Seeker X, StrataSync and Mobile Tech

Setting, Deploying, and Syncing Configurations

+ Firmware upgrades

April 2021

VIAVI

How Seeker X and MCA III are synced with StrataSync

1. Seeker X as well as MCA III configurations and firmware updates can be deployed to specific Seeker X devices from StrataSync

2. Seeker X configurations and firmware as well as all MCA III configurations and firmware are synced to the Seeker X through the Viavi Mobile Tech Application via an active Bluetooth Low Energy (BLE) connection

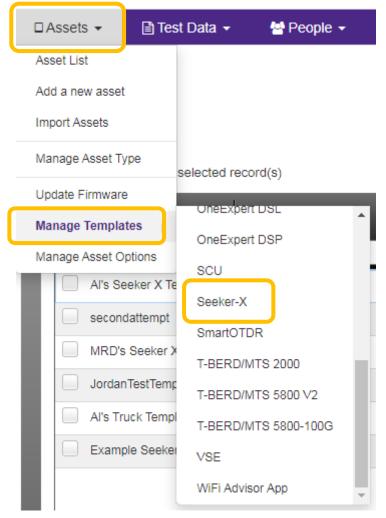3. MCA III configurations are deployed to the Seeker X that will be docked with the MCA III

Seeker X Configuration

VIAVI

Accessing Seeker X Configurations in StrataSync

- To access configurations for the Seeker X in StrataSync press the Assets Tab at the top of StrataSync
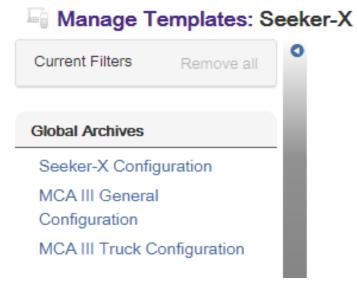
- Then select the "Manage Templates" to open the list of instruments

- Scroll down to, and select, "Seeker X"

- This will open the "Manage Templates: Seeker X" view

StrataSync Seeker X Configurations Overview

Manage Templates: Seeker-X

Current Filters   Remove all

Global Archives

Seeker-X Configuration

MCA III General Configuration

MCA III Truck Configuration

- Individual configurations for the Seeker X can be set independently from the two MCA III configurations
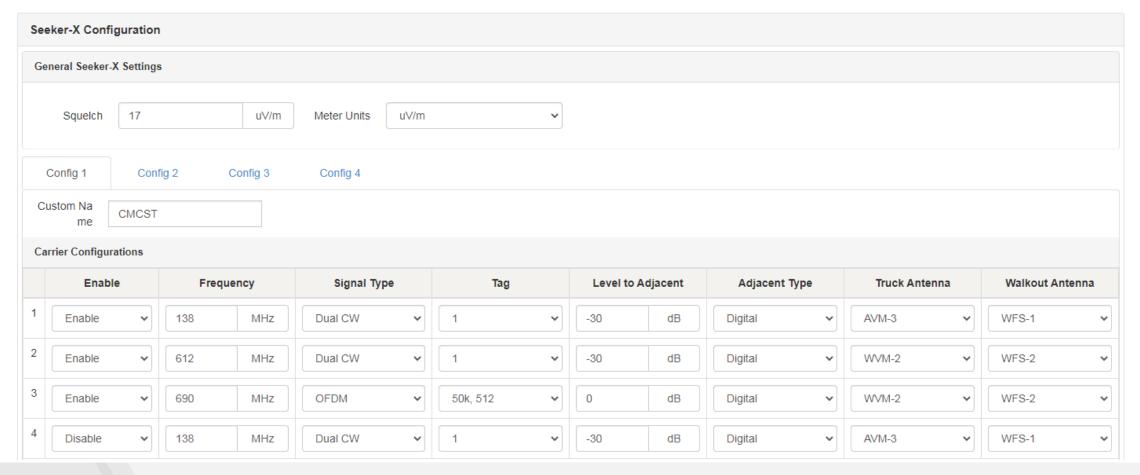
- The "MCA III General Configuration" is likely a common configuration that all MCA III's should use

- The "MCA III Truck Configuration" is likely more specific and deals with setting up Wi-Fi and Ethernet configurations

- The MCA III has two configurations which can be deployed via a Seeker X sync with StrataSync which will then update any MCA III that Seeker X is docked with
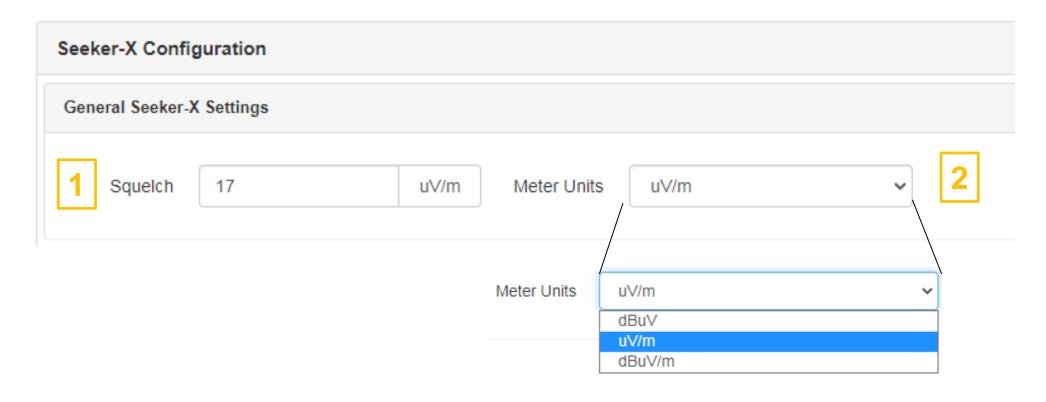
Seeker X Configurations

- The Seeker X configurations include the Squelch level and units of measurement
- It also includes the configurations to set Tag signal frequencies and types for any of the available four separate configurations

Seeker-X Configuration

General Seeker-X Settings

Squelch	17	uV/m	Meter Units	uV/m

Config 1	Config 2	Config 3	Config 4

Custom Name	CMCST

Carrier Configurations

	Enable	Frequency	Signal Type	Tag	Level to Adjacent	Adjacent Type	Truck Antenna	Walkout Antenna
1	Enable	138 MHz	Dual CW	1	-30 dB	Digital	AVM-3	WFS-1
2	Enable	612 MHz	Dual CW	1	-30 dB	Digital	WVM-2	WFS-2
3	Enable	690 MHz	OFDM	50k, 512	0 dB	Digital	WVM-2	WFS-2
4	Disable	138 MHz	Dual CW	1	-30 dB	Digital	AVM-3	WFS-1

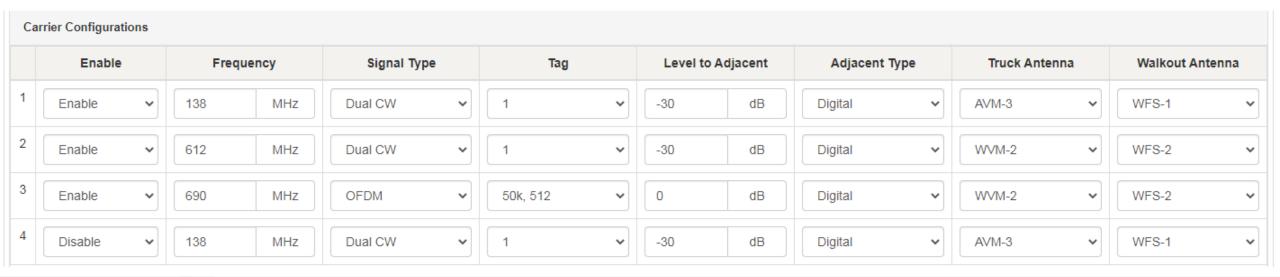VIAVI

Seeker X Configurations - General Seeker X Settings

1. The Squelch level determines at what signal strength level the Seeker will begin to make an audible tone so Technicians can hear when a leak has been detected

2. The Meter Units are the units of measurement the Seeker will use when reporting leak levels

Seeker X Configurations – Carrier Configurations

- The Carrier Configurations entered into StataSync must match the CT-X configured tag frequencies

- Enable – Enables or Disables that specific tag carrier from the list of tags the Seeker X will use
- Frequency – Tells the Seeker X the frequency of the tag carrier (OFDM uses the PLC center frequency)
- Signal Type – Type of tag carrier used - Dual CW, Chirp, or OFDM are selectable
- Tag number – Each tag type has a few variations to help further differentiate tag carriers
  - OFDM carriers need to have their Sub Carrier Spacing (25 kHz or 50 kHz) and Cyclic Prefix (CP) selected

Carrier Configurations

	Enable	Frequency		Signal Type	Tag	Level to Adjacent		Adjacent Type	Truck Antenna	Walkout Antenna
1	Enable	138	MHz	Dual CW	1	-30	dB	Digital	AVM-3	WFS-1
2	Enable	612	MHz	Dual CW	1	-30	dB	Digital	WVM-2	WFS-2
3	Enable	690	MHz	OFDM	50k, 512	0	dB	Digital	WVM-2	WFS-2
4	Disable	138	MHz	Dual CW	1	-30	dB	Digital	AVM-3	WFS-1

VIAVI

OFDM Carrier Configuration

- The necessary OFDM carrier information can be determined with the ONX by selecting the downstream OFDM carrier

- Below the Channel View graph is the OFDM channel's PLC frequency and Cyclic Prefix (CP)

- Using the table allows for conversion of Cyclic Prefix from time to samples
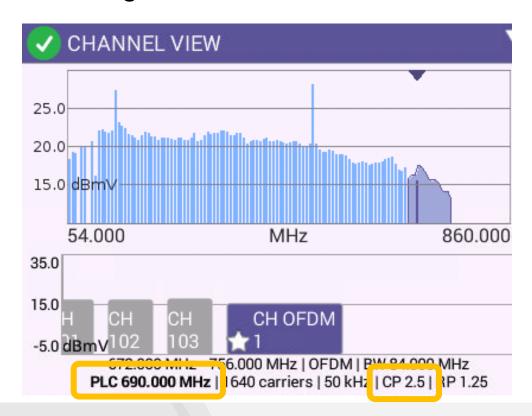

Table 7–34 - Downstream Cyclic Prefix (CP) Values

Cyclic Prefix (µs)	Cyclic Prefix Samples (N_{cp})
0.9375	192
1.25	256
2.5	512
3.75	768
5.0	1024

MCA III Configuration

VIAVI

MCA III

General Configuration

VIAVI
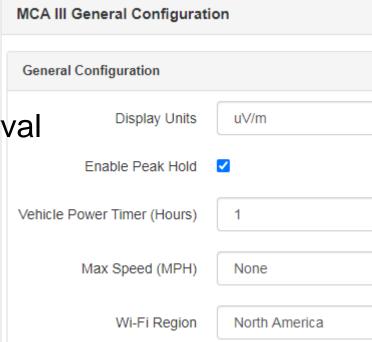
MCA III General Configuration

- The MCA III General Configuration is a collection of MCA III configurations which would likely be identical for every MCA III in a group

- This configuration could be deployed as part of a StrataSync configuration Template so all MCA III devices in that group will have the same configuration
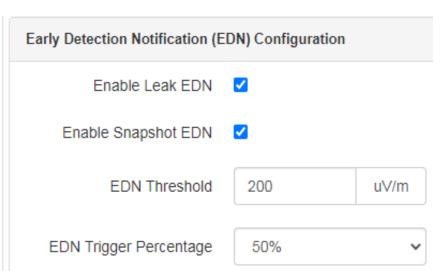
MCA III General Configuration

- The MCA III General Configuration will set the following configurations

    - Display Units – Choose the measurement units desired - µV/m, dBµV/m, dBµV

    - Enable Peak Hold – If checked will log the peak value detected by the Seeker since the last logging interval

    - Vehicle Power Timer (Hours) – Sets how long after the truck has been turned off that the MCA III and Seeker will power down – duration should be set to also allow for sync timer to trigger a sync prior to powering off

    - Max Speed (MPH) – If selected will not track leakage if traveling above the speed configured

    - Wi-Fi Region – Determines which Wi-Fi channels to use based on Geographic location and regional Wi-Fi signals

MCA III General Configuration

General Configuration

Display Units	uV/m
Enable Peak Hold	☑
Vehicle Power Timer (Hours)	1
Max Speed (MPH)	None
Wi-Fi Region	North America

VIAVI

MCA III General Configuration

Early Detection Notification (EDN) Configuration

Enable Leak EDN ☑
Enable Snapshot EDN ☑
EDN Threshold: 200 uV/m
EDN Trigger Percentage: 50%

- The Early Detection Notification (EDN) Configuration section will configure how the MCA III handles EDNs and Snapshots

- Enable Leak EDN – If checked will tell the MCA III to immediately upload leaks that have been discovered that exceed the EDN threshold value.

- Enable Snapshot EDN – When checked will immediately upload any Snapshot taken on the Seeker while in the field when the meter is docked

- EDN Threshold – While driving, if the Seeker has detected a leak that exceeds the "EDN Threshold" level, this leak will be tracked for the maximum peak leak level until the leak has dropped below the Peak value's calculated EDN Trigger Percentage, then this EDN will be immediately uploaded to LAW so a Work Order can be created.

- EDN Trigger Percentage – Helps determine when an EDN leak has been fully discovered and triggers when the EDN is to be considered completely captured. Only after the EDN leak level has decreased below the calculated EDN Trigger Percentage of the tracked peak level, will the EDN be sent to LAW.
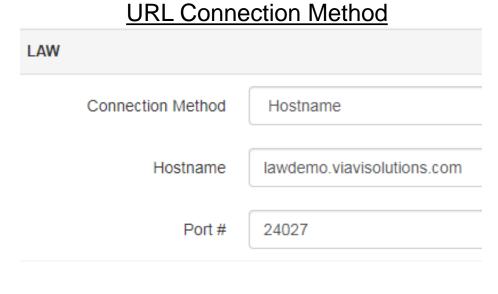
MCA III LAW Configuration

- To send data from the MCA III to LAW-X a few items need to be configured

- Connection Method – Select either Hostname if using a known URL or select IP address if using a known IP address

- Port Number – Enter the TCP IP port number that the MCA III will use to communicate with the LAW-X Server

URL Connection Method

LAW

Connection Method	Hostname
Hostname	lawdemo.viavisolutions.com
Port #	24027

IP Address Connection Method

LAW

Connection Method	IP Address
IP Address	123.45.67.89
Port #	24027

MCA III Remote Upload and Vehicle Tracking Configurations

Remote Upload Configuration

- Enable Remote Upload – Enable this checkbox to sync the MCA III data to LAW-X via Wi-Fi – otherwise the data will remain on the MCA III so it can be manually uploaded using the manual data upload procedure
- Upload Interval (Hours) – Determines how much time will elapse before the MCA III will attempt to upload its leakage and ride-out data

Vehicle Tracking Configuration (Not yet implemented)

- Currently this configuration can be ignored

Press the Save Button when finished

MCA III

Truck Configuration

VIAVI

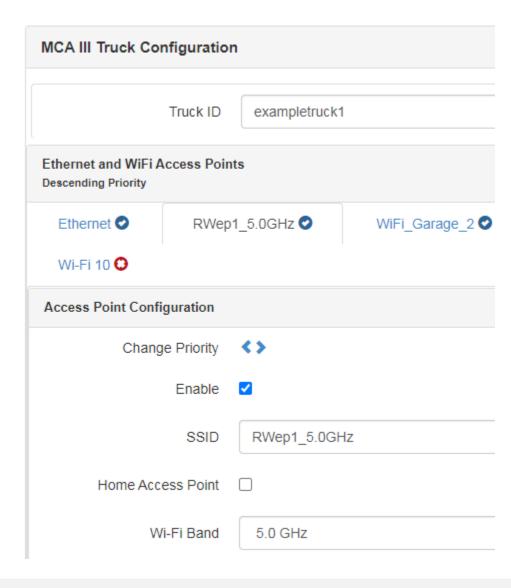# MCA III Truck Configuration

- The second MCA III configuration available in StrataSync is the MCA III Truck Configuration

- These settings will be more unique per each truck or technician, which may require individual configurations

- The Truck ID should match what is set in LAW-X for the Truck ID

- Specific Wi-Fi connections may only be available to individual techs

  - For example, all techs might utilize a Wi-Fi network at a specific garage, check "Home Access Point" for this scenario,

  - However, individual techs may have a Wi-Fi hotspot on their phone that has a unique SSID to that tech's phone, do not check "Home Access Point" for this scenario

MCA III Truck Configuration

Truck ID | exampletruck1

Ethernet and WiFi Access Points
Descending Priority

Ethernet ✓ | RWep1_5.0GHz ✓ | WiFi_Garage_2 ✓

Wi-Fi 10 ⊗

Access Point Configuration

Change Priority ◄►

Enable ☑

SSID | RWep1_5.0GHz

Home Access Point ☐
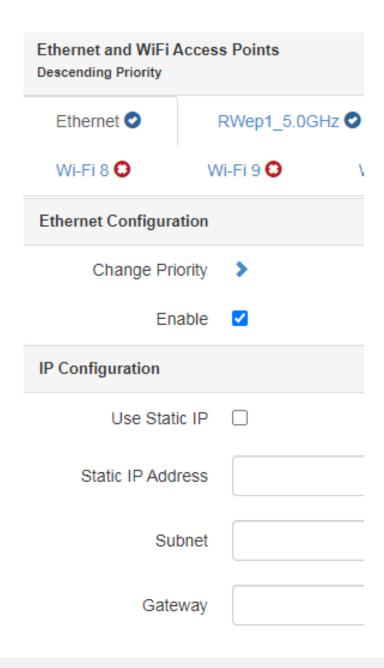
Wi-Fi Band | 5.0 GHz

MCA III Truck Configuration

- Set the Truck ID to match the expected technician's Truck ID set in LAW-X

  - This needs to match so LAW-X knows to process the data correctly

- There are 11 Tabs available to configure the various Ethernet and Wi-Fi Access Points which can be reordered based on desired connection priority – The MCA III will go through each connection – in the order they are listed – when attempting to communicate

MCA III Truck Configuration

Truck ID: exampletruck1

Ethernet and WiFi Access Points
Descending Priority

Ethernet ✓ RWep1_5.0GHz ✓ WiFi_Garage_2 ✓

Wi-Fi 10 ✕

Access Point Configuration

Change Priority ‹ ›

Enable ☑

SSID: RWep1_5.0GHz

Home Access Point ☐

Wi-Fi Band: 5.0 GHz

MCA III Truck Configuration

For Ethernet Communications

- Check the "Enable" box if the MCA III should be expected to communicate over Ethernet

- If using a Static IP check that box and enter the IP information

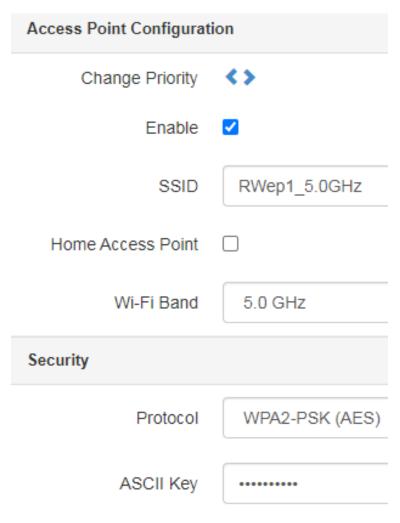- If no Static IP address is selected the MCA III will use DHCP when connecting
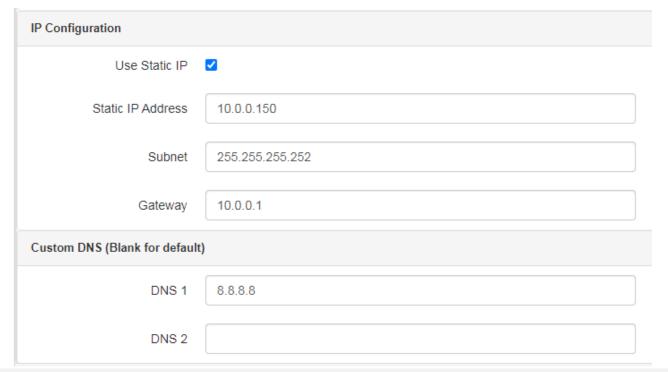
Ethernet and WiFi Access Points
Descending Priority

Ethernet ⊘	RWep1_5.0GHz ⊘
Wi-Fi 8 ⊗	Wi-Fi 9 ⊗

Ethernet Configuration

Change Priority ❯

Enable ☑

IP Configuration

Use Static IP ☐

Static IP Address

Subnet

Gateway

MCA III Truck Configuration

Wi-Fi Access Point Configurations:

- To configure the Wi-Fi Access Points, select one of the ten Wi-Fi configuration tabs and enable those desired to be used changing the priority to arrange for the more common Access Points to be first

- Configure the SSID, Wi-Fi Band, Security protocol, and Password (ASCII Key) to match the desired Wi-Fi Access Point

Home Access Point: Home Access Point is designed to be used with external access points mounted on buildings, not constantly available mobile access points inside the vehicle. When checked, the MCAIII will constantly look for all access points designated as a "Home Access Point" and will connect to and upload leakage data whenever the SSID is recognized. DO NOT check "Home Access Point" for access points that will be in the vehicle and will be active all the time.

Access Point Configuration

Change Priority	◄ ►
Enable	☑
SSID	RWep1_5.0GHz
Home Access Point	☐
Wi-Fi Band	5.0 GHz

Security

Protocol	WPA2-PSK (AES)
ASCII Key	••••••••••

VIAVI

MCA III Truck Configuration

- When setting up the Access Points for either the Ethernet or Wi-Fi Access Points, if using a Static IP check that box when configuring the Access Point and enter the IP information

- If the "Use Static IP" box is not enabled the MCA III will use DHCP when connecting to this Access Point
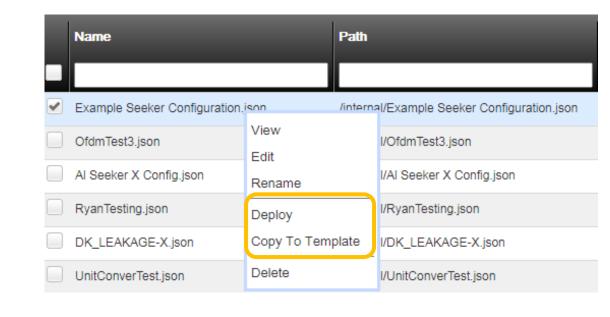
IP Configuration

Use Static IP	☑
Static IP Address	10.0.0.150
Subnet	255.255.255.252
Gateway	10.0.0.1

Custom DNS (Blank for default)

DNS 1	8.8.8.8
DNS 2	

Deployment of Configurations

VIAVI

Seeker X Configuration – Deploy or Copy To Template

- Once the Seeker X configuration is complete it needs to either be:
  - Deployed directly to a Seeker X or group of Seeker X units
  - Copied to a Template so groups of configurations can be deployed to a Seeker X or group of Seeker X units

- Select the configuration and right click (Action button) to view the available actions that can be taken
  - Select "Deploy" to directly deploy the configuration
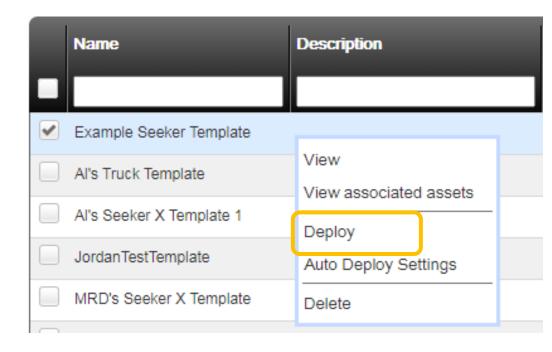 - Select "Copy To Template" to add this Seeker X configuration to a Seeker X configuration Template

Name	Path
☑ Example Seeker Configuration.json	/internal/Example Seeker Configuration.json
☐ OfdmTest3.json	l/OfdmTest3.json
☐ AI Seeker X Config.json	l/AI Seeker X Config.json
☐ RyanTesting.json	l/RyanTesting.json
☐ DK_LEAKAGE-X.json	l/DK_LEAKAGE-X.json
☐ UnitConverTest.json	l/UnitConverTest.json

View
Edit
Rename
Deploy
Copy To Template
Delete

VIAVI

MCA III General Configuration – Deploy or Copy To Template

- Once the MCA III General configuration is complete it needs to either be:
  - Deployed directly to a Seeker X or group of Seeker X units
  - Copied to a Template so groups of configurations can be deployed to a Seeker X or group of Seeker X units

- Select the configuration and right click (Action button) to view the available actions that can be taken
  - Select "Deploy" to directly deploy the configuration
  - Select "Copy To Template" to add this MCA III General configuration to a Seeker X configuration Template

MCA III Truck Configuration – Deploy or Copy To Template

- Once the MCA III Truck configuration is complete it needs to either be:
  - Deployed directly to a Seeker X or group of Seeker X units
  - Copied to a Template so groups of configurations can be deployed to a Seeker X or group of Seeker X units

- Select the configuration and right click (Action button) to view the available actions that can be taken
  - Select "Deploy" to directly deploy the configuration
  - Select "Copy To Template" to add this MCA III Truck configuration to a Seeker X configuration Template

Configuration Template Deployment

- If using a Seeker X Template and the template configuration is complete, this group of configurations can be deployed directly to a Seeker X or group of Seeker X units

- Select the desired template and right click (Action button) to view the available actions that can be taken
  - Select "Deploy" to deploy the configuration

Syncing Configurations to the Seeker X

Mobile Tech Connection with Seeker X

- With the Seeker X near the mobile device – open the Viavi Mobile Tech application
  - The Seeker X and Mobile Tech communicate via Bluetooth Low Energy which typically has a range of less than 10ft / 3m
- If the Seeker X has been connected before it will appear in the "My Devices" section of Mobile Tech
  - If the Seeker X has not been connected before it should appear in the "Other Devices" list
- If the Seeker X is not automatically connected press the "Connect" button to begin the communication process

NOTE: Seeker X's will only sync with StrataSync just after a successful connection has been made

Deploying Configurations

- Just after the connection is established between Mobile Tech and the Seeker X the configurations (and/or Firmware files) will be synced down to the Seeker X

- These will then be immediately deployed and applied to the Seeker X

- MCA III configurations will be deployed when the Seeker X is docked with an MCA III connected

  - Any MCA III's that is docked with this Seeker X will be given the MCA III configurations (and firmware) that was previously deployed to this Seeker X as displayed on the Seeker X display

  - Following the configuration being sent to the MCA III, the MCA III will reboot automatically

Seeker X Details on Mobile Tech

- To see more information on the Seeker X press "Show more"

- This will expand the display and will show:

  - Asset Type: Seeker X

  - Seeker X Serial Number

  - Software Version on the Seeker X

  - The Tech ID associated with that Seeker X

  - Bluetooth Identifier Address

  - Battery Level of the Seeker X

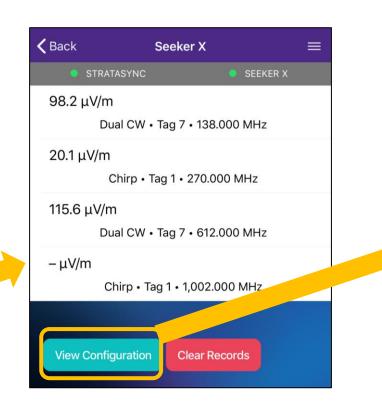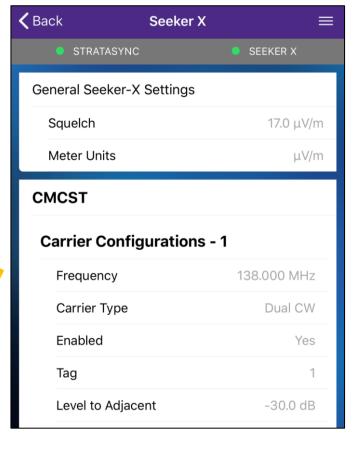 - Latitude and Longitude of the Mobile Tech app

View Configurations

- Below the Instrument information is the "Seeker X" measurement mode
- Press the Seeker X button will display the active configuration and current measurement values
- Press the "View Configuration" button to see and scroll through all the configurations that were deployed to the Seeker X

Note: The "Clear Records" button should only be used when troubleshooting connectivity issues. Clear Records only erases the records located in the Seeker X. To clear the records from the MCA III, first synchronize the data from the MCA III to the Seeker X prior to pressing "Clear Records"

Update Seeker X and MCA III Firmware

VIAVI

Updating Seeker X and MCA III Firmware

- The Seeker X can update its firmware deployed from StrataSync through its Bluetooth LE connection to the Mobile Tech application
  - Upgrades to the Seeker X may take longer than 10 mins
  - Ensure the Seeker X's battery is not low or ensure the Seeker X is docked in the mobile mount or the MMC-1 fast charger is connected to the Seeker X
  - The Seeker X will not communicate with the Mobile Tech app when connected / charging via USB

- MCA III firmware updates are deployed to the Seeker X – not directly to the MCA III itself – the Seeker X will push the firmware to the MCA III automatically when it is docked in the mobile mount with an MCA III connected
  - The MCA III will take the firmware, update itself, then reboot to take effect
  - Firmware version 5.05 or higher must be present on the MCA III to understand this firmware update process and apply the newer version

VIAVI

Firmware Deployment from StrataSync to Seeker X and MCA III

VIAVI

Deploying Firmware from StrataSync to Seeker X
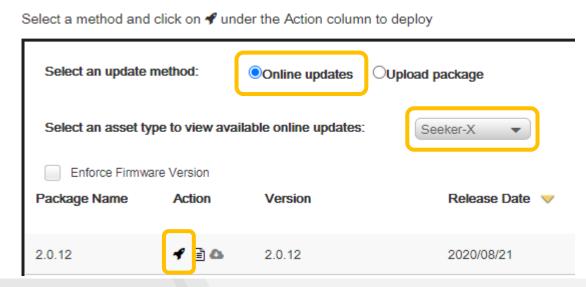
MCA III Firmware is deployed as part of the Seeker X firmware package

- Firmware updates can be found under the Assets tab

- Select "Update Firmware"

- Ensure the "Online updates" circle is enabled then select the Seeker X as the Asset Type

UPDATE FIRMWARE – Select an update method

Select a method and click on 🚀 under the Action column to deploy

| Select an update method: | ● Online updates | ○ Upload package |

Select an asset type to view available online updates: Seeker-X

☐ Enforce Firmware Version

Package Name	Action	Version	Release Date ▼
2.0.12	🚀 📄 ☁	2.0.12	2020/08/21

- Next to the desired firmware press the deploy button that looks like a rocket 🚀 and displays "Deploy Now" when hovered over

- Then Select the Seeker X or group of Seeker Xs that should get the firmware update
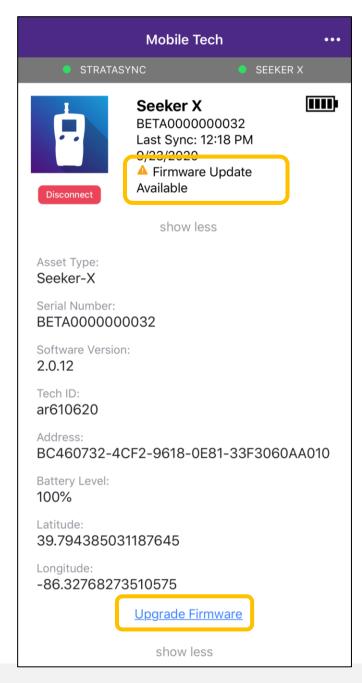
Firmware Installation

Updating Seeker X Firmware

- After firmware deployment in StrataSync, connect the Seeker X to the Mobile Tech application

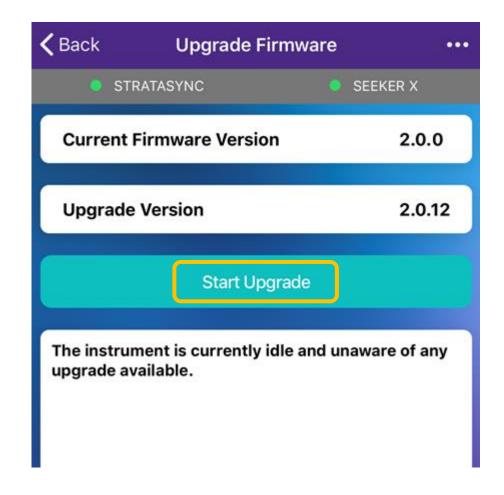- Mobile Tech will show that a Firmware Update is available just below the last sync time

- Press the "Upgrade Firmware" button at the bottom to see what firmware is to be installed
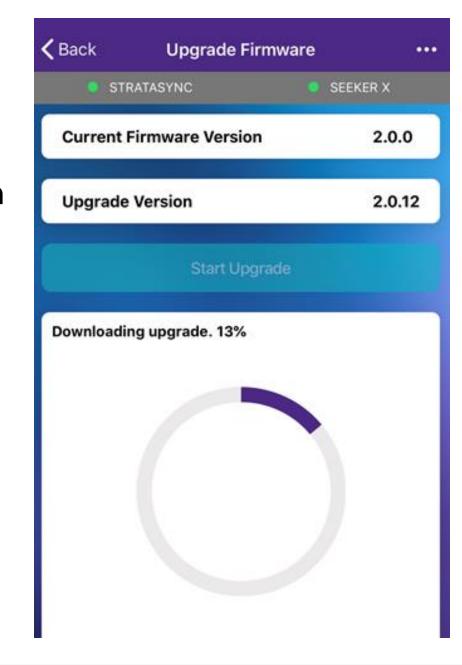
Starting the Upgrade

- Current firmware version will be displayed

- Upgrade version to be installed is displayed

- Press the "Start Upgrade" button to begin the upgrade download and installation

Downloading and Installing

- Keep the Seeker X and the mobile device near each other to avoid disrupting the Bluetooth LE connection

- First the firmware file will be downloaded then automatically installed

- The overall process could take 10 – 15 mins

- The Seeker X will reboot when finished

MCA III Firmware Update via Seeker X

VIAVI

MCA III Firmware Update

- The MCA III Firmware will be synced to the tech connected to the Seeker X

- Once the Seeker X syncs via the Mobile Tech application the MCA III firmware will be stored on the Seeker X

- When docked into the mobile mount with an MCA III connected the Seeker X will deploy the firmware update to the MCA III automatically

- The MCA III will then update its firmware and reboot
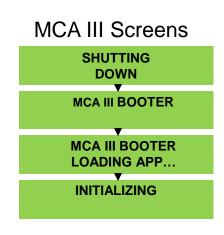
Deploying Firmware from StrataSync to MCA III

- MCA III firmware is deployed to the Seeker X as part of the Seeker X firmware package when deployed to the meter

- MCA III firmware is upgraded automatically when a Seeker X with a higher version of MCA III firmware is docked in the mobile mount

- You will see the following on the displays of the Seeker X and MCA III if an MCA III firmware upgrade is taking place

MCA III Screens

SHUTTING DOWN

↓

MCA III BOOTER
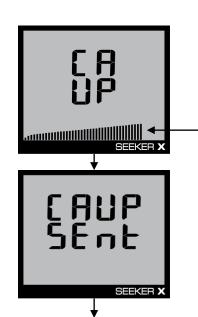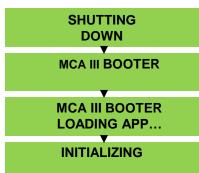
↓

MCA III BOOTER LOADING APP…

↓

INITIALIZING

Deploying Firmware from StrataSync to MCA III (explained)

- CA = Communications Adapter
- UP = Upgrade
- Firmware file is transferring to the MCA III
- Progress bar (can take a few minutes)

- CA = Communications Adapter
- UP = Upgrade
- SEnt = Sent
- Transfer of firmware file is complete, MCA III will automatically reboot and apply the upgrade

MCA III Screens

- SHUTTING DOWN
- MCA III BOOTER
- MCA III BOOTER LOADING APP…
- INITIALIZING

- MCA III Rebooting (Automatic)
- Upgrading Bootloader
- Loading Application File
- Starting up the new application

- CA = Communications Adapter
- UP = Upgrade
- PASS = Upgrade was successful

www.viavisolutions.com