Deployment Guide

RUCKUS WAN Gateway – Plans and Billing

July 2023

Rev. 0

Table of Contents

Changes

- No changes. This is the initial document version.

Intended Audience

The audience for this document is customers and operators deploying RWG solutions using captive portals, plans and billing. 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

Plans and Billing Overview

Portals, **Plans** and **Billing** are used to identify and control the user experience, defining the traffic quotas, service duration and billing methods for different use cases:

- **Portals**: Captive portals prevent access to the network resources and provide an authentication form. To get network access, the client needs to authenticate. After authentication, the client is directed to a landing portal. Portals are covered in detail in the deck RWG Portals.
- **Plans**: Plans can be used to define the SLA for the user access, including speed, traffic quotas, utilization periods, etc. The plans can be free, or they may require payment. The plans are associated to the splash and landing portals.
- **Billing**: RWG uses merchants to create billing services for the plans offered by the portals. The merchants can be Direct and Offsite.

RWG Plans

The RWG plans are organized as shown below:

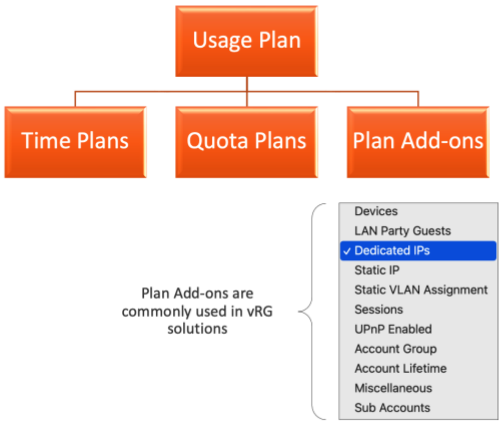


FIGURE 1 – PLANS ORGANIZATION

- **Usage Plan**: The usage plan is what is assigned to the portals. At this level you can define settings like provisioning, lifetime, base price, billing and recurrence. The usage plan can also include the following:
- **Time Plans**: Allows the operator to define the service duration in minutes, hours, days, weeks, etc.
- **Quota Plans**: Allows the operator to define the download and upload quotas for the service.
- **Plan Add-ons**: Allows the addition of a variety of special features to the plan, such as LAN party guests, dedicated IPs, sub-accounts, etc. Plan add-ons are commonly used in vRG (virtual Residential Gateway) solutions.

Time, Quota and Add-ons plans are created in separate scaffolds. Multiple plans, with different SLAs and features can be assigned to the same portal.

Accounts and Account Groups

To use plans in a splash portal or landing portal, we need to create **Accounts** and **Account Groups**. The accounts can be created manually by the operator, or by the users in their first authentication using the splash portal in their devices.

At least one account group needs to be created by the operator. Several account groups can be created, each one associated to a different plan.

FIGURE 2 – PLANS, ACCOUNTS AND ACCOUNT GROUPS

User Experience Using Plans

When plans are configured, the user can select a plan in the captive portal:

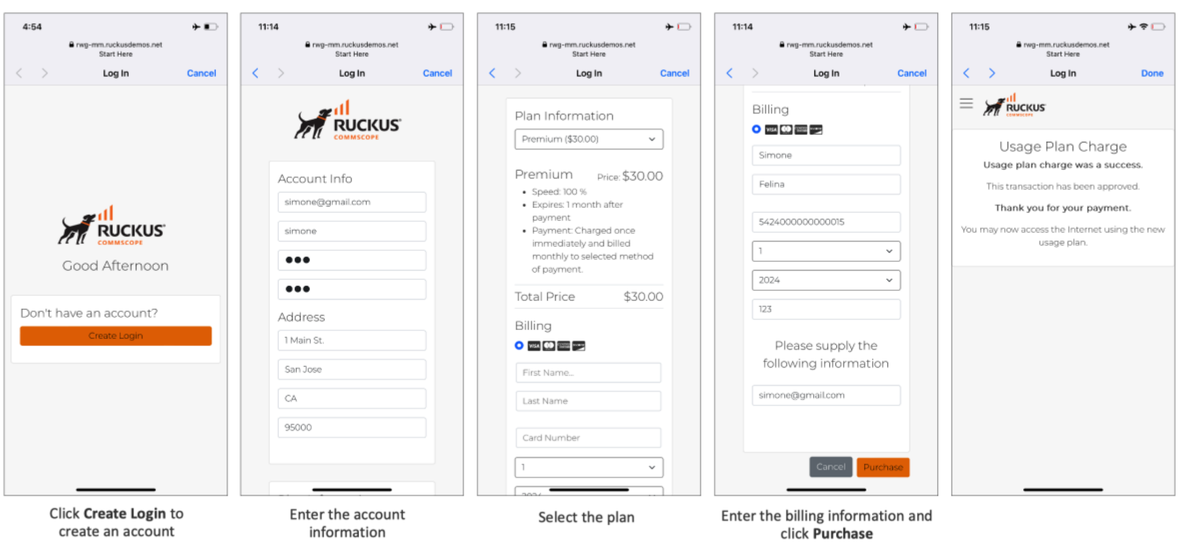


FIGURE 3 – USER EXPERIENCE

Merchants

When the operator needs to create a plan that includes billing, then a **merchant** needs to be created. A merchant is a billing service configured in RWG. There are two types of merchants in RWG:

- **Direct**: Using this gateway, the payment is submitted through the RWG captive portal, and RWG can store the customer credit card information. RWG has integrations with 150+ different merchants. Some examples are PayPal, Netbanx, Authorize.net and Barclaycard.
- **Offsite**: Using this gateway, the customer is redirected to the merchant web site to make the payment. RWG does not see the customer credit card information when using offsite merchants. RWG has integrations with 40+ different merchants. Some examples include Coinbase, EasyPay, Paypal and PagSeguro.

Many merchants offer a sandbox that can be used to test the plan without an actual payment.

The Operator Experience – Billing

The operator can see the transactions in RWG at **Billing/Transactions**. This example uses **Authorize.Net** as the billing merchant.

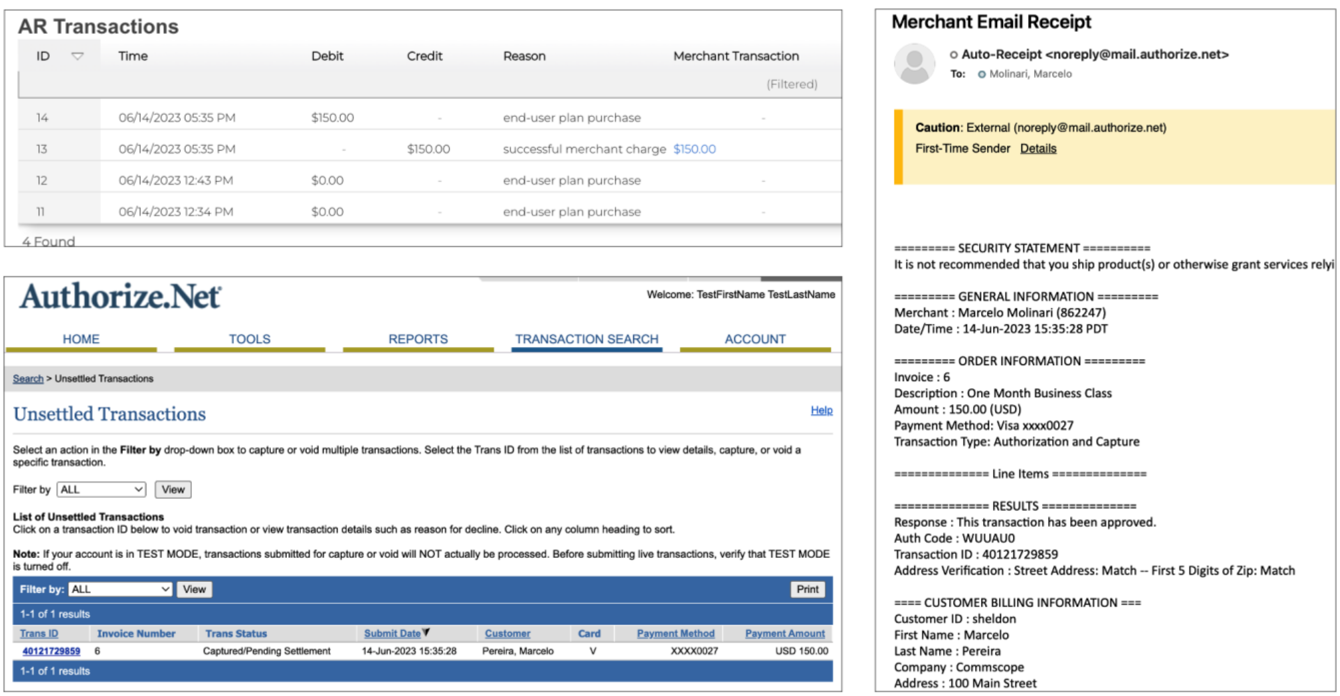


FIGURE 4 – MERCHANT TRANSACTIONS

Adding Plans

This section uses the configuration created in **RWG Portals** (slides 11 to 47). We will add one account group, one usage plan, one time plan and one quota plan to that configuration.

Step 1 – Create the Account Group

Navigate to **Identities/Group** and click **Create New** under **Account Groups**. Enter the following information:

- **Name**: Enter a name for the group. Here we used **Free**.
- **Priority**: 4.
- **Policy**: Select **Free**. This policy was created in the deck RWG Portals.

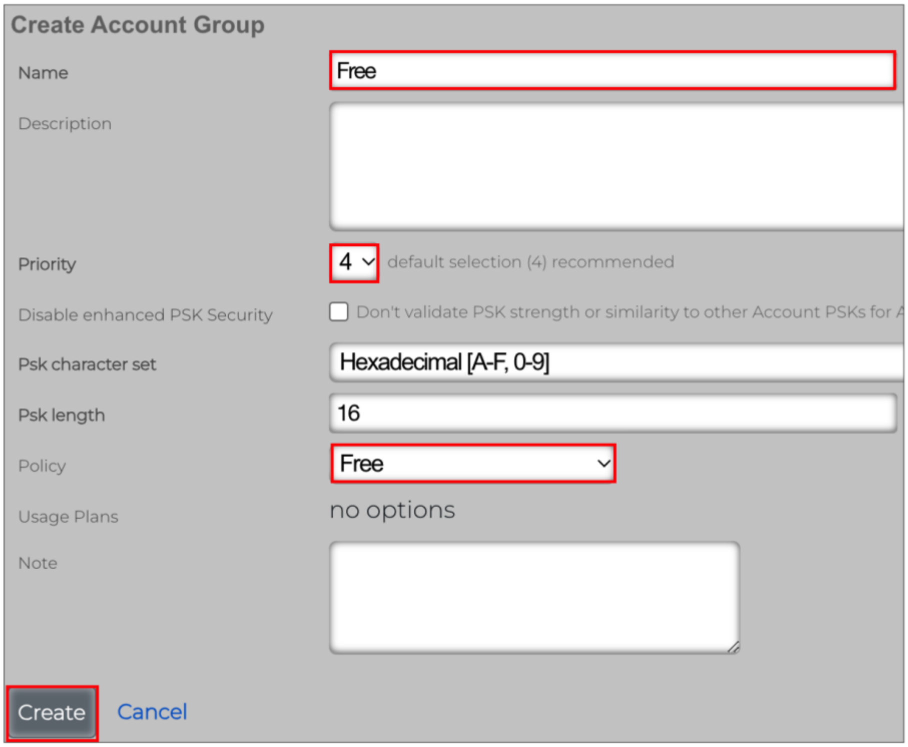


FIGURE 5 – CREATE ACCOUNT GROUP

Click **Create** to finish.

Step 2 – Create the Time Plan

Navigate to **Billing/Plans** and click **Create New** under **Time Plans**. Enter the following information:

- **Name**: Enter a name for the plan. Here we used **One Day**.
- **Price**: Enter 0. This will be a free plan.
- **Time**: Enter **1 day**.

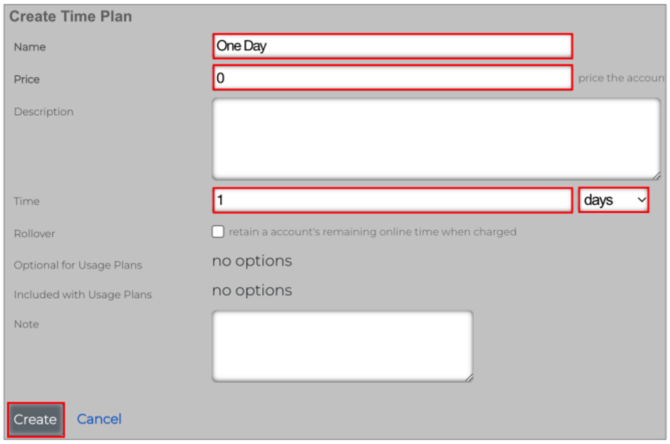


FIGURE 6 – CREATE THE TIME PLAN

Click **Create** to finish.

Step 3 – Create the Quota Plan

Navigate to **Billing/Plans** and click **Create New** under **Quota Plans**. Enter the following information:

- **Name**: Enter a name for the plan. Here we used **5GB/2GB.**
- **Price**: Enter 0. This will be a free plan.
- **Download**: Enter 5 GB.
- **Upload**: Enter 2 GB.

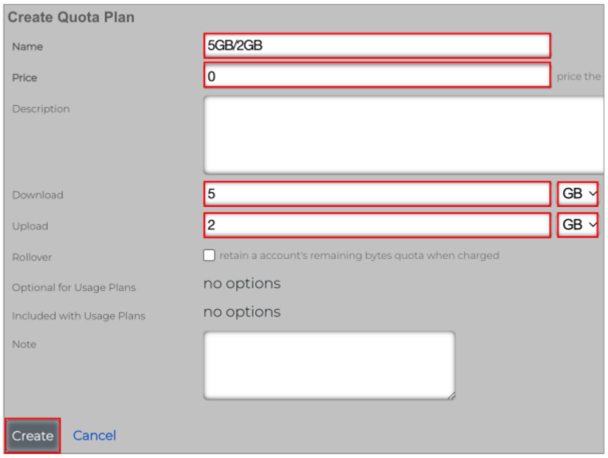


FIGURE 7 – CREATE THE QUOTA PLAN

Click **Create** to finish.

Step 4 - Create the Usage Plan

Navigate to **Billing/Plans** and click **Create New** under **Usage Plans**. Enter the following information:

- **Name**: Enter a name for the plan.
- **Account Group**: Select **Free**.
- **Splash Portals**: Check **Default Splash**. This portal was created in the deck RWG Portals.
- **Landing Portals**: Check **Default Landing**. This portal was created in the deck RWG Portals.
- **Automatic login**: Mark the checkbox.

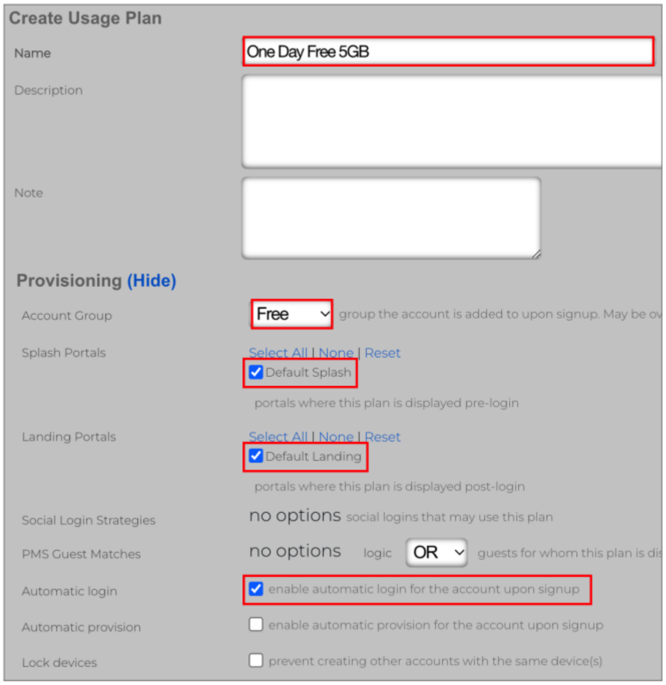


FIGURE 8 – CREATE THE USAGE PLAN

Scroll down to continue.

Enter the following information:

- **Quota**: Select **5GB/2GB**.
- **Time**: Select **One Day**.
- **Max Devices**: Mark the unlimited checkbox.

Keep the default for the other fields.

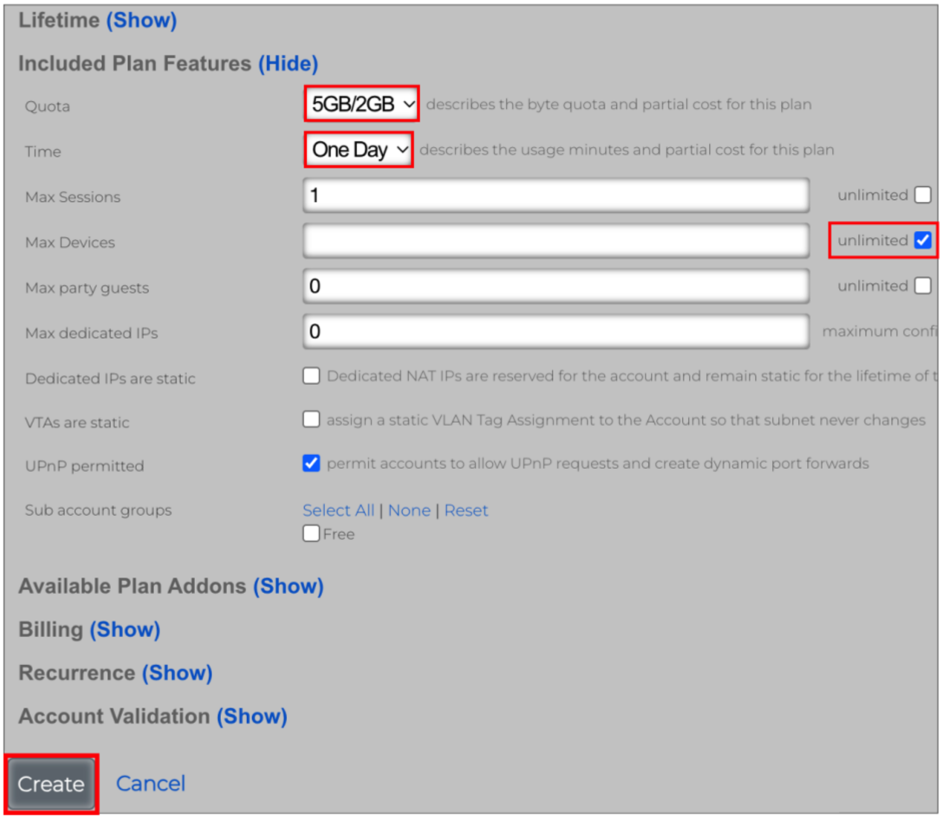
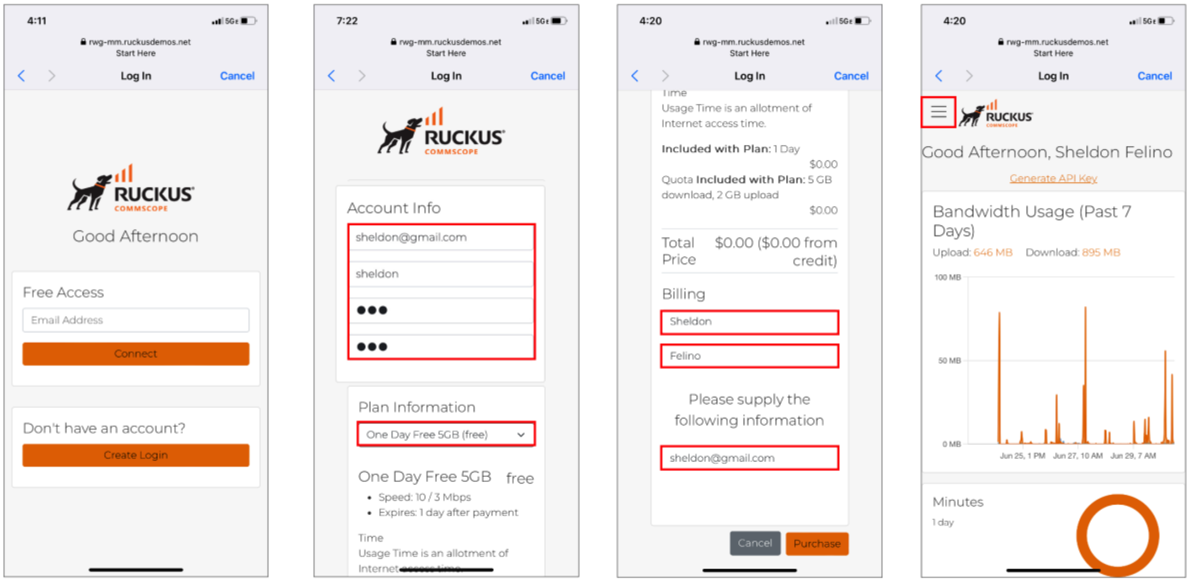


Figure 9 – Create the Usage Plan

Click **Create** to finish.

Testing the New Plan

In the example below the user created a new account, then selected the available plan. The billing information for this example is just for reporting purposes, because that is a free plan.



Click **Create Login** to create an account

Enter the account info and select the **One Day Free 5GB** plan

Enter the billing information and click **Purchase**

Use the menu to navigate. After you leave the portal, you can return typing wi.fi in your browser

FIGURE 10 – TESTING THE NEW PLAN

Check the Login Sessions

Navigate to **Instruments/Device Sessions** to see the sessions under **Login Sessions**. The session starts after the user is authenticated at the splash portal. You can see details such as login name, IP address and MAC address, expiration, time online, and traffic volume.

If you delete the session, the user will need to reauthenticate, and the timers will restart.

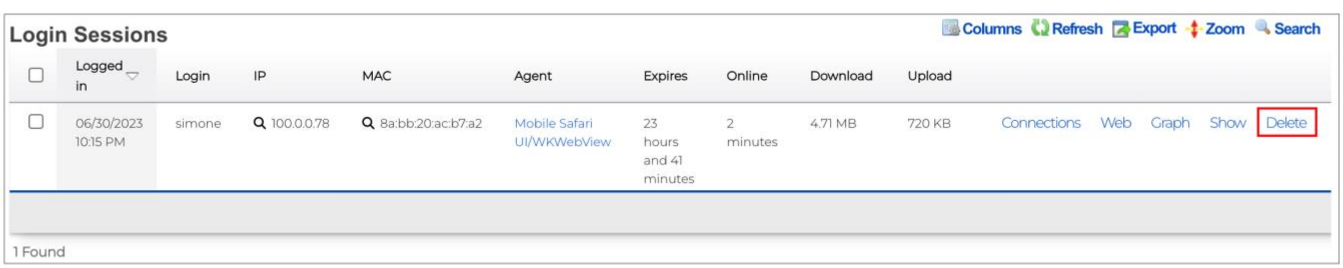


FIGURE 11 – LOGIN SESSIONS

Check Accounts and Devices

Navigate to **Identities/Accounts** to see the user accounts and devices. You will see details like the login name, group membership, used plans, VLAN, sessions, etc. If you delete the account, the user will need to recreate it again in the next login.

Devices show the list of devices currently in use by all accounts.

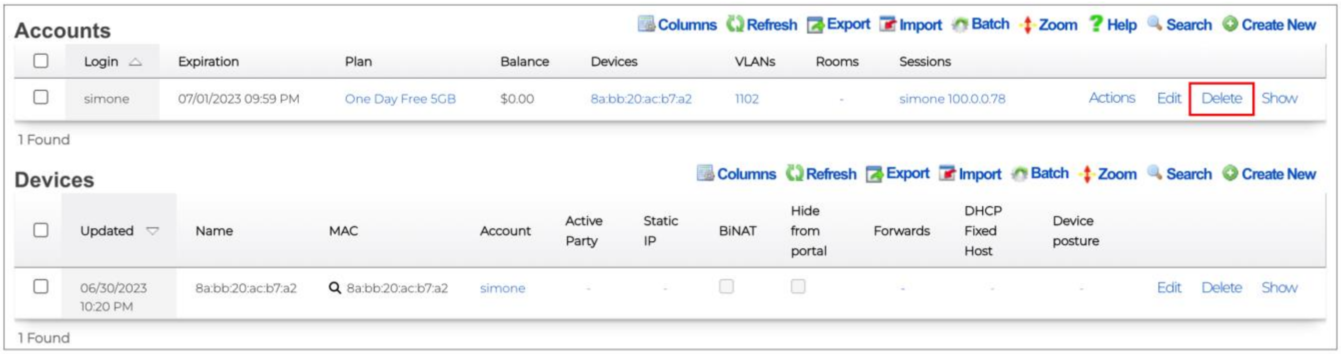


FIGURE 12 – ACCOUNTS AND DEVICES

Check the Policy

Click the lens icon 🔍 in the entry at **Login Sessions** or **Devices** to see the policy in use by the device after authentication. The policy in use is marked in red.

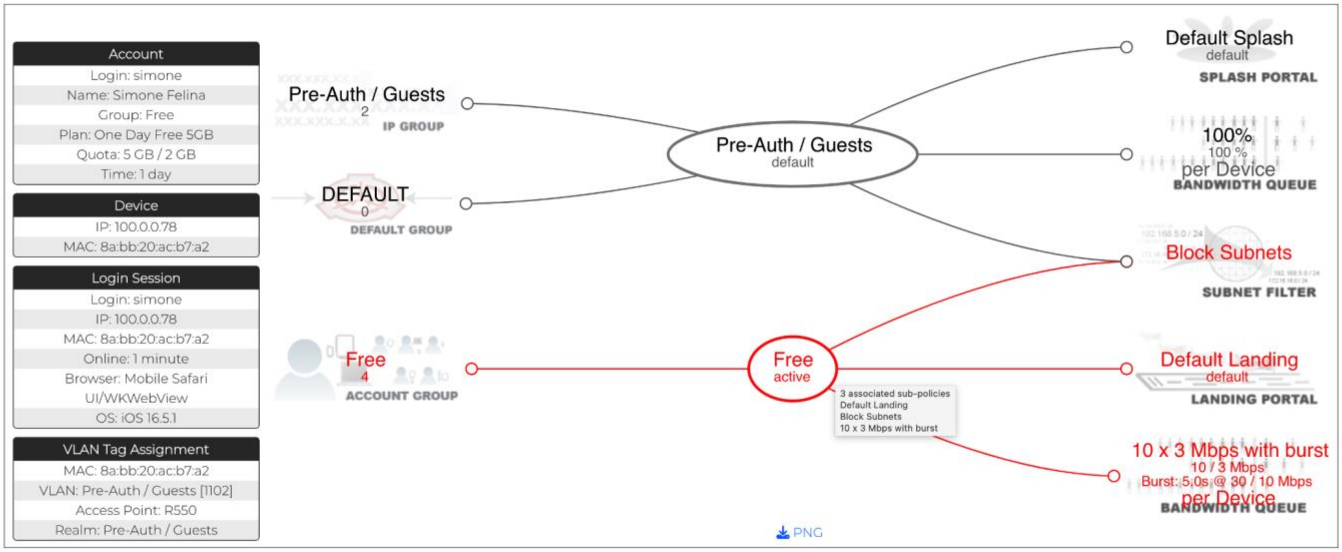


FIGURE 13 – CHECK THE POLICY USED BY THE DEVICE

Step 5 – Portal Modifications (Optional Step)

Currently, if you click on the menu icon at the landing portal, you see the items that are shown below:

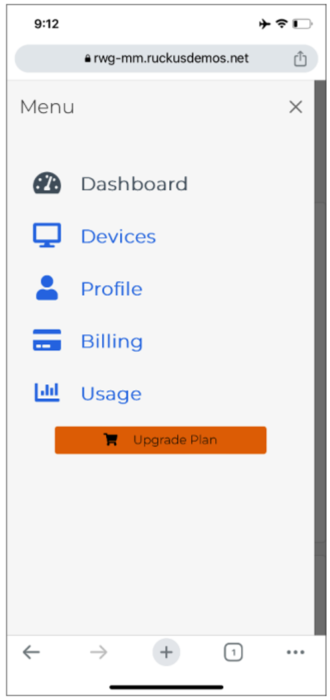
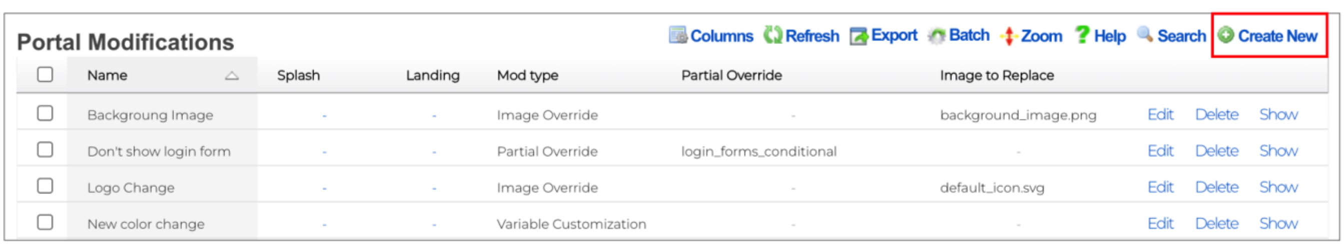


FIGURE 14 – MENU ITEMS

Let's create a portal modification to remove **Billing** and the **Upgrade Plan** button. Navigate to **Portals/Captive Portals** and click **Create New** in the **Portal Modifications** section:



Portal Modifications

Columns Refresh Export Batch Zoom Help Search Create New

	Name	Splash	Landing	Mod type	Partial Override	Image to Replace			
☐	Backgroung Image	-	-	Image Override	-	background_image.png	Edit	Delete	Show
☐	Don't show login form	-	-	Partial Override	login_forms_conditional	-	Edit	Delete	Show
☐	Logo Change	-	-	Image Override	-	default_icon.svg	Edit	Delete	Show
☐	New color change	-	-	Variable Customization	-	-	Edit	Delete	Show

FIGURE 15 – CREATE NEW PORTAL MODIFICATION

Enter the following information:

- **Name**: Enter a name for the portal modification. Here, we used **Simpler menu**.
- **Landing**: Mark the checkbox **Default Landing**.
- **Mod type**: Select **Partial Override**.
- **Partial Override**: Select **menu**.
- **Content mode**: Select **HTML**.

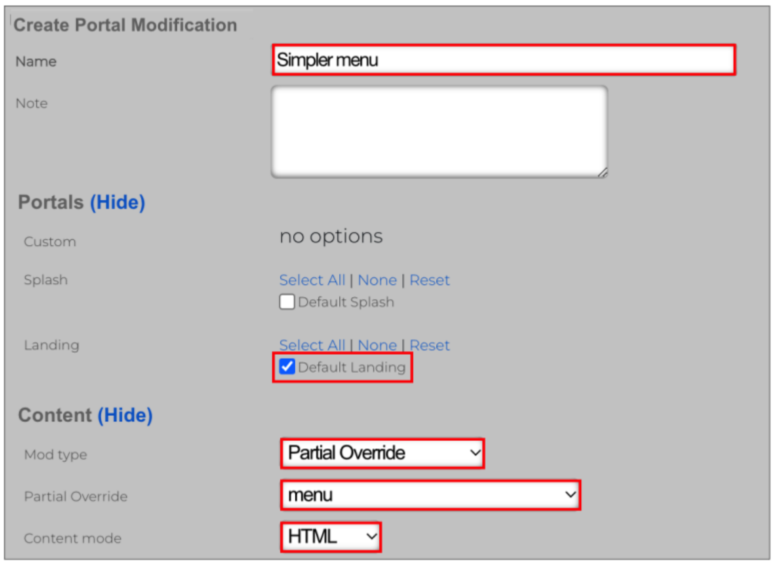


FIGURE 16 – CREATE PORTAL MODIFICATION

Scroll down to continue. Comment out lines 32-36 and 71 at the section **HTML (ERB)**:

```
31       # Billing
32 #     nav_links << {
33 #       action: :billing,
34 #       icon: 'credit-card',
35 #       title: _('Billing'),
36 #     }
```

```
70     # Usage Plans Button
71 #    bottom_button ||= { action: :usage_plan_list, icon: 'shopping-cart', title: _('Upgrade Plan') }
72   end # if @logged in
```

FIGURE 17 – LINES COMMENTED OUT

Click **Create** to finish.

Now, when will click on the menu icon, you will only see the options shown below:

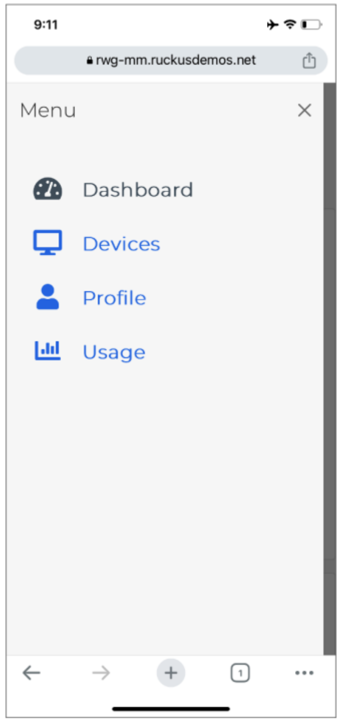


FIGURE 18 – LESS MENU ITEMS

Add Plans Using a Config Template

You can use a config template to configure all the previous steps with a single click. Download the config template from this URL:

https://github.com/commscope-ruckus/RUCKUS-RWG-Templates/blob/main/plans.yml

Navigate to **System/Backup**, click **Create New** in **Config Template** section, enter a name, choose the downloaded file and apply the template.

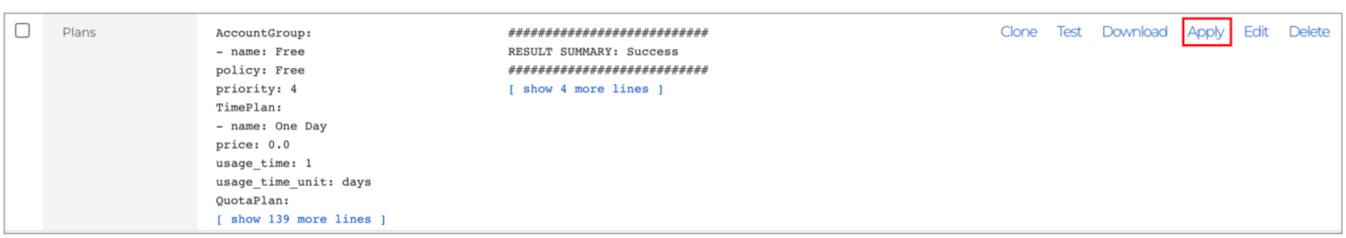


FIGURE 19 – APPLY THE CONFIG TEMPLATE

Adding a Merchant

In this section we will add another account group, a new usage plan, time plan and quota plan, a new policy and a merchant to the previous configuration.

Authorize.Net is a merchant supported by RWG which includes a sandbox.

Step 1 – Setup an Account at Authorize.net

Navigate to https://developer.authorize.net/hello_world/sandbox.html and follow the instructions to create a sandbox account.

Right after the account is created, you should see the **API Login ID**, the **Transaction Key** and another key. Copy the login ID and and transaction key. The second key is the **Signature Key**, and it needs to be regenerated.

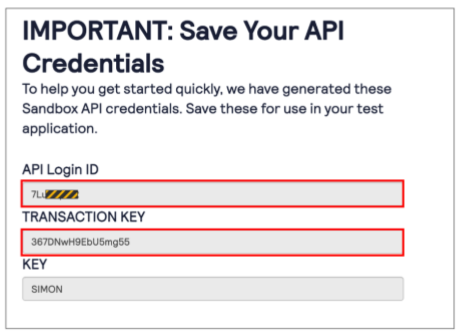


FIGURE 20 – API ID AND KEYS FOR AUTHORIZE.NET

Step 2 - Regenerate the Signature Key

Login into your account at https://sandbox.authorize.net/. Click on ACCOUNT, then API Credentials & Keys.

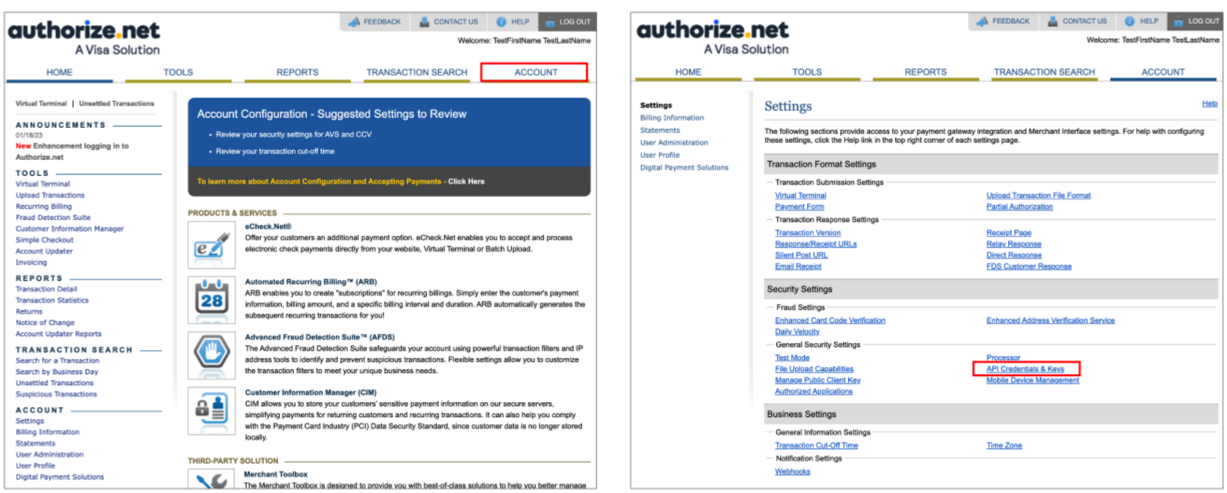


FIGURE 21 – API CREDENTIALS & KEYS

Click **New Signature Key**, then **Submit**.

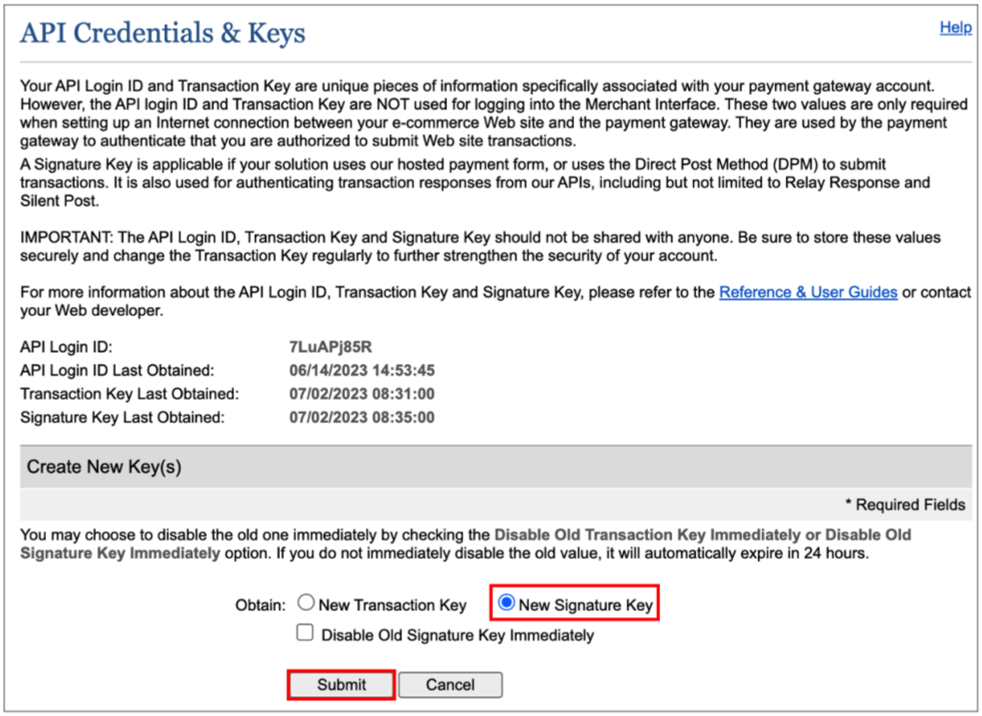


FIGURE 22 – NEW SIGNATURE KEY

Click **REQUEST PIN** to verify your identity. You should receive an email with the PIN.

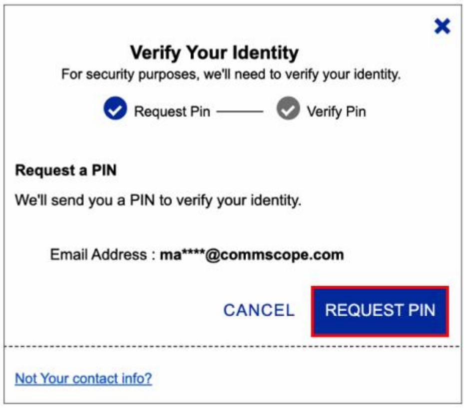


FIGURE 23 – REQUEST PIN

After your identity is verified, the new key is generated. Copy the new key.

FIGURE 24 – COPY KEY TO CLIPBOARD

Step 3 – Create the Merchant in RWG

Navigate to **Billing/Gateways** and click **Create New** under **Merchants**. Enter the following information:

- **Name**: Enter a name for the merchant.
- **Direct gateway**: Select **Authorize.Net**.
- **Login**: Enter the **API Login ID**.
- **Password**: Enter the **Transaction Key**.
- **Signature**: Enter the **Signature Key**.
- **Test mode**: Mark the checkbox.

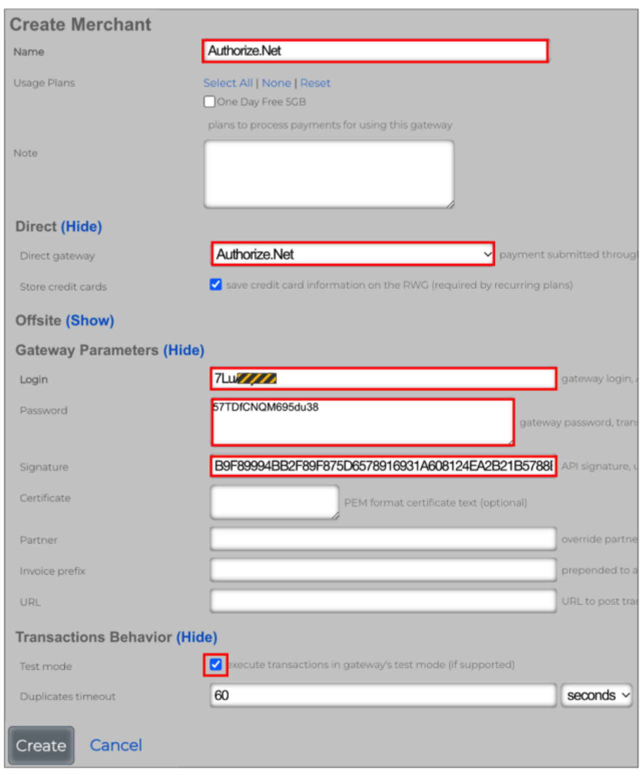


FIGURE 25 – CREATE MERCHANT

Click **Create** to finish.

Step 4 – Create New Account Group

Navigate to **Identities/Groups** and click **Create New** under **Groups**. Enter the following information:

- **Name**: Enter Premium.

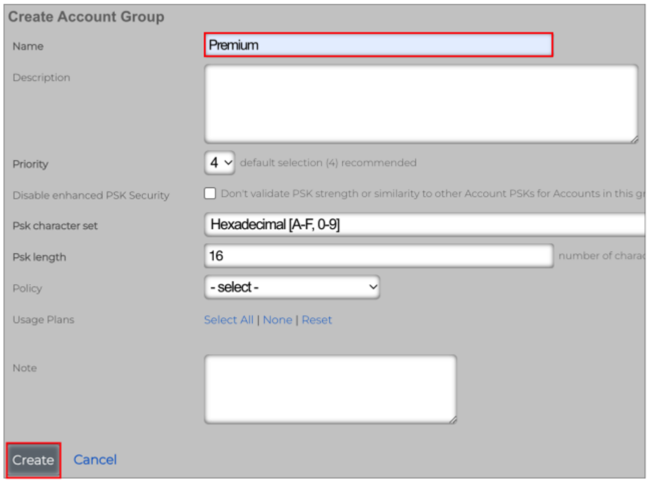


FIGURE 26 – CREATE ACCOUNT GROUP

Click **Create** to finish.

Step 5 – Create New Policy

Navigate to **Policies**, scroll down and click **Create New** under **Policies**. Enter the following information:

- **Name**: Enter **Premium**.
- **Landing Portal**: Select **Default Landing**.
- **Bandwidth Queues**: Mark the **100%** checkbox.

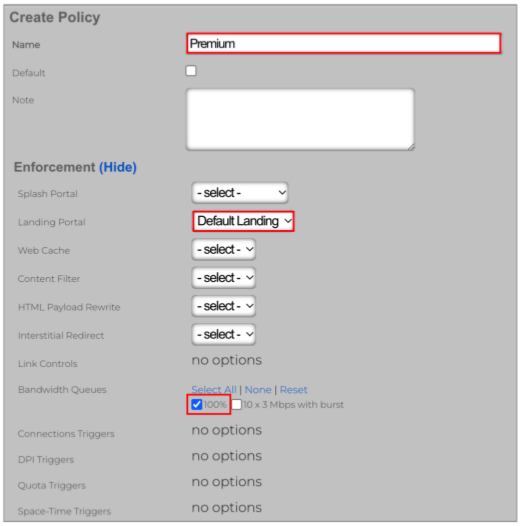


FIGURE 27 – CREATE POLICY

Scroll down to continue.

Enter the following information:

- **Subnets Filter**: Select **Block Subnets**.
- **Account Groups**: Select **Default Landing**.
- **Bandwidth Queues**: Mark the **Premium** checkbox.

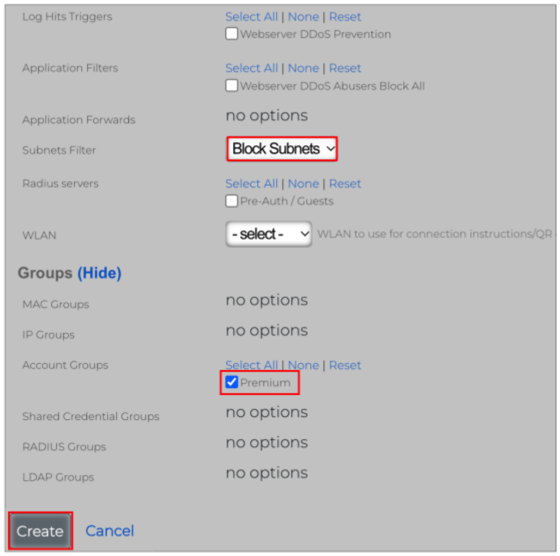


FIGURE 28 – CREATE POLICY

Click **Create** to finish.

Step 6 – Create New Time Plan

Navigate to **Billing/Plans** and click **Create New** under **Time Plans**. Enter the following information:

- **Name**: Enter **Unlimited**.
- **Time**: Mark the checkbox **unlimited**.

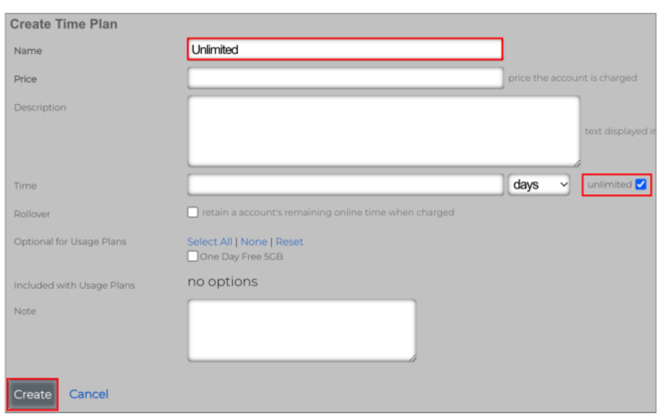


FIGURE 29 – CREATE TIME PLAN

Click **Create** to finish.

Step 7 – Create New Quota Plan

Navigate to **Billing/Plans** and click **Create New** under **Quota Plans**. Enter the following information:

- **Name**: Enter **Unlimited**.
- **Download**: Mark the checkbox **unlimited**.
- **Upload**: Mark the checkbox **unlimited**.

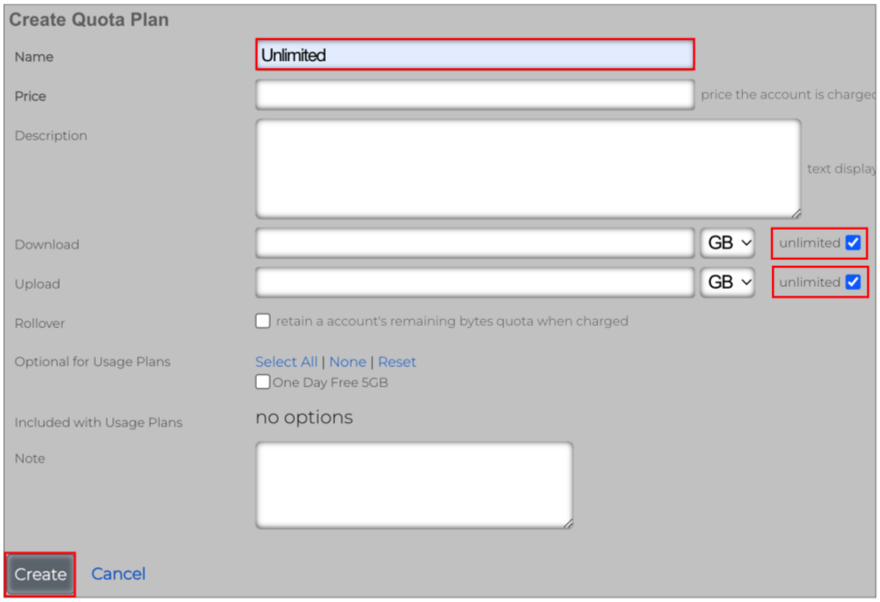


FIGURE 30 – CREATE QUOTA PLAN

Click **Create** to finish.

Step 8 – Create Usage Plan

Navigate to **Billing/Plans** and click **Create New** under **Usage Plans**. Enter the following information:

- **Name**: Enter **Premium**.
- **Account Group**: Select **Premium**.
- **Splash Portals**: Mark **Default Splash**.
- **Landing Portals**: Mark **Default Landing**.
- **Quota**: Enter **Unlimited**.
- **Time**: Select **Unlimited**.

Keep the default for the other parameters.

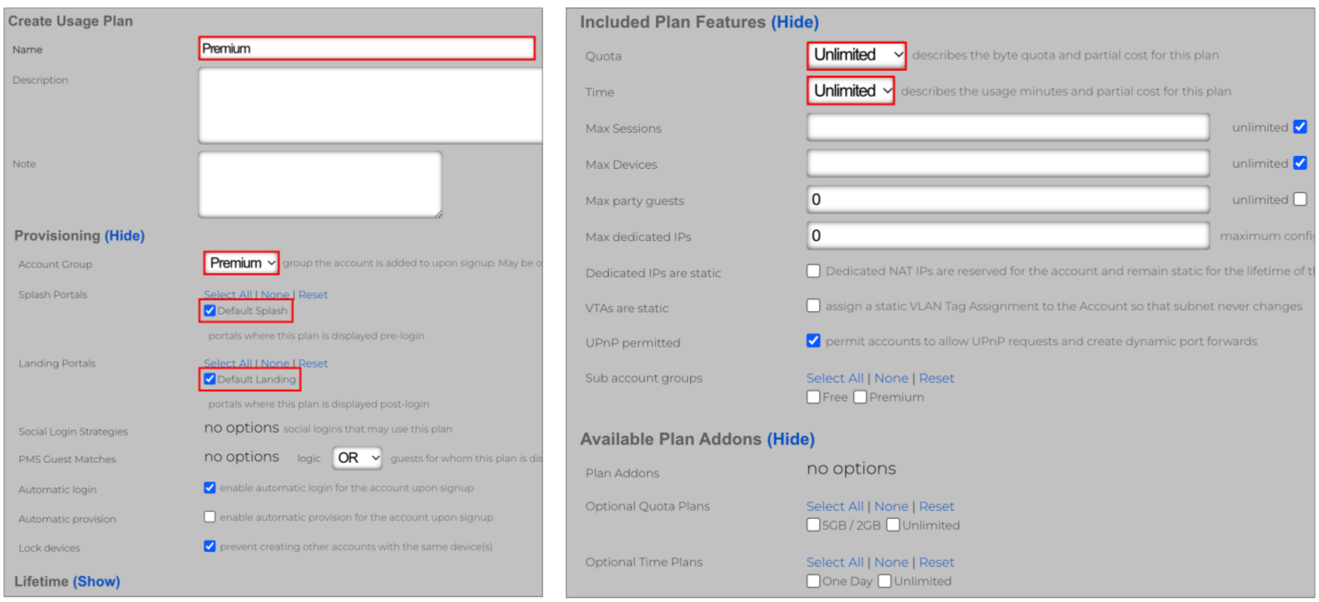


FIGURE 31 – CREATE USAGE PLAN

Scroll down to continue.

Enter the following information:

- **Base price**: Enter a value for the plan.
- **Merchants**: Mark the **Authorize.Net** checkbox.

Keep the default for the other parameters.

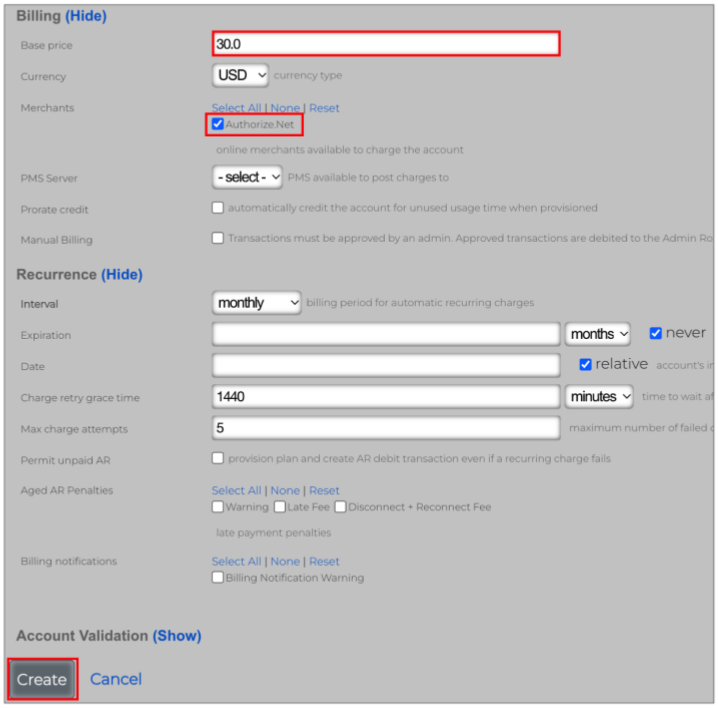


FIGURE 32 – CREATE USAGE PLAN

Click **Create** to finish.

Resulting Policy Graph

The resulting policies after all configuration is completed is shown below:

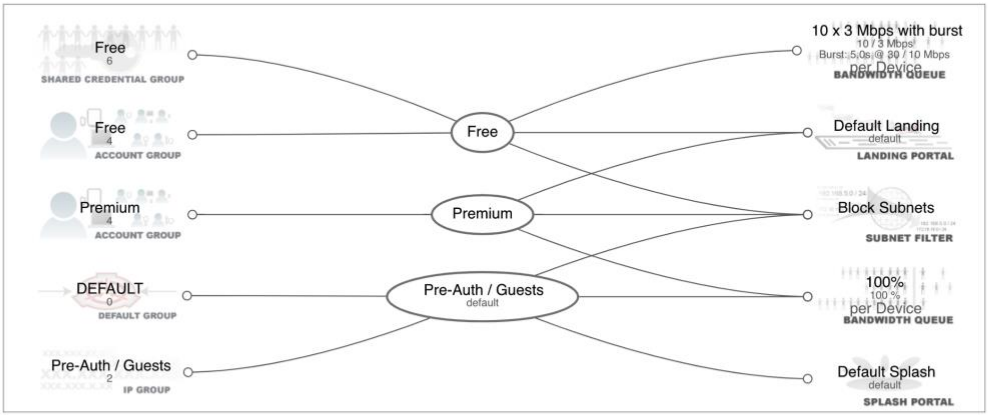


FIGURE 33 – COMPLETE POLICIES

Testing the New Plan

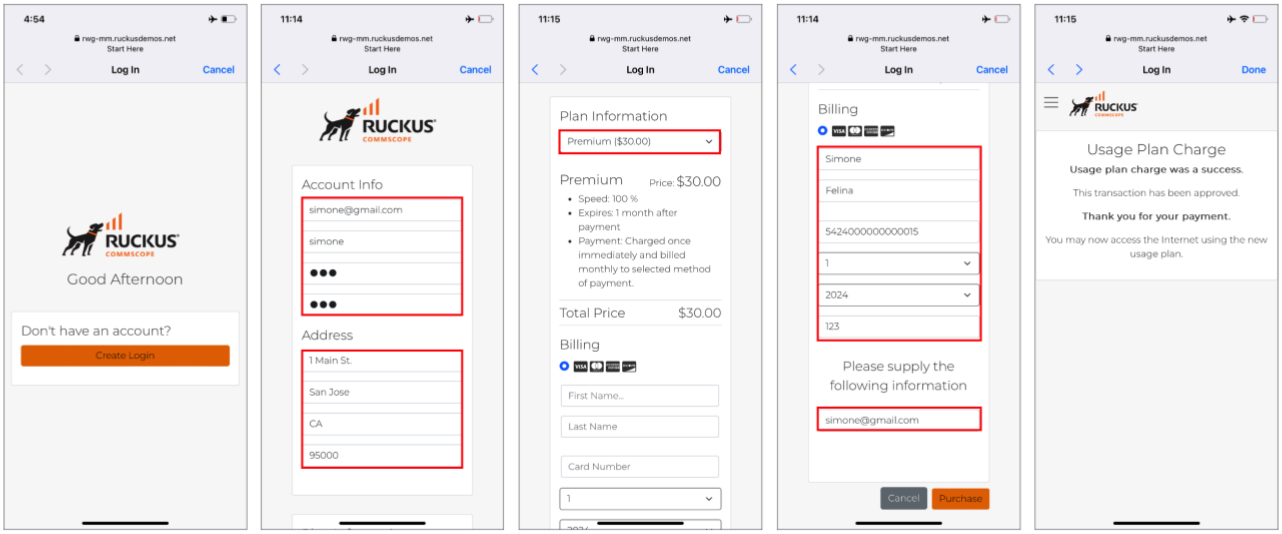
The Authorize.Net sandbox uses the credit card numbers in this table for tests:

Credit Card Brand	Number
American Express	370000000000002
Discover	6011000000000012
JCB	3088000000000017
Diners Club/Carte Blanche	38000000000006
Visa	4007000000027 4012888818888 4111111111111111
Mastercard	5424000000000015 2223000010309703 2223000010309711

FIGURE 34 – CREDIT CARD NUMBERS FOR TESTS

When filling up the form in the portal, use any of those numbers, enter an expiration date after today's date, and any CVC code (American Express uses a 4-digit CVC code, and all other card brands use a 3-digit CVC code).

The test below starts with no account created in RWG:



Click **Create Login** to create an account

Enter the account Info and Address

Select Premium ($30.00)

Enter the billing information and email, then click **Purchase**

The usage plan is charged!

FIGURE 35 – TESTING THE PLAN USING A MERCHANT SANDBOX

Check the Transactions

Navigate to **Billing/Transactions** to see the transactions processed via RWG. **AR Transactions** shows all **Accounts Receivable**. That includes all the transactions that are affecting the balances. It's a double ledger system that shows a debit and credit transaction for each purchase. **Merchant Transactions** show the transactions by merchant.

AR Transactions

ID	Time	Debit	Credit	Reason	Merchant Transaction
					(Filtered)
36	07/02/2023 01:15 PM	$30.00	-	end-user plan purchase	-
35	07/02/2023 01:15 PM	-	$30.00	successful merchant charge	simone: $30.00
34	07/02/2023 10:59 AM	$150.00	-	end-user plan purchase	-
33	07/02/2023 10:59 AM	-	$150.00	successful merchant charge	$150.00

Merchant Transactions Columns Refresh Export

ID	Time	Amount	Success	IP	MAC	Agent	Usage Plan	Merchant
						(Filtered)		
9	07/02/2023 09:53 PM	$30.00	☑	100.0.0.102	8a:bb:20:ac:b7:a2	Mobile Safari UI/WKWebView	Premium	Authorize.Net

FIGURE 36 – AR TRANSACTIONS AND MERCHANT TRANSACTIONS

Check the Policy

Click the lens 🔍 icon in the entry at the **Merchant Transactions** table to see the policy used by the customer.

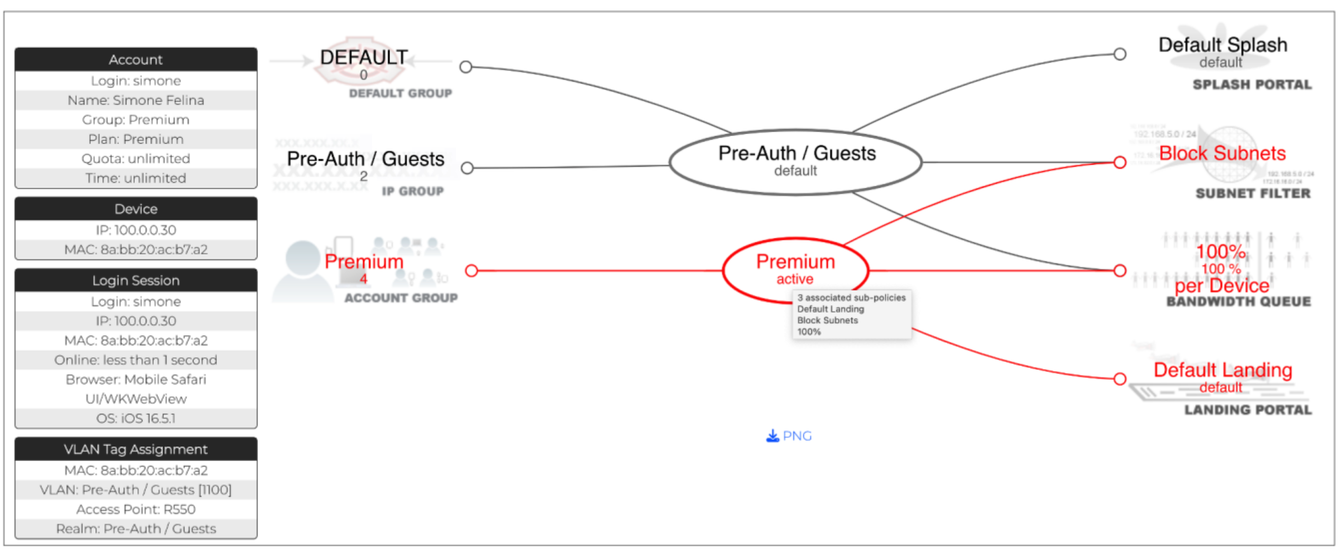


FIGURE 37 – DEVICE USING THE PREMIUM PLAN

Check the Payment Methods and Subscriptions

Navigate to **Billing/Customers** to see the payment methods and subscriptions.

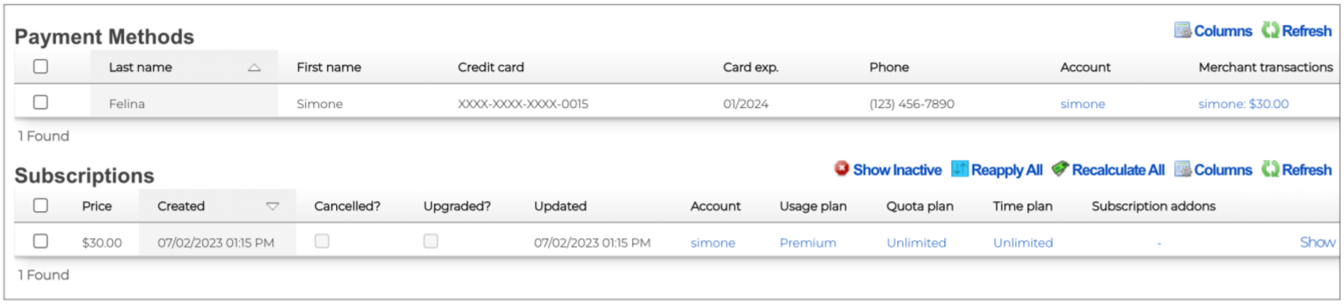


FIGURE 38 – PAYMENT METHODS AND SUBSCRIPTIONS

Check the Authorize.Net Reports

Log into your sandbox account and click **Unsettled Transactions.** After settlement you will find the transactions at **Search by Business Day.**

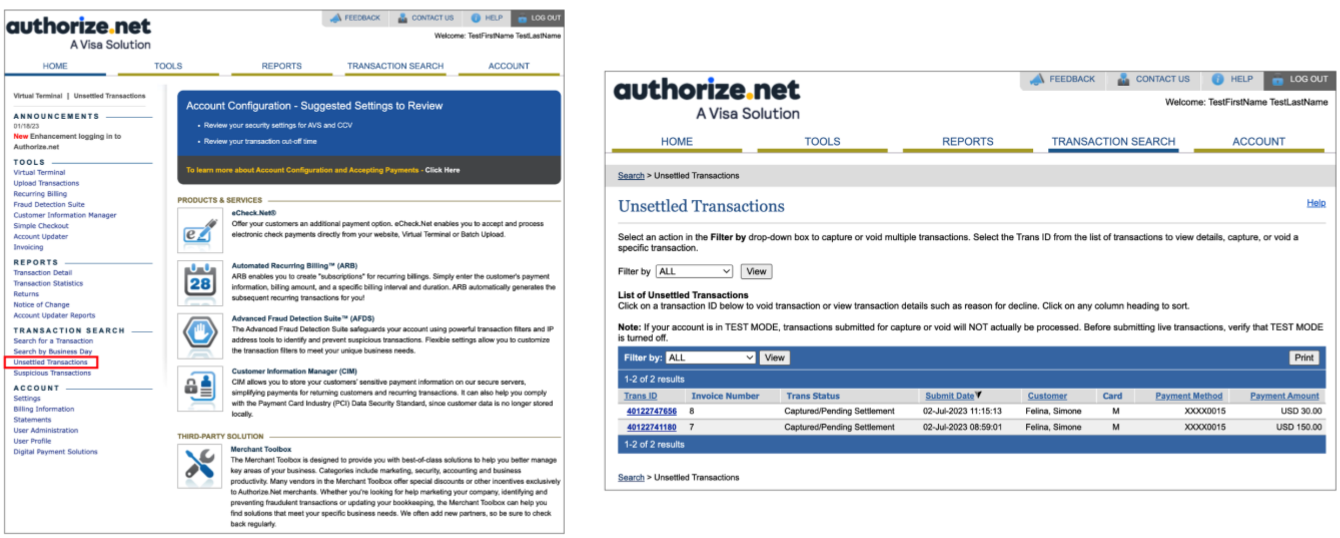
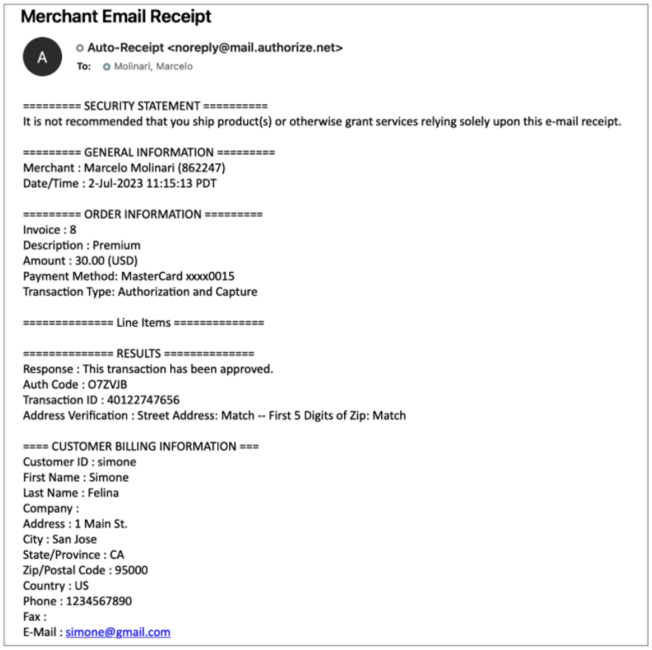


FIGURE 39 – AUTHORIZE.NET REPORTS

Email Samples Sent by Authorize.Net

Here are samples of emails sent by Authorize.Net:



Merchant Email Receipt

A Auto-Receipt <noreply@mail.authorize.net>
To: Molinari, Marcelo

========= SECURITY STATEMENT ==========
It is not recommended that you ship product(s) or otherwise grant services relying solely upon this e-mail receipt.

========= GENERAL INFORMATION =========
Merchant : Marcelo Molinari (862247)
Date/Time : 2-Jul-2023 11:15:13 PDT

========= ORDER INFORMATION =========
Invoice : 8
Description : Premium
Amount : 30.00 (USD)
Payment Method: MasterCard xxxx0015
Transaction Type: Authorization and Capture

============== Line Items ==============

============== RESULTS ==============
Response : This transaction has been approved.
Auth Code : O7ZVJB
Transaction ID : 40122747656
Address Verification : Street Address: Match -- First 5 Digits of Zip: Match

==== CUSTOMER BILLING INFORMATION ===
Customer ID : simone
First Name : Simone
Last Name : Felina
Company :
Address : 1 Main St.
City : San Jose
State/Province : CA
Zip/Postal Code : 95000
Country : US
Phone : 1234567890
Fax :
E-Mail : simone@gmail.com

Successful Credit Card Settlement Report.

Auto-Receipt <noreply@mail.authorize.net>
To: Molinari, Marcelo

Your Authorize.Net ID is: 862247
Dear Marcelo Molinari,

The following is your Credit Card settlement report for Sunday, July 02, 2023.

Transaction Volume Statistics for Settlement Batch dated 2-Jul-2023 19:42:59 PDT:
Batch ID: 14194841
Business Day: 02-Jul-2023
Net Batch Total: 180.00 (USD)
Number of Charge Transactions: 2
Amount of Charge Transactions: 180.00
Number of Refund Transactions: 0
Amount of Refund Transactions: 0.00
To view details for a specific transaction, please log into the Merchant Interface.

1.Click "Reports" from the main menu
2.Select "Transaction Details"
3.Select "Settled Transactions" from the Item Type drop-down box.
4.Select the Settlement Date for the batch you would like to view from the "Date" drop-down box
5.Click "Run Report"
6.In the results, click on any transaction ID to view specific details for that transaction.

If you have any questions regarding this settlement report, please contact your bank or you can call Customer Support at 1-877-447-3938.
Thank You,
Authorize.Net

FIGURE 40 – RECEIPT AND SETTLEMENT REPORT

Add Billing Using a Config Template

You can use a config template to add the new plan and merchant with a single click. Download the config template from this URL:

https://github.com/commscope-ruckus/RUCKUS-RWG-Templates/blob/main/billing.yml

Use the information of your own Authorize.Net sandbox account to edit the following parameters in the config template:

- API Login ID
- Transaction Key
- Signature Key

Navigate to **System/Backup**, click **Create New** in **Config Template** section, enter a name, choose the edited file and apply the template.

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We encourage you to visit commscope.com to learn more about:

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- RUCKUS ICX switches
- SYSTIMAX and NETCONNECT: Structured cabling solutions (copper and fiber)
- imVision: Automated Infrastructure Management
- Era and OneCell in-building cellular solutions
- Our extensive experience about supporting PoE and IoT

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