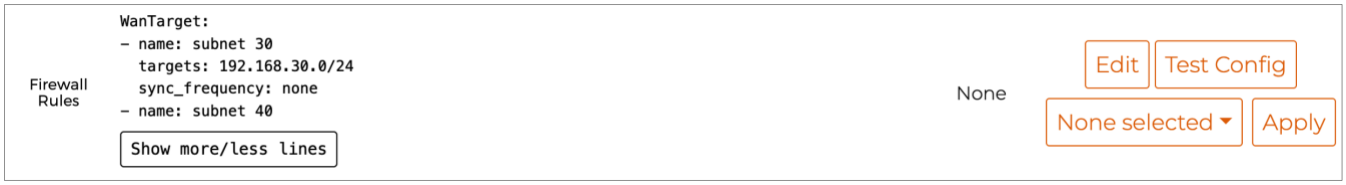


FIGURE 39 – NEW CONFIG TEMPLATE

Test a Config Template

To test a configuration template before pushing it to a node, click **Test Config.**

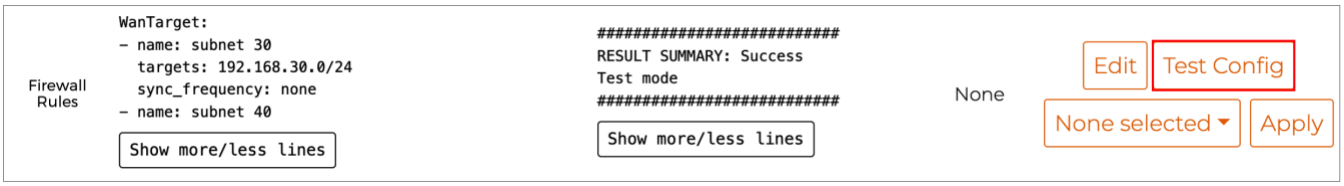


FIGURE 40 – TEST CONFIG

If all is well, you will receive a **Success** message. If not, click **Edit** to modify the template.

Push the Config Template

To push a configuration template, click the **None selected** dropdown, select the RWG nodes to where you want to push the template, then click **Apply.**

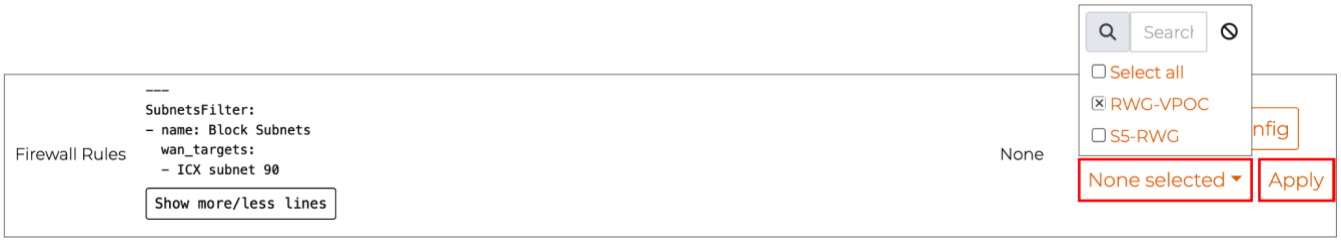


FIGURE 41 – SELECT THE RWG NODES AND APPLY

A confirmation form will pop up. Click OK to accept the changes. If all goes well, you should receive a **Success** message when the configuration change is completed.

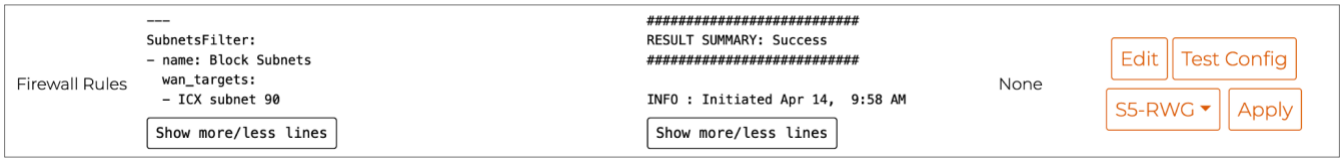


FIGURE 42 – SUCCESS

RWG Web Server Log – Push Received from Pack Manager

The config template is pushed by Pack Manager using a HTTP POST. You can see details in the remote RWG node by navigating to **Archives/.log Files/HTTP(prod)**.

```
2023-04-14T12:50:21-07:00 INFO 19705: [192.168.11.1] Started POST "/admin/api/fleet/execute_config_template.json" for 192.168.11.1
at 2023-04-14 12:50:21 -0700
2023-04-14T12:50:21-07:00 INFO 19705: [192.168.11.1] Reload manifest and execute
2023-04-14T12:50:25-07:00 INFO 19705: Processing by Admin::MenuController#admin_notices as JS
2023-04-14T12:50:25-07:00 INFO 19705: Parameters: {"_"=>"1681501793855"}
2023-04-14T12:50:25-07:00 INFO 19705: Filter chain halted as :authorize rendered or redirected
2023-04-14T12:50:25-07:00 INFO 19705: Completed 401 Unauthorized in 14ms (ActiveRecord: 1.5ms | Allocations: 1290)
2023-04-14T12:50:28-07:00 INFO 19705: [76.102.15.55] Started GET "/admin/menu/admin_notices?_=1681500224029" for 76.102.15.55 at 20
23-04-14 12:50:28 -0700
2023-04-14T12:50:28-07:00 INFO 19705: [76.102.15.55] Reload manifest and execute
2023-04-14T12:50:28-07:00 INFO 19705: [76.102.15.55] Processing by Admin::MenuController#admin_notices as JS
2023-04-14T12:50:28-07:00 INFO 19705: [76.102.15.55]   Parameters: {"_"=>"1681500224029"}
2023-04-14T12:50:29-07:00 INFO 19705: [76.102.15.55]   Rendered admin/menu/admin_notices.js.erb (Duration: 0.1ms | Allocations: 7)
2023-04-14T12:50:29-07:00 INFO 19705: [76.102.15.55] Completed 200 OK in 568ms (Views: 1.6ms | ActiveRecord: 3.2ms | Allocations: 3
54932)
```

FIGURE 43 – HTTP POST TO PUSH CONFIG TEMPLATE

In this example we pushed a template to create new firewall rules in the RWG node. Navigate to **Policies/Packet Filters** in the RWG node to see the changes.

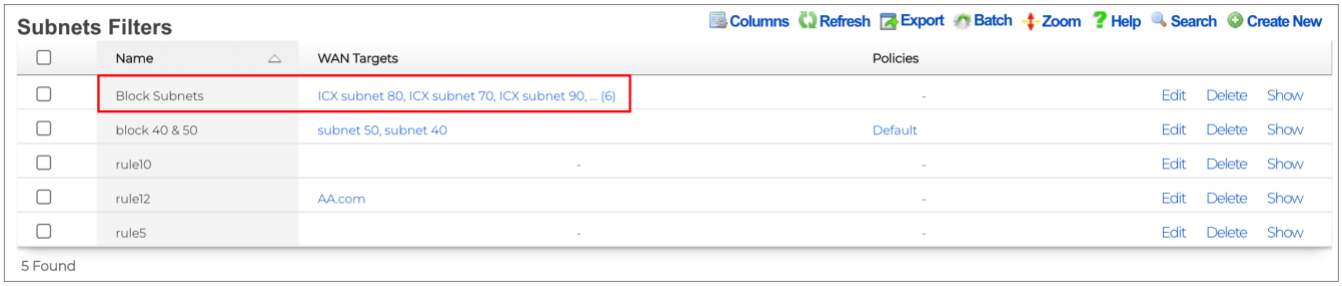


FIGURE 44 – NEW SUBNET FILTER IN THE RWG NODE

Pull a Configuration Template using RWG

You can also initiate a configuration change using templates from the RWG UI. This will pull a config template from Pack Manager. To do that, navigate to **System/Backup**, and click **Create New** in the section **Config Templates**.

Enter the following information:

- **Name**: Enter a name for the template
- **Remote URL**: Enter the FQDN and portal URL for Pack Manager, followed by parameters for the RWG IUI and serial number. This will allow the RWG node to fetch a template that is marked for that node. Use this format:
  `https://{FQDN}/{controller_ name}/download_template?iui=%iui%&sn=%serial_number%`

FIGURE 45 – CREATE CONFIG TEMPLATE IN THE RWG NODE

Scroll down and click **Create** to finish. After a few seconds, the RWG node will fetch the template from Pack Manager and apply it. It is also possible to create recurrent templates, which will execute every hour, day, week, etc.

Scheduled Software Upgrades and Reboot

Pack Manager can be used to schedule software upgrades and reboots for one or more RWG nodes. Click **Scheduled Upgrades** on the top menu to see the current schedule for software upgrades and reboots.

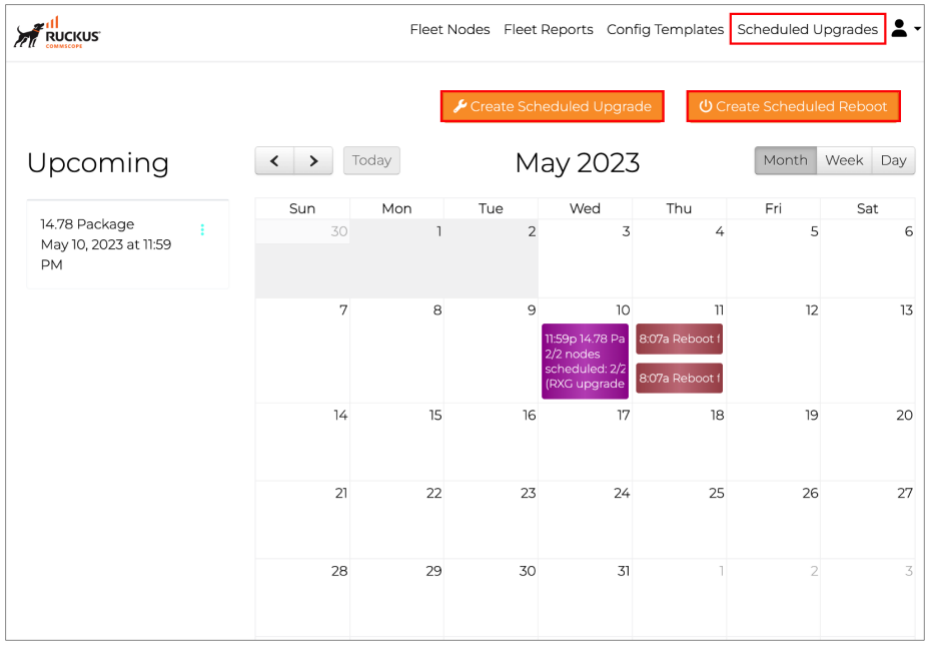


FIGURE 46 – SCHEDULED SOFTWARE UPGRADES AND REBOOTS

Software Packages

Before creating a scheduled upgrade, you need to have **Software Packages**. Scroll down to see the existing packages.

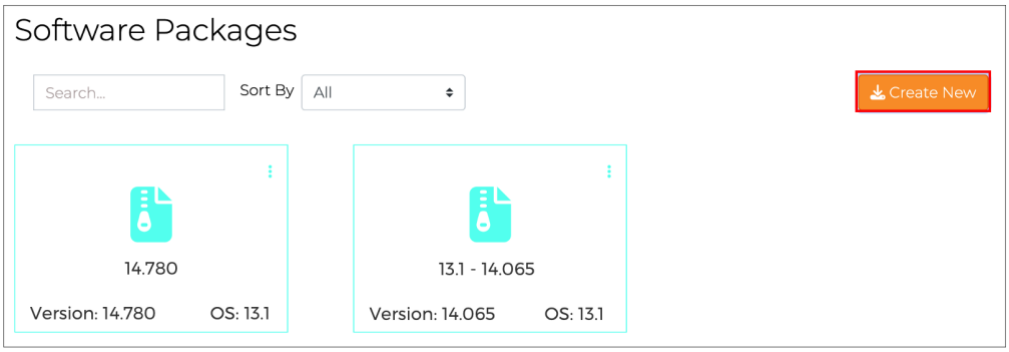


FIGURE 47 – SOFTWARE PACKAGES

Note: Currently, some screens in Pack Manager are using a a white font, so the text might not be visible. This will be fixed in a future release.

Click **Create New** to create a new package. In the following example Pack Manager will fetch the latest official image from its online repository.

Enter the following information:

- **Name**: Enter a name for the software package.
- **Username**: Enter your email for access to the RWG image repository. That's the same email used for the Resource Calculator and Asset Manager.
- **Password**: Enter your password.

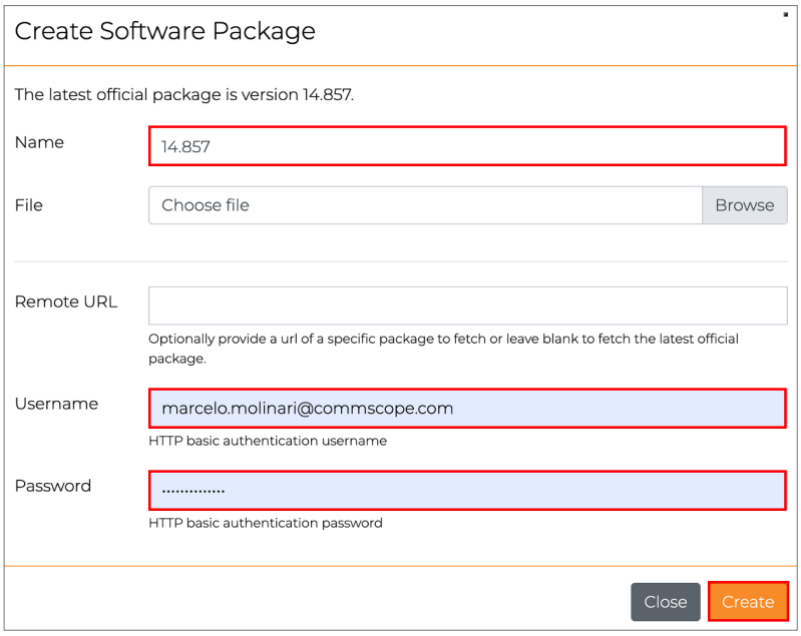


FIGURE 48 – CREATE SOFTWARE PACKAGE

Click **Create** to finish.

The new software package shows in the list.

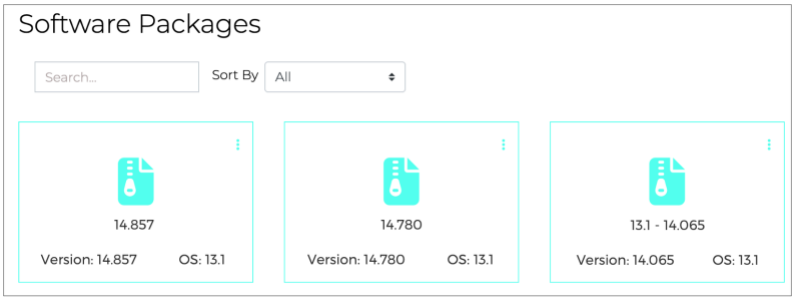


FIGURE 49 – A NEW SOFTWARE PACKAGE

Schedule Upgrades

Scroll up on the calendar page, then click **Create Scheduled Upgrade**. Enter the following information:

- **Name**: Enter a name to show in the calendar.
- **Software package**: Select the software package from the list.
- **Start at**: Define the starting date and time for the software upgrades.
- **OS upgrade**: Select **On** to upgrade the operating system.

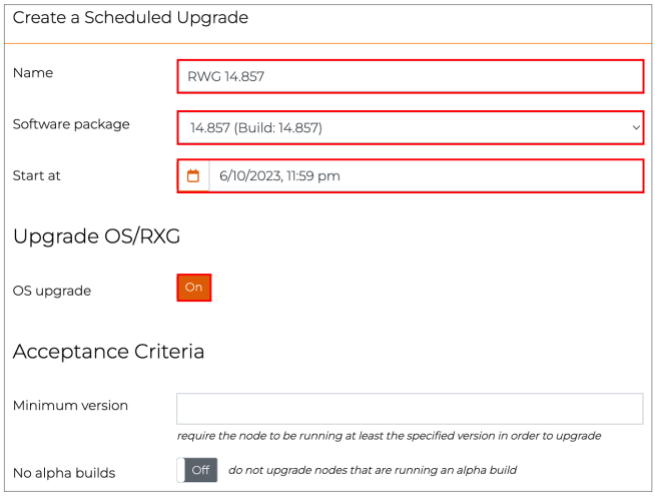


FIGURE 50 – CREATE A SCHEDULED UPGRADE

Scroll down to continue. Enter the following information:

- **Schedule mode**: Select **Immediate** to start all upgrades at the same time. You can also define staggered upgrades.
- **Fleet nodes**: Select which remote RWG nodes will be upgraded. You can also select the nodes by their membership to Fleet groups.

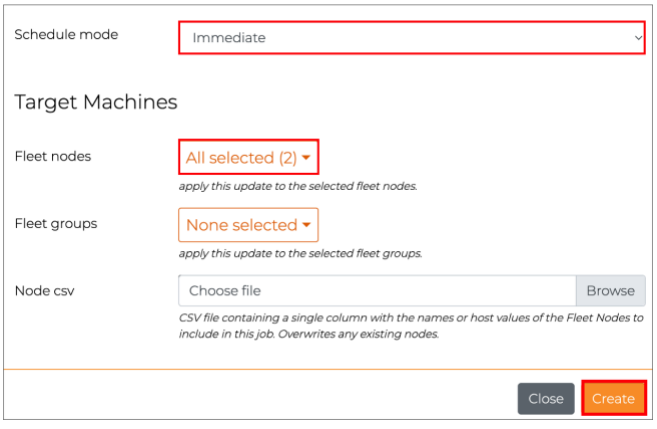


FIGURE 51 – SCHEDULE MODE AND TARGET NODES

Click **Create** to finish.

The scheduled software upgrade will show in the calendar. You can edit or delete the scheduled upgrade by clicking on the three dots menu at the left.

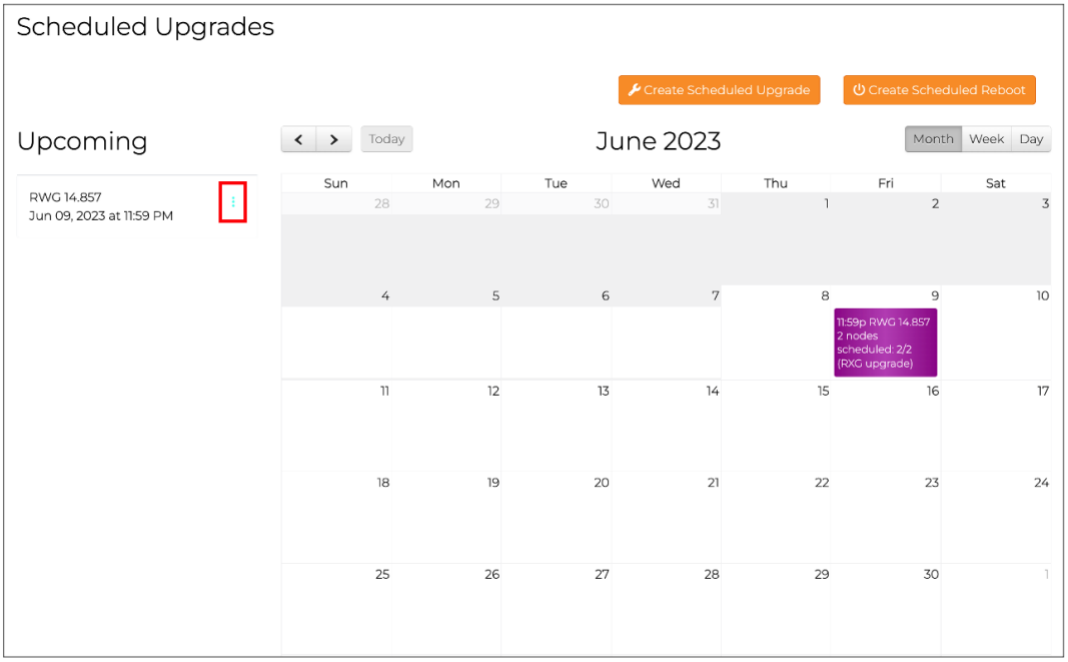


FIGURE 52 – THE CALENDAR SHOWS THE SCHEDULED SOFTWARE UPGRADE

When you click directly on the schedule in the calendar, you can see a report for the upgrade or edit it. The logs will be available after the upgrade is executed.

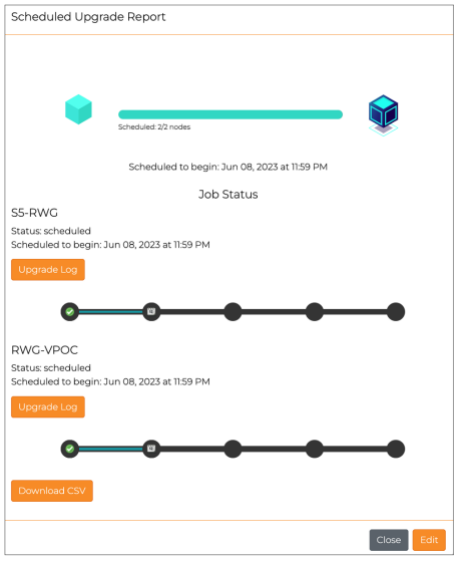


FIGURE 53 – SCHEDULED UPGRADE REPORT

Scheduled Reboot

Click **Create Scheduled Reboot** at the top of the calendar page.

Enter the following information:

- **Date**: Select the date for the reboot.
- **Fleet nodes**: Select which remote RWG nodes will be rebooted. You can also select the nodes by their membership to Fleet groups.

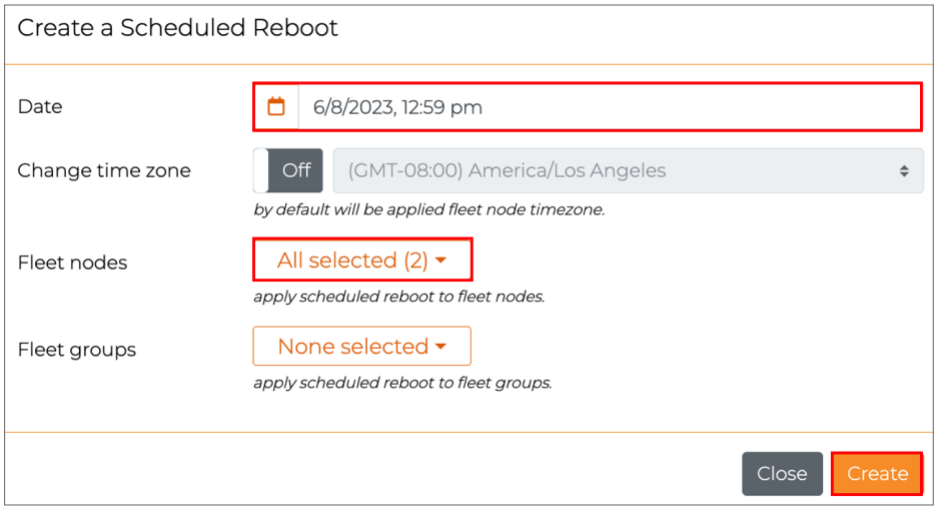


FIGURE 54 – CREATE A SCHEDULED REBOOT

Click **Create** to finish.

The scheduled reboot will show in the calendar:

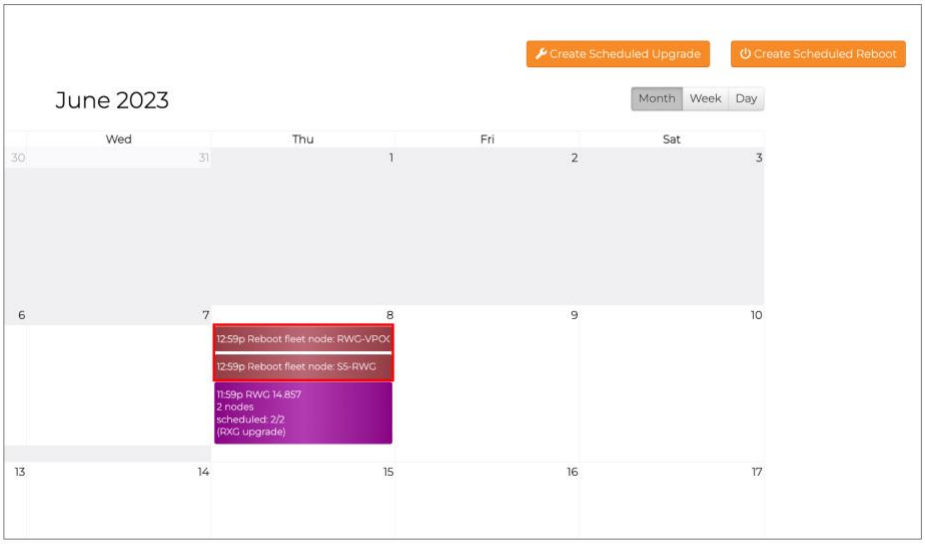


FIGURE 55 – THE CALENDAR SHOWS THE SCHEDULED REBOOT

You can edit or delete a scheduled reboot by clicking directly on the scheduled reboots in the calendar:

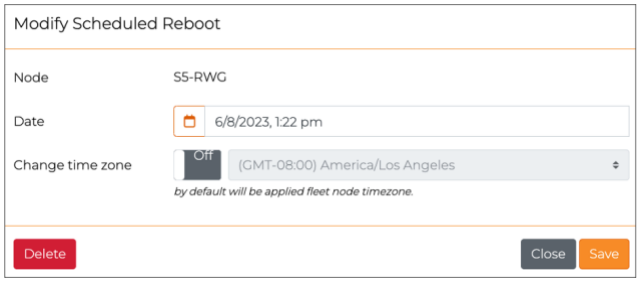


FIGURE 56 – EDIT OR DELETE THE SCHEDULED REBOOT

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- Era and OneCell in-building cellular solutions
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