

Deployment Guide

RUCKUS WAN Gateway – Basic Setup

June 2023

Rev. 1



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Changes in Revision 1

- Minor corrections and text changes.
- Added new location for RWG .ISO files.
- Added section on Config Templates.

Intended Audience

This document shows supported topologies, basic navigation and step-by-step procedures to manage and configure the basic functions in RWG.

This document is written for and intended for use by technical engineers with background in switching, Wi-Fi design and 802.11 wireless engineering principles.

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 in the product. You can access it by navigating to <u>https://{your RWG_IP_address}/admin/manual/help_online_</u>



Overview

This document includes the following sections:

- Supported Topologies
- Basic UI Navigation
- SSH Keys and SSH Access
- SSL Certificates
- Network Topology Diagrams
- RWG Software Upgrade
- RWG Backup and Restore
- Config Templates
- Basic Troubleshooting



Supported Topologies

RWG stands for RUCKUS Wireless Gateway, and as such, it is a router running NAT and DHCP, plus a RADIUS server, NAC and many other services.

Its main usage is at the edge of an enterprise network, branch office, hotel property or MDU/MTU, where it can control the incoming and outgoing traffic, using packet filters and rate limiting, act as SD-WAN/VPN endpoint, and apply policies to the wireless and wired devices in the internal network.

Therefore, in most environments, RWG is installed locally, even though it is also possible to install it remotely for specific use cases. The SmartZone controller installation can be local or remote.

The next section shows the details for the supported topologies.

Local RWG and SmartZone

In this topology RWG and SmartZone are local to the hotel property, MDU, enterprise network, etc.



FIGURE 1 – LOCAL RWG AND SMARTZONE



RWG acquires a public IP address from the ISP router and provides private IP address to the devices and clients connected at the LAN side. Microsegmentation is fully supported, and its configuration is automated by RWG. The ICX switch and the SmartZone controller are configured by RWG automatically. SmartZone acts as a proxy authenticator, and RWG is the RADIUS/NAC server.

Note: It is possible to use a private IP address in the RWG WAN interface, but in that case SD-WAN features like IPsec VPNs may not work.

Local RWG and Remote SmartZone

In this topology RWG is local and SmartZone is installed in a remote location.



FIGURE 2 – LOCAL RWG AND REMOTE SMARTZONE

As with the previous topology, RWG acquires a public IP address from the ISP router and provides private IP address to the devices and clients connected at the LAN side. Microsegmentation is also fully supported, and its



configuration is fully automated by RWG. The ICX switch and the SmartZone controller are configured by RWG automatically. But in this topology, SmartZone acts as a <u>non-proxy</u> authenticator.

This topology will work equally well as the topology where RWG and SmartZone are local to the network.

Local RWG and Remote SmartZone

In this topology both RWG and SmartZone are installed in a remote location.



FIGURE 3 – REMOTE RWG AND REMOTE SMARTZONE

Microsegmentation is not supported when RWG is installed remotely. For every microsegmentation use case, RWG defines the VLAN assignments and the DHCP scopes used by the clients. The RADIUS response from RWG with the VLAN assignment will reach the wireless clients, but the client's DHCP request will fail, because there is a router between RWG and the client network. RWG does not have control on that router. The router would



need to be manually configured with DHCP helper services for all scopes provided by RWG, and that may not be feasible in many cases.

Apart from that, there are specific use cases that do not require microsegmentation – like providing simple WiFi access to the wireless clients using authentication portals and billing – and that is fully supported in this topology. Because SmartZone is also remote, it is configured as a non-proxy authenticator.

Default Security Rules

A fresh installed RWG has a WAN and a LAN subnet, a NAT entry configured for the WAN uplink, a DHCP scope enabled for a LAN interface using the network 192.168.5.0/24, and a **Block Subnets** policy applied to all local subnets by default.

All traffic initiated from clients at the LAN side is allowed to go to the Internet, but if different subnets and DHCP scopes are created at the LAN side, the client traffic between any local subnets will be isolated.

If required, the block subnets policy can be disabled, or specific hosts can be whitelisted.







Basic UI Navigation

Login and Logout

To login to RWG, type https://{RWG_ip_address}/admin in your browser.

RWG does not have a default administrator account. One or more accounts should have been created during the RWG installation process. Enter the credentials and click **Authenticate** to login.





05:49:07 PM PST rwg-mm.ruckusdemos.net help build 14:525 logout admin RWG Billing Archives System Network Services Identities Policies Instrum logged in successfully ICX 7150-B [192.168.5.10] is OFFL rwg-mm.ruckusdemos.net - Uplink Uplink in Uplink out 13.8M 12.0M 10.0N 8.00M 6.00M 4.00M Bits per 2.00 1.18M Tue 1/24 5:52 PM Tue 1/24 8:13 PM Tue 1/24 9:36 PM Tue 1/24 11:00 PM Wed 1/25 3:10 AM Wed 1/25 4:33 AM Wed 1/25 5:56 AM Wed 1/25 7:20 AM Wed 1/25 8:43 AM Wed 1/25 10:06 AM Wed 1/25 11:30 AM Wed 1/25 12:53 PM Wed 1/25 3:40 PM Wed 1/25 5:52 PM Wed 1/25 12:23 AM Wed 1/25 Wed 1/25 2:16 PM 2K PNG I 4K PNG I PDF I POP OUT System Utilization Aggregate WAN Throughput •000 •00000 CPU 6.72

Right after login, the **Instruments** panel is shown. To logout, click **logout admin.**





The RWG User Interface

Navigation in the RWG UI starts at the top menu. The diagram below shows all menu options displayed at the same time.



FIGURE 7 – RWG USER INTERFACE

RWG uses scaffolds. Scaffolds are the forms and tables used throughout the RWG user interface.

In the example below, we navigated to **Network/Wired**, and we see scaffolds for **Switches**, **Switch Fabrics**, **Switch Port Profiles** and **Switch Ports**.

	System	ı	N	etwork		Services		Identit	ties	ţ	Policies	I	Billing		Archives		Ins	trumen	nts	
Swite	hes												🗟 Columns 🏹 R	lefresh 🛃 Ex	port 🛷 Batc	h 🛟 Zoom	? Help	Search	1 🔾 Cr	reate New
	Name 🛆	Online	Туре	Host	Monitoring	Config sync status	Locat event	tion N	Model	Version	Ports	Pms rooms	Monitoring interval	Manual	Other					
	ICX 7150- B	Ø	RUCKUS ICX Switch	192.168.5.10		Ø 01/25/2023 06:33	PM 🗹	S IS C	Stackable ICX7150- C12-POE	Version 09.0.10dT213	GigabitEthernetl/1/12, GigabitEthernetl/2/1, GigabitEthernetl/2/2, (16)		10			Show G	raph Im	port Ports	Edit	Delete
1 Found	i																			
Swite	h Fabric	cs											🔜 Columns 🏹 R	lefresh 🛃 Ex	port 🕜 Batc	h 🕂 Zoom	? Help	Search	n 🔾 Cr	reate New
	N	ame	Sw	itches	Ma	anagement I-SID			Manual	area	Primary	B-VLAN ID			Secondary B-\	/LAN ID				
										No Entries									_	
0 Foun	d																	-		
Curite	In Death D	A																		
Switt	in Port P	rotiles											🐻 Columns 🔾 R	lefresh 🛃 Ex	port 🕜 Batc	h 🛟 Zoom	? Help	Search	h 🤍 Ci	reate New
	Name	Default	Ports				Media converters		RADIUS	Tagged VLAN(s)	Routed VLANs	Untagged VLAN	Native I- SID	NNI Port	Shutdo	h - <mark>t-Zoom</mark> wn Acci	? Help	Search	h 🤤 Ci	reate New
	Name Default	Default	Ports GigabitEther (16)	netl/l/12, Cigat	bitEthemetl/2/1, G	igabitEthernet1/2/2,	Media converters		RADIUS	Tagged VLAN(s)	Routed VLANs	Untagged VLAN	Columns QR Native I- SID	NNI Port	Shutdo	wn Acci	? Help	Edit D	h Q Ci Xelete	Show
1 Found	Name Default	Default	Ports GigabitEther (16)	netl/l/l2, Gigat	bitEthernet1/2/1, Gi	igabitEthernetl/2/2,	Media converters		none	Tagged VLAN(s)	Routed VLANs	Untagged VLAN	Columns Q R Native I- SID	NNI Port	Shutdo	h - ‡- Zoom wn Acci	? Help	Git C	h 🥥 Ci	Show
1 Found Switt	Name Default th Ports	Defauit	Ports GigabitEther (16)	netIV/12, Gigat	bitEthernet1/2/1, G	gabitEthernet\/2/2,	Media converters		RADIUS	Tagged VLAN(s)	Routed VLANs	Untagged VLAN	Columns Q R Native I- SID	Columns	Shutdo	k - Zoom wn Acci	PHelp sunt	Edit C	h OC Delete Help	Show
1 Found Switc	Default Default h Ports	Default	Ports GigabitEther (16) Switch	netl///2, Gigat	bitEthernet1/2/1, C	igabitEthernet1/2/2, Number Sh	Media converters	Port Speed	RADIUS none Status	Tagged VLAN(s) - Link Net	Routed VLANs	Untagged VLAN PMS Room	Columns Q R Native I- SID	Columns	Refresh	hZoom wn Acci	PHelp ount Batch	Edit C	>elete	Show Show
1 Fourier	Name Default Chefault	Protiles Defauit	Ports CigabitEther (16) Switch ICX 7150- B	netI///12, Gigat Profile Default	Effective profile	gabitEthernet//2/2, Number Sh ethernet UV/	Media converters	Port Speed 1 Gb/s	RADIUS none Status	Tagged VLAN(s) - Link Neig s 192.168.5 CD 1E 4D	Routed VLANs 	Untagged VLAN PMS Room	Columns Q R Native I- SID	Columns C	Port Patch Shutdor	wn Acco	Packets	Edit C Zoom ? Clients	h O CI Xelete	Show Show
1 Found	Name Default CigabitEthi CigabitEthi	erneti\//1 erneti\//2	Ports CigabitEther (f6) Switch ICX 7150- B	Profile Default Default	bitEthernet//2/l, G Effective profile	gabitEthemet1/2/2, Number Sh ethemet V/0 V/2	Media converters	Port Speed 1 Gb/s 1 Gb/s	RADIUS none Status @1 CbA	Tagged VLAN(s) - Link Neig s 192,168,5, CD 1E 4E s igbS	Pouted VLANs 	Untagged VLAN PMS Room	VLAN Tag Assignments	Columns C Columns C Cr	Port Batcl Shutdo	wn Acco Export @1 Discards Discards	Packets Packets	Edit C Zoom ? Clients Clients	h O Ci Delete Help Edit Edit	Show Show Show Show
1 Fourner Switte	Name Default Default Characteristics Default D	erneti/l/2 erneti/l/3	Ports CigabitEther - (%) Switch ICX 7150- B ICX 7150- B	Profile Default Default	Effective profile -	gabitEthemeti/2/2, Number Sh ethernet VVA ethernet VV2 ethernet VV3	Media converters	Port Speed 1 Gb/s 1 Gb/s	RADIUS none Status © 1 Gb/ © 1 Gb/	Tagged VLAN(s) Link Neto s 192168.5 CD 1E 4D s igb5	Pouted VLANs hbor 4 HSIO-C 4C B1 F0	Untagged VLAN PMS Room	VLAN Tag	Columns C	Port C Batch Shutdo Refresh C aph Errors aph Errors aph Errors	Export OI Discards Discards	Packets Packets Packets	Edit C Zoom ? Cients Cients	h Ociete Celete Help Edit Edit Edit	Show Show Show Show Show

FIGURE 8 – RWG SCAFFOLDS



The most common scaffold options appear in this example:

VLAN	Interfaces		🗟 Columns 🔇 Rel	🗟 Columns 🖏 Refresh 🛃 Export 🛷 Batch 💠 Zoom 🥐 Help 🔍 Search 🛇 Create New										
	Name 🛆	Physical Interface	Service VLAN	Parent	VLAN IDs	I-SIDs	Autoincrement	Addresses	Switch Port Profiles	WLANS				
	Client VLANs	igb3		igb3	400 - 463 (64)		l tags per-subnet	Client Subnets	Client VLANs	micro, microseg	Graph	Edit	Delete	Show
	VLAN 200	igb3		igb3	200			Onboard Addresses			Graph	Edit	Delete	Show
	VLAN 500	igb3		igb3	500			VLAN 500 subnet	Client VLANs		Graph	Edit	Delete	Show
	VLAN 600	igb3		igb3	600			VLAN 600 subnet	Client VLANs	microseg, microDPSK	Graph	Edit	Delete	Show
	VLAN 700	igb3		igb3	700			VLAN 700 subnet	Client VLANs	microseg, microDPSK	Graph	Edit	Delete	Show
	VLAN 800	igb3		igb3	800			VLAN 800 subnet			Graph	Edit	Delete	Show

FIGURE 9 – THE VLAN INTERFACES SCAFFOLD

- Columns: Allows you to select which columns will be displayed in the table.
- Refresh: Click to refresh the items in the table.
- Export: Allows you to export the items in the table using .CSV, .XLSX or create config templates using YAML.
- Batch: Used to delete table items. Hover over **Destroy** to see **listed** or **marked**, to delete all items in the table or only the checked items.
- **Zoom**: Opens a new window to display the table only.
- Help: Shows a context-based help for the scaffold.
- Search: Allows you to filter items in the table. Only the items that match will show.
- Create New: Allows you to create a new item in the table.

RWG Shutdown

If RWG is installed in bare metal, you can shutdown RWG by simply pressing the power on/power off button in the server, provided that this starts a graceful shutdown (i.e., the services and OS stops, the disks are unmounted, etc). Do not use the power on/power off button if it powers off the server immediately.

A safer way to do a shutdown is to click **System** at the top menu, then scroll down and click **Shutdown**.



FIGURE 10 - SHUTDOWN



SSH Access

You need to install a public SSH key in RWG's administrator accounts in order to access the RWG console via SSH. Let's start by creating a new administrator. Navigate to **System/Administrator** and click **Create New**.

Admir	nistrators					🔓 Show	Remote 🗟 Colum	mns 🚺 Refresh 🛃 Exp	ort 🛷 Bate	:h 💠 Zoom	? Help	Sear	ch 🛈 C	reate New
	Login 🛆	Service Account	Email	Role	First name	Last name	Company	SSH Keypairs						
	admin		-	Super User	-	-	-		Journal	SSH Keys	API Keys	Edit	Delete	Show
1 Found														

FIGURE 11 - CREATE A NEW ADMINISTRATOR ACCOUNT

The **Create Administrator** form will show:

Create Administrator	
Login	marcelo
Service Account	if checked admin will be used only for API key and will not have admin gui access
Password and Confirmation	
Email	
Role	Super User v
Session Timeout (minutes)	•
	optionally override the Admin Role's session timeout value (if the role allows it). O disables expiration, leave blank to inherit from role
Contact (Hide)	
First and Last name	
Company	
Department	
Mobile	
Office	
Preferred	email ~
Note	
Remote Console (Show)	
Create Cancel	

FIGURE 12 – CREATE ADMINISTRATOR

Enter the following information:

- Login: Enter a username
- Password and Confirmation: Enter the password.

Click Create to finish.



Let's now see three methods to create a SSH key pair:

- Using MacOS in a Mac computer
- Using Termius in a Mac computer
- Using PuTTYgen in Windows

Create a SSH Key Pair Using MacOS

Open a terminal in your Mac computer and enter the command ssh-keygen -b 4096 -t rsa, then follow the instructions.

You can keep the proposed filename (id_rsa) and the passphrase (empty).



FIGURE 13 - CREATE THE SSH KEY PAIR

Use the command cat /Users/marcelo/.ssh/id_rsa.pub to see the public key and copy the entire string. Change the path to match your environment.

Marcelos-MacBook-Pro:home marcelo\$ cat /Users/marcelo/.ssh/id_rsa.pub ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAACAQDW8BMidgspiF+B07WMfRrN16sMaPu1DIaro/IIk112AQ2H33J5EkI4WKUSxgWc6+VNVNXsglGp 75j14zuZNHK775qUkWkyP02yusiLhORI2hFPOzWU1TdyvC31ZPkvHMor4KagC5qno+W2WE68WxVtrY0B7wiDs2JCeqGkFsK03OKwZdCvcObrxgP6 0LT0tEHE5J26UjB1w8496baXXrtBCRXmbXHWufxRmv3ISaq+DsSrYNai6isnkspGXQVcCBf+tcfvfLNey+EwJvTPv4TLtlQtCIZQHvH8LNFXCCPy /IeDHIvJ6/q5Evr1kZqTMwHaHx+ApxMW6bqYKN//2nxK40kk9uzKcEAWzX6776HP8pxf/Y51RuXjjomYBvtk6AM84QRuyXOQfxLMyuv2U7IP1CT2 aLRUH1SLuUZAGjVyiMiGDvvzNLriBM0nD1xXUTUNOr+Gxh0+P8kN+jURmpdeK7mATjdDubZTyHMv5fMwwICyf3W7Vdhga8I4cf19zNpMwnJq+jDN XJmeSwBdHGF/SXRFpOTg1RYzNkGGmB+WVyjgeOHOUUSifyIamLzB5Ood6i1Mgs3a/VuoTERcqqps4L5BPd0vUqhY93gALsMK2dp4UtHpIpEgLN32 kCZY/8h7u05Zt1BNBqwNWYH0kcT8pdFS0den8tRSpGAFggcEjQ== marcelo@Marcelos-MacBook-Pro.local

FIGURE 14 - COPY THE PUBLIC KEY



Now, navigate to System/Administrators and click Edit on the entry where you wish to add the public key.

Admi	nistrators				Show Remote	🗟 Columns 🎧 Refresh	Export 🛷	Batch 💠 Zoom	? Help	🔍 Sean	ch 🕥 C	reate New
	Login 🛆	Service Account	Role	First name	Last name	SSH Keypairs						
	admin		Super User			admin key	Jour	nal SSH Keys	API Keys	Edit	Delete	Show
	marcelo		Super User	-	-			Journal	SSH Keys	Edit	Delete	Show

FIGURE 15 – EDIT THE ADMINISTRATOR ACCOUNT

The update account form will show. Enter the following information:

- **Name**: Enter a name for the key
- **Public key**: Paste the public key you copied from the MacOS terminal.
- Authorized for Admin login: Make sure the checkbox is marked.

Update marcelo		
Login	narcelo	
Password and Confirmation		
Email		
Role	uper User 🗸	
Session Timeout (minutes)	٥	optionally override the Admin Role's session timeout value (if the
Contact (Hide)		
First and Last name)[
Company]
Department]
Mobile]
Office]
Preferred	email v	
Note		
Remote Console (Hide)		
SSH Keypairs (Hide)		
Name	Public key	Authorized for Admin login
RWG	ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAACAQDW8BI u1Dlaro/llk1l2AQ2H33J5Ekl4WKUSxgWc6+VNVN yP02yusiLhORl2hFPO2WU1TdyvC31ZPkvHMor4k wiDs2JCeqGkFsK03OKwZdCvcObrxgP60LT0tEHE mbXHWufxRmv3lSaq+DsSrYNai6iankspGXQVcCE ZQHvH8LNFXCCPy/leDHI\vJ6lq5EvrlkZqTMwHaH: //2nxK4Okk9uzKcEAWzX6776HP8pxf /Y51RuXjjomYBvtk6AM84QRuyXOQfxLMyuV2U7I DvvzNLriBM0nDlxXUTUNOr+GxhO+P8kN+jURmp	MidgspiF+BO7WMfRN165MaP XsglGp75jl4zuZNHK775qUkWk agC5qno+W2WE68WxVtrY087 5J26UjB1w8496baXXRIBCRX sl+tcfvfLNey+EwJvTPv4TLtlqtCl (+ApxMW6bqYKN PICT2aLRUHISLuUZAGjVyiMiG deK7mATjdDubZTyHMv5fMwwl
	FIGURE 16 – UPDATE THE ACCO	UNT

Click **Update** to finish.



Using the account where you copied the public key, connect from a MacOS terminal using the command ssh username@FQDN-or-IP-address

Marcelos-MacBook-Pro:~ marcelo\$ ssh marcelo@10.0.0.144 The authenticity of host '10.0.0.144 (10.0.0.144)' can't be established.
ED25519 key fingerprint is SHA256:YdrzGctyybNeDSvhprgqJR909c0mxuVSHFFCxPSH7hA. This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes Warning: Permanently added '10.0.0.144' (ED25519) to the list of known hosts.
WARNING -
YOU CAN EASILY BREAK THINGS HERE

CLI access is for troubleshooting and advanced integration only.
Please use the web GUI for all normal administrative operations.
https://rwg-mm.ruckusdemos.net/admin

FIGURE 17 – SSH CONNECTION TO RWG



Create a SSH Key Pair Using Termius

Termius is a popular SSH client for Mac computers.

At the Mac's top menu, select Termius/Settings/Keychain, then click NEW/Generate new key:

Settings			
Account	NEW A EIDO2 V S BIOMETRIC	C KEY	Q
Invite People	Import or paste a key		
Terminal	P Generate new key		
SFTP	Lew Identity	MacOS Type ED25519	Type ED25519 Type ED25519
Shortcuts	rwg Type RSA	vPOC key Type ED25519	vPOC key Type E025519
Known Hosts			
Keychain	Type ED25519 Type ED25519	id_rsa Type ED25519	ubuntu-aws.pem Type RSA
Theme Light ~	RSA Type RSA		
Documentation			
Request a Feature	Identities		
Report a Bug 🛛	mmolinari		
Changelog 🛛	Auth password and key		
Version 7.55.2			

FIGURE 18 - GENERATE SSH KEYS USING TERMIUS

Enter the following information:

- Label: Enter a name for the key
- Key type: Select RSA
- Key size (bits): Select 4096

Generate Key →I	RWG_MM
Label	Private key* BEGIN RSA PRIVATE KEY MIJJKQIBAAKCAgEAzjYYIDFvcMCvNNcj9X3J 72bhNyo7hTjAHn54LRf2tOMvwYPK be0w2H5WbtWK78XjF6rKqwBsp9wjVjZtu68h
Key type	WQjn2cVlasV8rb5Ykf6neolQdIxm oUicafxbn0IougdvA+TLOKx/Pat+10N6YZLr XeQQQle9TWXuLEwP/tcjW9dFJkh0
ED25519 ECDSA RSA	X6r7RJ25F1pP2v+mKSyJgu+BTsLFeUZWQRdV f9y80zHxz7ApUt0DBC5ZJU5QsLD0 lkYIOUU0Qw38nz40Ie/Hg5rTnlCZi1fDcsB4
Key size (bits) 4096 2048 1024	agV80M/71PY45M5+WDMEdyU1XTU6 OvtYKZwYd9kLb54L/jQiyHadNjVZ1um+u8NC Tf7Pv5zB3wYTYd5bVNT+LZXs3w9D
	Public key ssh-rsa AAAAB3NzaClyc2EAAAADAQABAAACAQDONhgg MM9xXK80lyPlfcnvZuE3KjuFOMAefngtF/aC
Passphrase	Sa/Bgopt/JDIII2dIIFYXeMAgkfrAGyn3CMW Nm27ryFZCOfZxWVqxXytvliR/qd6jVB0jGah SJxp/FufQii6B28D5Ms4rH89q37XQ3phkudd 7PBrVJ1NZe4eTA/±1Nb18mcF5frutFbbkk
Save passphrase	<pre>Kk/a/SypLKOC77xOvsV5RL2BF1V/3Lw7MfHF scls3QMEL1klTlCwsP5WRqg5RTRDDfyFg4H 78eDmtOeUJmLV8NyWHhqBXyg29OI9jjks7 MwR3JSVdMTO6+lgpnBh32Qtvngv+NCLIdp02</pre>
Generate & save	NVmW6b67w05N/s+/nMHfBhNh3ltU1P4tlezf D007r70X5BsdEuJoL0GlwSXvTRiA4h COPY

FIGURE 19 – GENERATE KEY AND COPY THE PUBLIC KEY

Click **Generate & save** to finish, then copy the public key using the **COPY** button.



Now, navigate to **System/Administrators** and click **Edit** on the entry where you wish to add the public key.

Admi	nistrators		Show Remote	Columns 🕻 Refres	h 🛃 Export 👩 Ba	tch 💠 Zoom	e ? Help	Search	n 🔘 C	reate New
Select	t All Select No	ne								×
Log	gin 🗹 Service Ac	count 🗌 Email 🗹 Ac	lmin Role 🗌 First Na	me 🗌 Last Name 🗌 Con	npany 🗹 Ssh Keypair	S				
	Login 🛆	Service Account	Role	SSH Keypairs						
	admin		Super User	admin key	Journal	SSH Keys	API Keys	Edit [Delete	Show
	marcelo		Super User	RWG		Journal	SSH Keys	Edit [Delete	Show
	sheldon		Super User			Journal	SSH Keys	Edit [Delete	Show

FIGURE 20 – EDIT THE ADMINISTRATOR ACCOUNT

The update account form will show. Enter the following information:

- Name: Enter a name for the key
- **Public key**: Paste the public key you copied from Termius.
- Authorized for Admin login: Make sure the checkbox is marked.

Update sheldon					
Login	sheldon				
Password and Confirmation					
Email					
Role	Super User	~			
Session Timeout (minutes)			opti	onally override the Admin R	ole's session timeout value (if the
Contact (Hide)					
First and Last name					
Company					
Department					
Mobile					
Office					
Preferred	email ~				
Note		lin dia			
Remote Console (Hide)					
SSH Keypairs (Hide)					
Name BWG-Termius	Put	blic key 9fnBza95dnHEtb.lt69COV1cY2	1 xPIX.lalu7ikSxvP.lOv	0cHaJCJOoU24nHdUE5C	Authorized for Admin login
THE Contract	c Dil VF BF KZ Iki BS BS BY	Fbli8aqsZRuEImDbzvVNV4vd k0X38BBJGjaebxQspjrpeMYF 9579IkEJ-spjrp4MYF rT+EEUpUTeI8r8HL+EnR1jqU OgmG5keYHXDFnL++d R9JU40C6Zt1EbxdskLJQ8wqV cb+9xBOwcTopJOLMTyNqzJ1I Termius	DiOY91efLwAt8reju6q SLwU+7jsKyhZYAv6O 9Vwu+V <u>UCBn</u> +JXhIY2 VxZIAzXh53uI3TBe6bt ZNaNpHddjCujlb9okac cQHT7ZdCLIBQP3vk8	30NKabo4p2EAd8YKyqHb 56C4mi8rV2OHCSKuUQi45 29bLrECwFjP/YTzJPw8 74I9ds2pqCRw5zQC3f7xg 1qhAD9ASbABIxEGmRzKB CVjk8PTQ== Generated	Allow this key to log in as the admin via SSH
Create Another SSH Ke	ypair				
Update Cancel					

FIGURE 21 – UPDATE THE ACCOUNT

Click Update to finish.



On Termius, click **Hosts/Add/New Host**, then enter the following information:

- Label: Enter a name for the host
- Address: Enter the IP address or FQDN
- SSH: Make sure SSH is on
- Username: Enter the account in RWG where the public key was copied
- Set a Key: Click and select the SSH key pair you created earlier.

The host profile will be saved automatically.

RWG		id_rsa Type ED25519
Address * 10.0.0.144		MacOS Type ED25519
Parent group	Groups	RSA RSA
Add a Tag		Type RSA
Backspace as Ctrl+H		rwg Type RSA
		RWG_MM Type RSA
Share this host 🔑		rwg-bio Type ECDSA
SSH		
Port 22 (Default)		
sheldon		
Password	Ø	
RWG_MM	Remove	
Set a Key Set an Ide	ntity	

FIGURE 22 – CREATE A NEW HOST IN TERMIUS

Click on the host profile at the Termius main panel to connect to RWG:

Hosts	
RWG ssh, sheldon	RWG Home 192 EX 7150-B sah, super
H510-B ssh, admin	R550 ssh, admin RWG Home
R750 ssh, super	Telnet 7850 telnet telnet
••• © 4 =	Last login: Mon Jan 23 20:29:14 2023 from 10.0.0.180
📰 Hosts	
SFTP	, . ,. , ⁻ , , ⁻ . . / \) \ \\ /)) -< \ \ \
Port Forwarding{} Snippets	
>_ RWG	YOU CAN EASILY BREAK THINGS HERE
J History Q	************************
RWG	CLI access is for troubleshooting and advanced integration only.
RWG !	Please use the web GUI for all normal administrative operations.
RWG Home 192 ICX 7150-B	https://rwg-mm.ruckusdemos.net/admin
New RADsec proxy	***************************************
RWG Home 192	

FIGURE 23 – SSH CONNECTION TO RWG



Create a SSH Key Pair Using PuTTYgen

PuTTY and **PuTTYgen** are popular SSH tools used in Windows computers. Type <code>puttygen</code> in the search field at the Windows bar to invoke PuTTYgen.

e Key Conversions Help		
Key		
No key.		
Actions		
Actions Generate a public/private key pair		Generate
Actions Generate a public/private key pair Load an existing private key file		Generate Load
Actions Generate a public/private key pair Load an existing private key file Save the generated key	Save public key	Generate Load Save private key
Actions Generate a public/private key pair Load an existing private key file Save the generated key Parameters	Save public key	Generate Load Save private key
Actions Generate a public/private key pair Load an existing private key file Save the generated key Parameters Type of key to generate:	Save public key	Generate Load Save private key

FIGURE 24 – CREATE A SSH KEY USING PUTTYGEN

Select **RSA** and enter **4096**, then click **Generate**.

Move your mouse over the blank area to randomize the creation of the key pair.

RUCKUS WAN Gateway – Basic Setup



		×
ile Key Conversions Help		
Key		
Please generate some randomness by moving the mouse over	the blank area.	
Actions		
Actions Generate a public/private key pair		Generate
Actions Generate a public/private key pair Load an existing private key file		Generate
Actions Generate a public/private key pair Load an existing private key file Save the generated key	Save public key	Generate Load Save private key
Actions Generate a public/private key pair Load an existing private key file Save the generated key Parameters	Save public key	Generate Load Save private key
Actions Generate a public/private key pair Load an existing private key file Save the generated key Parameters Type of key to generate:	Save public key	Generate Load Save private key
Actions Generate a public/private key pair Load an existing private key file Save the generated key Parameters Type of key to generate:	Save public key	Generate Load Save private key OSSH-1 (RSA)

FIGURE 25- CREATE SOME RANDOMNESS

After the key pair is created, click **Save public key** and **Save private key** to save them in your computer.

e Key Conversion	is Help			
Key				
Public key for pasting	into OpenSSH auth	orized_keys file:		
ssh-rsa AAAAB3Nza +TOZe6j3imVcGo/Z +qLnC2To0R1QS4cl +eKXK3JGjkctDXQsr Aoe8lovP8vUCGDe	C1yc2EAAAADAQA WXTKq/6uXJiutuWl0 _/nhiFakTq4ImqoyTl nsUK172wp1MlwbvQ u	BAAACAQCp+hKDMcH/ aSMGpQzPS+oU+sGcjK Pt5jrvjwekgAYKuO6hlUi+ 11dJFaSq0fBNJwadj1UL	AUXU0GuX40x7g9tuJ3mAu HUczWrXTGu7HrKI0H7699 9aduhE57dgYV5aE1F L8jys6QXY1z7UdYTsOiUad	cHkT ITZLoZoyyZRg8adiF0eqmh
Key fingerprint	ssh-rsa 4096 SHA	256:XuwcGdrnZ6HvTpIN	dvK25n43M8h/oOSetUH+o9	ZxVtM
Key comment	rsa-key-20230123			
Key passphrase:	[
Confirm passphrase:				
Actions				
Generate a public/pri	vate key pair			Generate
Load an existing prive	ate key file			Load
Save the generated I	(ey		Save public key	Save private key
Parameters				
Type of key to gener	ate:	OECDSA	OEdDSA	OSSH-1 (RSA)
● RSA				

FIGURE 26 – SAVE BOTH KEYS

Open the file for the public key and copy its entire content.



Navigate to System/Administrators and click Edit on the entry where you wish to add the public key.

Admi	inistrator	s		🔓 Show R	temote 📑 Colu	mns 🚺 Refresh 🛃	Export 🛷 Bate	ch 💠 Zoor	n ? Help	🔍 Sea	rch 😳 C	reate New
	Login 🛆	Email	Role	First name	Last name	SSH Keypairs						
	admin		Super User			admin key	Journal	SSH Keys	API Keys	Edit	Delete	Show
	marcelo		Super User			RWG		Journal	SSH Keys	Edit	Delete	Show
	sheldon		Super User	-	-	RWG-Termius		Journal	SSH Keys	Edit	Delete	Show
	simone		Super User					Journal	SSH Keys	Edit	Delete	Show
4 Foun	d											

FIGURE 27 – EDIT THE ADMINISTRATOR ACCOUNT

Enter the following information:

- Name: Enter a name for the key
- Public key: Paste the public key you copied from the file.
- Authorized for Admin login: Make sure the checkbox is marked.

Update simone		
Login	simone	
Password and Confirmation		
Email		
Role	Super User v	
Session Timeout (minutes)	optionally override the Admin	Role's session timeout value (if th
Contact (Hide)		
First and Last name		
Company		
Department		
Mobile		
Office		
Preferred	email v	
Note		
Remote Console (Hide)		
SSH Keypairs (Hide)		
Name	Public key	Authorized for Admin login
RWG-Putty	BEGIN SSH2 PUBLIC KEY	
	AAAAB3NzaC1yc2EAAAADAQABAAACAQCp+hKDMcHAUXU0GuX40x7g9tuJ3m	Allow this key to log in as the admin via SSH
	Au+TOZ	
	/6uXJiutuWl0aSMGpQzPS+oU+sGcjKHUczWrXTGu7HrKIOH	
	7699cHkT+qLnC2To0R1QS4cL/nhiFakTq4ImqoyTPt5jrvjwekgAYKuO6hlUi+9a	
	ULL8jys6QXY1z7UdYTsOiUadTZLoZoyyZRg8adiF0eqmhAoe8lovP8vUCGDeu+FK	
	VIU76mZoCzC5586L/Gp6O9L1FDtFeSpmPcK0ncFEPwNRptaPyM3Og9w5+pRNIt	
Create Another SSH Key	pair	
Update Cancel		



Click Update to finish.



Type **putty** in the search field at the Windows bar to invoke PuTTY.

Click **Session** and enter the FQDN or IP address for your RWG instance.

🚍 Session	^	Basic options for your PuT	TY session				
- Logging - Terminal - Keyboard - Bell - Features		Specify the destination you want to con Host Name (or IP address) 10.0.144	Port 22				
-Window - Appearance - Behaviour - Translation		SSH Oserial Other:	Telnet				
- Selection Colours Connection		Saved Sessions Default Settings	Load	ł			
SSH Kex Host keys			Save	e			
Cipher Auth Credentials GSSAPI		Close window on exit O Always O Never O Only	Close window on exit Always Never Only on clean exit				

FIGURE 29 – PUTTY CONFIGURATION

Click **Data** and enter the account name in RWG where the public key was copied.

Logging Logging Terminal Keyboard Bell Features Window Appearance Behaviour Translation Selection Colours Colours Colours Colours Serial Telnet Rlogin SUPDUP	Data to send to the server				
	Login details Auto-login username When username is not sp Prompt OUse sy	simone ecified: stem username (aheli)			
	Terminal details Terminal-type string Terminal speeds	xterm 38400.38400			
	Variable Value	Add			





Click **Credentials** then click **Browse...** and select the file you saved earlier with the private key.

Logging Terminal Keyboard Bell	^	Credentials to authenticate with	Lo
- Features - Window - Appearance - Behaviour - Translation - Colours - Colours - Connection - Data - Proxy - SSH - Kex - Host keys - Cipher - Auth - Credentials - GSSAPI - TTY - Vita		Public-key authentication Private key file for authentication: C:\Users\aheli\OneDrive\Desktop\rwg.ppk Certificate to use with the private key: Plugin to provide authentication responses Plugin command to run	Browse
- Tunnels	~		

FIGURE 31 – ADD THE PRIVATE KEY

Go back to **Session**, then enter a name for the session and click **Save** to save the configuration.

Finally, click **Open** to connect to RWG. Click **Accept** to continue.







SSL Certificates

RWG comes with a self-signed SSL certificate. For production networks you will need a valid certificate. It's recommended that a non-wildcard certificate be used. Some Windows computers might not work correctly when using 802.1X-EAP, if RWG is configured with a wildcard certificate.

You can generate a CSR request from RWG directly. Your RWG instance needs to have a public DNS entry before you start the CSR request.

In our example RWG will send the CSR to **Let's Encrypt**. Let's Encrypt offers free SSL certificates with the following limitations:

- The certificate expires after 3 months (but it is renewed by RWG automatically).
- Let's Encrypt rate-limits the certificate renewals. Large service providers with hundreds of SSL certificates will not be able to use Let's Encrypt.
- The security level of the Let's Encrypt certificates is not adequate for PCI transactions.

For large deployments, or for use cases not covered by Let's Encrypt, simply generate the CSR in RWG, then download the CSR and send it to your preferred certificate issuer.

After you have a public DNS entry set and published for your RWG, you need to change the RWG FQDN. By default, RWG's FQDN is **rxg.local**.

Navigate to System/Options, then click Edit in the Default entry at the section Device Options.

Device Options 🖓 Refresh 🖉 Export 🕜 Batch 💠 Zoom ? Help 🔍 Search								p 🔍 Search 🔇 Create New		
	Active	\bigtriangledown	Name	FQDN	Time zone	Country	NTP	SSH Port	SMTP	
			Default	rxg.local	(GMT-08:00) America/Los Angeles	US	rgnets.pool.ntp.org	22	localhost:25	Edit Delete Show
1 Found										

FIGURE 33 - DEVICE OPTIONS



Enter a new name and the FQDN for your instance:

Update Default		
Name	RWG-MM	
Active		
FQDN	rwg-mm.ruckusdemos.net	FQDN resolves
Time zone	(GMT-08:00) America/Los Angeles ~	
Country	United States (US)	
NTP Server	rgnets.pool.ntp.org	
SSH Port	22 ~	
SOAP Server	enable SOAP access on port 448	
Note		
SMTP (Hide)		
		-
Server Address	localhost	
Server Port	25]
Username]
Password]
Logging (Hide)		
Log rotate hour	3 V hour when nightly maintenance is performed	
Log rotate count	10 🖌 number of archived log files to retain	
Log level	Info ~	
Advanced (Show)		
Update Cancel		

FIGURE 34 – UPDATE DEFAULT

Click **Update** to finish. RWG's web service will reinitialize automatically.

Next, navigate to System/Certificates, scroll down and click Create New in the section Certificates.

Certifi	cates		📾 Wi	nitelist Validation Hosts	🗟 Columns 🕻 🕻	Refresh 🛃 Export 🛷 B	atch 💠 Zoom	? Help 🔍 Search	Create New
	Active	\bigtriangledown	Name	Subject	lssuer	Expiration	CA	EST Server	
					No Entries				
0 Found									





The **Create Certificate** form shows. Enter the following information:

- Name: Enter the name for the certificate. Here, we used the FQDN for RWG.
- CA: Select Trusted third-party
- Sign mode: Select Generate CSR and obtain certificate from Let's Encrypt

Create Certificate	
Active	
Name	rwg-mm.ruckusdemos.net
Кеу	BEGIN RSA PRIVATE KEY MIIEpQIBAAKCAQEA339nIJ4Eq190MzE7A4U83R5Elodr3qy96H251/po+HnuLfjS poTW94VWICyE3iBgxGxcxFkbLyHgSBO3qDsCCwlKD6jhqdIInA5EEVPYfquR0AaG ZXvENRazaNd6xBU+VX352/rs7pFNVsy4hdq7XiuPVI92YmGVzfbeJJbpAKqwh0N1 NsG0wQboJ5MeHUG200zf1B5/S2joOpf/ossv4xJJABhbENrcN4jBFFSAFe673DPD ZWVdjPil0HKsoKHk0ikl0z8Q9MEXQ405z+Kq1T0Eu2EQu3dyTgVH9Yt2ZaL46dSH CKK0IHb2+nZMGdBZIIE9pBkAnIKZMqxNuWUsaQIDAQABA0IBAGjh3eCFp0TYxKwd Z0dQqG5P/PnzFSELSZeoIId8oPQyLB7wzNIONt8zeGZi3ftrkF29SI9wDXzB1gGd FyvgfSX2twXASAtnKFkrrK/A/DD9jND1rv5C5aHQRGNn85m/KmBuXOnpyHRwRa39 Jn7SVelsYbfaFdj0WMGuHzNmin0fxXZNLWVKRXqoIDCTbjv7mqvSMyngdtRW9hQC
Intermediate	
Certificate	
CA	Trusted third-party V local issuer (optional)
EST Server	None SST server to request a certificate from via RFC 7030
Certificate signing request	(Hide)
Name rwg-mm.ruckusdemos.net Usage server ExtendedKeyUsage (EKU) extension Sign mode	n
Generate CSR and obtain certificat	e from Let's Encrypt

FIGURE 36 - CREATE CERTIFICATE



Scroll down and enter the following information:

- Common Name (CN): Enter the FQDN for RWG.
- Country Code (C): Enter the 2-letter country code for where RWG is installed.
- State (ST): Enter the state. Do not use initials.
- Locality (L): Enter the city.
- Email address: Enter an email for contact. Do not use your personal email.

Common Name (CN)	
rwg-mm.ruckusdemos.net	
fully qualified domain name	
Country Code (C)	
US	
2 letter country code	
State (ST)	
California	
state/province	
Locality (L)	
Sunnyvale	
city/location	
Organization (O)	
company	
Organizational Unit (OU)	
section/division	
Email address	
webmaster@commscope.com	
Create Cancel	

FIGURE 37 - CREATE CERTIFICATE (CONT'D)

Click **Create** to finish.



RWG will contact Let's Encrypt and send the CSR. If all is right, a new certificate entry will show in the **Certificates** section.

Click **Edit** in the certificate entry, then mark the **Active** checkbox. Scroll down and click **Update** to finish.

Ce	ertifi	cates						Whitelist Validation Hosts	🐻 Colun	nns 🕻 Refresh [Export 🛷 Batch	Zoom 🥐 Help 🔍 Se	earch 🔇 C	reate New
(Active 🗢	Name	Subject	Issuer	Expiration	CA	EST Server						
(rwg-mm.ruckusdemos.net	rwg-mm.ruckusdemos.net	R3 Let's Encrypt US	3 months and 22 hours			Renew	Download DER	Download PKCS#12	Download PEM Edit	Delete	Show
1 Fi	ound													

Update rwg-mm.ruckusdem	os.net	
Active		
Name	rwg-mm.ruckusdemos.net	
Key	BEGIN RSA PRIVATE KEY MIIEpQIBAAKCAQEA339nIJ4Eq190MzE7A4U83R5Elodr3qy96H251/po+HnuLfjS poTW94VWICyE3iBgxCxcxFkbLyHgSBO3qDsCCv1RD6jhqdIInA5EEVPYfquR0AaG ZXvENRazaNd6xBU+VX352/rs7pFNVsy4hdq7XiuPV192YmGVzfbeJJbpAKqwh0N1 NsGOwgboJSMeHUG200zf1B5/S2joOpf/ossv4xJJABhbfNrcN4j8FFSAFe6r3DPD ZWVdjPilOHKsoKHk0ikl0z8Q9MEXQ405z+Kq1T0Eu2EQu3dyTgVH9Yt2zaL46dSH CKK0Hb2+nzMcdBzIIE9pBkAnIKzMqxNuWUsaQIDAQABAOIBAGjh3eCPp0TYxKwd Z0dqG5P/DnzFSL5Zse0Id8oPQyLB7wzNIONt8zeGzi3ftrkF29SI9wDxzBlgGd FyvgfSX2twXASAtnKFkrrK/A/DD9jND1rv5C5aHQRGN85m/KmBuXOnpyHrwRa39 Jn7SVelsYbfaFdj0WMGuHzNmin0fxX2NLWvKRXq0iDCTbjv7mqvSMyngdtRW9hQC	private key
Intermediate	BEGIN CERTIFICATE MIIFF jCCAv6gAwIBAgIRAJErCErPDBinU/bWLiWnX1owDQYJKoZIhvcNAQELBQAw TzELMAkGA1UEBhMCVVMxKTAnBgNVBAOTEILudGVpbmV0IFN1Y3VyaKSIFJ1c2Vh cmNoIEdyb3VwMRUwEwYDVQQDEwxJU1JHIFJvb3QgMDEwHhcNMjAwOTAOMDAwMDAw WhcNMjUvoTEIMTYwMDAwijAyMoswCQYDVQQCEUJVU2EWMBQGAIUEChMNYGV03Mg RW5jcn1wdDELMAkGA1UEAxMCUjMwggEiMA0GCSqGSIb3DQEBAQUAA4IBDwAwggEK AoIBAQC7AhUozPag1NMFEuyNVZLD+ILxmaZ6QoinXSaqtSu5XUyxt45r+XXI09cP R5QUVTVXjJ6oojkZ9YI8QqlObvU7wy7bjcCwXPNZOOftz2nMWgdSvSCUJCWH+jdx sxPnHKZhm+/b5DtFEUkWwqcFTzjTLW61ru2P3mBw4qVUq7ztDpelQDRrK9088utm NHZ6a4uPVymZ+DAXXDpyb/uBxa3Shlg9F8fnCbvxK/eG3MHacV3URuPMrSXBiLxg	issuer certificate (optional)
Certificate	BEGIN CERTIFICATE MIIFMDCCBBigAwIBAgISBO7KiaFw9xHGrFNSiUDvKZUvMA0GCSqGSIb3DQEBCwUA MDIxCzAJBgNVBAYTA1UTMRYwFAYDVQQKEwIMZXQncyBFbmNyeXB0MQswCQYDVQQD EwJSM2AeFw0yMzAxMjQxOTUxMDhaFw0yMzA0NjQxOTUxMDdaMCEXHZAdBgNVBAMT FnJ3ZyItbSydWhrdXNkZW1vcy5uZXQwgBiAMAOCSQGSID5DDEBAQUAA1BDbwAw ggEXAoIBAQDff2cgngSqX3QzMTsDhTzdHkSWh2verL3ofbmX+mj4ee4t+NKmhNb3 hVYgLTEIGDEbFzEWRsvIeBIE7ecOwILCUOPqOGB0gicDkQRU9h+d5HQBoZle801 FrNo13rEFT5Vffnb+uzukU1WzLiF2rteK49Uj3NiYZXN9t4klukAqrCHQ3U2W7B Bugnkx4dQbbTTN/UHn9La0g61/+iyy/jEkKAGFt82tw3IFWUVIAV7qvcM8NIZV2M +KU4cqygoeTSKSU7PxD0wRdDg7nP4qrVM4S7YRC7d3JOBUf1i32lovjp1IcIqQ4g	host certificate
CA	Trusted third-party v local issuer (optional)	
EST Server	None V EST server to request a certificate from via RFC 7030	

FIGURE 38 – MAKING THE CERTIFICATE ACTIVE

Now, if you close and restart your browser, the URL will show a secure SSL connection.



FIGURE 39 – A SECURE CONNECTION



Network Topology Diagrams

RWG uses discovery protocols like LLDP or CDP to learn about infrastructure devices and to create topology diagrams including adopted devices.

By default, all discovery protocols are disabled.

Click **Network** at the top menu to see the basic diagram created by RWG, showing its physical interfaces only.



FIGURE 40 – DEFAULT TOPOLOGY DIAGRAM

Navigate to Services/Server, then click Create New in the LLDP Servers section.

L	LLDP Servers 🗟 Columns 🖏 Refresh 🖉 Export 🕜 Batch 💠 Zoom 🔍 Search 🔮 Create New										e New	
		Active	\bigtriangledown	Name	Auto-enable protocols	LLDP	CDP	EDP	NDP	Listen-only	Interfaces	
H						No Entries						
	0 Found											

FIGURE 41 – LLDP SERVERS



Enter the following information:

- Name: Enter a name for the server. Here, we kept the default name.
- Active: Make sure the checkbox is marked.
- Auto-enable protocols: You can unmark the checkbox if you define the protocols manually.
- CDP, LLDP, EDP and NDP: Mark the checkbox for the protocols you want to use.
- Listen-only: Unmark the checkbox, so RWG will be discovered by the infrastructure devices.
- Interfaces: Mark all interfaces that needs to use the discovery protocols.

Create LLDP Server	
Name	default
Active	
Note	
Protocols (Hide)	
Auto-enable protocols	Auto-enable protocols based on received packets
CDP	enable CDP (Cisco Discovery Protocol)
LLDP	enable LLDP (Link Layer Discovery Protocol)
EDP	enable EDP (Extreme Discovery Protocol)
NDP	enable NDP (Nortel Discovery Protocol)
Ports (Hide)	
Listen-only	on't transmit any packets
Interfaces	Select All None Reset igb2 igb3 igb4 igb1 igb0 igb5 ports to listen and/or transmit on
Create Cancel	

FIGURE 42 – CREATE LLDP SERVER



After the infrastructure devices are adopted and discovered, you will see new topology diagrams in **Networks**.

Here we show an example after an ICX switch is adopted.



FIGURE 43 – NEW TOPOLOGY DIAGRAM AND ICX NEIGHBORS LIST

You can use the dots at the bottom of the diagram to navigate between the discovered topology and the original one showing the RWG interfaces.

The ICX switch also discovers RWG, including information of its hardware and software releases.



RWG Software Upgrade

RWG can download new software automatically, or you can download a .ISO file manually from the RUCKUS support site. Navigate to the RUCKUS support site at <u>https://support.ruckuswireless.com/software</u>, and select RUCKUS WAN Gateway (RWG) in the dropdown list.

The **Downloads** tab will show the recommended ISO images. Download the latest recommended image to your computer.

Search software name, description, product name, etc	٩	RUCKUS WAN Gatew	ay (RWG)	
-	Produc	t Detail		
RWG	The RUCK comprehei DHCP, rou performan and more. such as ini guest loya Model Nar Product Fa	KUS WAN Gateway ("F nsive set of critical Ent titing/BGP, policy, firew. ce-based WAN routing In addition, RWG offe tegrations with billing s try systems, location e ne: RWG amily: RUCKUS WAN (WG") is a softwa erprise network s all, micro segmen g, event triggers, a rs valuable featur systems, property ngine, eDPSK / g Gateway (RWG)	are platform delivering a vervices such as DNS, ttation, application automation, orchestration res for service providers management systems, uuest portal, and more.
RWG Image	Recomme	nded Software:		
RWG Image	Recomme forum Topics	nded Software:	Support Bulle	tins 🖻 Advanced Search
RWG Image	Recomme	nded Software:	Support Bulle	tins Advanced Search
RWG Image RWG Documents Documents RWG MB Articles RWG	Recomme	nded Software:	Support Bulle	tins Advanced Search now: All Versions Last Updated
RWG Image RWG Image RWG Image RWG Image RUCcurrents RUCKUS WAN Gateway Build 14.735 (img)	Recomme orum Topics R 1	nded Software: Security Bulletins Release Version 4.735	Support Builter	tins Advanced Search how: All Versions V Last Updated 2023-05-03
RWG Image RWG Image Documents Coverloads KB Articles F Search: Name RUCKUS WAN Gateway Build 14.735 (.img) RUCKUS WAN Gateway Build 14.710 (.iso)	Recomme orum Topics R 1 1	nded Software: Security Bulletins Kelease Version 4.735 4.710	Support Buile Star File Type IMG Star IMG	tins Advanced Search now: All Versions Last Updated 2023-05-03 2023-05-03

FIGURE 44 – IMAGE DOWNLOAD FROM THE RUCKUS SUPPORT SITE

You can upgrade only the RWG software, or the RWG software and OS. Before upgrading, it is recommended that you perform a configuration backup of your system.

The upgrade process might take several minutes depending on your link speed, and RWG will be unavailable during the process.

Navigate to **System/Update** and click **Download Backup** to backup your system. A .tgz file will be downloaded to your computer.

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1	RUCKUS WAN CATEWAY RWGC COMMSCOPE		08:55:36 AM PST	rwg-home.ruckusdemos.ne	et help r	mal/ruckus-vsz 14.479-41-g1
	System	Network	Services	Identities	Policies	Billing
w	Admins	chronization Failed for Infrastructure Dev	rice ICX Stack			
	Backup	RWG				
Upc	Certificates	WAN GATEWAY				
date	Cluster					
	Fleet			Current rWg build:	14.479-41-malruckusvsz	
	Licenses			Current OS release: Current schema version:	13.0-RELEASE #181 20230111002045	
	Notes			release	e notes	
	Options			A recent backup is needed to	prestore from a failed update	e.
	Portals			+ Downlo	ad Backup	
	Update			Make sure that you have a veri	fied backup before you proc	eed.

FIGURE 45 – DOWNLOAD BACKUP

Scroll down to see the upgrade options. You can perform three types of upgrades:

- OS and RWG software
- Only RWG software
- Using a local file

If you choose the options that fetch the software automatically, you need to enter your RUCKUS support credentials. In our example we see that both the RWG software and the OS need to be upgraded. Click **Update RWG + OS**.

FIGURE 46 – UPGRADE RWG + OS



Click **OK** to proceed. The **Upgrade Log** panel shows the upgrade progress. After the first reboot, you can follow the upgrade process using the **tfuf** command in a SSH session to RWG.



FIGURE 47 – UPGRADE IN PROGRESS

The upgrade process completes after the 3rd reboot. The new build shows at the top menu.



FIGURE 48 – UPGRADE COMPLETED



RWG Backup and Restore

You can perform a RWG configuration backup at any moment.

Also, RWG comes with a pre-configured backup routine to perform backups daily. You can change that routine according to your needs. The backup files can be manually downloaded to your computer, or you can define a backup server running FTP, SFTP or HTTPS, to send the backup files to an external repository automatically.

Normally, the backup files will be restored to the same RWG. It is possible to restore the backup onto a different RWG. The destination RWG needs to run the same software version or superior, and it does not need to have the same number or interfaces. If the number of interfaces in the destination RWG is different, a dialogue form will propose the necessary changes in the configuration. After the restore process is completed, the destination RWG will use the IP addresses that exist in the backup file – the ones used by the source RWG.

Backup

Navigate to **System/Backup** to see the backup and restore dialogue form.

Sy	/stem	Network	Serv	vices	Identities	Policies	Billing	Archives	Instruments
Con Billir Port Graj Hist	nfiguration ng Data tals ph Databases forical Data Download E Cho	Backup Backup Restor or select	o sosen 			BahwHXqvy2loTEHron6x1 DUT:13g Rev2a2jksHabcHLjvVJ b5/09K0 lDy9r/X0lJcleaEptpe6i JOTImn5 09546PAAGzet94155ThJ 00542pH BA1gbjKK03OcgL/Rv52 16074s+ 4aJJGcbgaXEggD16G2m oKTDA5 obTel1bwV71f0AAAKel EHD OFENSE PAIT	SSH private key zBbEtHLuxyz561knQ5g DXIAHqTFaaxHQxgQCR4 Lk1P+c2X1TAAAAQDDw Iowr717Mwg5HpM0y1 QAbrL1HQ66EL/TD666B 4emwoHhhTvloc64XIrj ha1GJhT2E1cAE- VAEE KET	, 7wlTB9wTdMA4Wi AbfxNPbH+1NX44 dD/vyqT9VcfynI v9Qsj7PIAOdqVI yGfsG/JEHEP53i ir+dXqv91/rSpi	194LUXEKSCh /eh678b800U /gxL90-75bH /gxL90-75bH /gxL90-75bH /gxL90-75bH /gxL90-75bH /gxL90-75bH
B Dail Dail	3ackup Iy Backup Iy Backup 0'	Backup Hi Time 1 hour ago 1/23/2023 04:	story Size 995 KB 974 KB	Download download download					
Rout	tine Bac	kups			Columns	🕻 🔾 Refresh 🔀 Export	t 🕐 Batch 👍 Zoo	m ? Help 🏾	Search 🔇 Create New
	Name		Include	Local	Last backup	Backup Servers			
	Daily Back	kup daily	Config Portals	2	01/24/2023 04:00 PM		Now Download	d Restore	Edit Delete Show
1 Found	ıd								
Back	up Serv	vers			Columns	🕻 🕻 Refresh 🔀 Export	t 🛷 Batch 👍 Zoo	m ? Help 🏾	Search 🔇 Create New
		Name		\triangle	Login	Routine Back	ups		
					No Ent	tries			
0 Four	nd								

FIGURE 49 – BACKUP AND RESTORE



At the top left, you can perform a manual backup and select what type of information will be included in the backup files:

- Configuration (always checked by default)
- Billing Data
- Portals
- Graph Databases
- Historical Data

Click **Download Backup** to perform a manual backup. That will download a timestamped compressed .tgz file directly to your computer.

Routine Backups are used to schedule automatic backups. Multiple routines can be created. You can define hourly, daily, weekly and monthly backups. By default, RWG runs a daily backup routine.

The RWG configuration data is always included in the backup. As with manual backups, you can define what additional data will be backed up. The backup files will be stored inside RWG, up to a defined number. Click download to download a backup to your computer.

You can also define external **Backup Servers**, where the backup files will be sent to automatically. Backup servers can use SFTP, FTP and HTTPS. If required, multiple backup servers can be created.

System	Network	Serv	vices	Identities	Policies	Billing	Archives	Instruments
Configuration Billing Data Portals Graph Databases	Backup				8ahwHXqvy2loTEH DUTr1Xg RcV2a2FjkK+MhCW bS/0yN0 1by9/X01Jc1ca8	SSH privat rom6xzBbZtMLuwyz561) LjvV3DXZAHqZTxaxMQXq	e key kng2g7wlYB9wTdHA4Wni ggCE4AbfxNFbH+1NX4v4 wDDDwdD/vyn25VcfynFc	WLUXZKSCh Sh6FHbSGGU XX1-964-75bW
Le Historical Data	Backup				20TZwn5 Q9544PAA0Zct961 oBz2psH SAIghifKtG30cgL	55ThJIouwrT17Wwvg5Wj /Rv520AbrLLN08e8L/YI	pW0yiv9Qzj7FIA0dqVbu D6S6Bv0fsG/JENEP53Sc	cunXM6172
Cho	ose File No file ch or select.	osen		_	icOF4z+ 4alJ/GcDgaXDgnD oRfTpA9 obTclzhwV7if0AA END OPENSS	1sG2m4emweMhhTv1ec6 AAKclhnIGJhY2t1cAE= H PRIVATE KEY	dXIrjir+dXqw91/rSpkq	цКјоух/ЕВQ
	1 Restore E	Backup						
Backup Daily Backup Daily Backup 01	Backup His Time 1 hour ago 1/23/2023 04:	Size 995 KB 974 KB	Download download	2				
Routine Back	kups			Column	s 🕻 Refresh 🛃 E	Export 🛷 Batch 👍	Zoom ? Help 🔍	Search 🔇 Create New
Name	△ Frequency	Include	Local	Last backup	Backup Servers	5		
Daily Back	up daily	Config Portals	2	01/24/2023 04:00 PM	-	Now Dow	inload Restore E	Edit Delete Show
1 Found Backup Serv	ers			Column	s 闪 Refresh 🛃 E	Export 🕜 Batch 🚦	Zoom ? Help 🔍	Search O Create New
				Login	Poutine	Backupe		
	Name			Login	Rodenie	Dackups		

FIGURE 50 - ROUTINE BACKUPS



Restore

You can choose an external file to restore (that needs to be the compressed .tgz file), or you can select a backup file from the list of backups stored in RWG. Click **Restore Backup** to execute the restore.

rwg-mm.ruckusdemos.net says Click OK to restore rwg-mm.ruckusdemos.net (10.0.0.144)		Choose File No file choose File or select	e nosen					
Infiguration using the selected backup file. ARNING: This is a destructive process. All configurations and cords, including: LIVE network settings, administrators, :counts, billing, certificates, etc. are removed and restored to a ior state.	✓ Daily Backup @ 01/24/2023 04:00 PM Daily Backup @ 01/23/2023 04:01 PM rxg.local: dailybackup @ 01/22/2023 04:01 PM							
Cancel	Backup Daily Backup Daily Backup	Backup Hi Time 1 hour ago 01/23/2023 04:01 PM	Size 995 KB 974 KB	Download download download				
	Daily Backup @ 01/2	Choose File No file ch or select. 4/2023 04:00 PM	osen 					
	▲ Restore Backup							

FIGURE 51 – SELECT THE BACKUP TO RESTORE

Right after the restore process starts, a **Restore Log** is shown. If required, you can download a log file to see all the steps in the restore process.

The restore is in progress. Please wait or the restore is complete. The contents of change throughout the restore process when the restore is finished. Please be p process can take a few minutes.	n this page until this page should and notify you patient as this									
	Restore Log									
Enable auto scroll down	e auto scroil down Restore completed successfully									
< 1 2 3 4 5 21 >	2 3 4 5 2 > The restore was successful. You may now continue and navigate to other pages.									
202301/2418:07:02 upgrade_custom_portals[72373] INFO 202301/2418:07:02 upgrade_custom_portals[72373] INFO mr: hapace/rag/console/app/controllers/portal*"rapl_control 202301/2418:07:02 - restore round robin databases was a 202301/2418:07:02 - tautoring rails cluster in production 202301/2418:07:02 - tautoring rails cluster in production 202301/2418:07:02 - tautoring rails cluster in production 202301/2418:07:02 - tautoring fleartbeatd heartbeatd: warning: no instances running. Starting heartbeatd: warning: no instances running. Starting heartbeatd: brocess with pld 72382 taited. 202301/2418:07:03 - starting DelayedJob	Restore Log Enable auto scroll down Image: State St	:tion_pool/reaper.rb:40 steep≻ -								
	>>>> RESTORE SUCCESSFUL <<<<									

FIGURE 52 - THE RESTORE LOG



Config 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	
<pre>interface: igb5</pre>	
tag: 100	
autoincrement_mode:	none
<pre>- name: VLAN 200</pre>	
<pre>interface: igb5</pre>	
tag: 200	
autoincrement_mode:	none
addresses:	
- subnet 200	
<pre>- name: VLAN 150</pre>	
<pre>interface: igb5</pre>	
tag: 150	
autoincrement_mode:	none
addresses:	
- subnet 150	

FIGURE 53 – 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**:

Subnet	iets Filters		Columns 🚺 Refresh 📑 Export 🛷 Batch
	Name $ riangleq$	WAN Targets	
	Block Subnets	Ubuntu Client, ICX subnet 80, ICX subnet 70, (6)	
	block 40 & 50	subnet 50, subnet 40	Default
2 Found			

FIGURE 54 – GENERATE THE TEMPLATE FOR SUBNETS FILTERS

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

Subnets Filters		Columns	🔇 Refresh	Export	Satch
Export Config Template					
Fields Policy:	Use Default				
Serialize If Updated After:		clear (leav	e blank to au	todetermine	e from initi
Max Nest Level:	0				
Export Cancel					





-	
Sι	bnetsFilter:
-	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
	policios
	poticies.
	 Default

FIGURE 56 – 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:

Conf	ig Templa	ates Create Defaults The Show Examples Generate Template	Columns	🗘 Refresh	Export	C Batch	-‡-Zoom	? Help	Search	Create I	New
	Name 🛆	Config	Last Appli	ed La	ast Result						Rec
	Generated by mmolinari at 04/14/2023 08:43 AM	<pre>license_key: - license_key: - license_key: - southdesgr2x&kRwvP17ad91VjWbWr1M1CoQWSH1kx5DstJ/ethxgbvn00pG31 fK4ZzF2Ge+DUD/Q1zuA/Ogwd2/sVcx7NkxH7DkBLsVPN1BPEm2rXxYDX9vB 8LNZ1gdghR3zeJ49NJrZHkHIUM3Yoqu/0GL8bj0z26tvj00sYWKsxGWEEqGw SANPD7t+SBJZ7iqeUNHa+j9Ch+VbSSbSbJq7+EDD1SbAb3v3V1HBHEn0diqJ dYc2x24ZRF7PX0XUrAq4bc0bBMjK08rzyKyTMSLzM3spq1X37NWd+Y1n4Xc uqXmmPo+QgdesqP3+gWyVf+AXKIIN5L&+Jmk5QYAwJ7bAlxgPDgS0i6Nhp0 ClPCr2ESt=2aGYAxXEPTF7Dadm04FEs+bKp09G5pyC25jLtdrzjVyO//ijpbM [show 12681 more lines]</pre>			Clor	ne Test	Downloa	d Apply	/ Edit	Delete Sha	S W

FIGURE 57 – 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.



Upload, Test and Apply a Config Template

Navigate to **System/Backup**, and click **Create New** in the section **Config Templates**. Enter the following information:

- Name: Enter a name for the template.
- File Upload: Select the YAML file with the configuration that you want to apply to RWG.

Create Config Template	
Name	New VLANs
Note	
Upload Local Config (Hide)	
File Upload	Choose File rwg-mm.ruck05_18-46-53.yml YAML
ERB	process with the ERB template engine
Recurring	none
Apply Template	apply the contents of the uploaded/downloaded file or YAML field to t
Create Cancel	

FIGURE 58 – UPLOAD THE TEMPLATE FILE

Scroll down and click Create to finish.

It is possible to create recurrent templates, which will execute every hour, day, week, etc. If you mark the **Apply Template** checkbox, the template will be applied to RWG as soon as it is created. Leave the checkbox unmarked for now.

To edit an existing template, click **Edit** on the new entry.

Co	onfi	g Templa	tes		Create Defaults	Show Examples	Generate Template	🗟 Columns 🕻	Refresh	Export 🦂	Batch	+ Zoom	? Help	Search	Create New
C		Name 🛆	Config	Last Result											
C		New							none	Clone	Test	Download	Apply	Edit D	elete Show
		VLAINS	- name: VLAN 100												
			tag: 100												
			- name: VLAN 200												
			tag: 200												
			autoincrement_mode: none [show 8 more lines]												

FIGURE 59 – EDIT THE TEMPLATE FILE



If required, you can edit the template lines directly inside the **Config** form.

Template (Hide) Config 1 ----2 Vlan: 3 - name: VLAN 100 4 interface: igb5 5 tag: 100 6 autoincrement_mode: none 7 - name: VLAN 200 8 interface: igb5 9 tag: 200 10 autoincrement_mode: none 11 addresses: 12 - subnet 200 13 - name: VLAN 150 14 interface: igb5 15 tag: 150 16 autoincrement_mode: none 17 addresses: 18 - subnet 150 19

FIGURE 60 – EDIT THE TEMPLATE LINES

Click **Test** to verify the template syntax. That does not apply the template to RWG.

Co	nfig Temp	ates		🚯 Create Defaults 🧃	Show Examples	Generate Template	Columns	🗘 Refresh	Export	or Batch	-‡-Zoom	? Help	Search	O Cre	ate New
	Name 🛆	Config	Last Result												
	New							none	Clone	Test	Download	Apply	Edit D	elete	Show
	VLANs	Vlan:													
		- name: VLAN 100													
		interface: igb5													
		tag: 100													
		autoincrement_mode: none													
		- name: VLAN 200													
		interface: igb5													
		tag: 200													
		autoincrement_mode: none													
		[show 8 more lines]													



If all is good, the test will succeed. Otherwise, edit the template and fix the error.

New VLANs		******
	Vlan:	RESULT SUMMARY: Success
	- name: VLAN 100	Test mode
	interface: igb5	#######################################
	tag: 100	[show 4 more lines]
	autoincrement_mode: none	
	- name: VLAN 200	
	interface: igb5	
	tag: 200	
	autoincrement_mode: none	
	[show 8 more lines]	

FIGURE 62 – TEST SUCCEED



To apply the template to RWG, click **Apply**:

Conf	ig Templa	tes		Create Defaults	Show Examples	Generate Template	🗟 Columns 🕻	Refresh	Export 🦿	Batch	💠 Zoom	? Help	Search	O Cre	ate New
	Name 🛆	Config	Last Result												
	New VLANs	<pre> Vlan: - name: VLAN 100 interface: igb5 tag: 100 autoincrement_mode: none - name: VLAN 200 interface: igb5 tag: 200 autoincrement_mode: none [abow B more lines]</pre>						none	Clone	Test	Download	Apply	Edit D	elete	Show

FIGURE 63 – APPLY THE TEMPLATE

Click **OK** to confirm. If all goes well, you will receive a success message:

rwg-mm.ruckusdemos.net says Applying this template will make changes to the configuration of this system, potentially disrupting your access to it. Ensure you have a valid backup of the current configuration before applying this template.	New VLANS	 Vlan: - name: VLAN 100 interface: igb5 tag: 100 autoincrement_mode: none - name: VLAN 200	######################################
Сапсеі		<pre>interface: igb5 tag: 200 autoincrement_mode: none [show 8 more lines]</pre>	

FIGURE 64 – SUCCESS



Basic Troubleshooting

RWG includes several tools to manage the solutions and to troubleshoot the network or client access problems. This document covers the following tools:

- Instruments: Ping, Traceroute and DHCP Leases
- Logs: Notification logs, RADIUS logs, etc
- Search Tool

Instruments

Click **Instruments** at the top menu to see a graph for uplink traffic, and several gauges and tables to monitor your RWG. You can rotate among different gauges by clicking the dots.



FIGURE 52 – INSTRUMENTS

The **Instruments** menu has a variety of tools to help you manage and troubleshoot your network.

Here are some of the most useful tools:

- MAC DHCP DNS: Here you can find the MAC addresses and DHCP leases for all infrastructure devices and client devices. You can see the VLAN assignment in the DHCP leased, and you can also convert a leased entry to a fixed IP address directly from the list of devices.
- **NAT Assignments**: Useful to make sure a local subnet is being NAT'ed correctly by RWG.
- **Route Entries**: Shows the RWG routing table.
- Utilities: Includes a ping and a traceroute tool.





DHC	DHCP Leases												
	Issued \bigtriangledown	IP	MAC	Vendor	Hostname	Expires	Network	Pool	Fixed Host	Ethernet	VLAN		
	01/25/2023 03:40:35 PM	Q 192.168.5.253	Q b4:79:c8:0d:76:30	Ruckus Wireless		01/25/2023 04:40:35 PM	igb5	Management LAN	Create New	igb5			
	01/25/2023 03:40:11 PM	Q 192.168.5.10	Q d4:c1:9e:9a:f6:16	Ruckus Wireless		01/25/2023 04:40:11 PM	igb5	Management LAN	ICX 7150- B	igb5			
	01/25/2023 03:40:09 PM	Q 192.168.5.250	Q da:79:93:60:18:6a		Marcelo-s-S10	01/25/2023 04:40:09 PM	igb5	Management LAN	Create New	igb5	VLAN-600		

FIGURE 53 – CONVERTING A DHCP LEASE TO A FIXED HOST ADDRESS

Logs

The **Archives** menu include logs for most of the RWG services. Here are the most useful ones:

- Notification Logs: Here are the warning messages shown at top of the RWG UI are stored.
- **RADIUS Logs**: Useful to check VLAN tag assignments.
- .log Files: Includes complete log files for all RWG services. Very useful to check detailed RADIUS responses with VLAN assignments or DHCP messages.

Let's see some examples.

Archives Notification Logs Reports Admin Logs Connection Logs DHCP · DNS Logs DHCP · DNS Logs Queue Logs Queue Logs RADIUS Logs Trigger Logs Web Logs .log Files

Notification Logs

The Notification Logs show the warning messages that show at the top of the RWG UI:

System	1	Network	Services	Identities	Policies	Bil	ling		Archives	Instruments		
WARNING NTP is	not synchronized											
Health Notices	lealth Notices											
Created $ riangleq$	Name		Message			Severity	Cured		Reason			
01/23/2023 11:14 AM	01/23/2023 11:14 My lp Conflict another device is using my IP address! AM					Critical	01/25/2023 04: PM	10	I had two RWGs with the same address			
01/23/2023 11:22 AM	Monitor Infrastruct Device 62	ture	Unreachable: vSZ-249 - Failed to open TCI connect(2) for 192.168.5.249:8443)	Warning								
01/24/2023 08:55 AM	Infrastructure Dev Monitor	ice 62	vSZ-249 [192.168.5.249] is OFFLINE			Notice						
01/24/2023 12:36 PM	01/24/2023 12:36 Ping Target 1 Monitor Google Public DNS 1 [8.8.8.8] is OFFLINE PM					Notice						
01/24/2023 12:37 PM	01/24/2023 12:37 Ping Target 2 Monitor PM		Google Public DNS 2 [8.8.4.4] is OFFLINE			Notice						
01/24/2023 12:37 PM	Monitor Infrastruct Device 61	ture	Unreachable: vSZ-MM - Failed to open TC Name does not resolve)	P connection to vszh-mm.ruck	usdemos.net:8443 (getaddrinfo:	Warning						
01/25/2023 04:04 PM	Ntp Server		NTP is not synchronized			Warning	-					
01/22/2023 04:58 PM	Infrastructure Dev Monitor	ice 53	ICX 7150-B [192.168.5.242] is OFFLINE			Notice	01/25/2023 04: PM	06	ICX 7150-B [192.168.5.242	2] is ONLINE		





RADIUS Logs

The RADIUS Logs show the expired VLAN Tag Assignments:

Expired VLAN Tag Assignments											
Assigned \bigtriangledown	Expired	MAC	VLAN	Tag	Account	Group	Duration	RADIUS Server Realm	Called-Station MAC		
							(Filtered)				
01/22/2023 07:30 AM	01/22/2023 04:58 PM	Q 38:f9:d3:d4:c0:78	Client VLANs	405			9 hours and 28 minutes	Microsegmentation Realm	b4:79:c8:0d:76:30		
01/21/2023 05:28 PM	01/21/2023 06:29 PM	Q 6e:9b:45:33:32:a0	Client VLANs	404	simone	VLAN 700	1 hour	Microsegmentation Realm	b4:79:c8:0d:76:30		
01/21/2023 05:28 PM	01/21/2023 10:58 PM	Q 38:f9:d3:d4:c0:78	Client VLANs	402			5 hours and 30 minutes	Microsegmentation Realm	b4:79:c8:0d:76:30		
01/21/2023 03:06 PM	01/21/2023 04:59 PM	Q 7a:8f:7a:1c:84:63	Client VLANs	400			less than 1 second		b4:79:c8:0d:76:30		
01/21/2023 07:11 AM	01/21/2023 05:19 PM	Q ae:e5:cb:69:08:2a	VLAN 700	700	simone	VLAN 700	less than 1 second	VLAN 700 Realm	b4:79:c8:0d:76:30		
01/21/2023 07:11 AM	01/21/2023 01:43 PM	Q 6e:9b:45:33:32:a0	VLAN 700	700	simone	VLAN 700	6 hours and 32 minutes	VLAN 700 Realm	b4:79:c8:0d:76:30		
01/21/2023 07:10 AM	01/21/2023 07:11 AM	Q 6e:9b:45:33:32:a0	VLAN 600	600	marcelo	VLAN 600	less than 1 second	VLAN 600 Realm	b4:79:c8:0d:76:30		
01/21/2023 07:03 AM	01/21/2023 07:09 AM	Q ae:e5:cb:69:08:2a	VLAN 600	600	marcelo	VLAN 600	less than 1 second	VLAN 600 Realm	b4:79:c8:0d:76:30		
01/21/2023 06:52 AM	01/21/2023 07:02 AM	Q ae:e5:cb:69:08:2a	VLAN 700	700	simone	VLAN 700	less than 1 second	VLAN 700 Realm	b4:79:c8:0d:76:30		
01/21/2023 06:49 AM	01/21/2023 07:08 AM	Q 6e:9b:45:33:32:a0	VLAN 600	600	marcelo	VLAN 600	less than 1 second	VLAN 600 Realm	b4:79:c8:0d:76:30		

FIGURE 55 – RADIUS LOGS/EXPIRED VLAN TAG ASSIGNMENTS

.log Files

Here you can see all details for the RADIUS and DHCP handshake:

Admin Console BCP Backend Daemon Background Jobs Bootup Content Fi	Admin Console BGP Backend Daemon Background Jobs Bootup Content F
Dynamic DNS Client HTML Rewrite HTTP (SSL) HTTP (dev) HTTP (prod) IPsec	DHCP Server HTML Rewrite HTTP (SSL) HTTP (dev) HTTP (prod) IPsec
PPPoE Proxy Hits Proxy Server RADIUS Server SNMP Server SNMP Traps	PPPoE Proxy Hits Proxy Server RADIUS Server SNMP Server SNMP Traps
file - 1 2 3 4 5 6 7 8 18 download	file - 1 2 3 4 5 6 7 8 18 download
Date/Time Filter: to _to	Date/Time Filter: to to Filter: 0 Q Search
280): Signaled to terminate 280): Signaled to terminate 280): (42) Login OK: [3862:267655a7] (from client 192.168.5.249/32 port 0 cli 36-8C-2E-76-55-A7) User-Name: b main::post_auth - performing post_auth b main::opend_attributes - reply AVP: Tunnel-Private-Group-Id => %vlan_tag_assignment.tag% (301) b main::append_attributes - reply AVP: Tunnel-Medium-Type => VLERE-802 b main::append_attributes - reply AVP: Tunnel-Nyte => VLAN b main::append_attributes - reply AVP: Tunnel-Nyte => VLAN b main::append_attributes - seding rand using /dev/random b main::append_attributes - seding rand using /dev/random b main::appenform_ta - assigning MAC 38:80:26:76:55:37 to new VTA on VIan "Onboard VLANs" with tag 301 b Ray::Ull::sedRNG - seding rand using /dev/random b main::perform_ta - assigning MAC 38:80:26:75:55:37 to new VTA on VIan "Onboard VLANs" with tag 301 b Ray::Ull::sedRNG - assign rand using /dev/random b main::perform_ta - assign rang /dev/random b main::perform_ta - assign rang /dev/random b main::perform_ta - using Calling-Station-Id as the end-user's MAC: 36:80:26:26:55:a7 b main::perform_ta - using Calling-Station-Id as the end-user's MAC: 36:80:26:26:55:a7 b main::realm_matches_request - selected highest priority(0) matching RadiusAttributePattern Ttan" for t b main::realm_matches_request - selected highest priority(0) matching RadiuSextret "Onboarding Realm" rank(c) main::find_match_attributes - tyring to find a RadiusAttributePattern set matching the request b main::find_match_attributes - tyring to find a RadiusAttributePattern set matching the request b main::find_match_attributes - tyring to find a RadiusAttributePattern set matching the request b main::find_match_attributes - tyring to find a RadiusAttributePattern set matching the request b main::find_match_attributes - tyring to find a RadiusAttributePattern set matching the request b main::find_match_attributes - tyring to find a RadiusAttributePattern set matching the request b main::find_match_attributes - tyring to find	g-home.ruckusdemos.net dhcpd[60944]: DHCPREQUEST for 192.168.5.245 from 54:ee:21:04:39:30 via 1gb3 g-home.ruckusdemos.net dhcpd[60944]: DHCPRCQUEST for 192.168.5.252 from 94:c6:91:15:80:87 via 1gb3 g-home.ruckusdemos.net dhcpd[60944]: DHCPRCQUEST for 192.168.5.245 from 04:c6:91:15:80:87 via 1gb3 g-home.ruckusdemos.net dhcpd[60944]: DHCPRCQUEST for 192.168.5.245 from 00:0c:29:84:07:bb via 1gb3 g-home.ruckusdemos.net dhcpd[60944]: DHCPRCQUEST for 192.168.5.245 from 00:0c:29:84:07:bb via 1gb3 g-home.ruckusdemos.net dhcpd[60944]: DHCPRCQUEST for 192.168.5.253 from b4:79:c8:0d:76:30 via 1gb3 g-home.ruckusdemos.net dhcpd[60944]: DHCPRCQUEST for 70.0.0.2 from 6e:9b:45:33:2:a0 via via 1gb3 g-home.ruckusdemos.net dhcpd[60944]: DHCPRCQUEST for 70.0.0.2 from 6e:9b:45:33:2:a0 via vian700 g-home.ruckusdemos.net dhcpd[60944]: UHCPRCQUEST for 70.0.0.2 from 6e:9b:45:33:2:a0 via vian700 g-home.ruckusdemos.net dhcpd[60944]: Wrote 0 leases file. g-home.ruckusdemos.net dhcpd[60944]: UHCPRCQUEST for 70.0.3 from ae:6:cb:69:08:2a via vian600 g-home.ruckusdemos.net dhcpd[60944]: UHCPRCQUEST for 70:0.3 from ae:6:cb:69:08:2a via vian600 g-home.ruckusdemos.net dhcpd[60944]: UHCPRCQUEST for 70:0.3 from ae:6:cb:69:08:2a via vian600 g-home.ruckusdemos.net dhcpd[60944]: UHCPRCQUEST for 70:0.3 from ae:6:cb:69:08:2a via vian600 g-home.ruckusdemos.net dhcpd[60944]: UHCPRCQUEST for 70:2.168.5.247 to 34:20:a3:28:0d:a0 via 1gb3 g-home.ruckusdemos.net dhcpd[60944]: UHCPRCQUEST for 70:2.168.5.242 to 44:c1:9e:9a:f6:16 via 1gb3 g-home.ruckusdemos.net dhcpd[60944]: UHCPRCQUEST for 70:2.168.5.242 fro

FIGURE 56 – RADIUS SERVER AND DHCP SERVER LOGS



Search Tool

The **Search** button at the top right corner is not for searching documents. It's for searching devices (either infrastructure devices or client devices). You will see the identity groups, sessions in use, and policies applied to the device. In the example we entered the IP address for an adopted ICX switch. The policy that is in use by the device is marked active.

đ				04:40:47 PM PST	rwg-mm.ruckusdemos.net	help bu	ild 14.525 logout admin	192.168.5.10 Q Search
	System	Network	Services	Identities	Policies	Billing	Archives	Instruments
N	ICX 7150-B [192.168	I.5.10] is OFFLINE						
 Search 	Device IP: 192.168.5.10 MAC: d4:.19:e9aff Vendor: Ruckus Wir No active sessior	516 eless Webse	ICX 7150-B		ICX 7150-B active)	Webs	and the address of th
	IP Group ICX 7150-B	1006,2006			Default		0	Block Subnets
			DEFAULT GROUP		default		0	Cache web cache
							0	100%, ¹⁰⁰ % per Dévice BANDWIDTH QUEUE

FIGURE 57 – THE SEARCH TOOL

You can also search devices by MAC address, client last name or room number.

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