User Guide for ecMON

Abstract: This guide details the Epygi Cloud Monitoring (ecMON) service, primarily aimed at Epygi resellers and distributors.

Document Revision History

Revision	Date	Description	Valid for Models	Valid for QX/UC FW
1.0	08-Oct-17	Initial Release	ecQXs and QX IP PBXs	6.1.50/ and higher
1.1	08-Dec-17	Added support to configure Event Notification Settings.	ecQXs and QX IP PBXs	6.2.1 and higher
1.2	15-Mar-19	Added support for ecMON new features	ecQXs, QX/UC IP PBXs, QX GWs	6.2.40 and higher
1.3	29-Apr-19	Added support for ecMON new features	ecQXs, QX/UC IP PBXs, QX GWs	6.2.45 and higher
1.4	04-Feb-20	Added support for ecMON new features	ecQXs, QX/UC IP PBXs, QX GWs	6.3.1 and higher
1.5	10-Dec-20	Added support for ecMON new features	ecQXs, QX/UC IP PBXs, QX GWs	6.3.28 and higher
1.6	10-Jan-22	Added support for ecMON new features	ecQXs, QX/UC IP PBXs, QX GWs	6.3.76 and higher
1.7	17-Jun-23	Updated	ecQXs, QX/UC IP PBXs, QX GWs	6.4.28 and higher
1.8	07-Aug-24	Updated	ecQXs, QX/UC IP PBXs, QX GWs	6.5.35 and higher

Table of Contents

1 Introduction

ecMON is a cloud-based monitoring solution for Epygi products, namely the cloud-based ecQXs, on-prem QX/UC IP PBXs and QX Gateways (henceforth QX). This service designed for Epygi resellers, distributors and Epygi staff, provides effective monitoring and control of these devices in a centralized directory with some key configuration settings and performance parameters. ecMON furnishes real-time event and status

notifications and allows remote web access to QX devices, as well as the IP phones located within the same network as the QX.

For cloud-based ecQXs, ecMON is included and the account for ecMON activation will automatically be generated when a reseller purchases ecQX from the https://www.epygicloud.com portal. For on-premise QX IP PBXs, ecMON is enabled with a subscription and is annually renewable. The ecMON subscription for the required number of devices can be done from the https://www.epygicloud.com portal and this should be completed before any devices can be added to the ecMON account.

Note: The described configuration is generic for all Epygi QX and UC products, namely the QX20, QX50, QX60, QX100, QX200, QX500, QX3000, QX5000, QXISDN4+, ecQX, QXFXO4, QXE1T1, QXISDN4, QXFXS24 and UC20, UC80.

2 Functional Description

ecMON is a web-based service that provides the following functions to Epygi users:

- Displays all monitored QXs in a centralized directory.
- Shows the key configuration settings of QXs, such as the name of the instance, owner, active feature licenses, used price plan including activation/deactivation time, host address, FW version, uptime/downtime duration.
- Shows device information, such as the CPU utilization and the number of simultaneous calls on QXs, active licenses, number of registered phones.
- Receives real-time notifications for system events that may affect the quality of services running on the QX, helping to identify and to resolve issues on the QX. Allows the display of over 70 system events regarding the services running on the QXs.
- Supports remote login access to QX devices through the ecMON application. By virtue of creating a secure tunnel between the QX and ecMON, it will allow remote access to QX units and the phones connected to units even behind a NAT/firewall.
- Uploads the selected firmware file and install it on the selected QXs, or groups of QXs at once.
- Automatic configuration backup
- Upload the selected configuration backup file and restore it on the selected QXs, or groups of QXs at once.
- Uploads the selected music on hold and universal extension recording to the selected devices or groups of devices
- Notifies the QX device owner via email and phone calls when device is unreachable.
- Creates or edits the configuration of any QX via Configuration Editor, which emulates QX's graphical user interface.
- Shows the QX location on the map

Nolte. The guide is primarily intended for Epygi resellers and distributors. Hereafter, we will refer to both resellers and distributors as “users”, unless it is necessary to specify the roles individually.

3 Configuring QX for ecMON

The following needs to be done on the QX web management to support the ecMON service.

3.1 Activate the QX Monitoring:

Login to the QX as admin, go to the **Setup –> Basic Setup –> ecMON** page and enable the **QX Monitoring**.

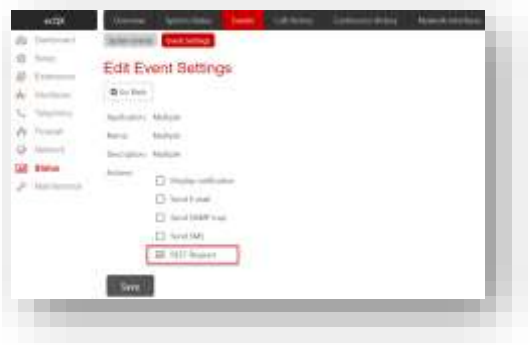
Result: The QX will immediately connect to the ecMON server and the appropriate event listed in the QX’s system events page (see below).

Note. For cloud-based QXs (both Epygi-hosted ecQX and customer-hosted ecQX/ISO instances) the QX Monitoring option is enabled by default. These instances register on ecMON and shown in the ecMON **Devices** list automatically being created on Epygi cloud portal (www.epygicloud.com). On-premise QX devices will be seen in the ecMON’s **Devices** list only after registering on ecMON by Epygi users.

3.2 Activate the REST Request option for the system events:

1. Go to the **Status** →**Events** →**Event Settings** page.

2. Select the checkbox(es) for desired system event(s) and click **Edit**.
3. Check the **REST Request** option in Actions and click **Save** to apply the changes.



Result: The RESTfull requests with event notification will be sent to the ecMON server every time when the event is triggered by QX.

3.3 Access to ecMON server by user

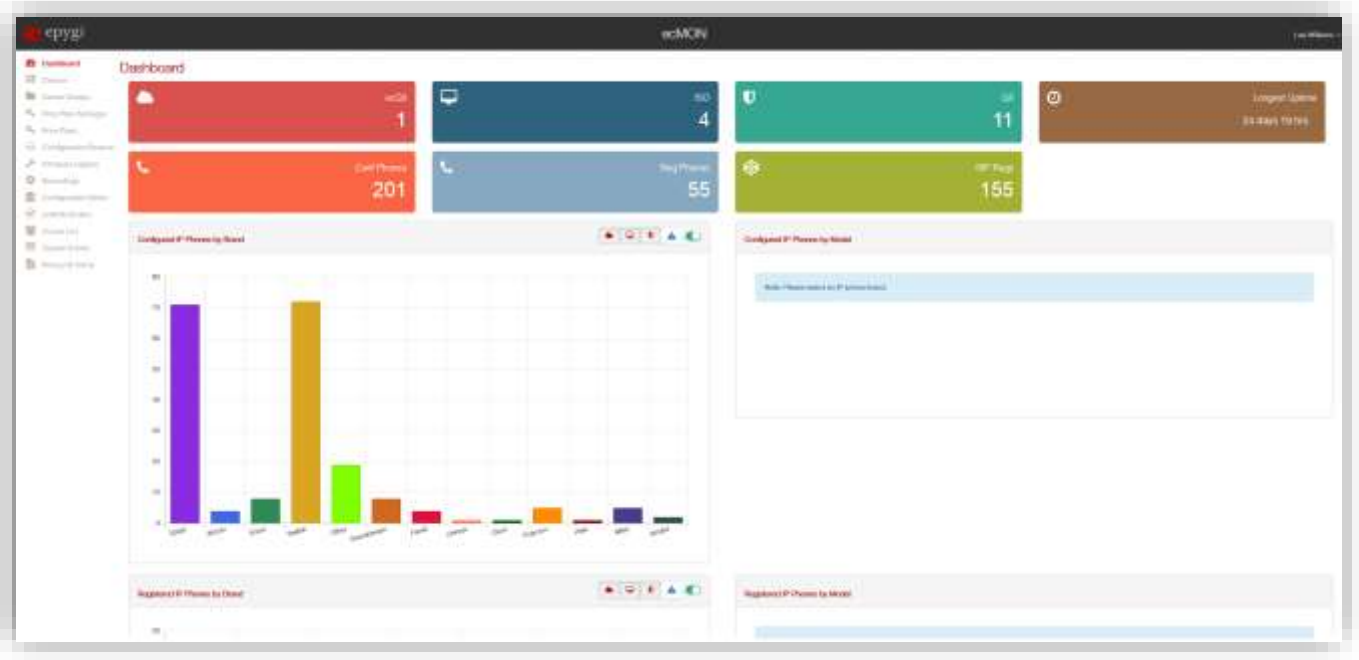
Epygi will create an account based on the information received from the user. The user can then login to ecMON using:

- The ecMON server URL: https://ecmon.epygicloud.com
- The account credentials (username and password) for the user.

These are the ecMON menu options available for the users.

Note. the screenshot below is taken from an ecMON login by a reseller. Differences in menu options available to resellers versus distributors will be mentioned in the text.

4 Dashboard

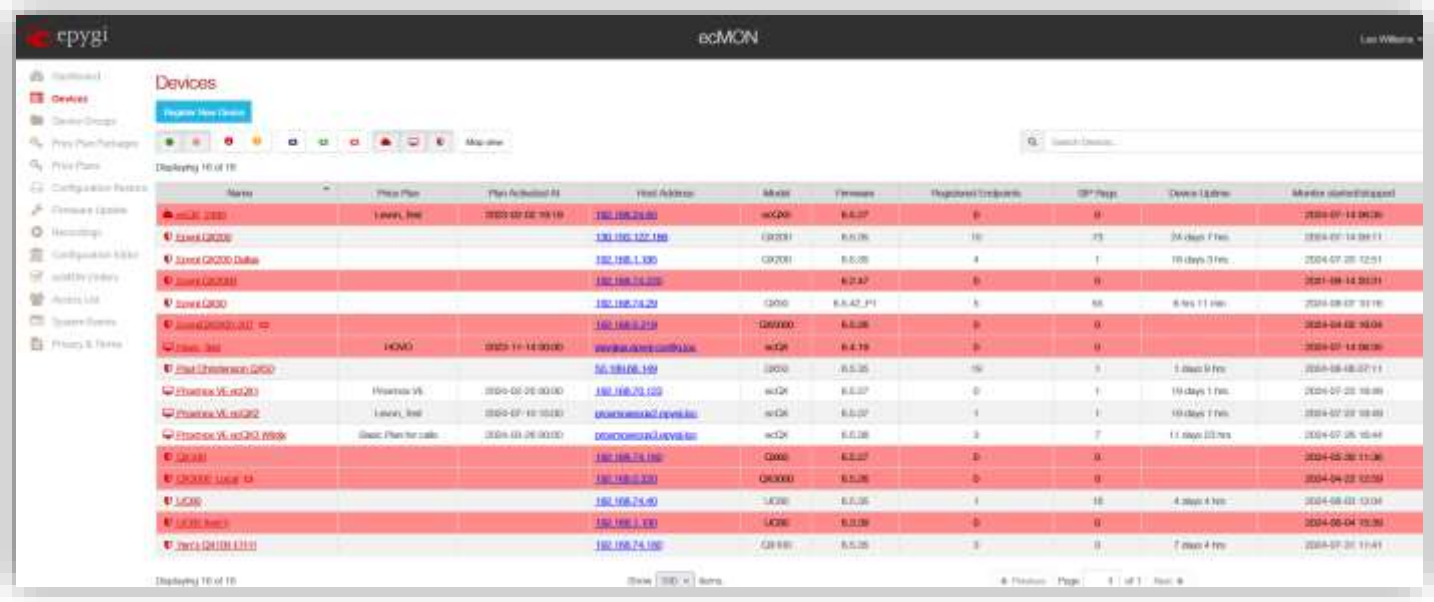


The dashboard for user contains the following information:

- ecQX: The number of ecQX instances belonging to user
- ISO: The number of ISO instances belonging to user
- QX: The number of QX devices belonging to user
- Longest uptime: longest uptime duration among all devices of the user
- IP phones: the number of IP phones on all devices belonging to user
- Registered: the number of all registered phones of user
- IP phones belonging to user classified by brand
- Registered IP phones belonging to user classified by model

5 Devices

After logging into ecMON, all QX devices assigned to the user will be listed in the **Devices** table, as pictured in the example below. The assignment of devices to user (reseller) should be done either by distributor or by the ecMON admin (see chapter 5).

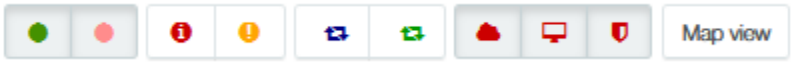


Note. The coloring indicates the status of the device/instance:

- White background means that everything is normal with the device
- Red background means that the device is either stopped or running but cannot connect to ecMON server
- Orange-Yellow background means that the device is running and connected to ecMON server, but the voice subsystem is down by some reason.

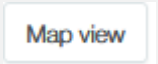
The **Devices** menu allows searching specific devices by different parameters, monitoring and managing the registered devices. Clicking the name of the specific device will open the configuration options and settings of that device (see section 5).

5.1 Menus and Filtering options available on the Devices window

The menu bar 

is used to filter out and show the devices of different types, such as **QX, ecQX** or **ISO** and having specific statuses, such as **online, offline**. When you place the mouse over the icon, it pops up a hint with the purpose of that icon (below).

	online devices	Devices currently connected to ecMON
	offline devices	Devices currently not connected to ecMON

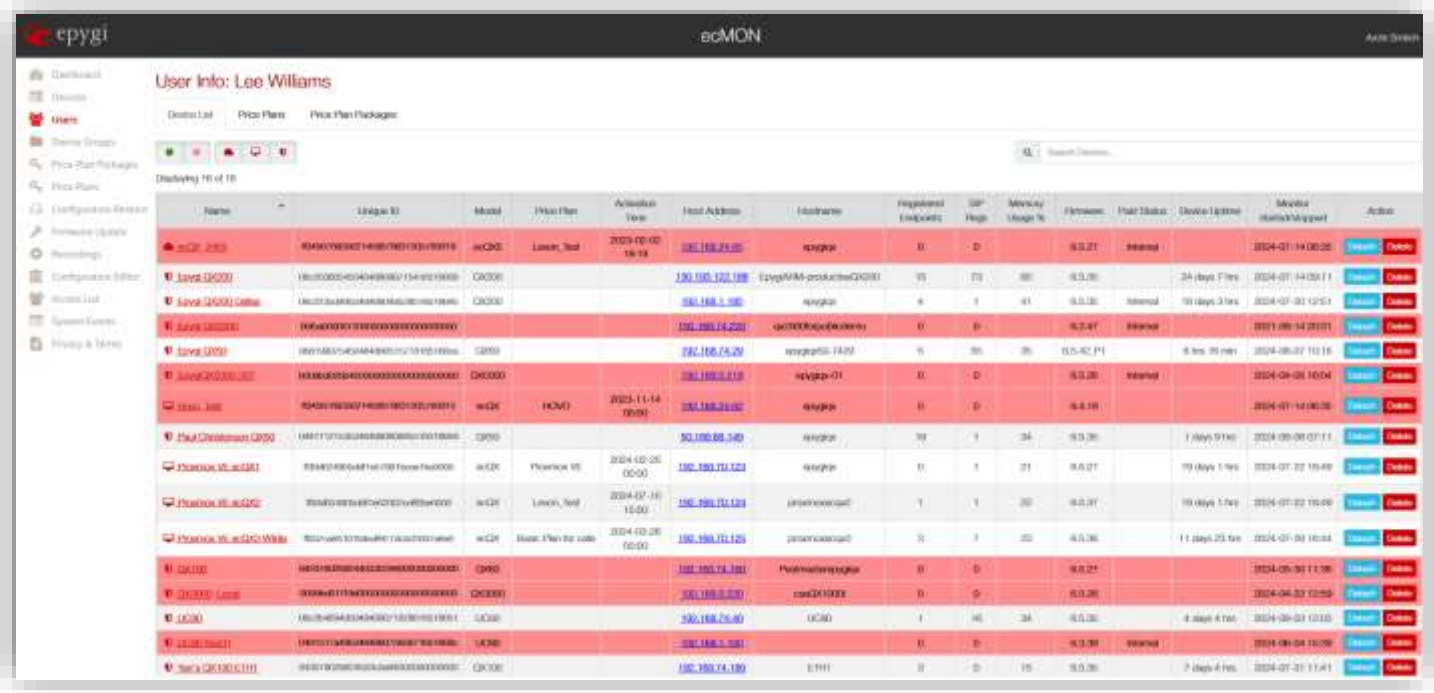
		Devices with unseen events
		Devices with significant CPU load
	Master devices	Master devices in the redundant group
	Backup devices	Backup devices in the redundant group
	ecQX devices	virtual device installed by Epygi in Epygi's Cloud. The reseller purchases ecQX devices from the https://www.epygicloud.com portal
	ISO devices	virtual device installed by the user from ISO image on his virtual machine. These devices are under customer control
	QX devices	on-prem QX/UC devices
		Shows the location in Google map for the devices currently listed on the screen

6 Users*

Note. This section is available for distributor login only. It shows the list of registered resellers attached to the logged-in distributor.

Clicking on the name of specific reseller bring the list of devices assigned to that reseller. See below the list of devices belonging to the reseller **Lee Williams**.

Note. Distributor will have full access to the devices belonging to the attached resellers and to the list of Price Plans.



7 Device Groups

Devices can be grouped. This allows simplifying the actions to be performed on each device of the group. For example, the firmware update procedure can be specified for a group of devices instead of specifying for each device in the group separately.

To add a new device group, provide a name for the new group and select the devices to be added to that group.

Below are examples of device groups:

Device groups can be used in all places where individual devices are selected.

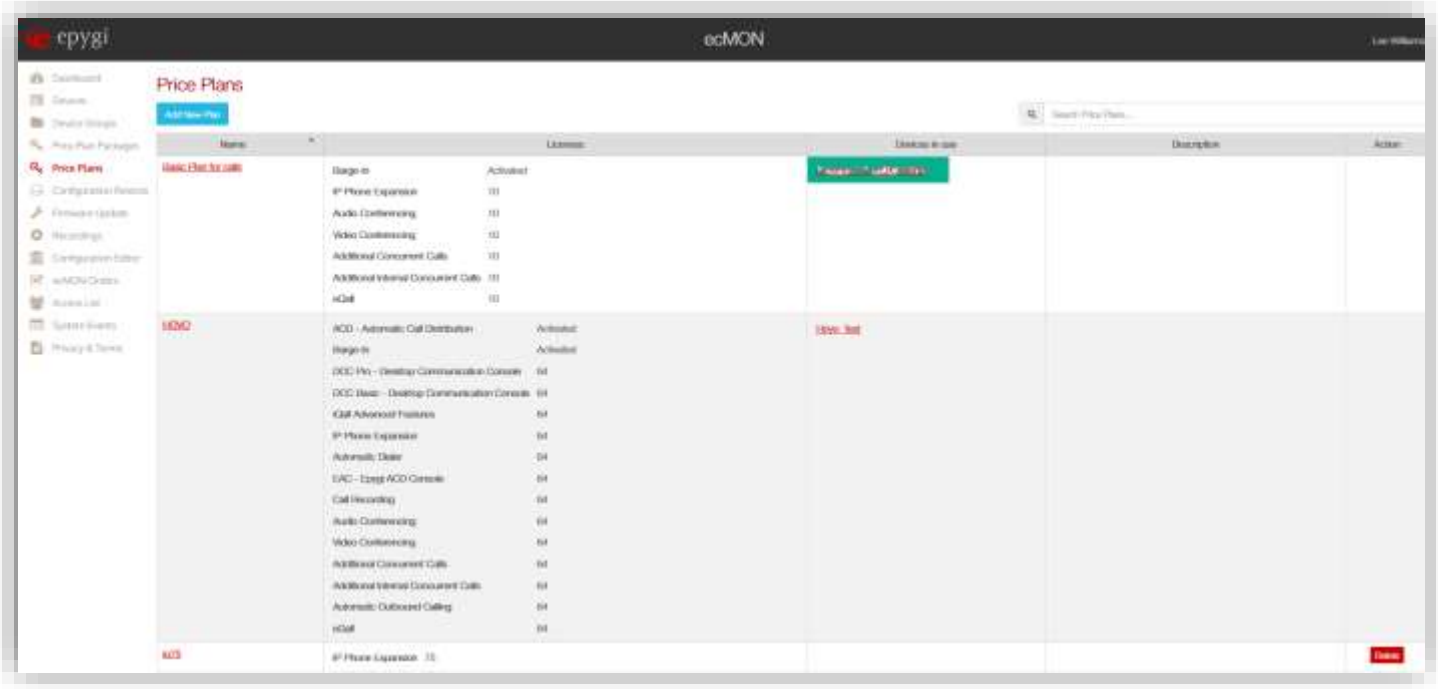
8 Price Plan Packages

The **Price Plan Packages** menu shows the price plan packages assigned to a user by Epygi staff. A Price plan package is a set of ecQX licenses available to user for a specified timeframe. More than one Price Plan Package can be assigned to the same user with overlapping or non-overlapping timeframes.

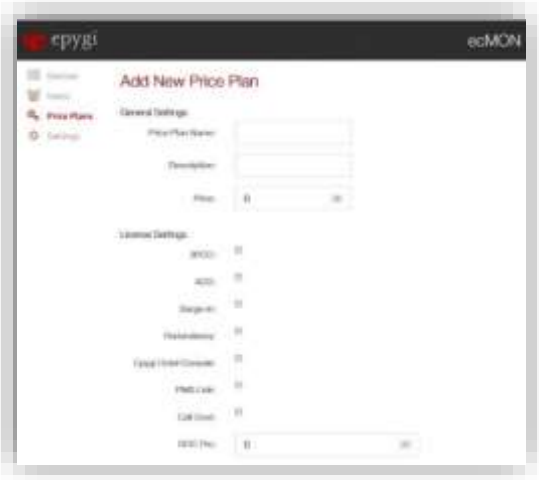
9 Price Plans

The **Price Plan** is a set of licenses to be assigned to devices.

The Price Plans are created and assigned to devices by the user (reseller). Users can make changes including adding or deleting license types, as well as, increasing or decreasing the quantities of licensed items.



A user can add a new Price Plan or update the existing Plan Plans.



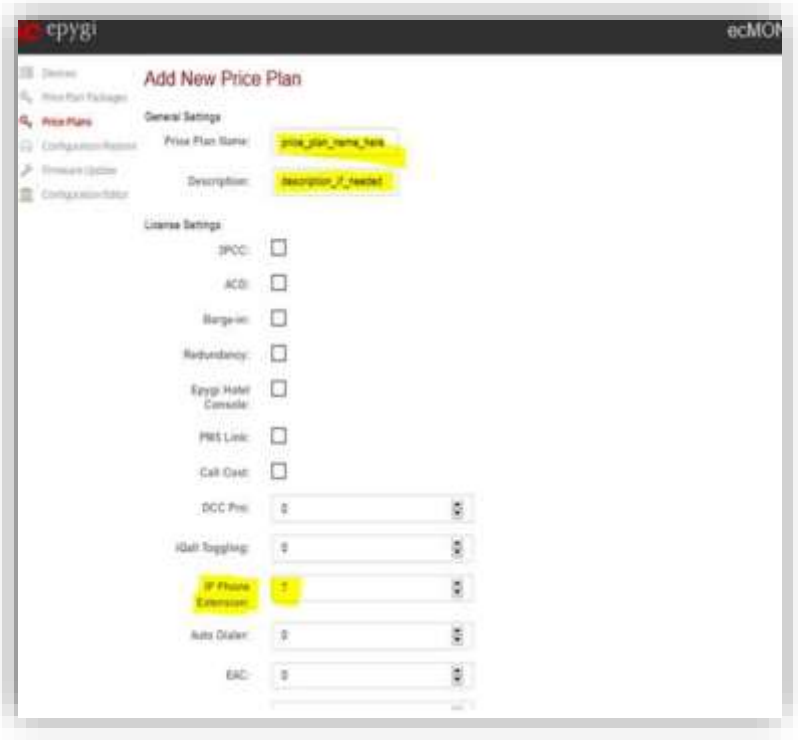
Note. Price plans are attached to customer-hosted cloud systems (ISO devices) only. ISO devices can have only one price plan attached to it at any point of time. A price plan can be used only to attach to devices of the same user. A price plan can be deleted only if it is not attached to any device.

The concept of the Price Plan Package gives the users the flexibility to make their own license changes when they need them. The customer just tells Epygi what he needs in overall (e.g., seven 3PCC licenses, 50 IP line extensions, etc.) and Epygi sets those general limits in the Price Plan Package. And the user decides how to allocate these licenses among their cloud systems and change the allocations when needed in the Price Plans within the limits set in the package and without the need to ask Epygi Support to do it for them.

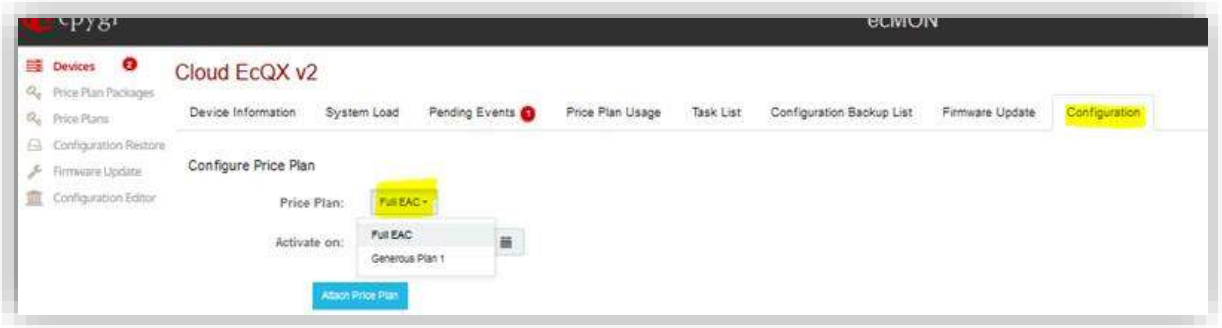
Here is the step- by- step instruction how to create the price plan by reseller:

1) Epygi staff has already created the Price Plan Package(s) based on the customer order. Log into ecMON with your reseller credentials. Click on **Price Plans** on the left column. Click on the **Add New Plan** button:

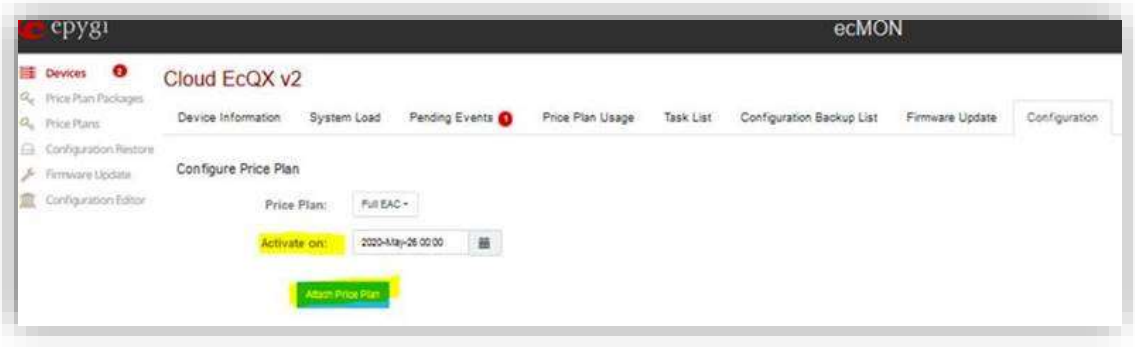
2) On the new price plan page, select the appropriate licenses. Click on the **Add Price Plan** button to complete the plan:



3) On the Devices page (left column), proceed to the **Configuration** tab, then to **Configure Price Plan** on the left.



4) After selecting the Price Plan, decide on the date/time for it to take effect (the system still needs to boot for the plan to take effect). So, please be mindful of your hours of operation, as well as, the delay of up to half an hour for the license information to be sent to ecMON before selecting the activation time in the Activate on field. Click on **Attach Price Plan**:



5) The same price plan can be attached to one or many devices. ecMON sums up the number of each type of license in all price plans and compare these numbers with the cumulative number of each license type in all price plan packages assigned to the user. The comparison report is displayed at the bottom of the Price Plan Packages tab of the user (see the example below):

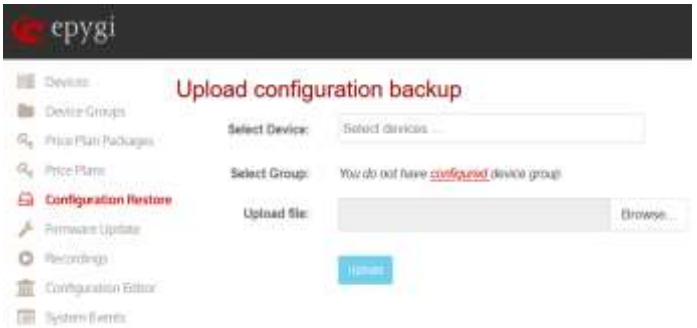
6) As before, the device needs to be rebooted for the licenses to take effect. There is no need for deleting the old Price Plan. The newly assigned plan just overrides it.

7) When you go to the Device Information tab for each system in ecMON, you will see the add-on licenses listed.

10 Configuration Restore

The menu options in this section allow the configuration backup files to be uploaded on ecMON and restored on the selected QX devices at once.

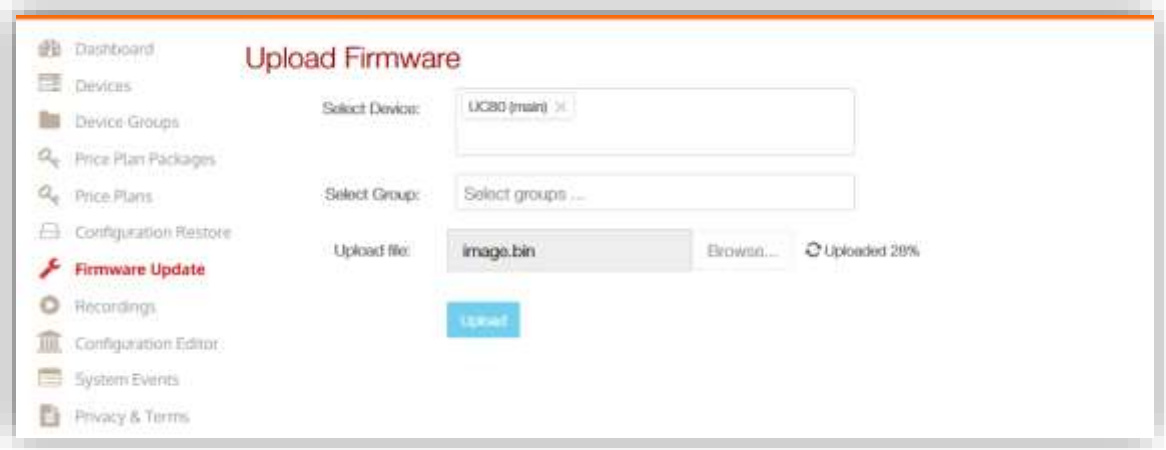
To do so push the Upload Configuration button (see on the left picture below) and select the devices and browse the configuration file on your PC (see the right picture below):



All backup configuration files you've uploaded you can see in the Configuration Backups list (see below). You can click on the selected backup configuration file to add more devices (or device groups) to the list or restore configuration on all devices (or device groups) in the list.

11 Firmware Update

This section provides menus allowing the specific Firmware version to be uploaded to ecMON and updated on the selected QX devices or group of devices at once.



The uploaded FW will be listed in the Firmware Images table.

Click on the link of the uploaded Firmware, in the opened window add devices or groups of devices.

For the selected devices change the Firmware Update mode to “Allow”- , then use the **Request Firmware Update** button to start the FW update procedure on the selected devices.

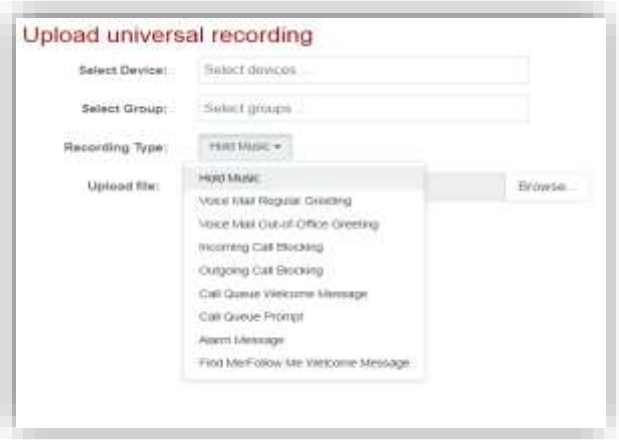
12 Recordings

The **Recordings** menu is used to update the custom voice message(s) universal for all user extensions on the QX. You can upload, for example, the music on hold or the alarm message to all extensions for the selected devices or groups of devices at once.

To update a custom voice message as a universal extension recording, click the **Upload Recording** button.

In the opened window:

- Select the desired devices one by one or select the predefined group (s) of available devices
- Select the type for the recording, such as hold music or alarm message
- Browse and upload the recording file



The uploaded files for recording(s) would be listed in the **Universal Extension Recordings** table.

After clicking on the desired recording file (Alarm Message in this example), the list of available devices will be displayed as presented in the table below

- User can add more devices in the list by clicking the “Add Device” button, or delete the device from the list by pressing the “remove device” button
- User can schedule the update date/time using the calendar widget in the “update schedule at” column and pressing the “Change” button.

After scheduled date/time is set user can control the update action according to the mode of switches in the “Allow update” and “Restore Default” columns:

1. If “Allow update” is switched off (in red) then update action will not be performed
2. If “Allow update” is switched on (in green) and “Restore Default” is switched off (in red) then at the scheduled time the system default wav file will be replaced by the custom
3. If “Allow update” is switched on (in green) and “Restore Default” is switched on (in green) then at the scheduled time the custom wav file will be replaced by the system default

Note. The message update procedure gets triggered only after the user presses the “Schedule Recording Update” button.

- Update will take effect for all devices in the list with the update allowed mode switched on .
- The status of update procedure will immediately change to “pending”, then upon procedure complete to “update successful”.
- The uploaded custom messages become applicable by default to all extensions on the QX, unless no custom messages have been uploaded or recorded. The file name can be of the users’ choosing. You select the type of the file in "Recording Type" field and during the upload the QX changes the name to a name assigned to file of that type by the system.

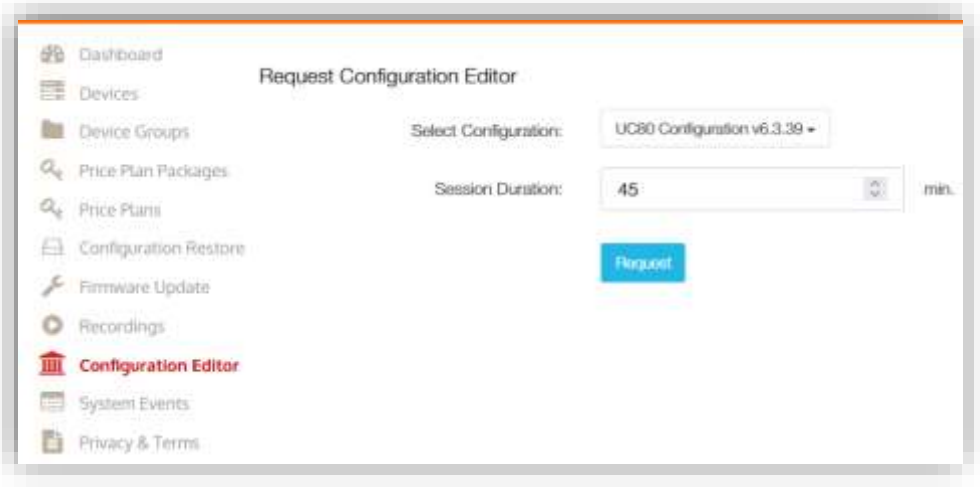
13 Configuration Editor

The Configuration Editor allows you to:

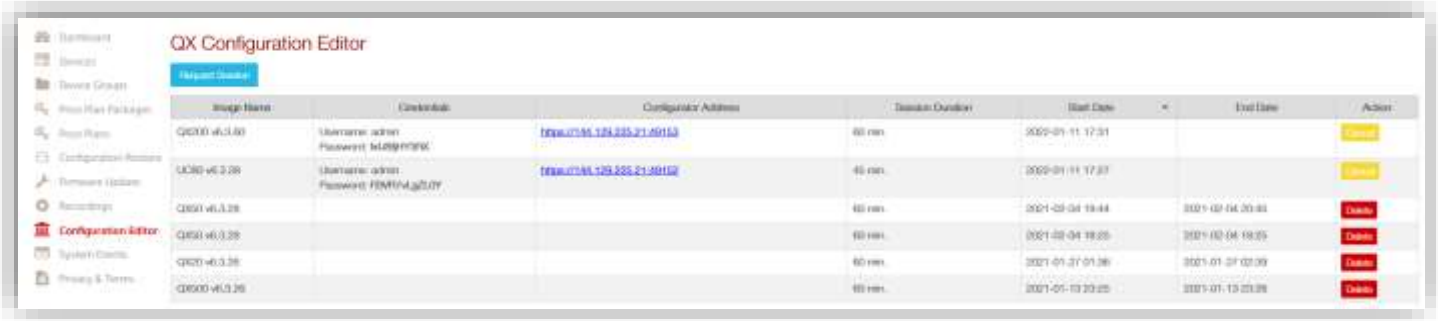
- Edit (generate) default configuration for the selected product type and the selected FW version
- Edit (generate) the previously saved configuration for the selected product type and selected FW version
- Download and save the generated configuration files and use them for restoring on a virtual machine either via ecMON or manually via QX user interface.

To start generating the configuration you should open a session by pushing the **Request Session** button. Doing so will open the page where you should select the product type and firmware version (see below), as well as, the session maximum duration. If you don’t manage to accomplish your task and save the edited configuration during that timeframe, the configuration will be lost.

Picture below show an example how to request a configuration for UC80 with FW version 6.3.39, to be active for 45 minutes.



After pushing the Request button ecMON will create a virtual device with a GUI similar to that of real device. As soon as the device is created, ecMON will give you the link to that device, as well as, the admin password to login (see below).



14 ecMON Orders

This section is available for resellers only. It shows the ecQX services ordered and purchased by the reseller.

15 Access List

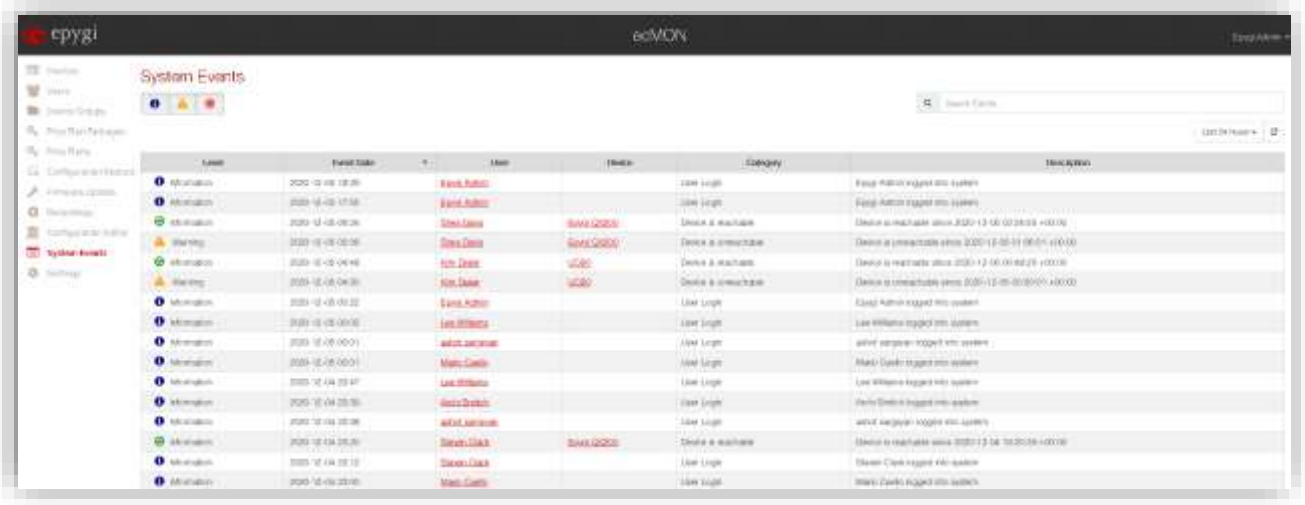
This menu allows to add aliases for the reseller or distributor.

16 System Events

The following event types are supported by ecMON so far:

- Informational events about the user login/logout
- Warnings concerning device reachability/unreachability
- Error events raised by ecMON in case it cannot connect to users for delivering information about unreachability (if configured so)

See below the example:



17 Managing Devices

If the QX device is configured properly and connected to the ecMON server, it would be immediately listed in the ecMON **Devices** list, like in the screenshot below.

The menus outlined below are available on the ecMON main window when logged in as reseller.

The monitored units will be shown in the **Devices** List with the following parameters:

- **Name –** for all devices, the default names based on their type (QX, ecQX, ISO) and model will appear. This can be changed by the user (and Epygi staff) to another name if desired.
- **Price Plan** – the name of the purchased price plan (only for ecQX/ISO virtual devices).
- **Plan Activation At.** – the price plan's activation time.
- **Host Address** – the IP address or host name of the device.
- **Device Uptime** – the device's actual uptime (the output of the "uptime" command in the underlying Linux level – this is different than the monitoring start time)
- **Monitor stared/stopped** - Time stamp of the start or stop of monitoring of the device in ecMON.

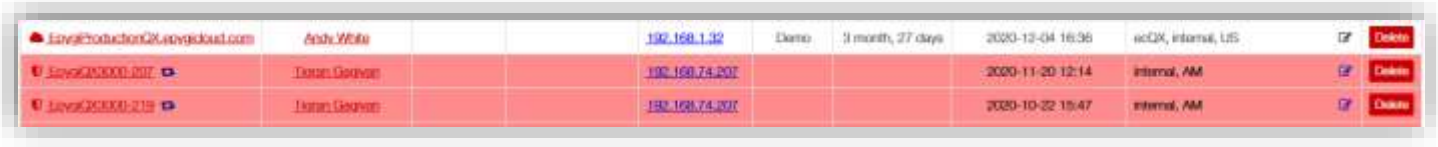
Note: If there are pending events for a specific device in the list, the number of events will be notified next to the device name in a red round icon.

Note: The background coloring indicates the monitoring status of the devices (white, red, yellow):

- The devices in red background have not been able to connect to ecMON within the last 10 minutes or more, so they are either stopped or running but lost connection to ecMON.
- White background shows that everything is normal with the device.
- Yellow means that the device is running and connected to ecMON, but the voice subsystem is down by some reason. In other words, PBX/VoIP functionality have been disabled probably after a failure.

Note: If there are no ecQX/ISO devices in the list with a price plan then the Price Plan, Activation Time and Deactivation Time columns will not be shown.

Note: If there are any redundant systems currently in the environment that are being monitored, they will show up with the following blue icon:



17.1 The filtering options available on the Devices window

The menu bar 

is used to filter out and show the devices of different types, such as **QX, ecQX** or **ISO** and having specific statuses, such as **online, offline**. When you place the mouse over the icon, it pops up a hint with the purpose of that icon (below). The **Map** view show the geographic location in Google map of the devices currently listed.

	online devices	Devices currently connected to ecMON
	offline devices	Devices currently not connected to ecMON
		Devices with unseen events
		Devices with significant CPU load
	Master devices	Master devices in the redundant group
	Backup devices	Backup devices in the redundant group
	ecQX devices	virtual device installed by Epygi in Epygi's Cloud. The reseller purchases ecQX devices from the https://www.epygicloud.com portal
	ISO devices	virtual device installed by the user from ISO image on his virtual machine. These devices are under customer control
	QX devices	on-prem QX/UC devices

Map view		Shows the location in Google map for the devices currently listed on the screen

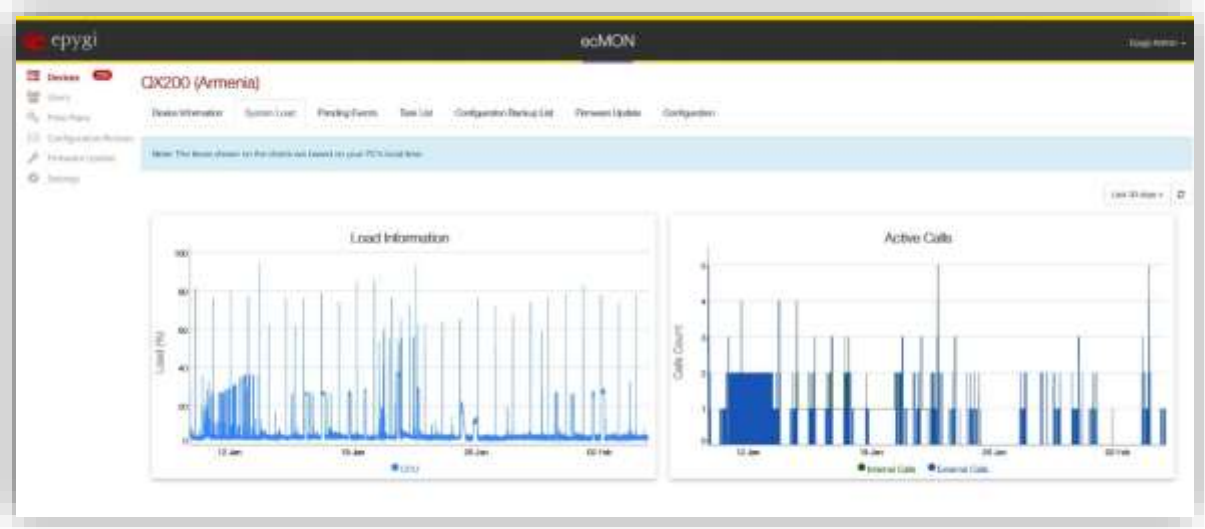
17.2 Device Information

Clicking the name for a selected device in the **Devices** list will open a window with information regarding that specific device.

- ✓ Active licenses – the list of licenses purchased and activated for the device
- ✓ Unique ID – the unique ID for the device
- ✓ Price Plan – the name of the price plan attached to device
- ✓ Host address – the host address of the device
- ✓ Hostname – the hostname of the device
- ✓ Registered Endpoints – the number of the SIP endpoints registered on the device
- ✓ Firmware – the FW version running on the device
- ✓ Uptime – the time elapsed since the last reboot
- ✓ Monitoring Started/Stopped – the date and time when ecMON started or stopped monitoring of the device last time
- ✓ Timezone – the time zone configured on the device
- ✓ Created At – the time device is registered with ecMON
- ✓ Last Update At – the date/time of the last status update message from device

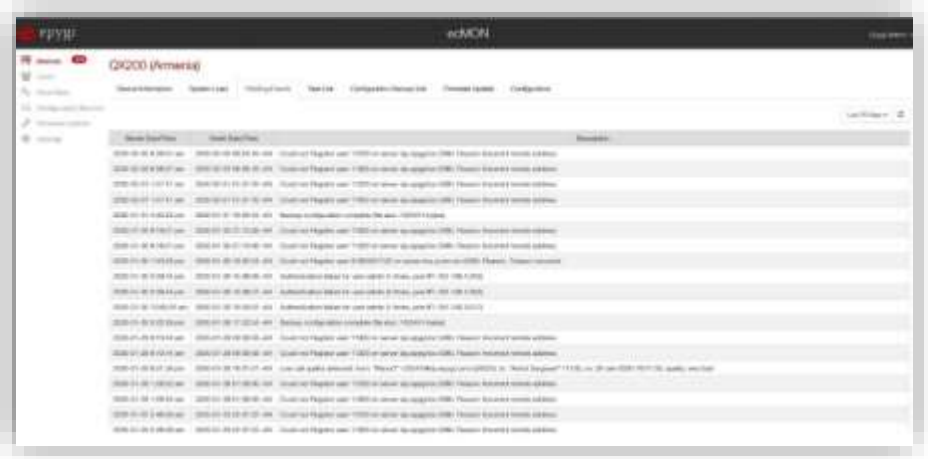
17.3 System Load

The **System Load** section of the Device Information shows the CPU load and the number of simultaneous active calls (and call legs, if any) on the device during the specified time range. The default time range is "Last 30 minutes", you can select the desired time range from the drop-down list in the upper right corner.



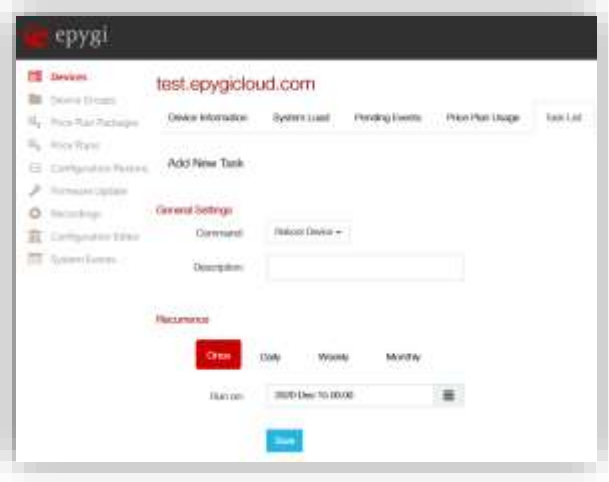
17.4 Pending Events

The **Pending Events** section of the **Device Information** shows the system events raised by the selected device. In this list you can see only the events configured on the QX to be notified to ecMON via enabling REST Request in Event Settings. In the drop-down list on the right top corner you can select the event reporting timeframe (last 30 minutes, last hour, last 3 hours, etc.)



17.5 Task List

This window allows scheduling of the tasks to run on the device automatically. For now, the **Reboot Device** option is the only one available in the task list.

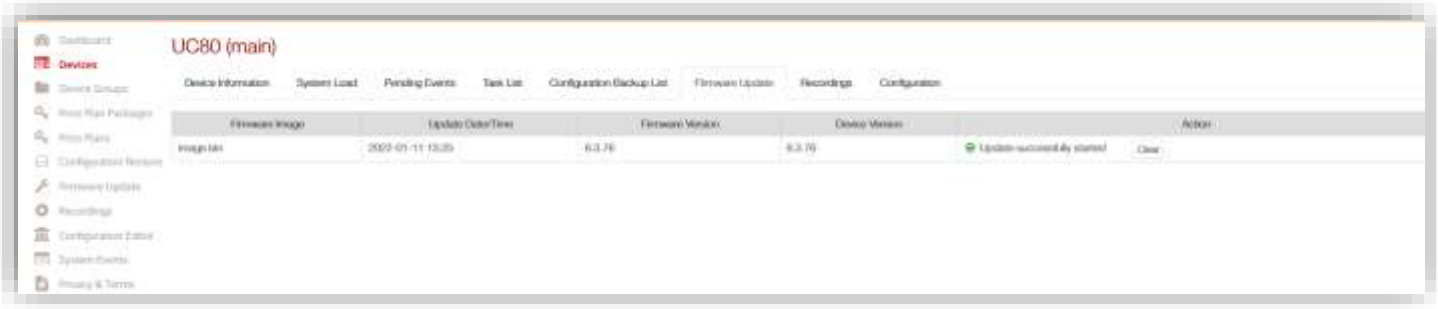


17.6 Configuration Backup list

This section shows the automatic backup configuration files from the selected QX with the backup date/time, the backup configuration version and current FW version on the QX. Use the **Backup Now** button to back up the configuration immediately without waiting for the scheduled time configured in the QX automatic backup menu. The buttons in the **Action** column allow to delete the file in the list or restored it on the respective QX device.

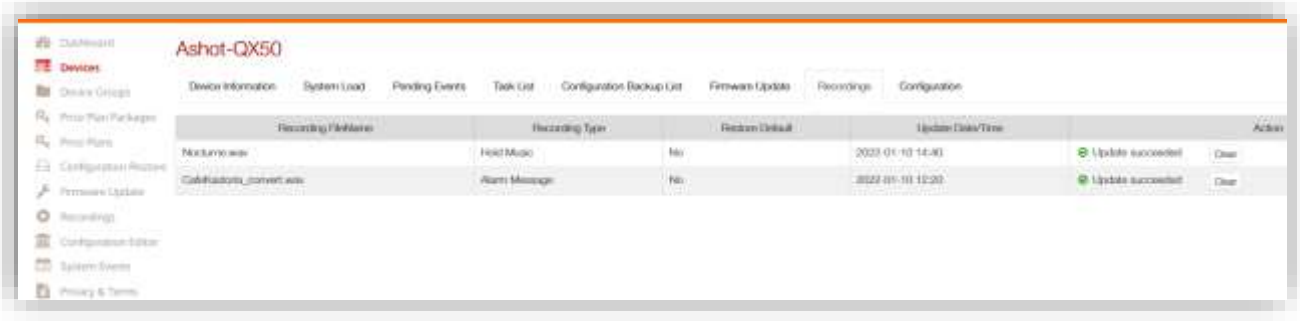
17.7 Firmware Update

This section shows the date/time of the last firmware update, the firmware version and the status of the firmware update procedure. According to the picture below the FW version 6.3.76 was successfully updated on the UC80 at 13:25 2022-01-11.



17.8 Recordings

This section shows the universal extension recordings successfully uploaded to the selected device as it was configured in the **Recordings** menu for the ecMON main login page. In the picture below two recordings, the hold music and alarm message have been uploaded as universal extension recordings for the QX50.



17.9 Configuration

This section provides the following menus for configuring and managing the selected device.

17.9.1 General Settings

The menu options under the General Settings allow activating automatic notifications via email and phone call when the device is unreachable.

Enter the recipients' email addresses separated by semicolons in the **Additional E-mail Address** field to receive an email notification every time the device loses connection to ecMON and re-establishes connection with it. If the additional email addresses are not entered, the email will be sent only to ecMON's admin address.

Enter the request URI in the **Dial & Announce** field for making the phone call notifications every time the device loses connection to ecMON. The request URI needs to have the following syntax:

http[s]://[qxdevice]/clicktoactivate.cgi?user=[username]&pass=[userpassword]

Where

- **[qxdevice]** – the IP Address or host name of QX. The Dial & Announce service (D&A) and call routing on this QX should be properly configured to support call notification to recipients
- **clicktoactivate.cgi** – is a special command to activate the D&A call on the **[qxdevice]**
- **[username]** – the extension on the [qxdevice] with D&A service enabled and properly configured to call the recipient's phone
- **[userpassword]** – the extension password on the **[qxdevice]**

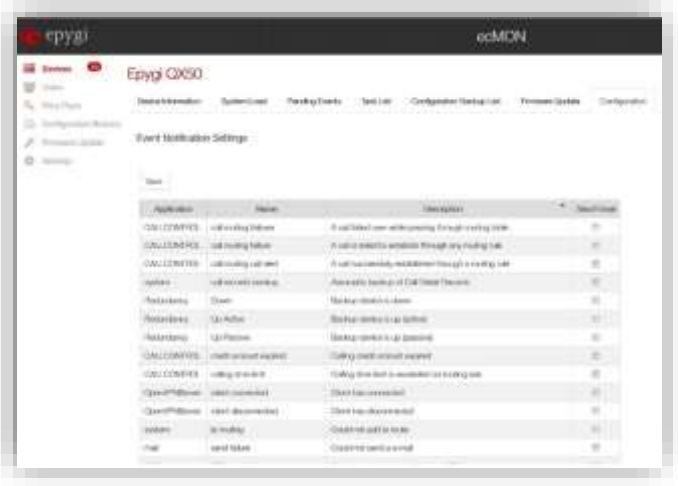
An example for D&A request URI:

https://130.193.122.188/clicktoactivate.cgi?user=33333&pass=33333

How this works. Every time the device loses connection to ecMON, the latter sends a request to the QX IP PBX at IP address 130.193.122.188. This QX makes a D&A notification call to the recipient(s) configured for the D&A service (under the Caller ID based Services) for the extension 33333.

17.9.2 Event Notification Settings

This section is used to select/deselect the events, which have to be notified to recipients via email. The list of recipients' email addresses is configured in **General Settings**. The e-mail notifications will be sent only for those events that have configured on QX to be sent to ecMON.



17.9.3 Rename Device

Allows changing of the device name.

17.9.4 Automatic Configuration backup

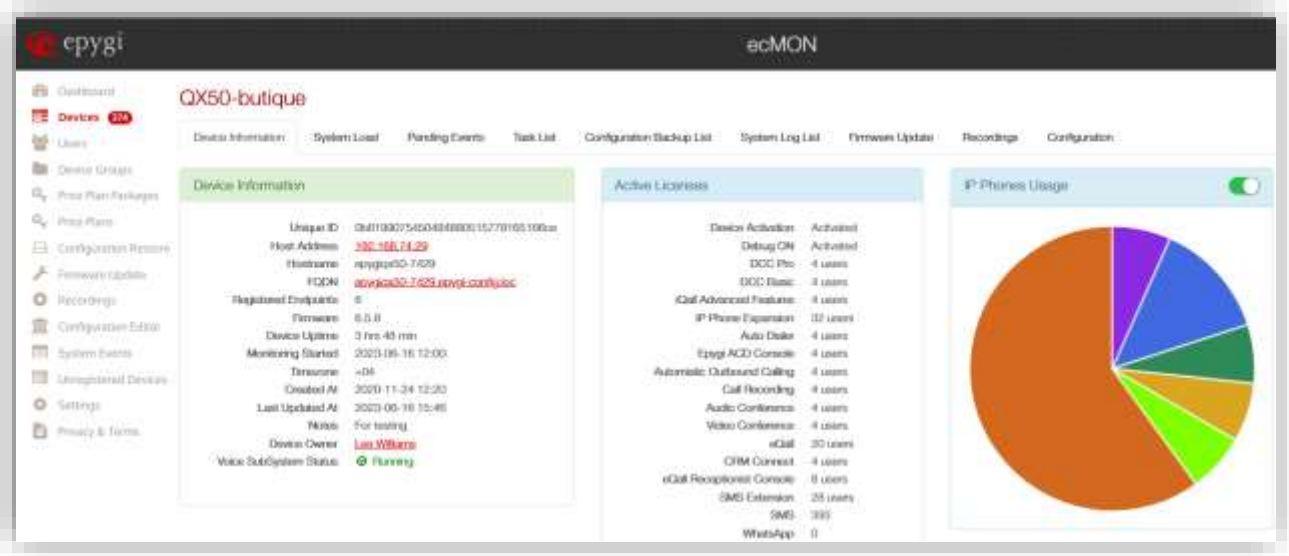
Allows enabling and scheduling of the automatic configuration backup. Upon receiving a configuration backup request, the QX backups the configuration and sends to ecMON, which stores as many backup files as configured. The user can restore the QX configuration using one of the stored files from the **Configuration Backup List**.

17.9.5 Remote Access Configuration

This feature allows remote access to the QX GUI, as well as provides proxy access to the IP phones in the QX network, either in LAN or WAN side. If remote access is granted, it is available during whole time frame specified in the "Remote Access Configuration". You can increase the timeout up to 7200 seconds (2 hours) if default timeout of 300 seconds (5 mins) is not enough.

Remote access to QX GUI

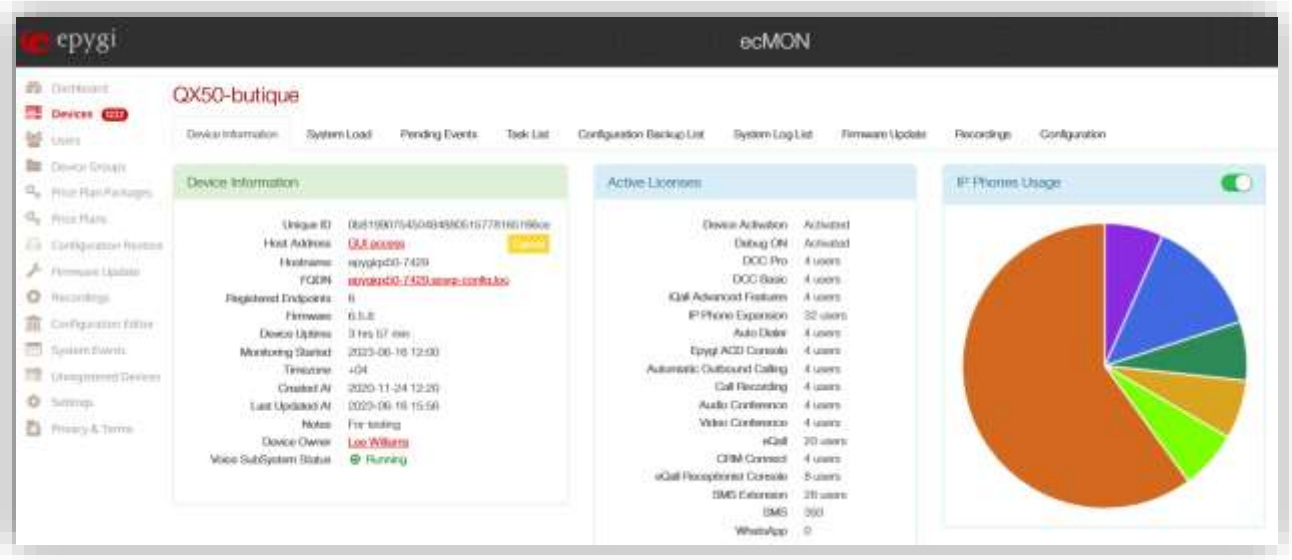
Using the **Devices** tab, select the desired device (QX50-butique in this example) and open it:



- Go to the **Configuration -> Remote Access Configuration** in the right corner of the menu bar
- Choose the menu option - **QX GUI Access**
- Define the **Access Timeout**
- Push the **Request Remote Access**

- When the QX accepts a remote session request, a secure connection is established between the QX and ecMON.
- If access is Granted the **Host Address** on the **Device Information** changes into the **GUI Access** (picture below).
- Pressing the **GUI access** link will open admin login for the QX via a secure connection. Access will be available during the predefined time frame.

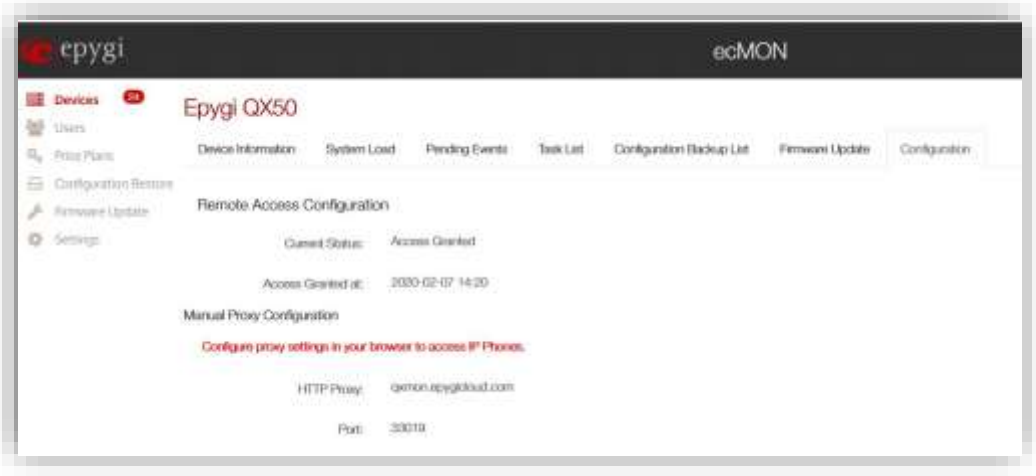
- When the time limit is reached the QX will close that connection to ecMON. The configuration changes that were saved in the QX GUI before closing the connection will be applied; those not saved will be lost.



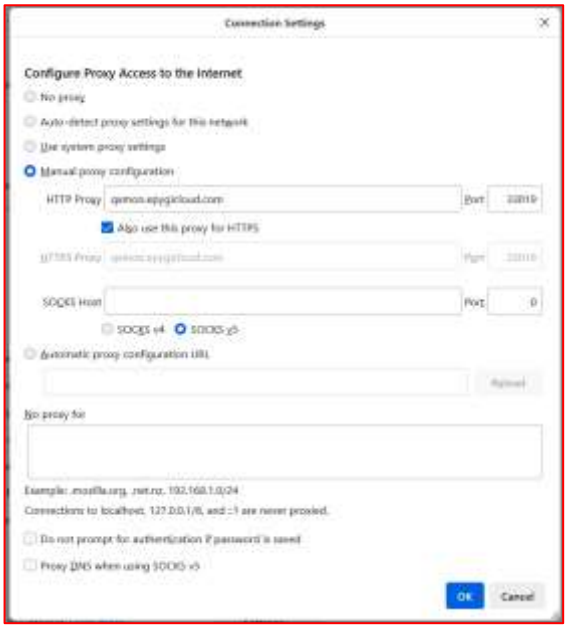
Remote access to the IP phones in QX LAN

In order to access the IP phones or other devices in QX network you have to configure manually the proxy settings in your browser. Such configuration is different depend on the used browser. Follow the configuration steps below on both ecMON and on the **Firefox** browser:

- Open the **Configuration -> Remote Access Configuration** option in the right corner of the ecMON menu bar
- Choose the menu option **Proxy to IP phones**
- Define the Access Timeout
- Push the **Request Remote Access**
- The request for remote access to IP phones will open the window below:

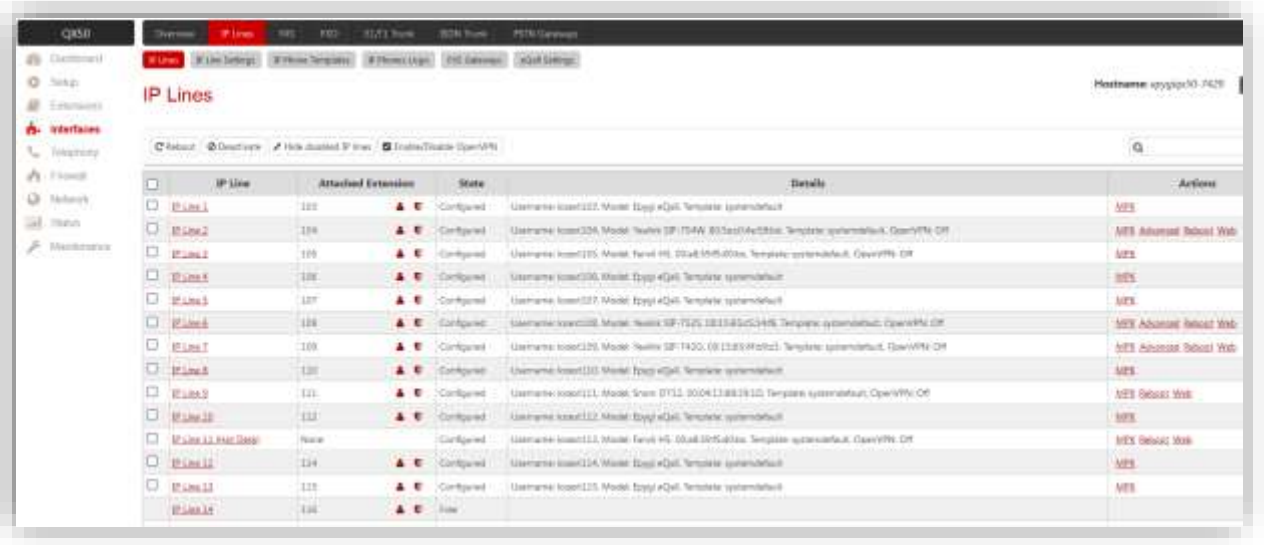


- Select the **Options** in the **Firefox** menu
- Go to the **Settings** -> **Network Settings**
- Select the **Manual proxy configuration** option
- Fill in the Manual proxy configuration field with the values given from ecMON as shown in figure below:
  - ✓ Proxy: **qxmon.epygicloud.com**
  - ✓ Port: a random port number given from ecMON, in this example: 33019
- Press OK



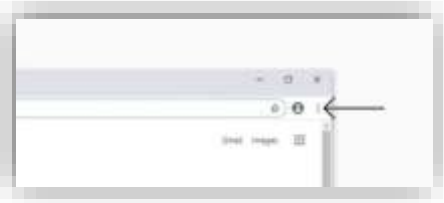
Result. After making these configuraration changes, the IP phones in the QX LAN become accessible through the IP addresses used in **Firefox** browser.

Note. If you don't aware of the IP address for the phone then first use the IP address (LAN or WAN) of the QX in **Firefox** browser. After gaining access to the QX GUI, go to the menu **IP Lines**, place the mouse over the option **Web** under the column **Actions** to see the IP address for the desired IP phone.



Proxy configuration for the ***Google Chrome***:

- Go to the Google Chrome menu

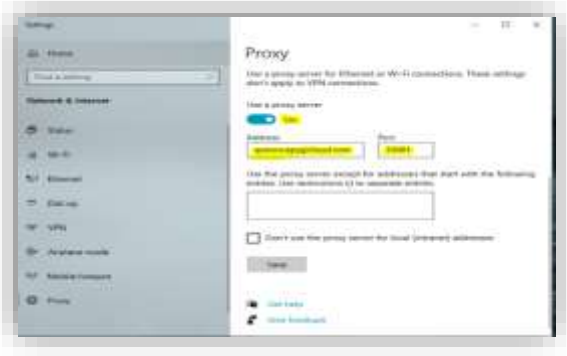


- Sellect Settings

- Sellect Proxy Settings

- Fill in the Manual proxy configuration field with the values as shown in figure below:

  Proxy: ***qxmon.epygicloud.com, port: 33001***

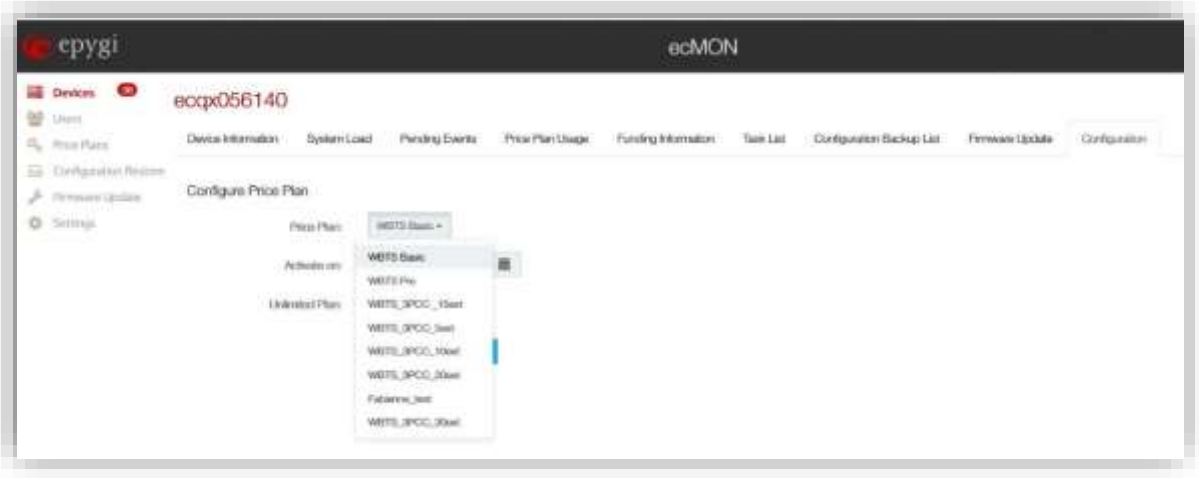


The difference between the settings of Google Chrome and Firefox browsers is that the proxy settings in Firefox are only for Firefox browser, and the settings made through Google Chrome apply to the entire computer, including also onto other browsers. Therefore, it is desirable to use Firefox for that kind of access if we do not want other browsers to use computer proxy settings each time.

Note: After restarting the QX device in case if the timeout has not yet expired, access will be lost, and it will be necessary to press “Request GUI Access” or “Proxy to IP Phones” access button from ecMON again.

17.9.6 Configure Price Plan

Allows selecting a price plan and activating it for the device (applicable for ISO instances only)

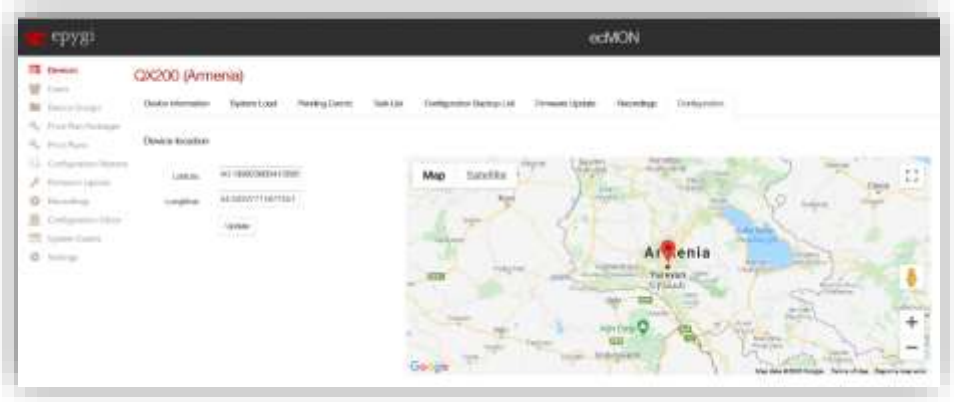


17.9.7 Update Notes

To add notes, if needed.

17.9.8 Update location

Allows updating the device location in Google maps.



18 References

Refer to the below listed resources to get more details about the configurations described in this guide:

- Registering Devices on Epygi Cloud Monitoring Service (ecMON)
- Manual-I: Installation Guide for QX IP PBXs
- Manual-II: Administration Guide for QX IP PBXs
- Manual-I Administration Guide for ecQX
- Epygi Portal – Reseller Guide

Find the above listed document on Epygi Support Portal.