MotionWorks Enterprise

2.0

Device Manager User Guide

ZEBRA

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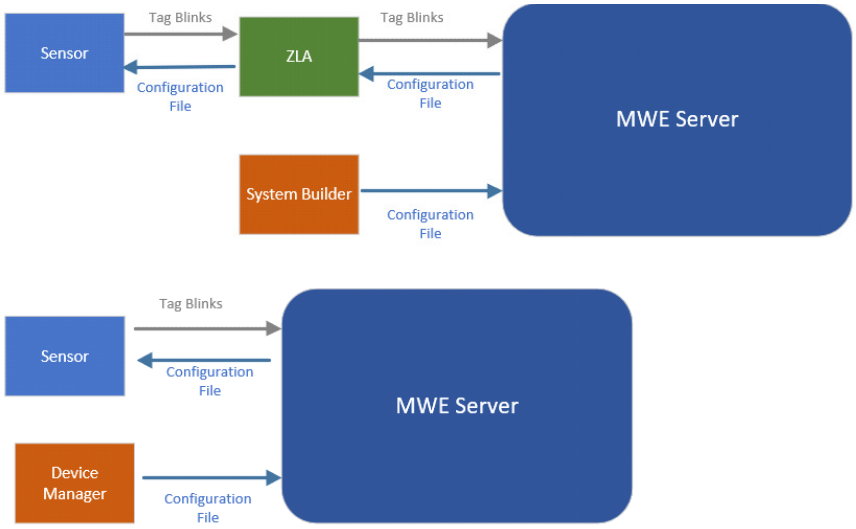
MotionWorks Enterprise 2.0 Device Manager

The Device Manager page in the MotionWorks Enterprise (MWE) web client provides a simple way to add, monitor, and manage location sensors and readers that send real-time location data to MWE.

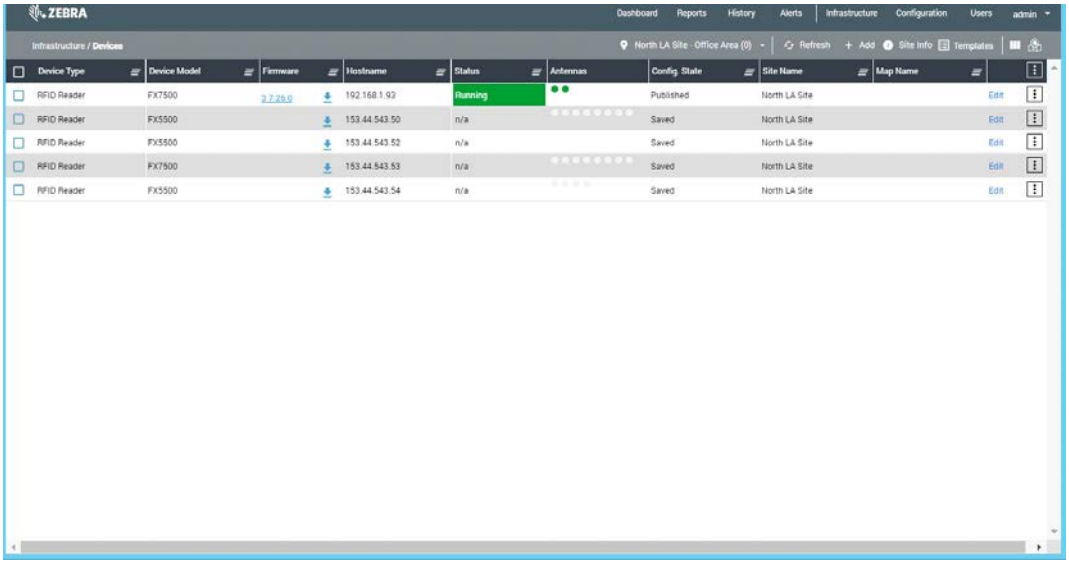
The following figure illustrates two ways to connect a sensor to send data to MWE.



In the first case, a configuration file is created using the System Builder tool and published to a ZLA appliance, which publishes the file to the sensors. The sensors forward location data (tag blinks) to the ZLA and then to the MWE server.

An on-premises ZLA is recommended in certain deployments. For example, for sensors generating a large volume of redundant location data, you can filter and combine the data on the ZLA before forwarding it to the MWE server across a WAN or the Internet. Also, for location algorithms sensitive to network time delays, an on-premises ZLA minimizes or eliminates such delays.

The second case depicts a simpler deployment using Device Manager to add and configure a sensor, and the configuration is published to the sensor without requiring a ZLA. Tag blinks are sent directly from the sensors to the MWE server. Device Manager also offers an intuitive interface to monitor, manage, and reconfigure the sensors. The following figure shows Device Manager in the web client.



NOTE: MWE 2.0 supports adding and managing only passive RFID readers (FX7500, FX9600, FXR90, ATR) via Device Manager. While a future MWE release will support other types of sensors in Device Manager, MWE 2.0 requires using System Builder to add these devices, and therefore still requires a ZLA for them.

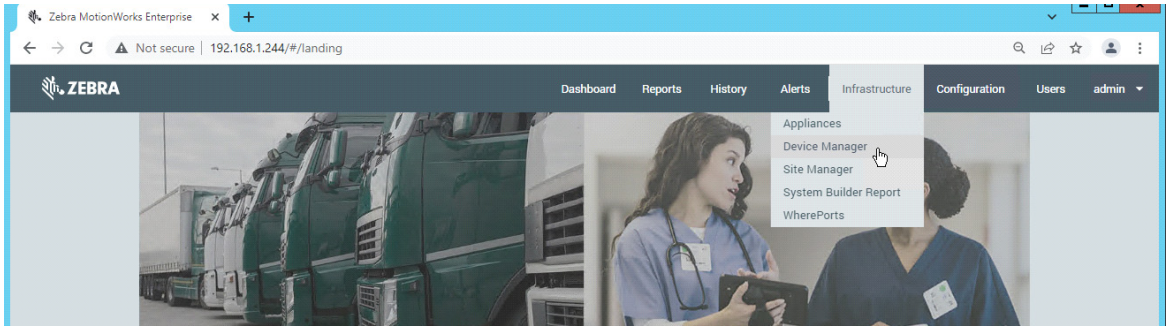
RFID readers added via Device Manager use the new ZIOTC application to communicate with MWE, briefly described later. These readers must be running a recent firmware version that includes the ZIOTC application. Contact Zebra Product Support for the latest available firmware versions.

When adding RFID readers via System Builder in MWE, communication between a reader and a ZLA uses the LLRP protocol. An advantage of using ZIOTC instead is that ZIOTC includes pre-configured operation modes based on use cases and hides low level LLRP protocol parameters. However, deployments that require the flexibility offered by low level LLRP protocol must include a ZLA.

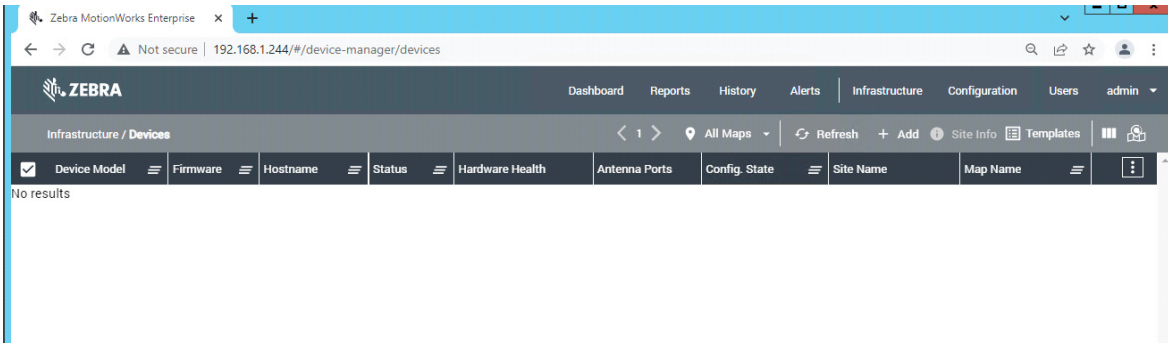
MWE 2.0 supports adding readers both via Device Manager and via System Builder. However, readers added via System Builder are displayed in the **Infrastructure > System Builder Report** page in the MWE web client, but are not visible in Device Manager, and readers added in Device Manager are not visible in the System Builder Report or in the System Builder tool.

Launching Device Manager

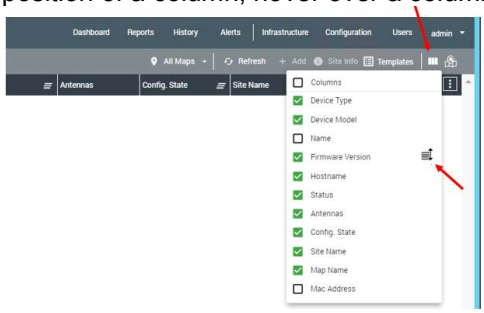
To open Device Manager, select **Infrastructure > Device Manager** in the MWE web client menu bar.



The first time you open Device Manager, no devices and a default set of columns display.



To change the set of columns displayed, click the 3-vertical-bars icon on the toolbar. To change the position of a column, hover over a column name and drag the four-horizontal-bars icon.



Reader Requirements

A passive RFID reader must meet the following requirements to communicate with and be managed by Device Manager:

- Must be a Zebra FX7500, FX9600, FXR90 or ATR7000 reader
- Readers must be running a firmware version compatible with the MWE software version used. Contact Zebra Product Support for the latest firmware versions available.

MWE- Reader Firmware Compatibility

The following table displays the reader firmware versions compatible with versions of MWE based on Zebra testing. It is possible and likely that recent firmware versions (3.26.90, 3.28.1) function with previous MWE versions (MWE 2.0.3, 2.0.4), but following the table is recommended.

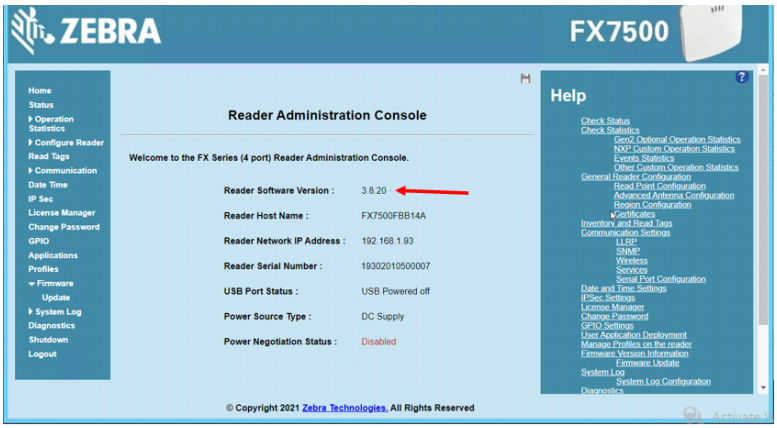
MWE Version	Firmware Version	Connection Type to MWE		
		Non-secure	Secure with Self-signed SSL Certificate	Secure with CA SSL Certificate
Reader Models: Zebra FX7500, FX9600				
MWE 1.4	3.9.16	Yes	Yes	Yes
MWE 2.0.2	3.10.30	Yes	Yes	Yes
MWE 2.0.3	3.21.23 3.24.43 3.24.48	Yes	Yes	MWE patch required for 3.24.48 and higher
MWE 2.0.4	3.21.23 3.24.43 3.24.48 3.25.70	Yes	Yes	MWE patch required for 3.24.48 and higher
MWE 2.0.5	3.21.23 3.24.43 3.24.48 3.25.70 3.26.90	Yes	Yes	Yes
MWE 2.0.6	3.21.23 3.24.43 3.24.48 3.25.70 3.26.90 3.28.1	No	Yes	Yes
Reader Model: Zebra FXR90				
MWE 2.0.2 - 2.05	N/A	N/A	N/A	N/A
MWE 2.0.6	2.0.10	No	Yes	Yes

MWE Version	Firmware Version	Connection Type to MWE		
		Non-secure	Secure with Self-signed SSL Certificate	Secure with CA SSL Certificate
Reader Model: ATR				
MWE 2.0.3	3.24.48	Yes	Yes	MWE patch required for 3.24.48 and higher
MWE 2.0.4	3.24.48 3.25.70	Yes	Yes	MWE patch required for 3.24.48 and higher
MWE 2.0.5	3.24.48 3.25.70 3.26.90	Yes	Yes	Yes
MWE 2.0.6	3.24.48 3.25.70 3.26.90	No	Yes	Yes

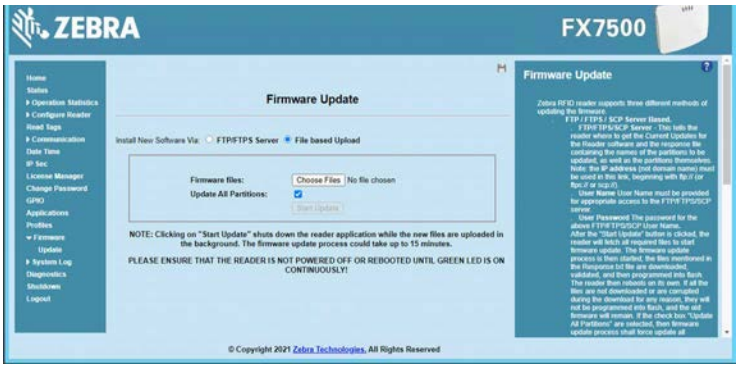
Manual Firmware Upgrade

You can add FX readers running firmware version 3.9.16 or higher directly to Device Manager. Device Manager displays the firmware version and allows easily upgrading or downgrading the firmware of one or many readers at the same time. To upgrade a reader running a firmware version lower than 3.9.16, or upgrade the firmware before connecting to MWE, perform this manually as follows.

To determine the reader firmware version, log in to the reader home page by entering **`https://`*`reader_IP_Address`*** in a web browser where ***`reader_IP_Address`*** is the reader IP address. The default login credentials are **admin** / **change**. Recent firmware versions prompt you to change the default password. The home page shows the Reader software version.



To upgrade the firmware, click **Firmware > Upgrade** on the left panel and follow the instructions on the right panel.



Obtain the latest compatible firmware version from Zebra. Firmware files are typically provided in a zip file, such as **`FXSERIES-3.26.90.zip`**. Unzip the file before upgrading the reader. Click **Choose Files**, select all files included in the zip file, and select the **Update All Partitions** checkbox. See instructions on the right panel.

Secure Connection and Network Ports

MWE 2.0.5 and earlier releases use non-secure communication with RFID readers by default, so readers added in Device Manager can communicate with the MWE server regardless of the SSL certificate installed on the MWE server. MWE 2.0.6 and later support only secure connection between readers and the MWE server, therefore a reader validates the MWE server SSL certificate before connecting to the server.

All versions of MWE are installed with a self-signed certificate using the domain name **zebramwe**. This certificate is accepted by web browsers, though the **Not secure** warning displays in the URL bar. However, in MWE 2.0.6 and later, a reader by default does not accept this certificate.

In MWE 2.0.6 or later, to enable FX/ATR readers to communicate with the MWE server, perform one of the following. Refer to **Installing an SSL Certificate** in the *MWE Configuration Guide* for instructions.

- Install a valid CA SSL certificate on the MWE server
- Install a self-signed certificate using the Fully Qualified Domain Name (FQDN) of the MWE server
- Configure the MWE server so that readers accept the default **zebramwe** domain certificate.

You must re-Initialize readers after implementing one of these options. See Initializing a Reader.

CAUTION: If upgrading from MWE 2.0.5 to 2.0.6 and the MWE server is configured to use a non-secure connection or to use the default **zebramwe** certificate, you must implement one of the three options above immediately after upgrade to enable the readers to communicate with the MWE server.

A reader connects to two endpoints on the MWE server, namely the **`http/https`** endpoint to post tag blink data and an **`MQTT`** endpoint for reader management commands. The latter can be a direct **`MQTT`** connection or an **`MQTT over WebSocket`** connection. The following table summarizes the ports that must be open on the MWE server in different scenarios.

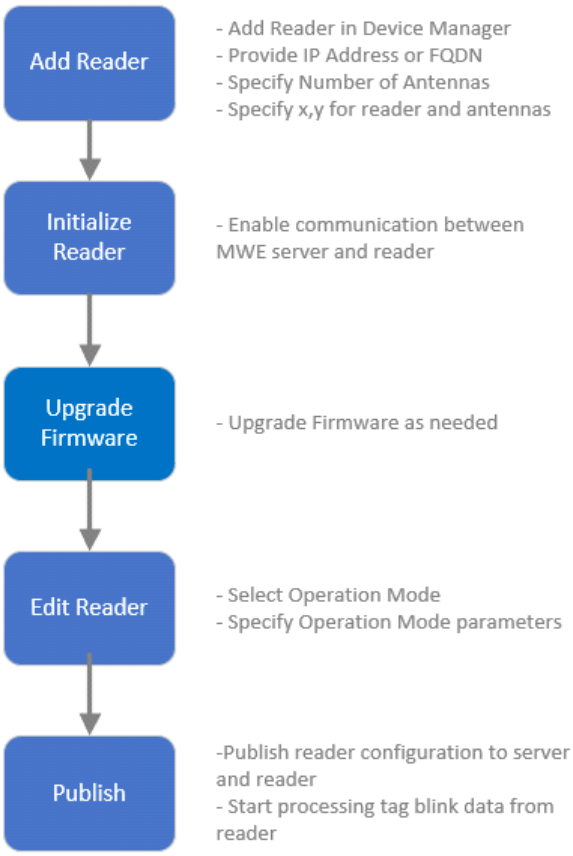
MWE Version	Connection Type	
	Secure	Non-secure
MWE 2.0.5 or earlier	TCP 443 for https endpoint TCP 9443 for MQTT connection	TCP 80 for http endpoint TCP 9000 for MQTT connection
MWE 2.0.6 or later	TCP 443 for https endpoint TCP 9443 for MQTT or TCP 443 for MQTT over Websocket	Not supported

Any firewall between the server and readers must allow traffic to these endpoints.

For instructions on switching between MQTT and MQTT over WebSocket connections, refer to **Installing an SSL Certificate** in the *MWE Configuration Guide*. You must re-Initialize the readers afterward. See Initializing a Reader.

Setting Up a Reader

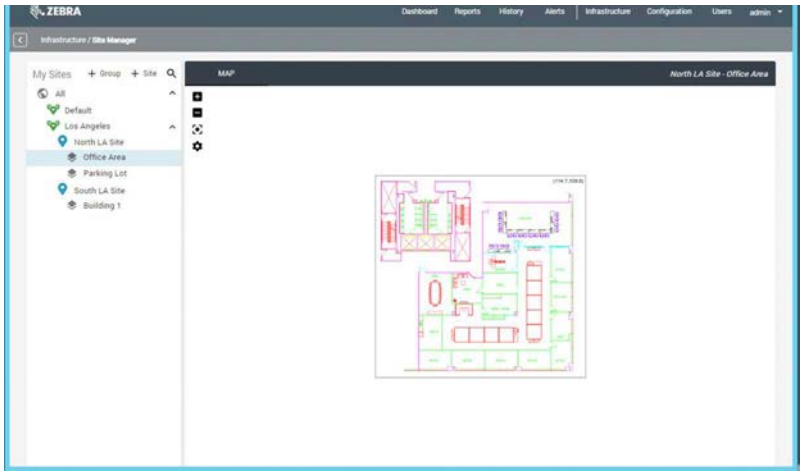
The following diagram summarizes the steps in Device Manager to get a reader operational and feeding data into MWE.



The following sections provide details on each step.

Adding a Reader

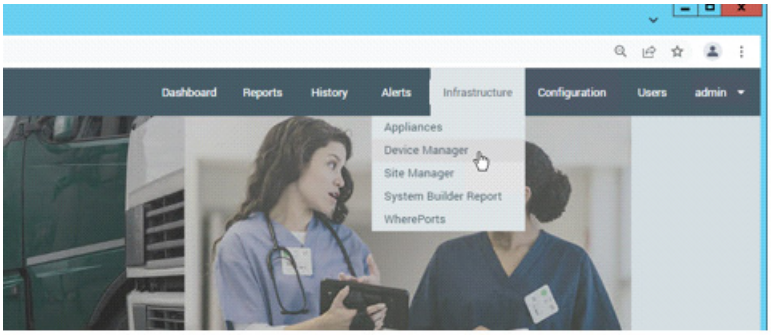
Before adding a device in Device Manager, define one or more sites in the Site Manager page in the MWE web client, and one or more maps loaded under a site.



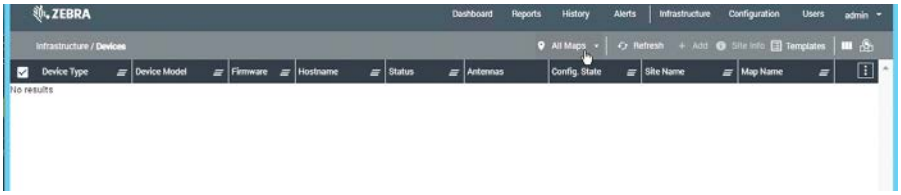
Calibrate the maps before using them. Refer the *MWE 2.0 Configuration Guide* for details on adding sites and maps.

To add a reader in Device Manager:

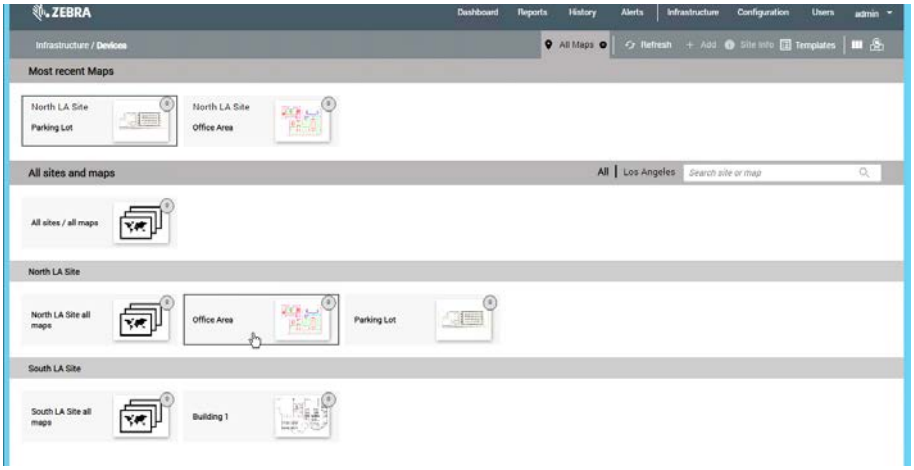
1. Open the Devices Manager page in the MWE web client.



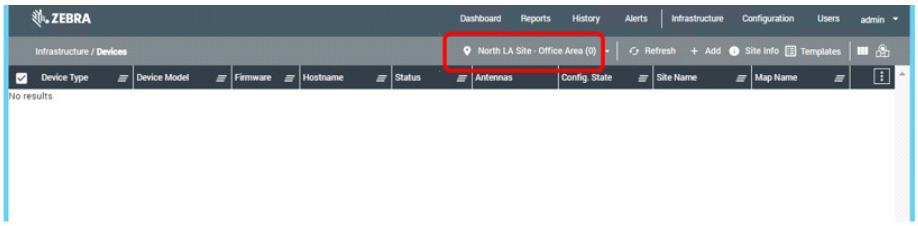
2. In the toolbar, click **All Maps**.



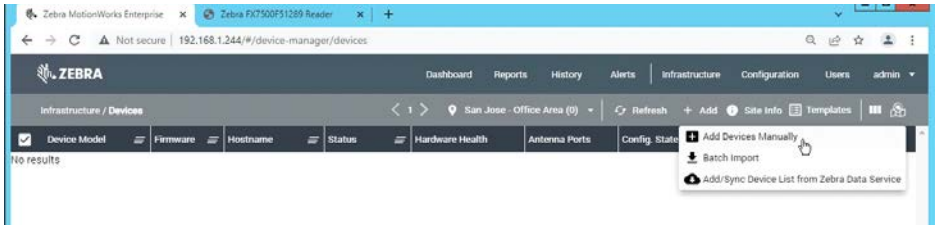
3. Click the desired map to select a site and map for the device location.



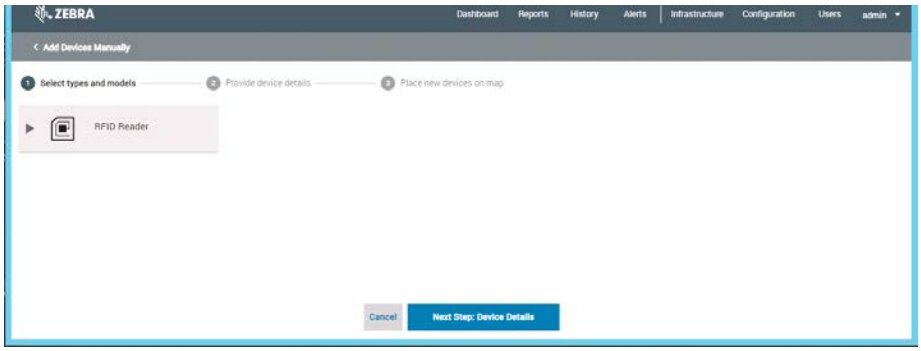
4. The name of the selected map displays on the toolbar.



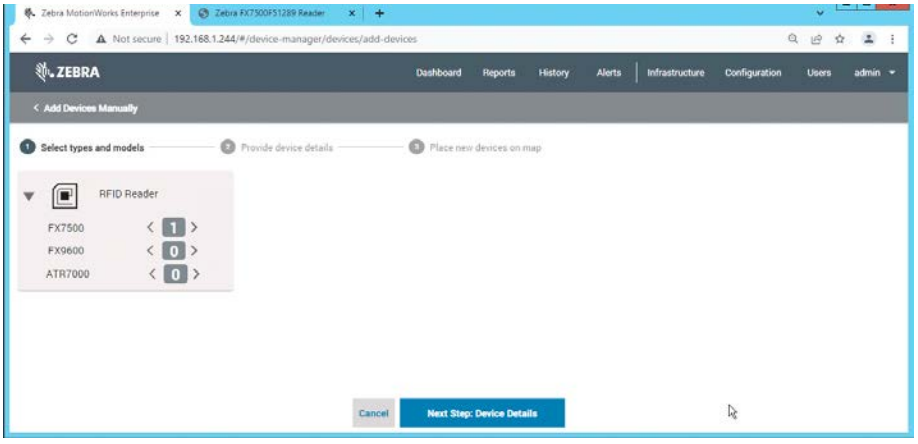
5. Click **+ Add > Add Devices Manually**.



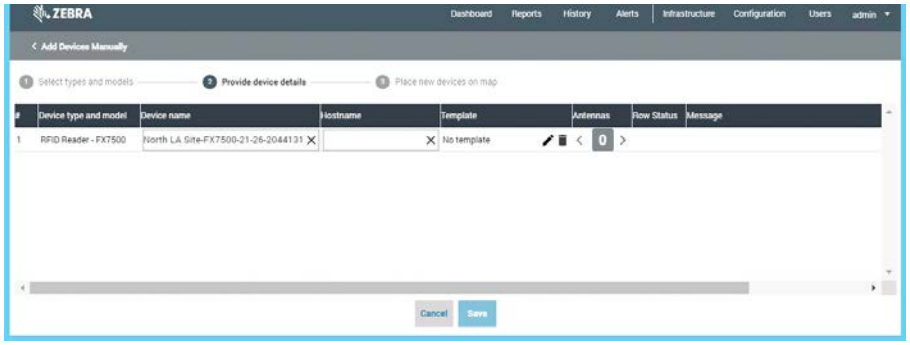
6. RFID Reader displays. This is the only device type supported in MWE 2.0.



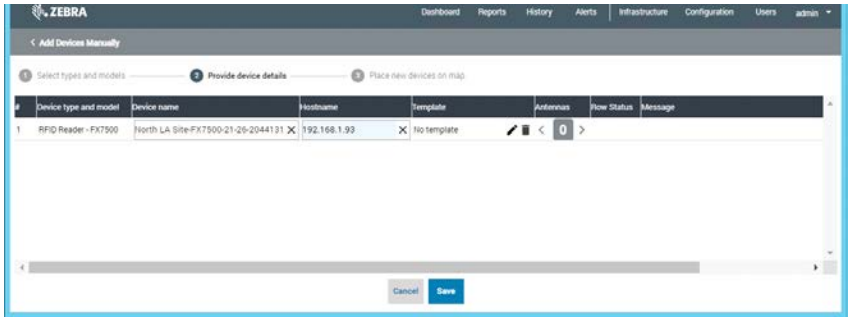
7. Click on the device type (**RFID Reader**) to see the models supported and click **<** and **>** to indicate the quantity of each model to add. This example adds 1 **FX7500**.
8. Click **Next Step: Device Details**.



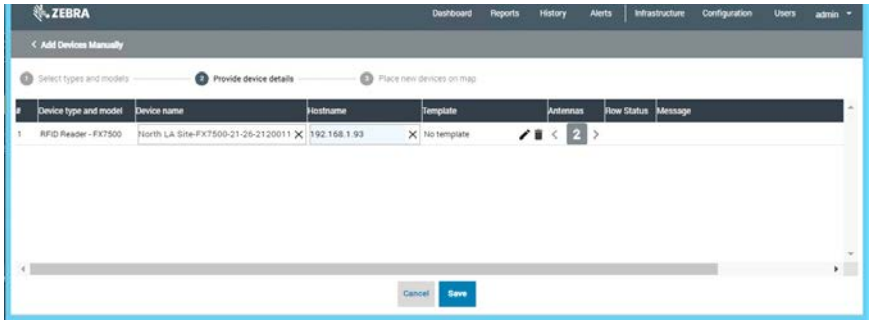
9. The device type and model display with an auto-generated device name in the form SiteName_DeviceModel_UniqueNumber. To change the device name, enter it in the text box.



10. In the **Hostname** field, enter the IP address or a fully qualified domain (FQDN) for the device. Note that the IP or FQDN must be reachable from the MWE Linux server, which hosts the service that communicates with the devices.

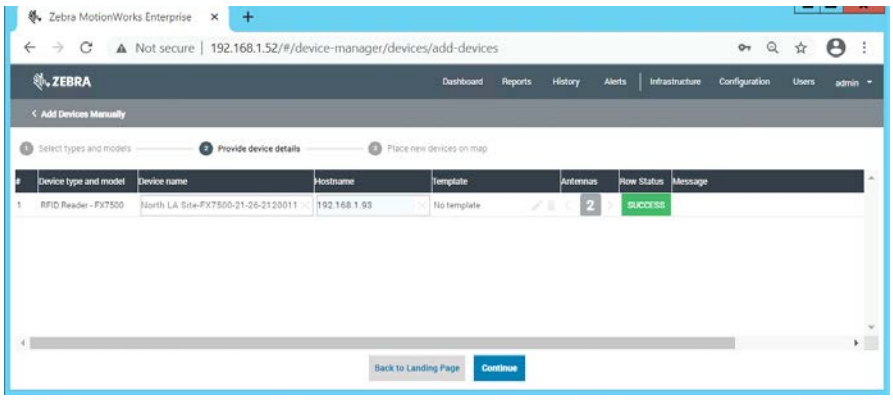


11. Do not specify anything in the **Template** field for now, as this is addressed later. This device page displays fields/columns specific to the device being added, such as the **Antennas** column for RFID readers. Use the **<** and **>** buttons to indicate the number of antenna ports the reader has, and then click **Save**.

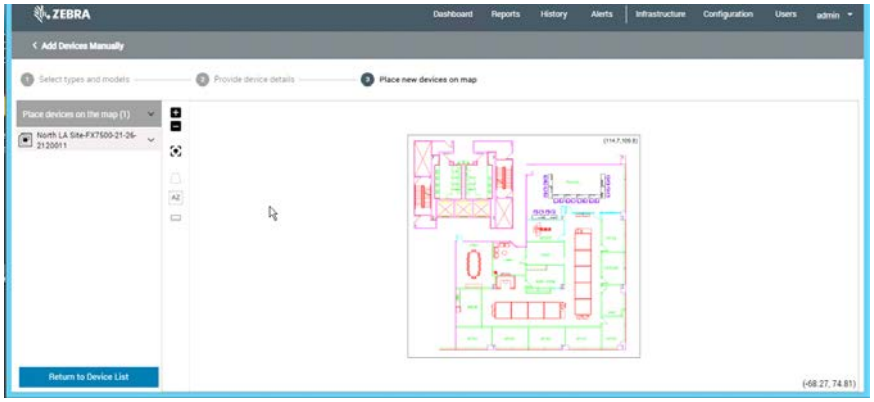


12. A yellow banner briefly displays showing the result of the operation. The **Row Status** column also displays this result. Click **Continue**.

NOTE: Click **Back to Landing Page** to return to the main Devices page, from where you can modify or complete the device configuration later.

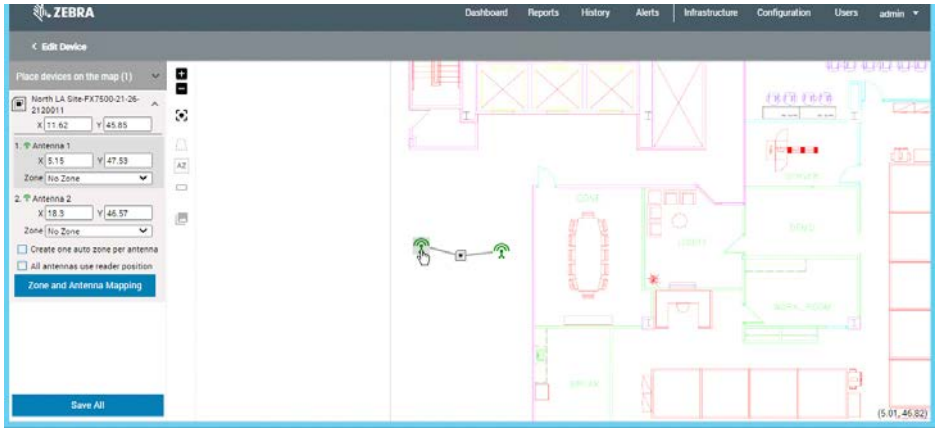


13. Place the device on the map. Also specify the position of each antenna if the device has antennas that can be positioned independently, such as passive RFID readers.

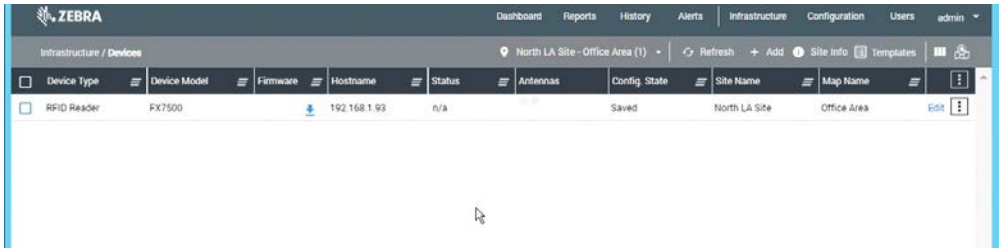


14. The left pane displays all added devices. Drag each device into the map window by holding down the left mouse button and drop it at the desired location, or click the down arrow next to the device name to manually enter coordinates for the device.

15. If you de-select **All antennas use reader position**, enter x,y coordinates for each antenna, or drag and position each antenna on the map.



16. **Create one auto zone per antenna** is discussed later. After positioning the RFID reader and antennas, click **Save All** to return to the main Devices page, which now displays the added devices with the **Config. State** column displaying **Saved** for each device.



Initializing a Reader

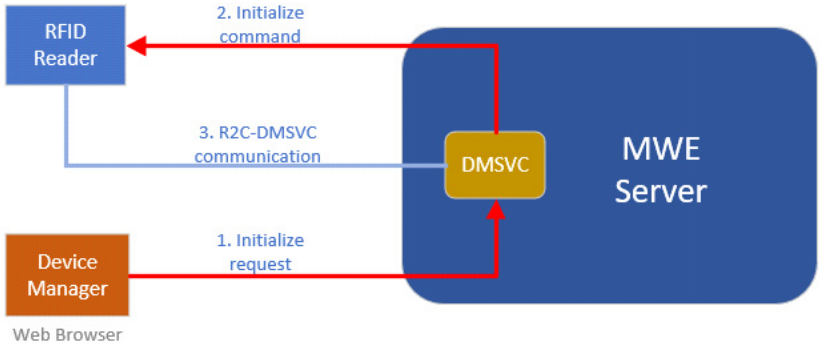
Device Manager does not communicate directly with passive RFID readers, but rather with the Device Management Service (DMSVC) on the MWE server, and DMSVC communicates with the reader. Reader initialization is a one-time process that enables communication between the ZIOTC application on the reader and the DMSVC on the MWE server. Specifically, the Initialization command performs the following tasks on a reader:

- Turns off the LLRP server on the reader and loads and starts the ZIOTC application on the reader
- Adds an http/https endpoint for posting tag blink data to the MWE server
- Adds an MQTT or MQTT over Websocket endpoint for receiving management commands from MWE
- Installs the MWE server certificate on the reader (when secure communication between the reader and the MWE server is used)

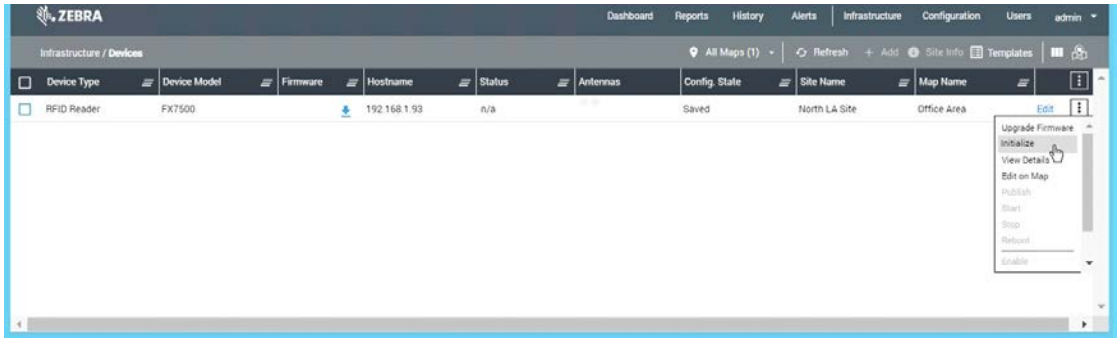
If DMSVC on the MWE server can reach the http/https port on the reader, use Device Manager to perform initialization as explained in Readers and Servers on the Same Network. However, if the MWE server is in the cloud or otherwise cannot reach the http/https port on the reader, perform the initialization by running the **`MWE-RFIDReaderInitializer`** tool on any local Windows machine on the reader network that can access the reader's http/https port as explained in MWE Server in the Cloud.

Readers and Servers on the Same Network

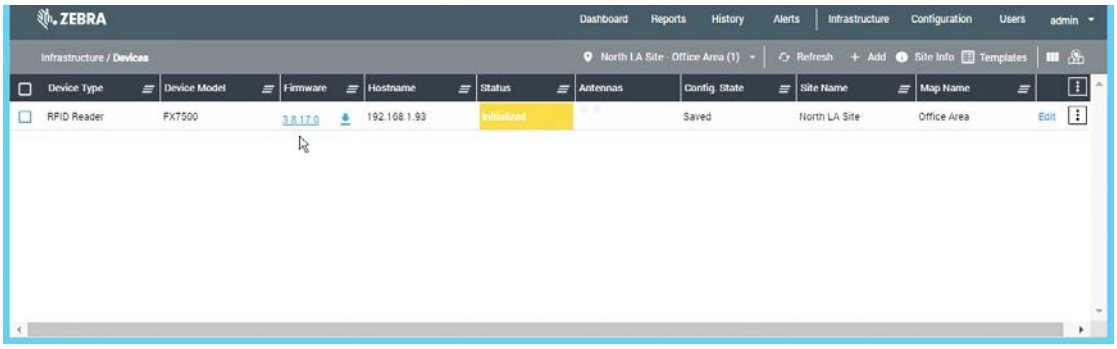
If the DMSVC on the MWE server can access either http port 80 or https port 443, the Initialize request is sent from Device Manager to DMSVC, and DMSVC sends the command to the reader. The DMSVC attempts to connect to port 80 and port 443 on the reader, and uses whichever port is open. After initialization, the ZOITC application on the reader can communicate with DMSVC on the MWE server.



To initialize a reader, in Site Manager click action menu (three-dot icon) > **Initialize**.



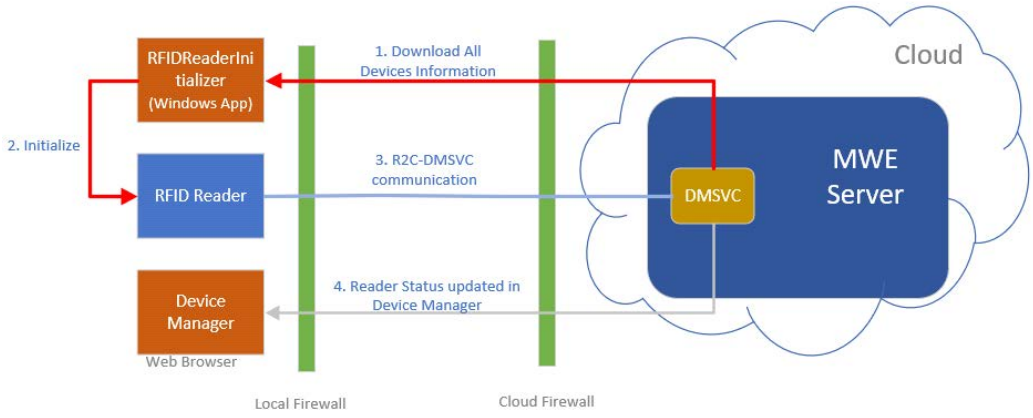
After a few seconds, the **Status** displays **Initialized**. The **Firmware** column also displays the firmware version running on the reader. If this is not the case, refresh the report.



MWE Server in the Cloud

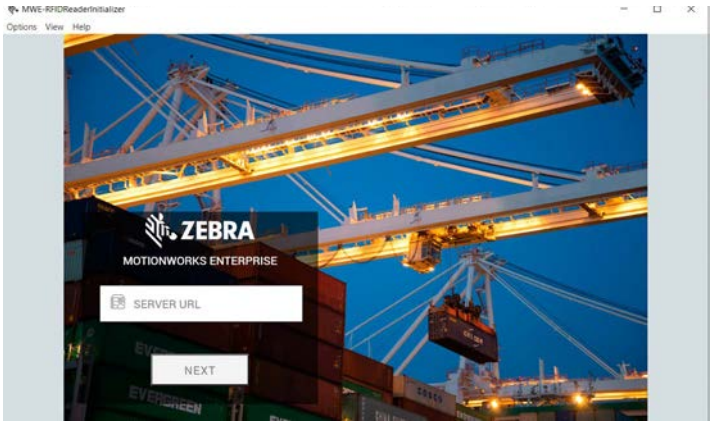
If the MWE server is in the cloud, the DMSVC on the MWE server cannot directly reach port 80 or port 443 on the readers, for example the readers are in a private network behind a firewall. In this case, the readers are initialized using the **`MWE-RFIDReaderInitializer`** tool running on a local Windows machine that can reach port 80 or port 443 on the readers. This is only required once when first deploying a reader. The **`MWE-RFIDReaderInitializer`** application connects to DMSVC on the MWE server, downloads information for all readers added in Device Manager, and performs the initialization after contacting the readers on the local network.

After a local reader is initialized, communication between the reader and DMSVC in the cloud is done via an MQTT server hosted on the MWE server as follows.

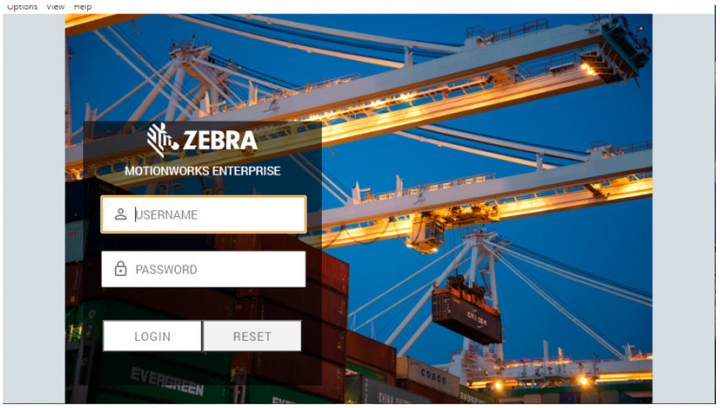


The **MWE-RFIDReaderInitializer** tool is installed via a separate Windows installer. To use this to initialize the reader:

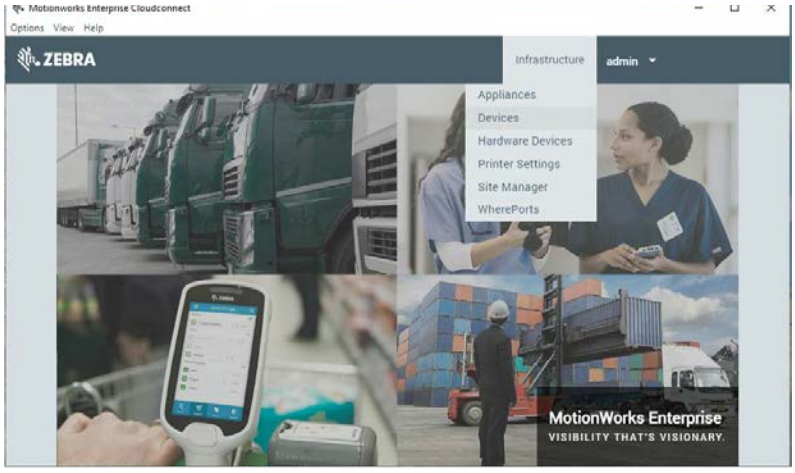
1. Launch the application and enter the MWE server URL, which is the same URL used when launching the MWE web client (such as **https://mwe.*company*.com**) and click **NEXT**.



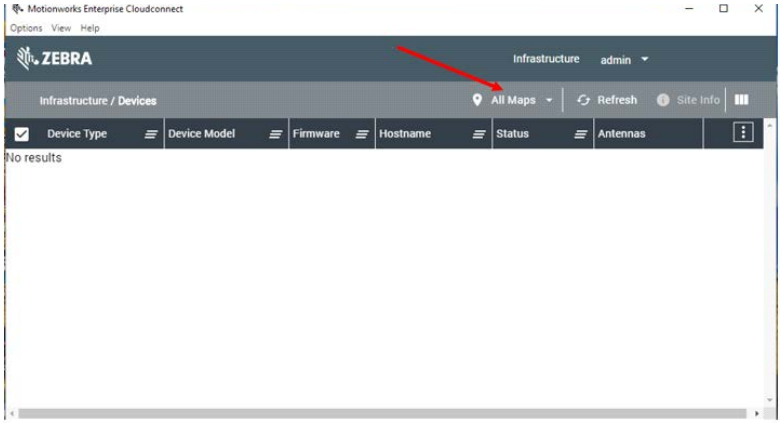
2. Enter the same login credentials used to log in to the MWE web client and click **LOGIN**.



3. Select **Infrastructure > Devices** (or **Infrastructure > Device Manager** depending on the version).

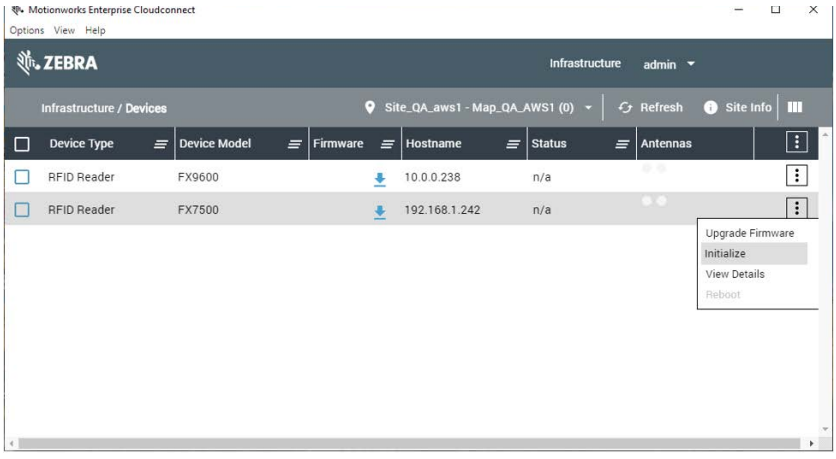


4. On the toolbar, click **All Maps**.

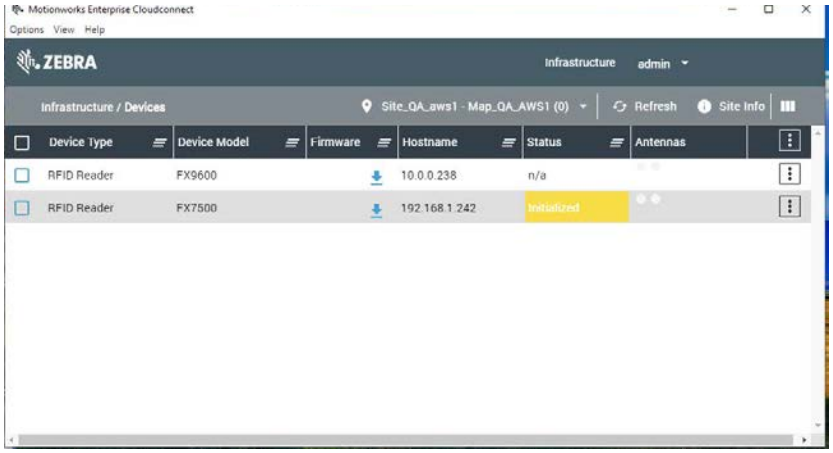


5. Select the site and map where the reader is located.

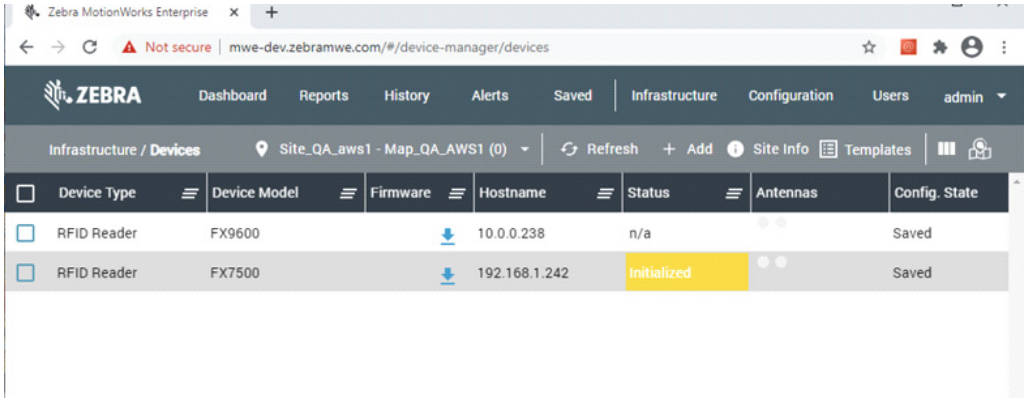
6. Click action menu (three-dot icon) **> Initialize** in the row for the reader.



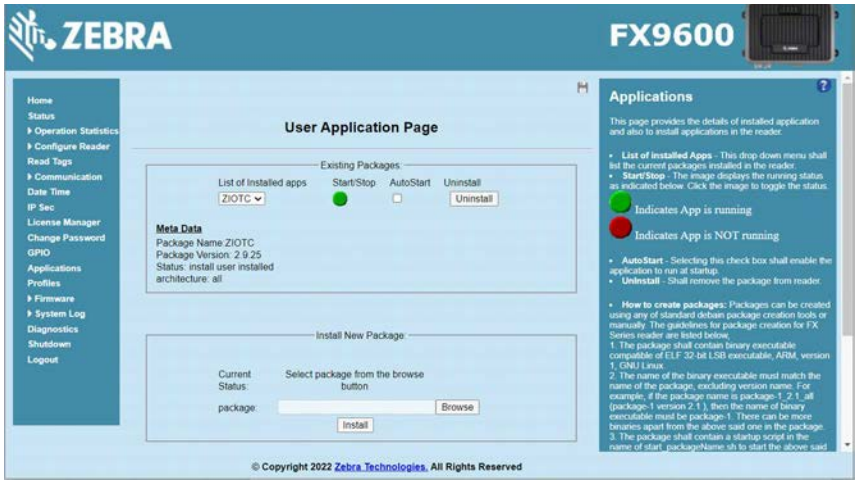
After a few seconds the **Status** column displays **Initialized**.



The **Status** column in Device Manager in the MWE web client also displays **Initialized** for this reader.



In the connected reader UI, clicking the **Applications** on the left panel indicates the ZIOTC application is loaded and running (green Start/Stop button), and displays the ZIOTC version.

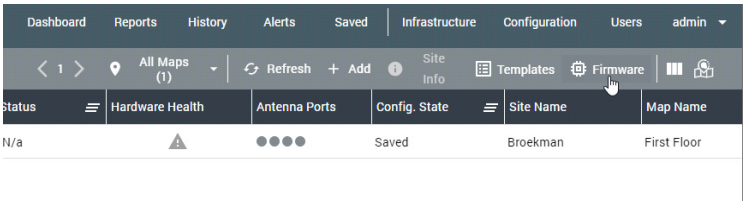


Upgrading Firmware

Device Manager allows upgrading the firmware of one or multiple readers at the same time. Download the required firmware from the Zebra website, typically provided as a zipped file such as **`FXSERIES-3.26.90.zip`**.

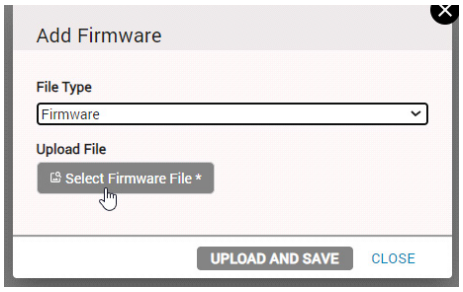
To upload the firmware file to MWE and upgrade the readers:

1. In Device Manager, click **Firmware** in the report toolbar to open the FX Reader Firmware page.

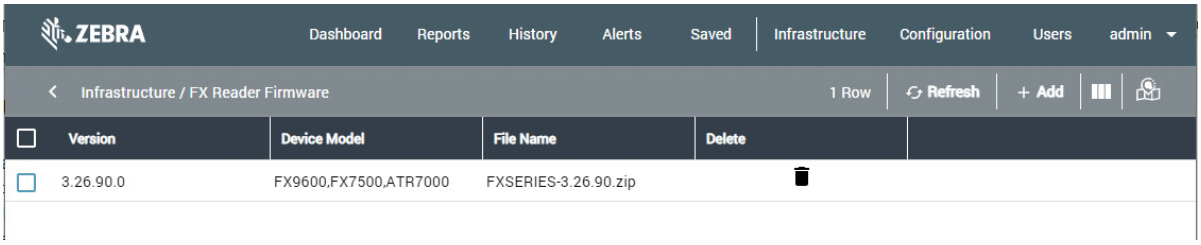


2. Click **+Add**.

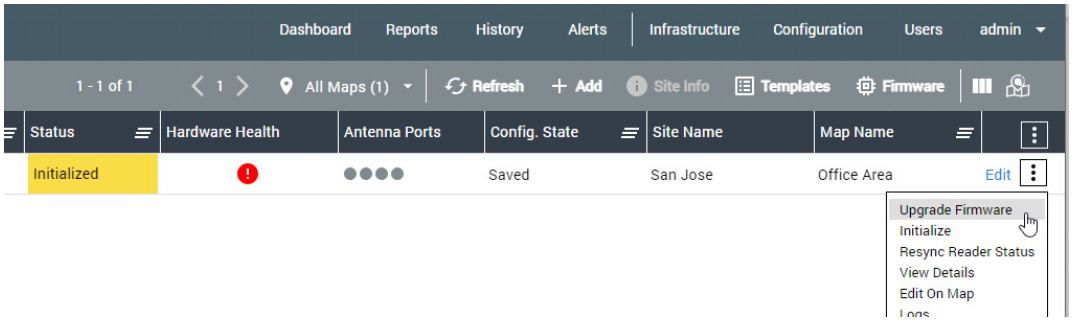
3. Click **Select Firmware File**, browse to the location of the firmware zip file (such as **`FXSERIES-3.26.90.zip`**), and then click **UPLOAD AND SAVE**.



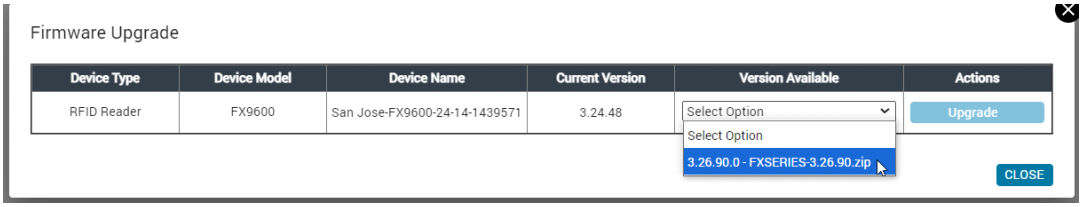
The zip file displays in the FX Reader Firmware page.



4. Return to the Device Manager main page and click action menu (three-dot icon) > **Upgrade Firmware**.



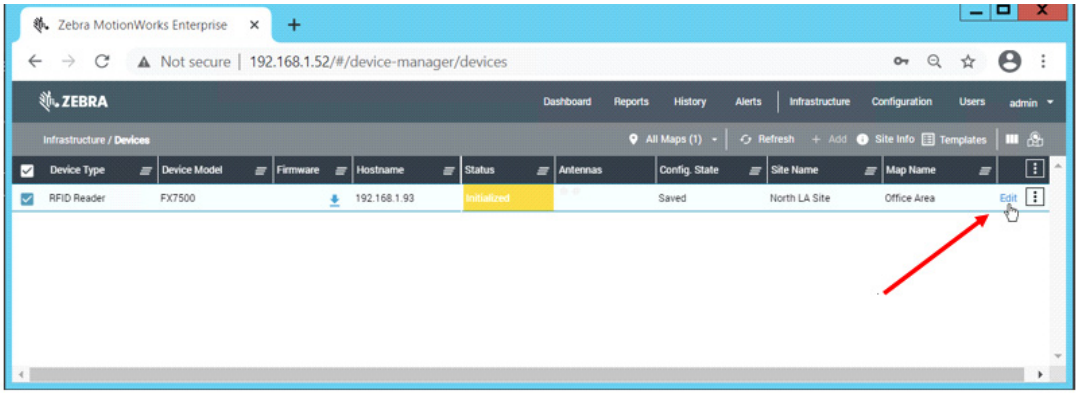
5. Select the firmware version and click **Upgrade**.



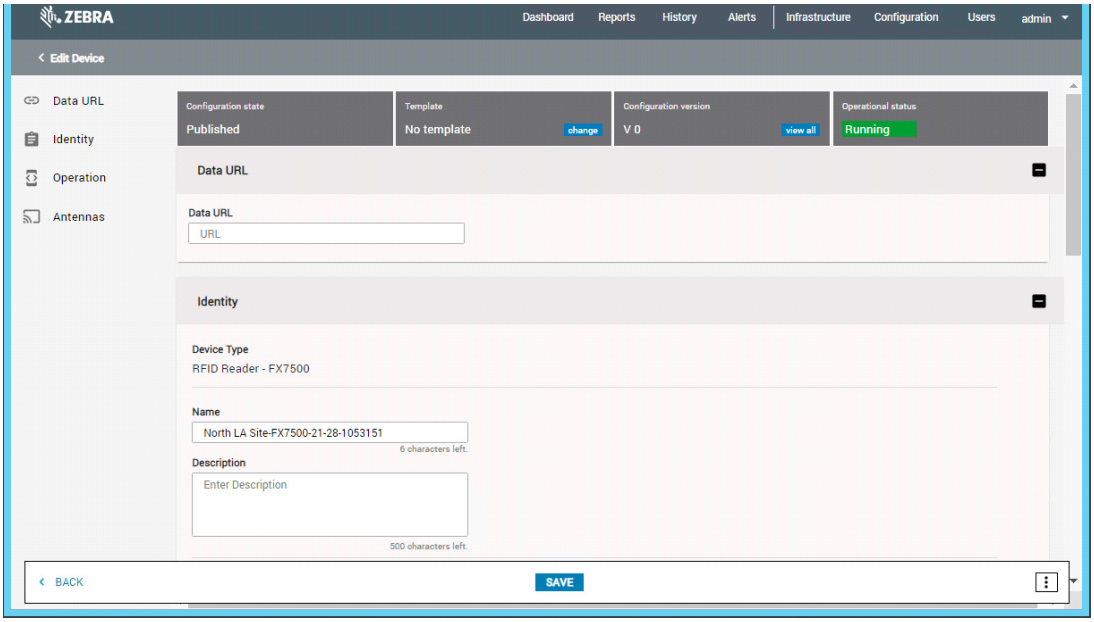
6. Close the dialog. A circling icon displays in the **Status** column during the upgrade. When complete, the new Firmware Version displays.

Editing a Reader

Edit the reader to specify the operation mode, which is the algorithm reader used to collect data from passive RFID tags. In Device Manager, click **Edit** on the reader row.



The window displays information previously entered, such as Name, Hostname, x,y coordinates for reader and antennas, and information Device Manager retrieved from the reader, such as MAC Address.



There are four items on the left panel: **Data URL**, **Identity**, **Operation**, and **Antennas**. The following new fields must be specified.

Data URL

Data URL is the URL of an external or remote server where the reader posts tag blink data. If left blank, the reader sends tag blink data to the MWE server.

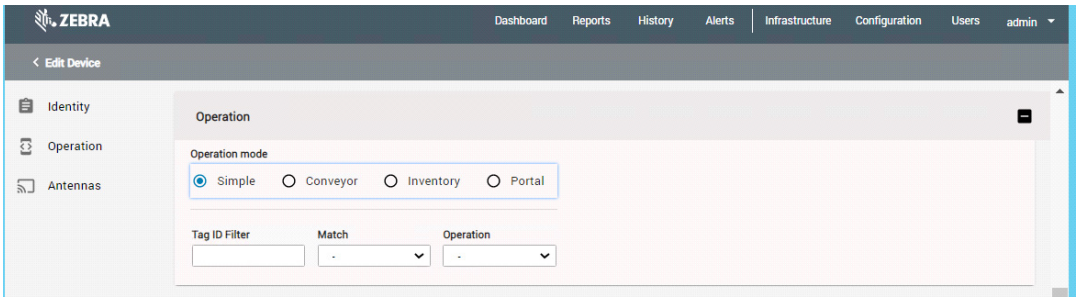
Operation

Specify the **Operation Mode** used by the reader. Selecting a mode displays a set of corresponding filters or parameters.

Simple

A reader reports each tag in its field of view (FOV) a single time. If a tag leaves the FOV and returns, it is reported again a single time.

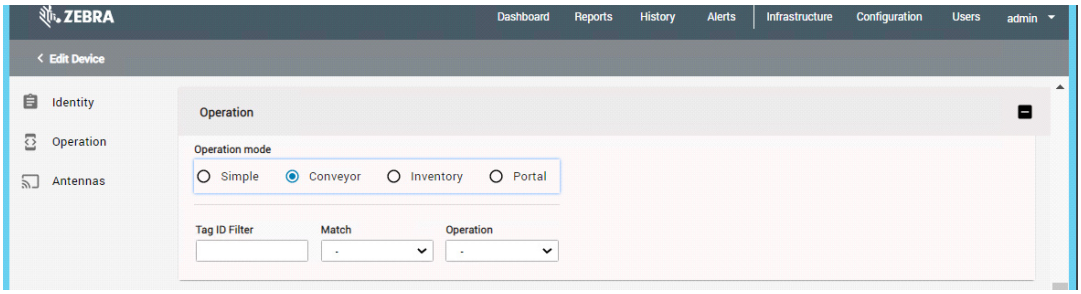
Filters: Allows filtering on tag ID.



Conveyor

A reader reports tag IDs a single time as they pass on a conveyor belt. This is similar to Simple mode, but the reader also reports the antenna that reads the tag.

Filters: Allows filtering on tag ID.

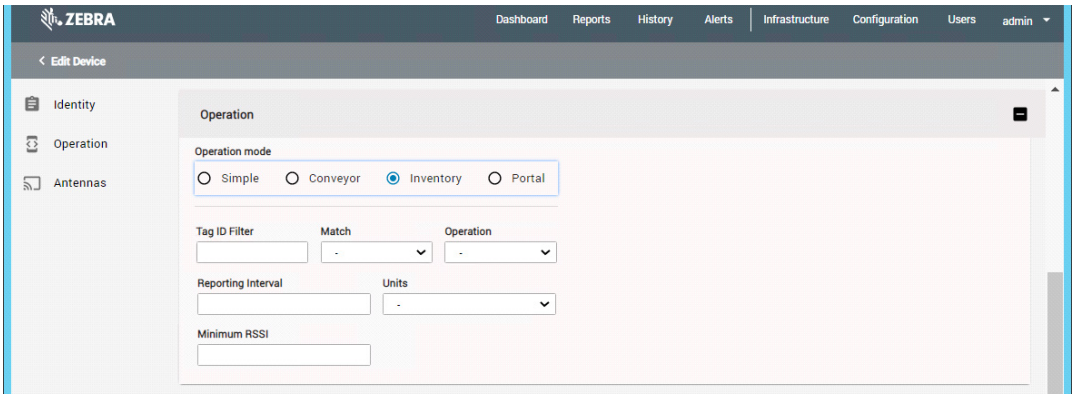


Inventory

This periodically reports unique tags on each antenna, and the antenna that read the tag.

Filters: Allows filtering on tag ID. Also offers a Minimum RSSI filter since the antenna power is set to maximum, so only tags within a certain distance from the reader are reported. The range of values for the RSSI filter is 0 (highest RSSI, short distance) to -120 (negative 120, lowest RSSI, large distance).

Other parameters: By default, this mode reports tags once a minute. Use the **Reporting Interval** field to change this interval.

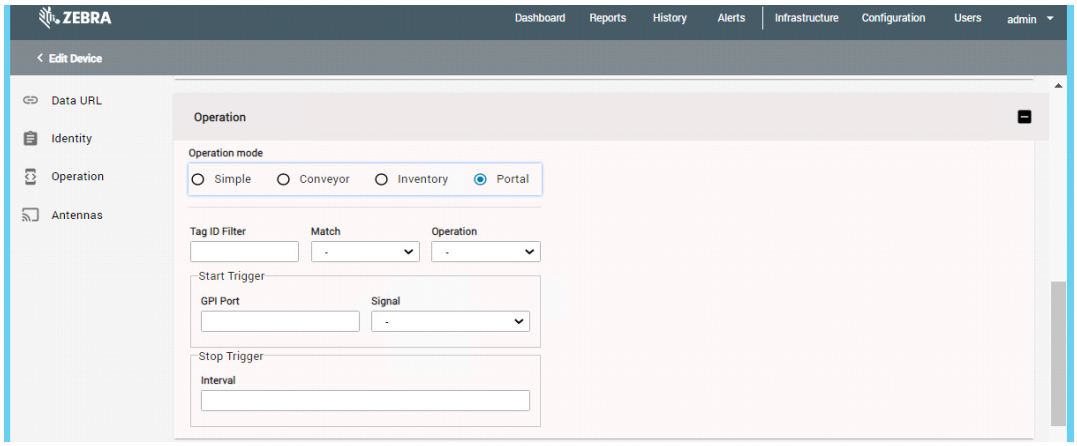


Portal

This reports unique tags as they pass through a portal. The reader is configured to start reading tags when a GPI event is triggered. Once triggered, the reader continues reading and reporting unique tags until no more unique tags are read for a configurable duration. The reader then waits for a new GPI event. The antenna that read each tag is also reported.

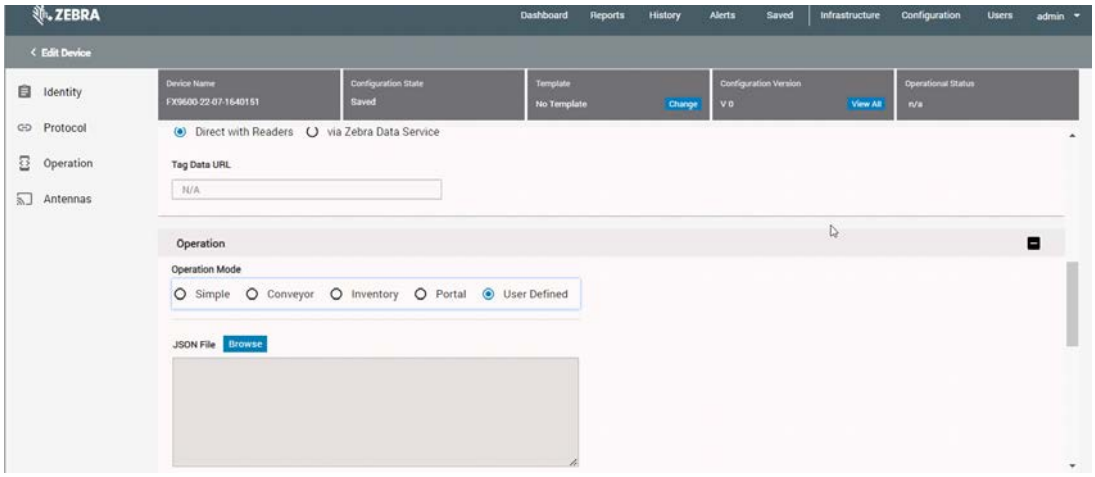
Filters: Allows filtering on tag ID.

Other parameters: **GPI Port** number and **Signal** (high, low) specify the GPI event that triggers the reader to start reading. The parameter **Interval** specifies the duration of the reading period.



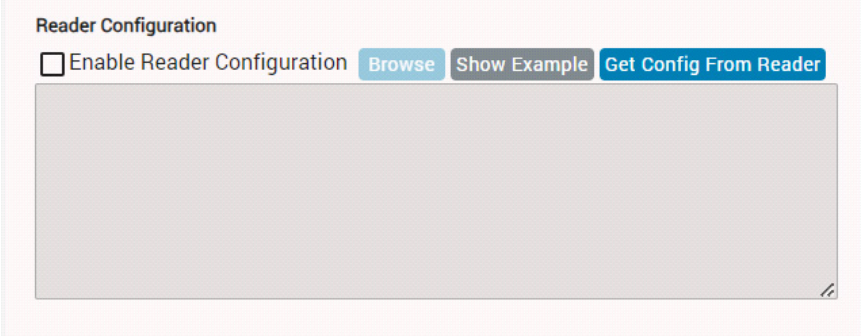
User Defined

In MWE 2.0 and later releases, a **User Defined** mode also displays. This allows uploading a customized operation configuration file in json format that supports features such as Sessions and filter per antenna, and other configuration options not available in the pre-defined operation modes. Contact Zebra support for sample files.



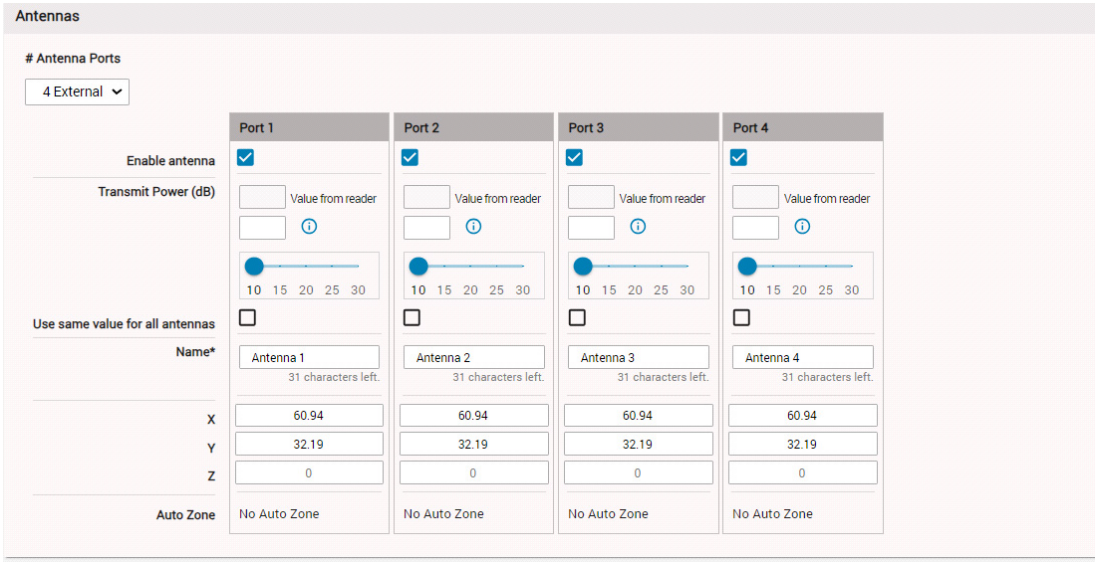
Reader Configuration

Scroll down the **Edit Device** dialog to view the **Reader Configuration** pane, where you can upload a lower level reader configuration. Click **Show Example** to display a sample file, or **Get Config From Reader** to download the current configuration from the reader.



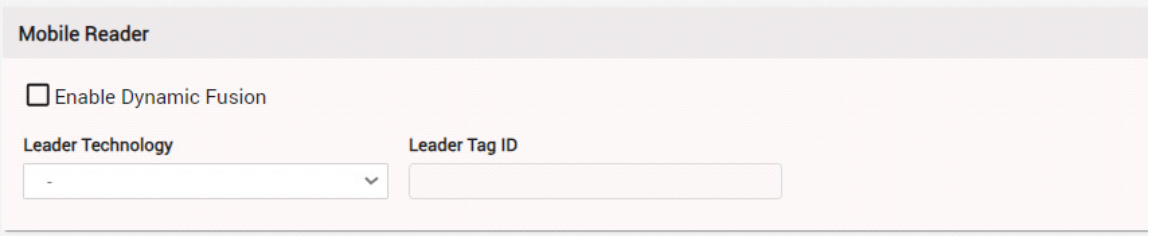
Antennas

Further down the **Edit Device** dialog you can adjust the antenna power.



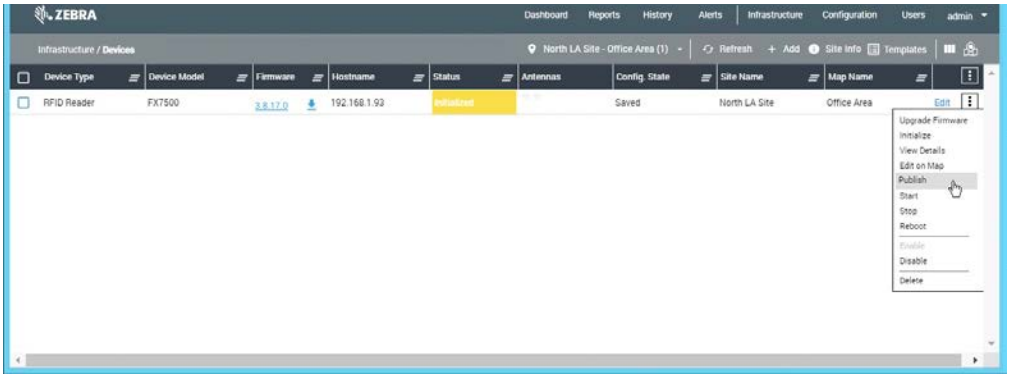
Dynamic Fusion

At the bottom of the **Edit Device** dialog, enable and configure the Dynamic Fusion feature. Refer to the *MWE 2.0 User Guide* for more information.

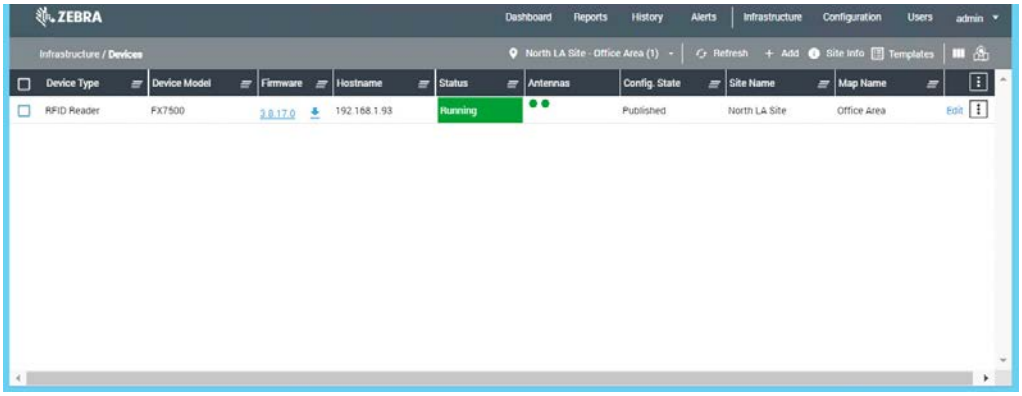


Publishing

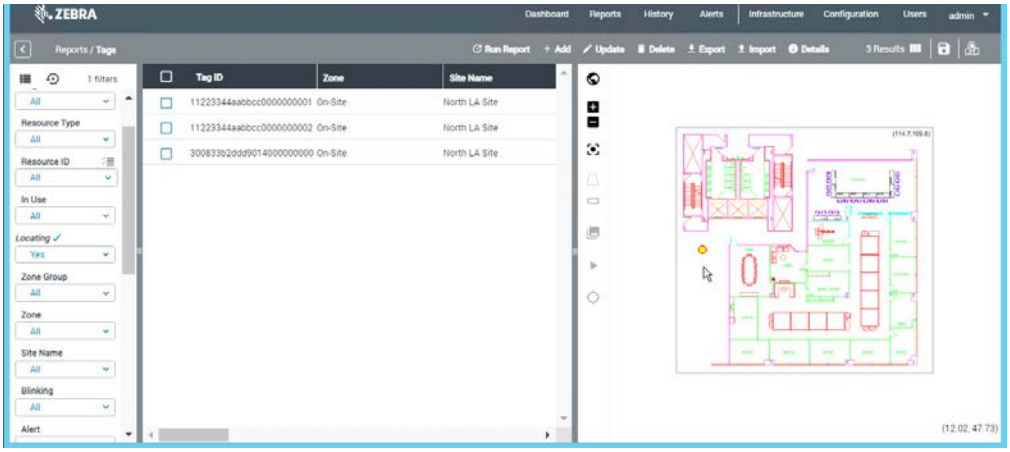
To publish the configuration to the reader, in Site Manager click the action menu (three-dot icon) > **Publish**.



After a few seconds, the **Status** column displays **Running** and the **Config. State** column displays **Published**.

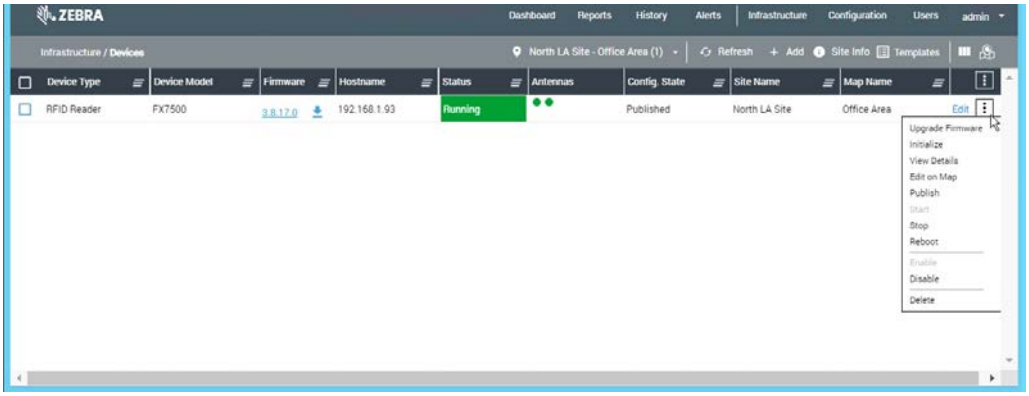


MWE now receives blinks from the reader which display in the Tags report.



Reader Menu

Click the action menu (three-dot icon) for a reader.



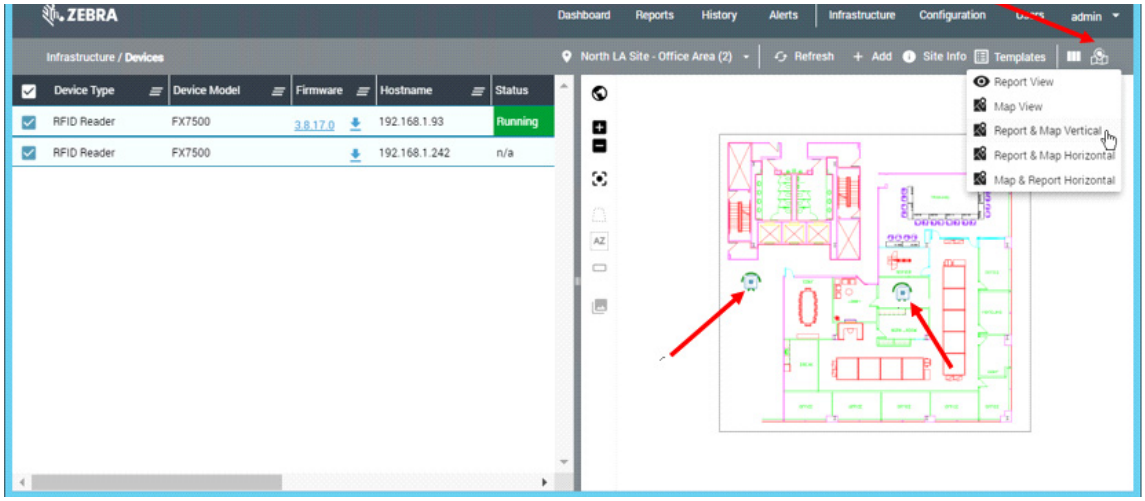
The following actions are available for the reader:

- **Upgrade Firmware**: Enables firmware upgrade for that reader.
- **Initialize**: Turns off LLRP protocol and turns on R2C application, enabling the reader to communicate with servers in the cloud and with the DMSVC service on a MWE server.
- **Resync Reader Status**: While the value in the **Status** column refreshes periodically, this option forces an immediate retrieval of the current reader status.
- **View Details**: Opens a vertical panel on the right side of the Device Manager displaying detailed information about the reader.
- **Edit on Map**: Allows configuring or changing the x,y coordinates for the reader and antennas.
- **Logs**: Allows configuring and downloading logs from the reader.
- **Publish**: Publishes the reader configuration to the reader.
- **Stop**: Stops the flow of tag blinks from the reader to MWE.
- **Start**: Starts the flow of tag blinks from the reader to MWE after it is stopped.
- **Reboot**: Reboots the reader.
- **Disable**: Disables all other actions in the reader menu.
- **Enable**: Enables reader actions in the reader menu after they are disabled.

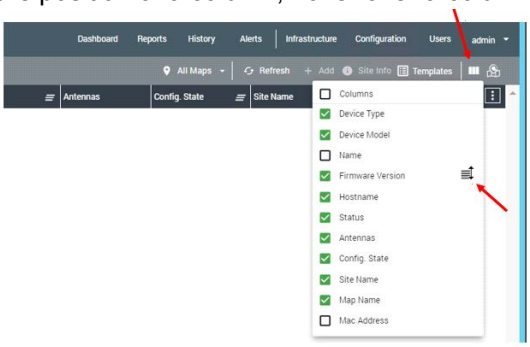
Customizing Device Manager

The Devices page offers several of the same customization options available to other reports in the MWE web client, including the columns to include, their order, report/map views, and details column, as illustrated in this section.

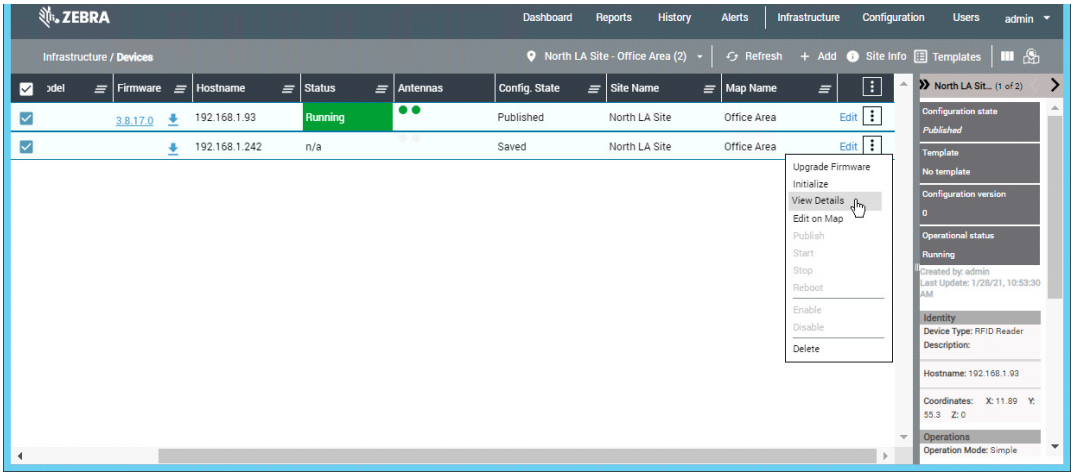
To select a report/map view, click the camera icon on the toolbar. The following figure is the Report & Map Vertical option. The readers are listed in the report window on the left and display on a map on the right.



To change the set of columns displayed, click the action menu (three-dot icon) on the toolbar. To change the position of a column, hover over a column name and drag the four-horizontal-bar icon.



To show the vertical details panel, click the action menu (three-dot icon) on a reader row and select **View Details**. You can select multiple readers in the report and move from one reader to the next using the single arrow at the top of the panel. To hide the details pane click the double-arrow at the top of the panel.



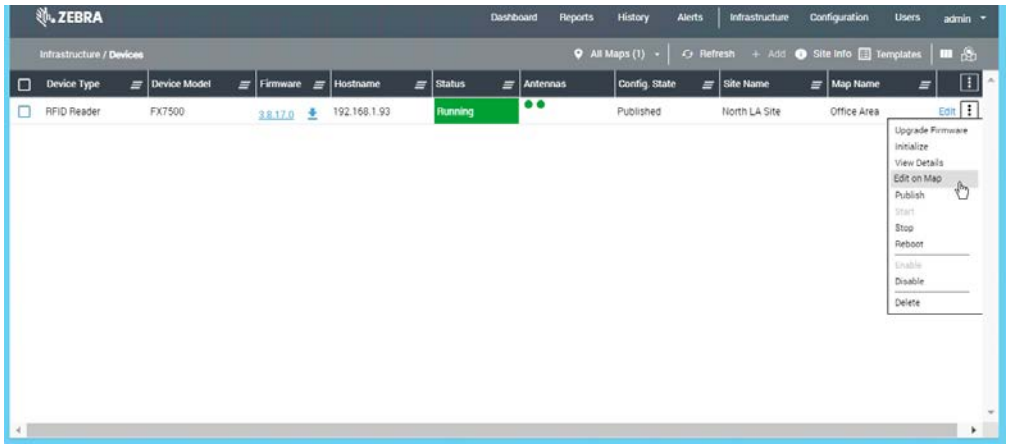
Autozones

An FX RFID reader can have multiple antennas. The Tags report in the MWE web client displays the Reader ID (IP address or FQDN) and the x,y coordinates of the antenna that detected a passive RFID tag. If zones are defined in MWE, the Tags report also displays the name of the zone containing the x,y coordinates. While defining a zone around each antenna is time-consuming if you have many antennas, Device Manager offers the option to automatically create and name a zone around each antenna, as explained in this section.

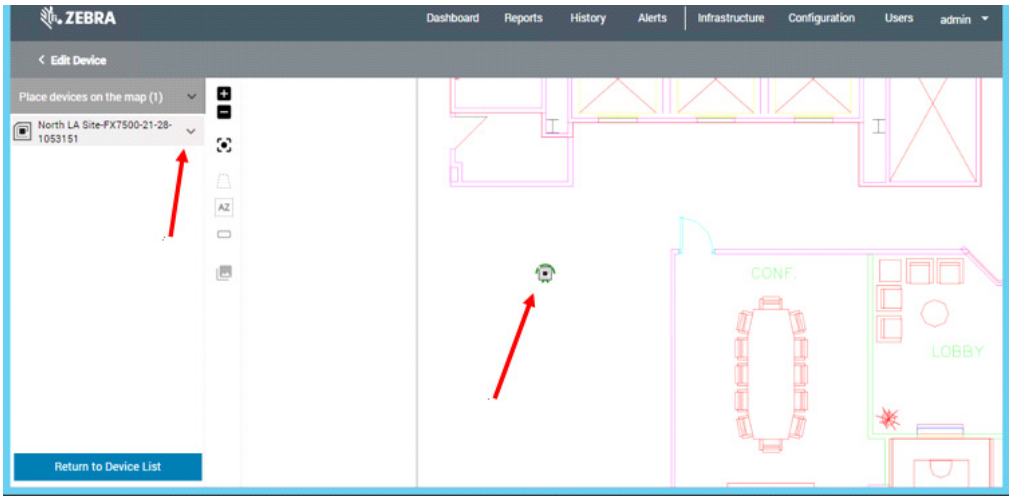
Creating Autozones

To create an autozone:

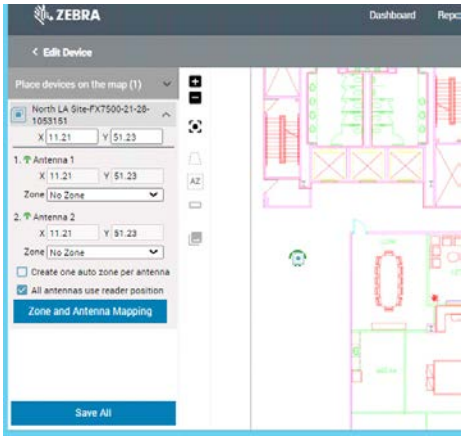
1. Selecting **Edit on Map** from the reader's menu.



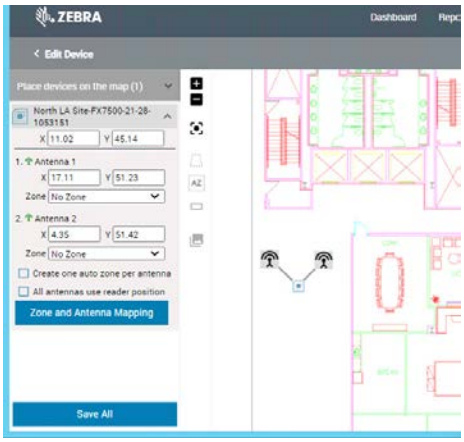
The Edit Devices dialog lists the reader on the left pane and displays it on the map window.



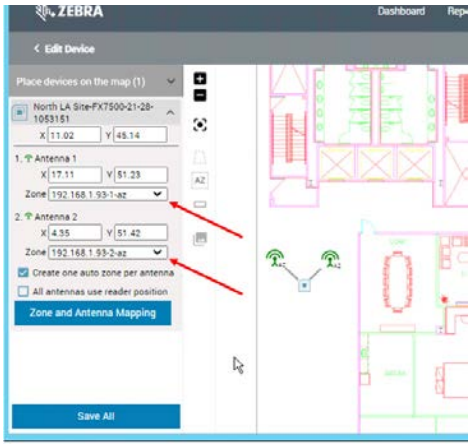
2. Click the down arrow next to the reader name on the left to display the x,y coordinates of the reader and antennas. If the **All antennas use reader position** option is selected, when you drag the reader on the map the reader and its antennas move together, and the x,y values in the left pane for the reader and its antennas are the same.



3. Deselect **All antennas use reader position** to enter different x,y values for each antenna. You can also drag antennas independently on the map. The following figure displays a reader and its two antennas.

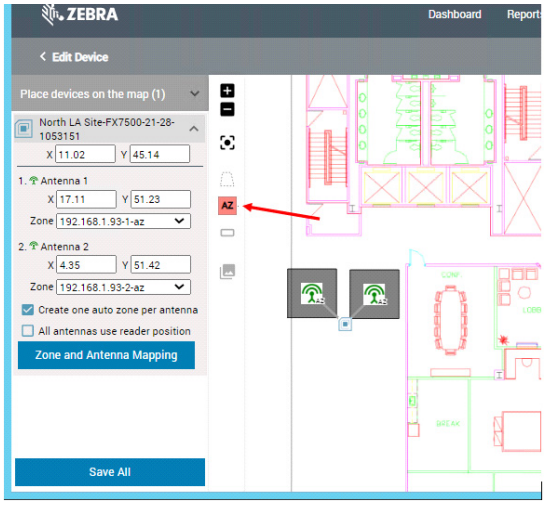


4. Select **Create one auto zone per antenna** option, to auto-populate the **Zone** field for each antenna with a zone name.



5. The auto-generated zone name has the format **`hostname-antennaNumber-az`**, where **`hostname`** is the IP address or FQDN entered when adding the reader and **`az`** is the autogenerated-zone. To change the auto-generated name click **Zone and Antenna Mappings**.

6. Click **AZ** on the vertical toolbar to display the auto-generated zones on the map.



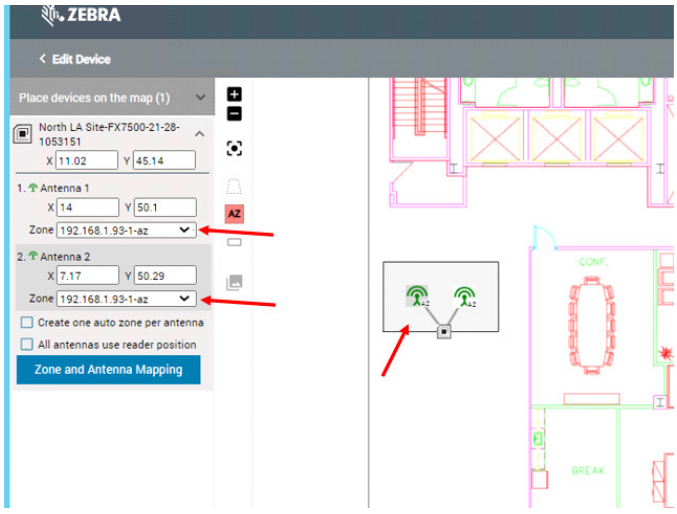
   Each autogenerated zone is a 10 ft square centered on the antenna. Dragging the antennas on the map moves the autozone with the antenna. Click **AZ** again to display the zone names. Click a third time to hide the zones.

7. After generating autozones and optionally renaming them, click **Save All** to save changes and return to the main **Devices** dialog.

Now, when one of the antennas detects a passive RFID tag, the MWE Tags report and Resources report display the reader ID and the x,y coordinates of the antenna, as well as the zone in which that tag resides.

Multiple Antennas in One Autozone

After creating one zone per antennayou can re-assign the antennas to different zones and assign several antennas to a single zone. In the following **Zone** drop-down list, zone **192.168.1.93-1-az** is selected for both **Antenna 1** and **Antenna 2**.



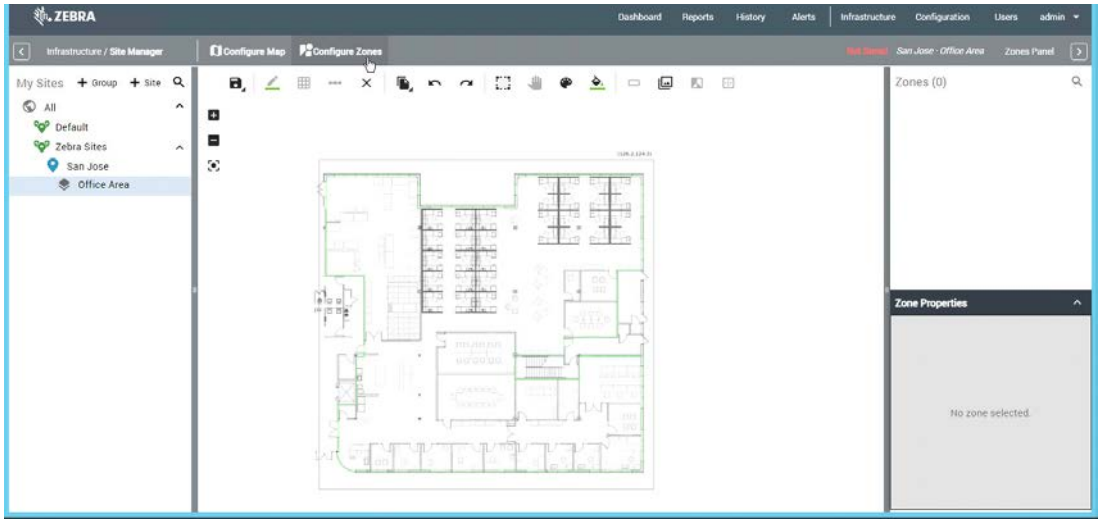
Click **AZ** on the vertical toolbar to display zone **192.168.1.93-1-az** on the map window. Note that both antenna 1 and antenna 2 are inside the zone. Drag the antennas apart on the map to grow the autozone to retain both antennas, or move the antennas close together to shrink the autozone. Use the **Zone** drop-down list to move an antenna from one autozone to another at any time.

Configuring Zones and Autozones

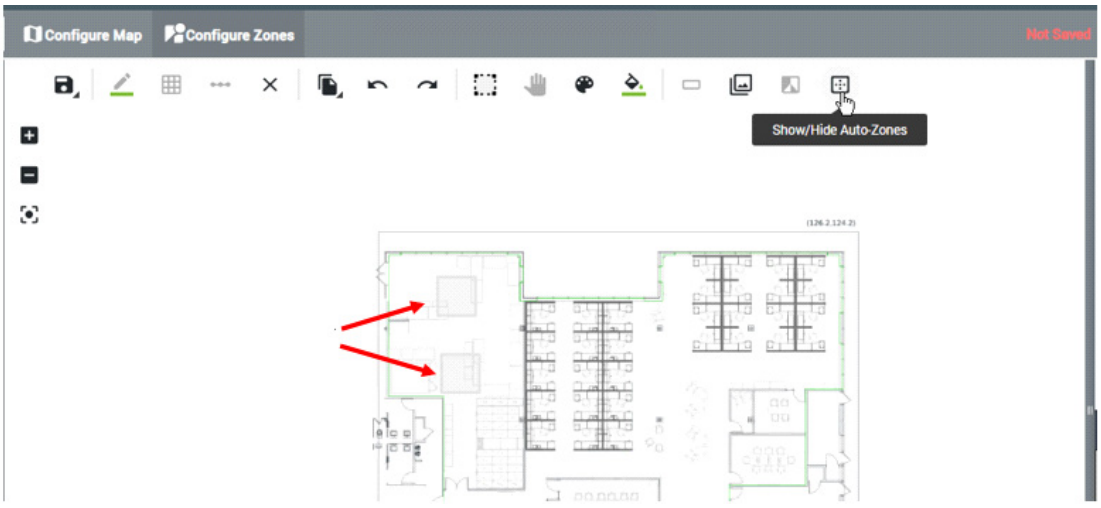
To manually create zones rather than using the autozone feature, in the MWE web client select the **Infrastructure > Site Manager** page.

Click on a map in the tree view and then click **Configure Zones**.

NOTE: The map must be calibrated before defining zones. Refer to the *MWE 2.0 Configuration Guide* for details.

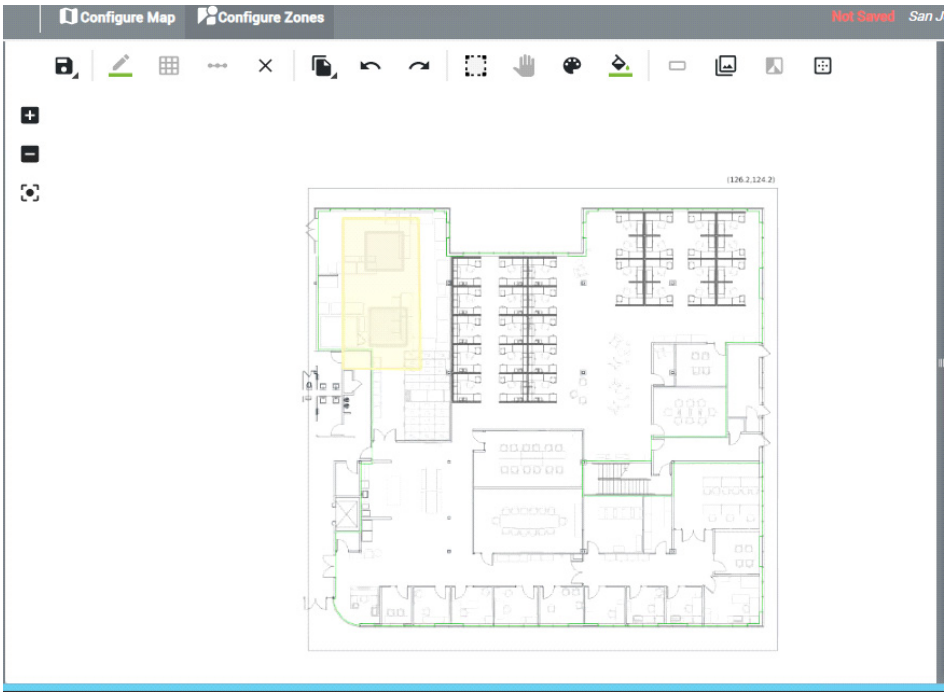


If you defined autozones, click **Show/Hide AutoZones** on the toolbar to view them.



Autozones appear in light gray. The shape, color, and name of autozones created in Device Manager can only be modified in Device Manager, not in the **Configure Zones** dialog.

Autozones have lower priority than manually defined zones. If you define a zone in the **Configure Zones** dialog that overlaps the autozones as in the yellow zone below, MWE reports a tag blink in the tag zone to be the yellow zone, not the autozone.



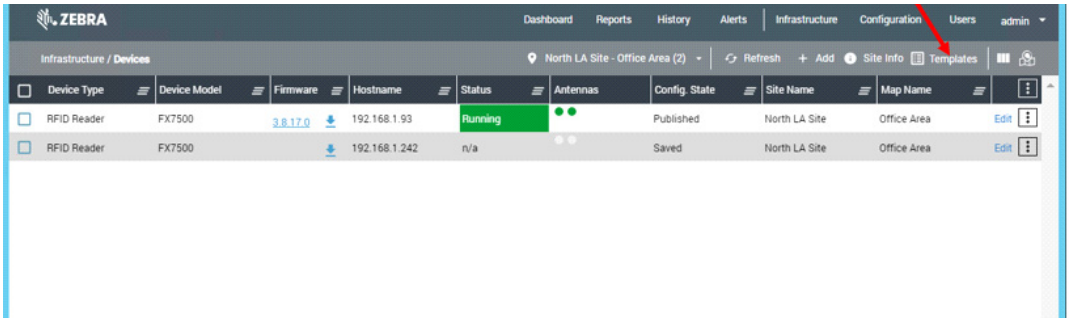
Templates

You can add several devices in Device Manager with the same configuration, for example, several FX readers with the same Operation Mode (such as Conveyor mode) and the same number of antennas (such as 4). To do this, define a template with this configuration and select the template when adding a new reader rather than adding the information with each new reader. This auto-populates the corresponding fields in the new devices.

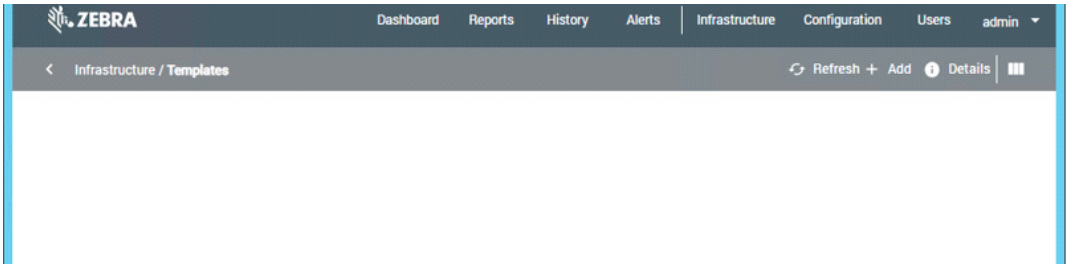
Creating a Device Template

To create a template:

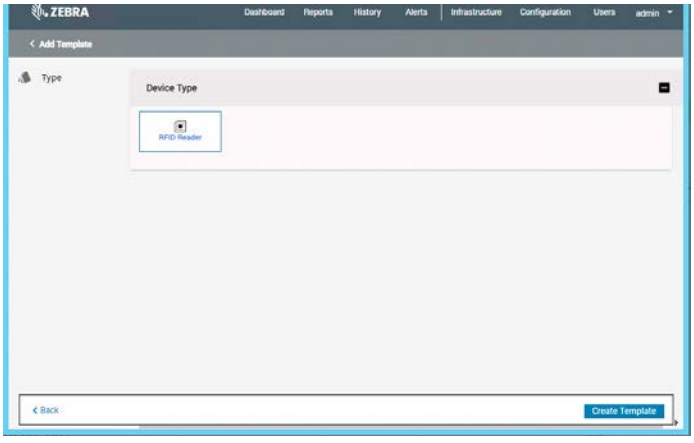
1. Click **Templates** on the toolbar.



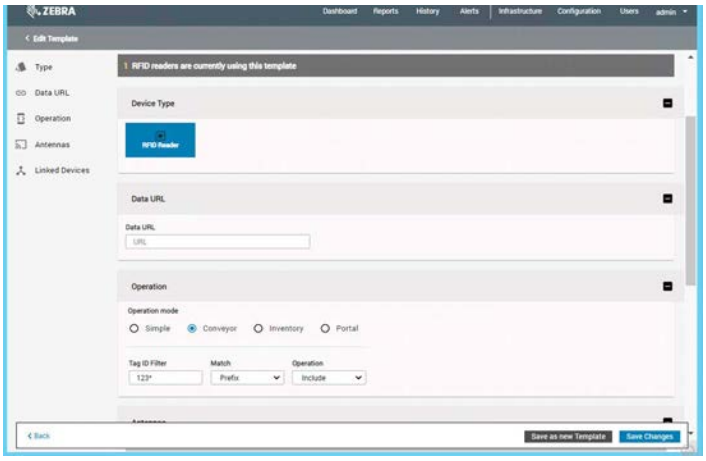
2. Click **+ Add**

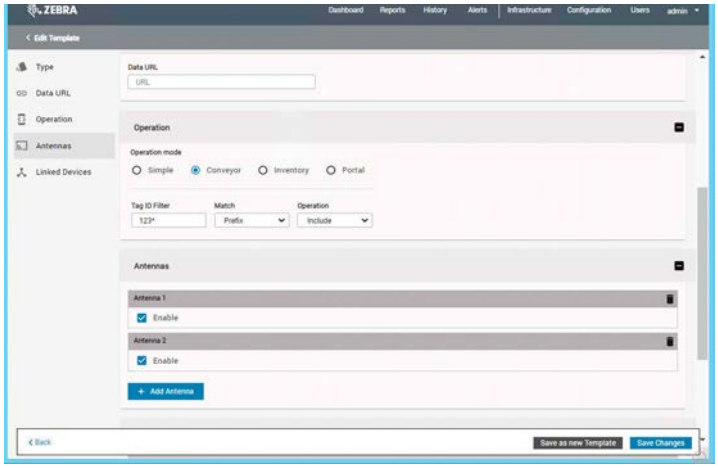


3. Click a **Device Type**, such as **RFID Reader**.



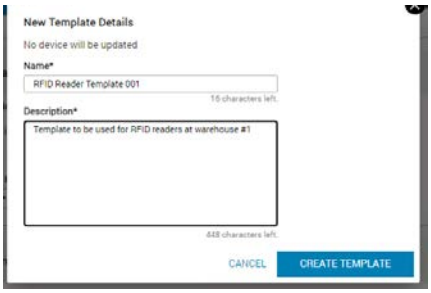
A dialog displays basic configuration parameters for the selected device type. Scroll down to display all parameters. The following dialog displays **Data URL** = blank (MWE server), **Operation mode** = **Conveyor**, a **Tag ID Filter** that only allows IDs that begin with 123, and two enabled **Antennas**.



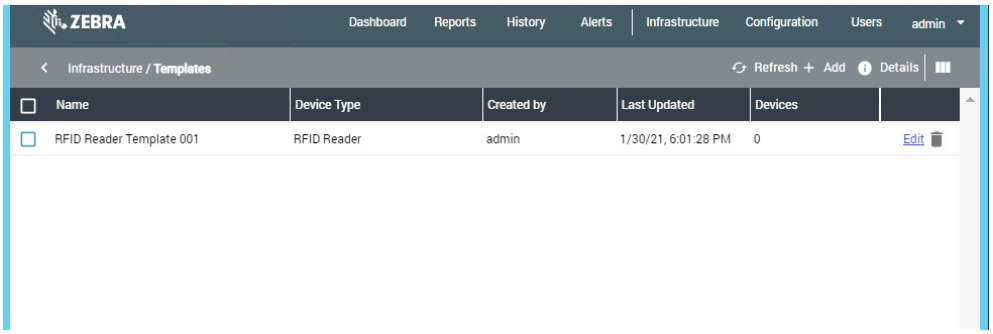


4. Click **Save as new Template** if you are creating a new template or **Save Changes** if editing an existing template.

   If creating a new template, enter a template name and description, and click **CREATE TEMPLATE**.



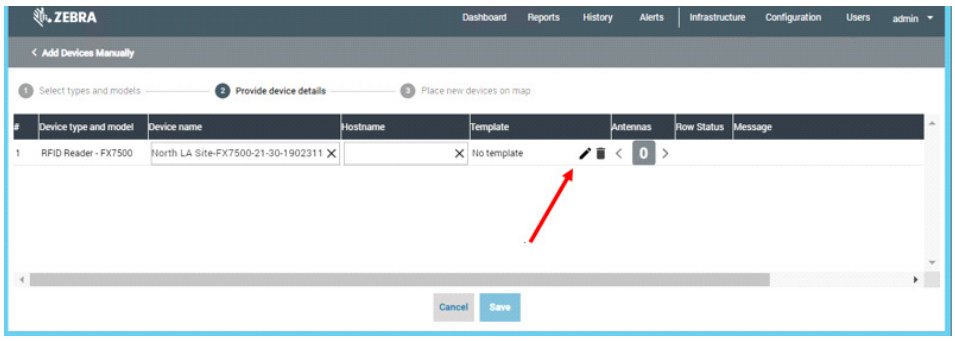
The **Templates** dialog lists all templates created.



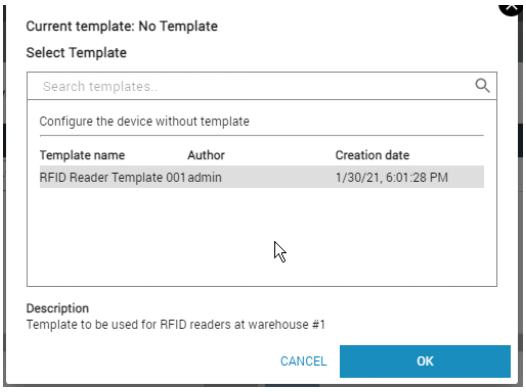
To return to Device Manager, click **<** on the top left or select **Infrastructure** > **Devices** from the main menu bar.

Using a Device Template

When adding a new RFID reader in Device Manager, select a previously defined template to auto-populate all fields specified in the template. See Adding a Reader to get started, and on the **Provide device details** dialog, click the edit (pencil) icon in the **Template** column.



Select the desired template and click **OK**.

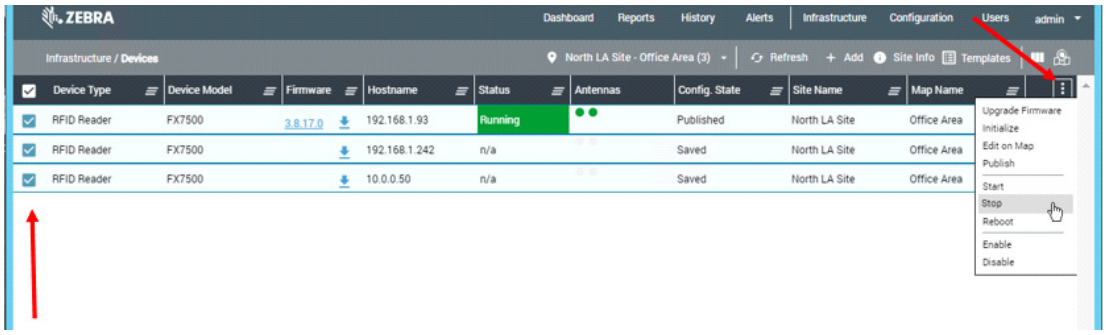


Note that the number of antennas (and other parameters not visible in this window) is automatically populated. After entering the Hostname click **Save** and continue with the procedure in Adding a Reader.

Bulk Operations

Actions on Readers

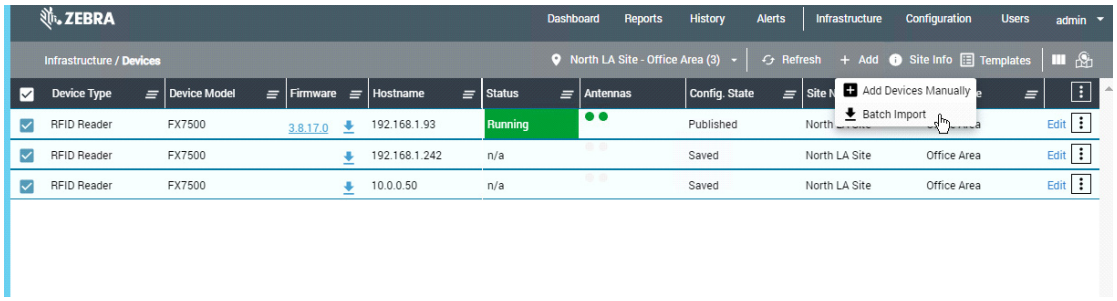
Clicking the action menu (three-dot icon) for a reader opens a menu of actions to perform on the reader. To perform the same action on multiple readers, select the checkbox for each reader in the set, click the action menu on the rightmost column header, and select the action. This applies the action to all selected readers.



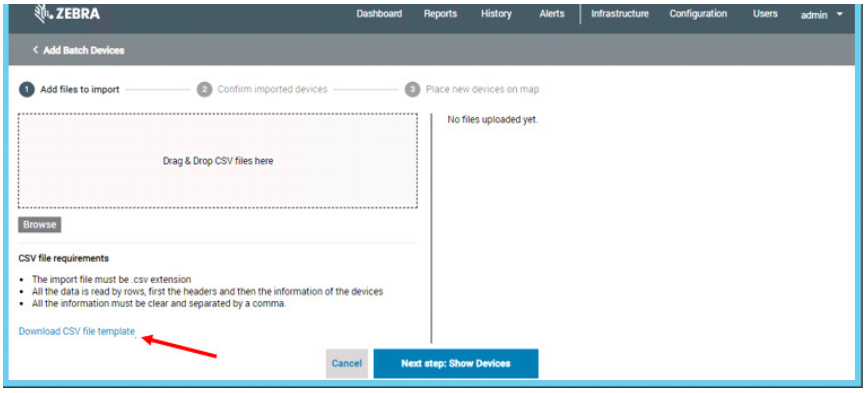
Batch Import

To use batch import to add many devices in Device Manager:

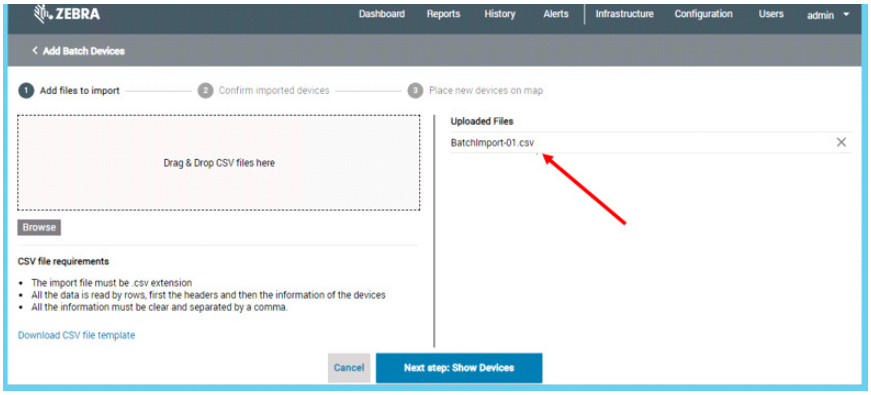
1. Click **+ Add** > **Batch Import**.



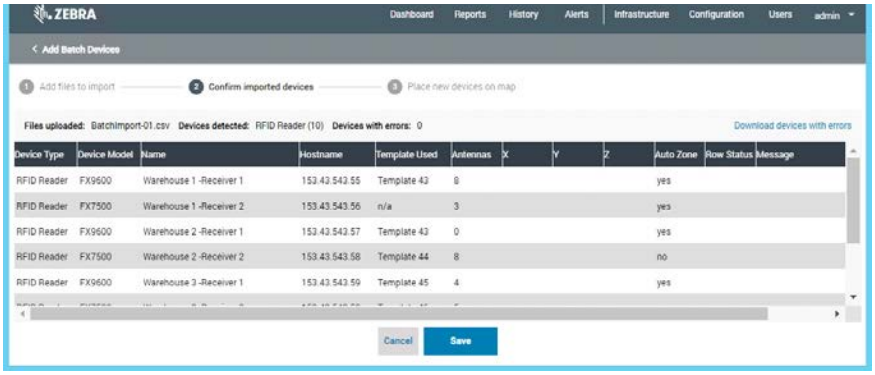
2. In the **Batch Import** dialog, drag and drop the import file into the indicated area. To determine the format required for an import file, click **Download CSV file template** to download a file template.



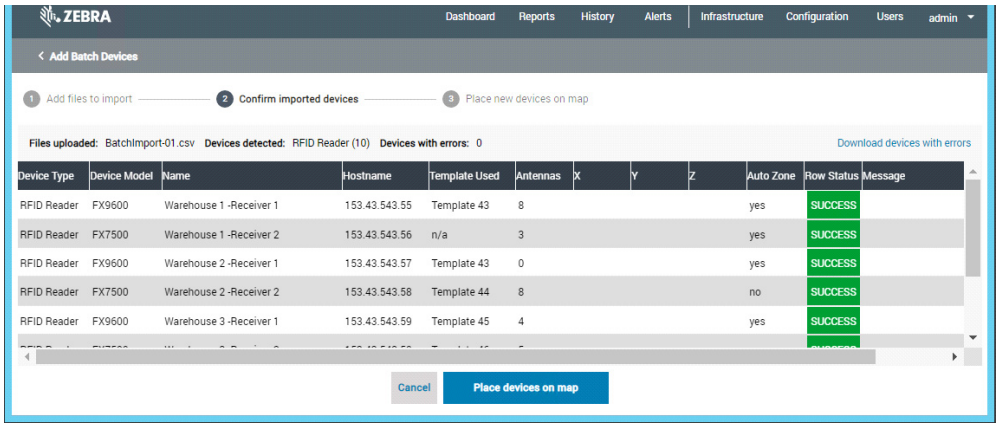
3. The import file displays under **Uploaded Files**. Click **Next step: Show Devices**.



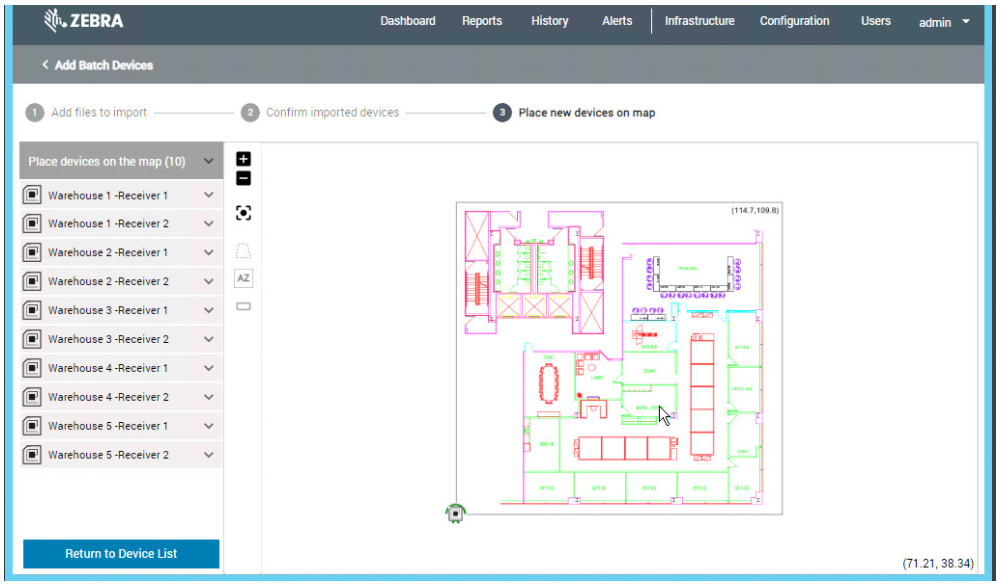
4. The readers in the imported file display. Click **Save** to add the readers to Device Manager.



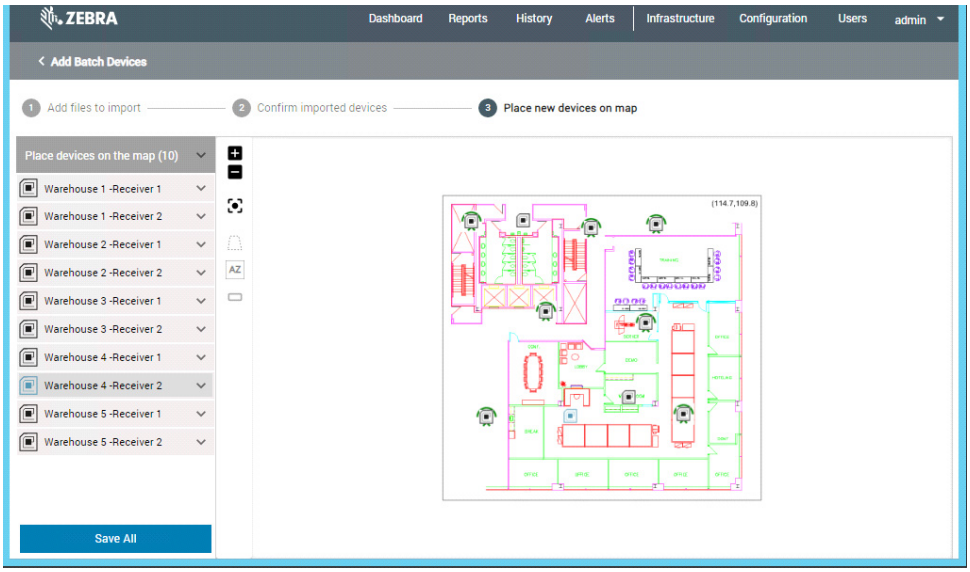
5. The **Row Status** column indicates whether the reader was added successfully. Click **Place devices on map**.



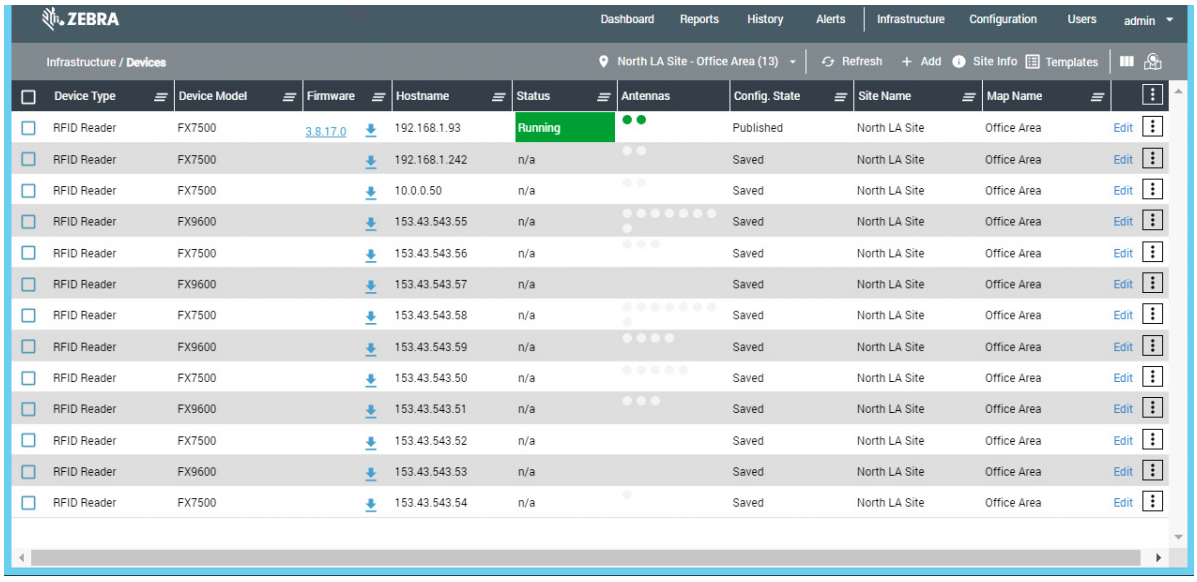
6. Drag each reader to the desired location on the map, or click the down arrow next to each reader name to edit x,y coordinates and define autogenerated zones.



7. Click **Save All**.



The imported readers display in the Device Manager.



Device Type	Device Model	Firmware	Hostname	Status	Antennas	Config. State	Site Name	Map Name	
RFID Reader	FX7500	3.8.17.0	192.168.1.93	Running		Published	North LA Site	Office Area	Edit
RFID Reader	FX7500		192.168.1.242	n/a		Saved	North LA Site	Office Area	Edit
RFID Reader	FX7500		10.0.0.50	n/a		Saved	North LA Site	Office Area	Edit
RFID Reader	FX9600		153.43.543.55	n/a		Saved	North LA Site	Office Area	Edit
RFID Reader	FX7500		153.43.543.56	n/a		Saved	North LA Site	Office Area	Edit
RFID Reader	FX9600		153.43.543.57	n/a		Saved	North LA Site	Office Area	Edit
RFID Reader	FX7500		153.43.543.58	n/a		Saved	North LA Site	Office Area	Edit
RFID Reader	FX9600		153.43.543.59	n/a		Saved	North LA Site	Office Area	Edit
RFID Reader	FX7500		153.43.543.50	n/a		Saved	North LA Site	Office Area	Edit
RFID Reader	FX9600		153.43.543.51	n/a		Saved	North LA Site	Office Area	Edit
RFID Reader	FX7500		153.43.543.52	n/a		Saved	North LA Site	Office Area	Edit
RFID Reader	FX9600		153.43.543.53	n/a		Saved	North LA Site	Office Area	Edit
RFID Reader	FX7500		153.43.543.54	n/a		Saved	North LA Site	Office Area	Edit