# Application Note:

*Upgrading Cellular Firmware Using AirVantage*

## Intellectual Property

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## Disclaimer

## Revision History

| Date | Rev. | Comments |
|------|------|----------|
| November 2022 | A | Initial document. |

For the latest revision of this product document, please check our online documentation at
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# Table of Contents

# Overview

This document provides instructions to upgrade cellular firmware on Sierra Wireless cellular or radio modules, used in Lantronix cellular routers, using their AirVantage portal. This includes the following:

- Obtaining device information

- Registering the device on the AirVantage portal

- Setting up the device for communication

- Upgrading the cellular firmware

# Obtaining Device Information

To register your device on the AirVantage portal you will need some device information such as model, IMEI number, and serial number. To get this information do the following:

1. Open Windows PowerShell.

2. Connect to the device using SSH with IP address of the device. Use the command:

   `ssh root@ipaddress`
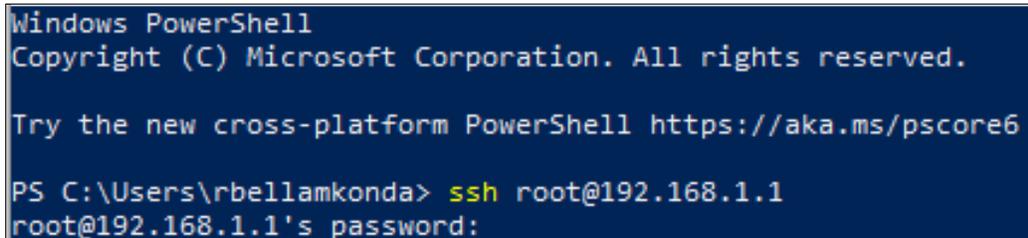
```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\rbellamkonda> ssh root@192.168.1.1
root@192.168.1.1's password:
```

3. To get the device details, use the command:

   *sendat ati 1*
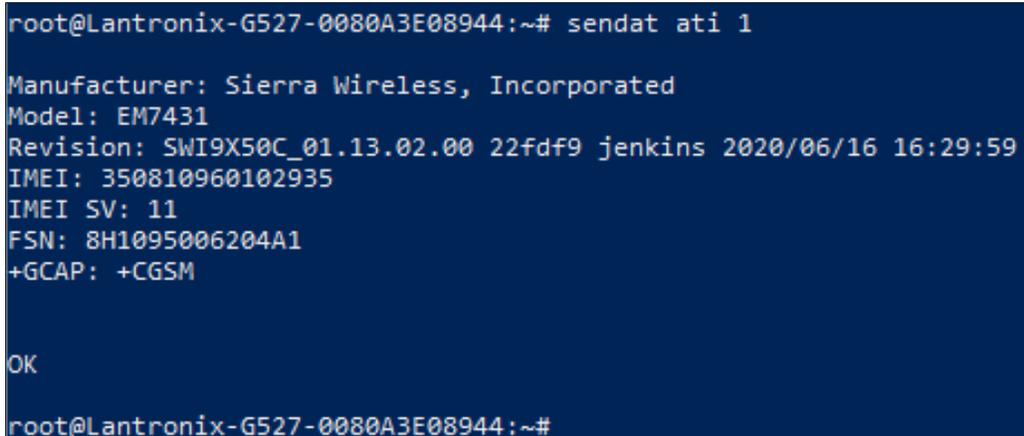
```
root@Lantronix-G527-0080A3E08944:~# sendat ati 1

Manufacturer: Sierra Wireless, Incorporated
Model: EM7431
Revision: SWI9X50C_01.13.02.00 22fdf9 jenkins 2020/06/16 16:29:59
IMEI: 350810960102935
IMEI SV: 11
FSN: 8H1095006204A1
+GCAP: +CGSM


OK

root@Lantronix-G527-0080A3E08944:~#
```

# Registering Your Device

To register your device on the AirVantage portal:

1. Log into the AirVantage portal at https://airvantage.net. The AirVantage portal dashboard displays.
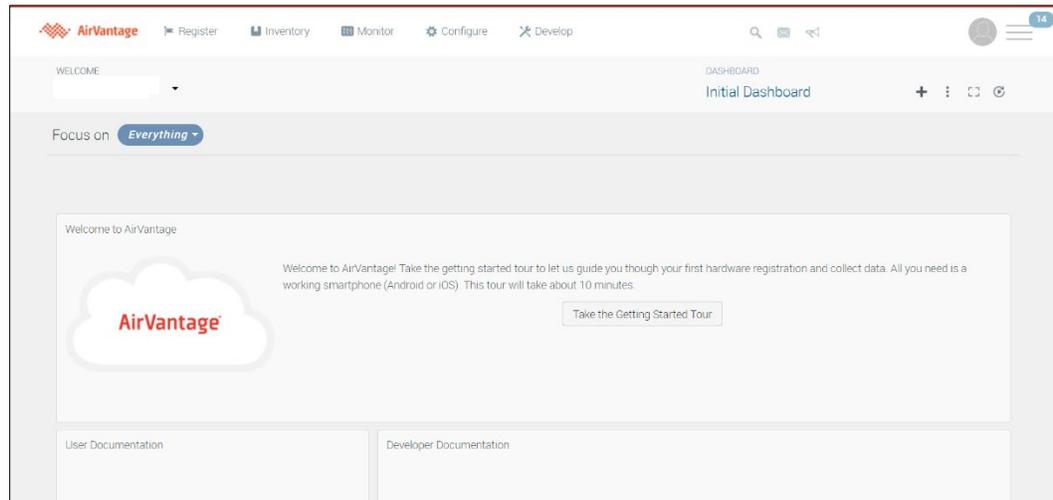


2. Click **Register**. The Registration page displays.
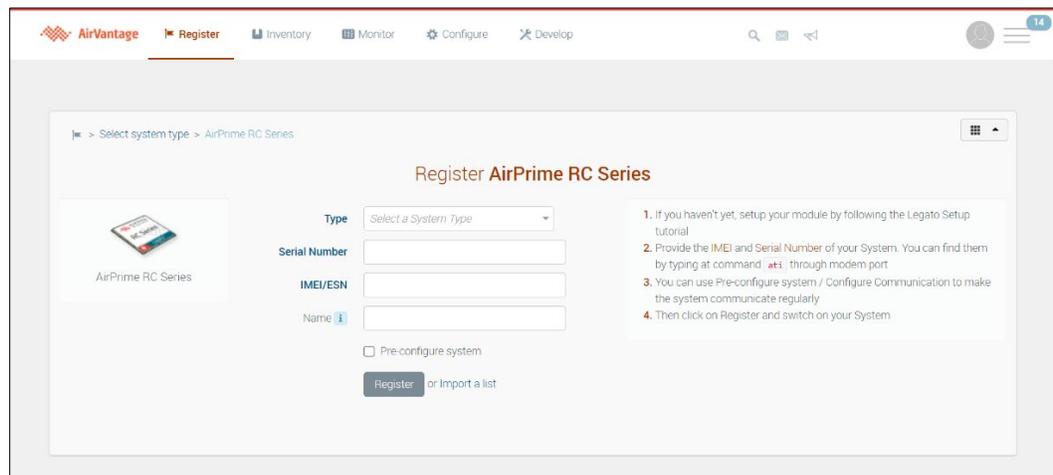


3. Click **Select system type**. The different systems display. Scroll through the page and click required system type to select it. The selected system type displays to the left, on the device registration page.
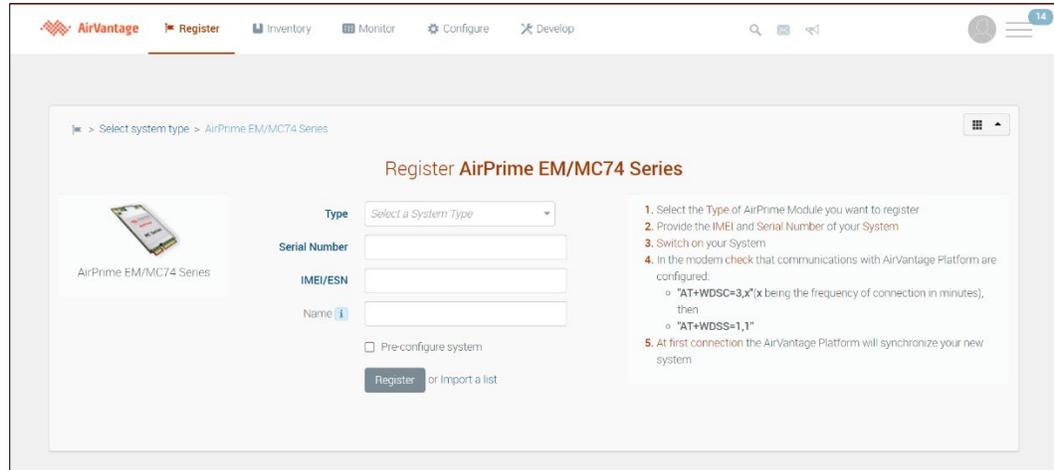
4. Complete the fields in the registration form:

- **Type** – Click in the **Type** field, then select the required model (see *Obtaining device information*).

- **Serial Number** – (see *Obtaining device information*)

- **IMEI/ESN** – (see *Obtaining device information*)

- **Name** – Nickname to identify device (optional).

5. Click **Register**. Your device displays in the **Registered systems** list once the registration is successful.
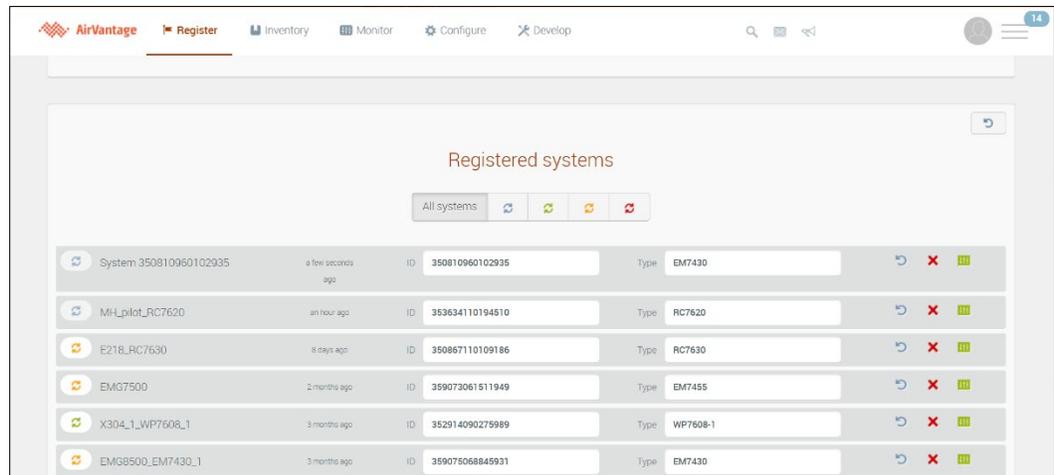
# Setting Up Device for Communication

You must insert a working SIM card into your device, and it must be able to register to network and data connection.

To setup the device for communication:

1. Open Windows PowerShell and connect to the device using ssh. Use the following command:

   ```
   ssh root@ipaddress
   ```

2. Stop cellular connection, kill eventsms and gps applications. Use the following commands:

   ```
   ifdown cellular

   ps | grep -i "event\|gps" | grep -v grep | awk '{print $1}' |
   xargs kill -9
   ```

3. Configure APN.

   - For devices using **Verizon** service:

     ```
     sendat 'AT+CGDCONT=3,"IP","VZWINTERNET"' 1
     ```

   - For devices using other services:

     ```
     sendat 'AT+CGDCONT=1,"IP","APN"' 1
     ```

4. Configure PDP.

   - For **RC and WP Series** devices using **Verizon**:

     ```
     sendat 'AT+WDSS=2,3' 1
     ```

   - For **RC and WP Series** devices using other services:

     ```
     sendat 'AT+WDSS=2,1' 1
     ```

   - For **EM Series** devices using **Verizon**:

     ```
     sendat 'AT+WDSS=0,"VZWINTERNET"'
     ```

   - For **EM Series** devices using other services:

     ```
     sendat 'AT+WDSS=0,"APN"'
     ```

5. Configure AirVantage FOTA parameters.

   `sendat 'AT+WDSC=1,0' 1`– User agreement for package download.

   `sendat 'AT+WDSC=2,0' 1` – User agreement for package installation.

   `sendat 'AT+WDSC=3,1' 1` – To configure polling mode frequency.

   `sendat 'AT+WDSC=4,1' 1` – Retry mode set to 1min.

   `sendat 'AT+WDSC=5,0' 1` – User agreement for device reboot.

   `sendat 'AT+WDSS=1,1' 1` – To manually initiate first connection.

# Upgrading Firmware

To upgrade the firmware on your device:

1. On the AirVantage Portal, click **Monitor** > **Systems**.
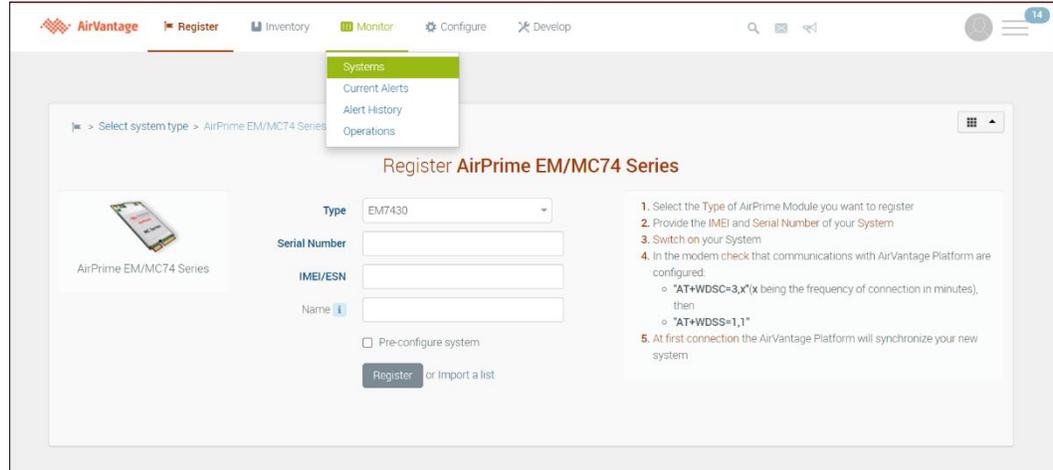


The **Systems** page displays.
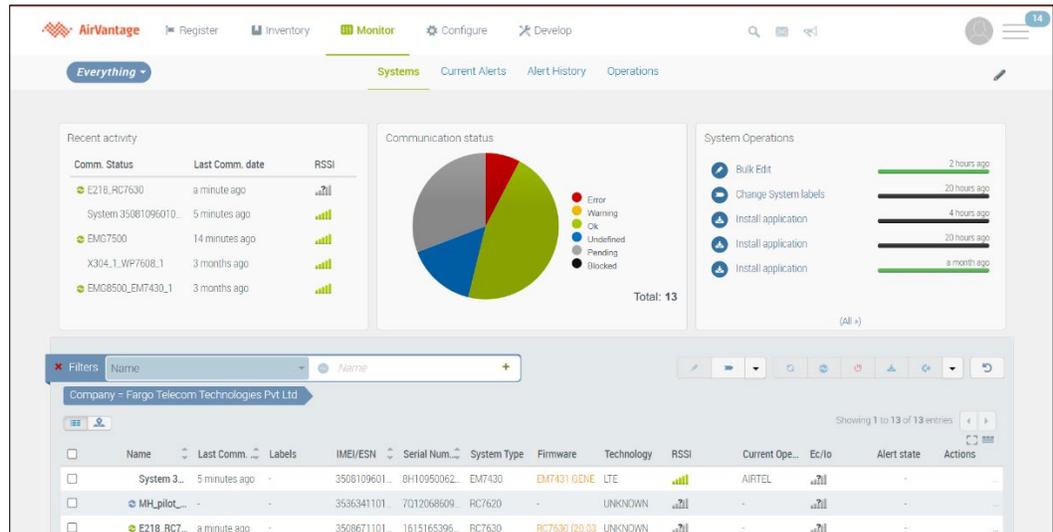


2. Select the device to be upgraded. The device information displays.

   *Note: The installed firmware version is displayed under **System Info**.*
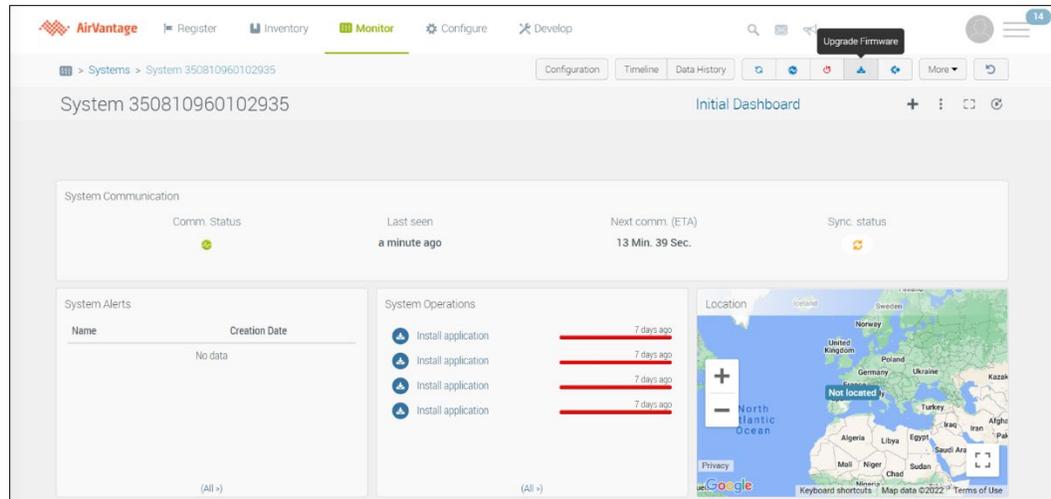
3. Click **Upgrade Firmware**. The **Upgrade Firmware** window displays.

   *Note: The option **Upgrade Firmware** or **Install Bundle** may appear depending on the system type selected.*
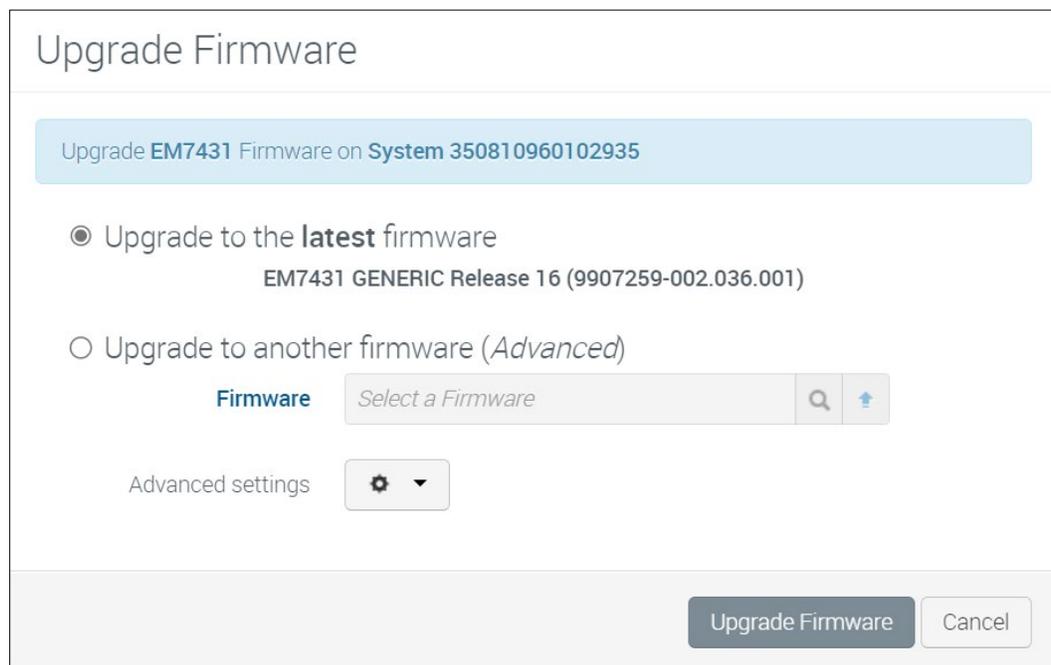


4. Select the firmware upgrade option. If you select **Upgrade to another firmware (Advanced)**, click the search icon to display the available firmware options and select the required firmware. The **Upgrade Firmware** window displays with the selected firmware.
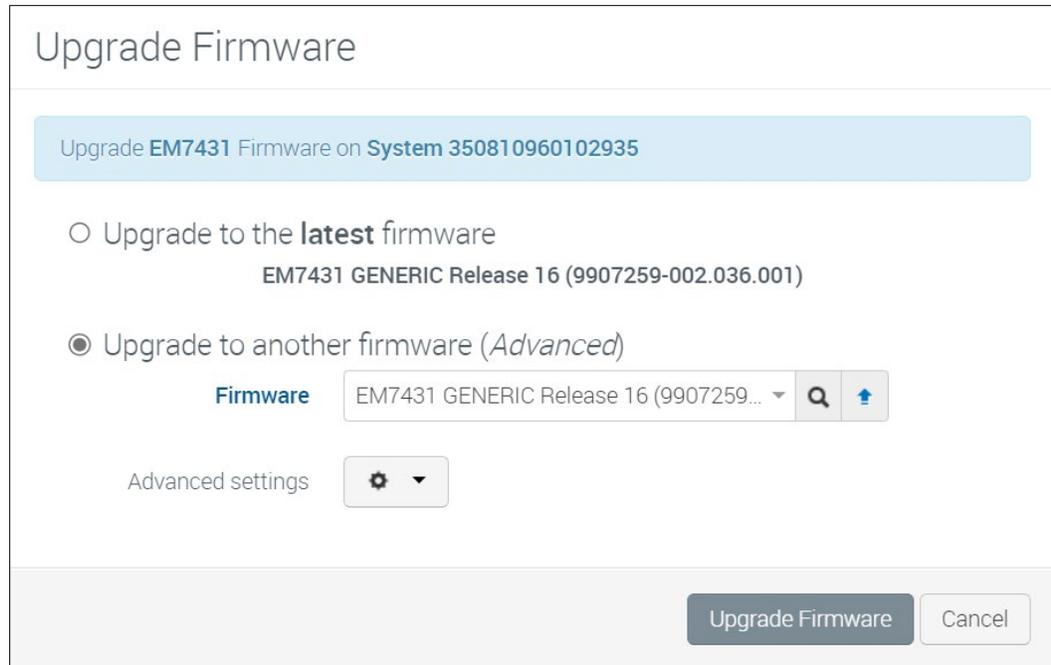
5. Click **Upgrade Firmware**. The progress is shown under **System Operations**. Green line displays next to **Install application** once firmware upgrade is successful.
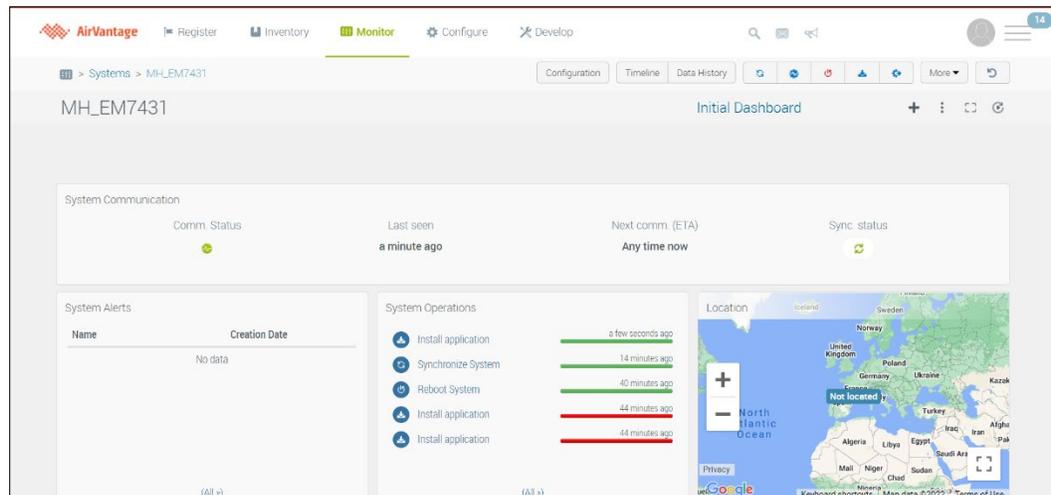


6. Click **Install application** to view installation details.

# Advanced Settings

You can use AirVantage Portal to update device firmware at a specified time and receive notification upon completion of the upgrade.

To schedule firmware update and enable notification:

1.  In the **Upgrade Firmware** window, click the arrow next to **Advanced settings**. The fields display.
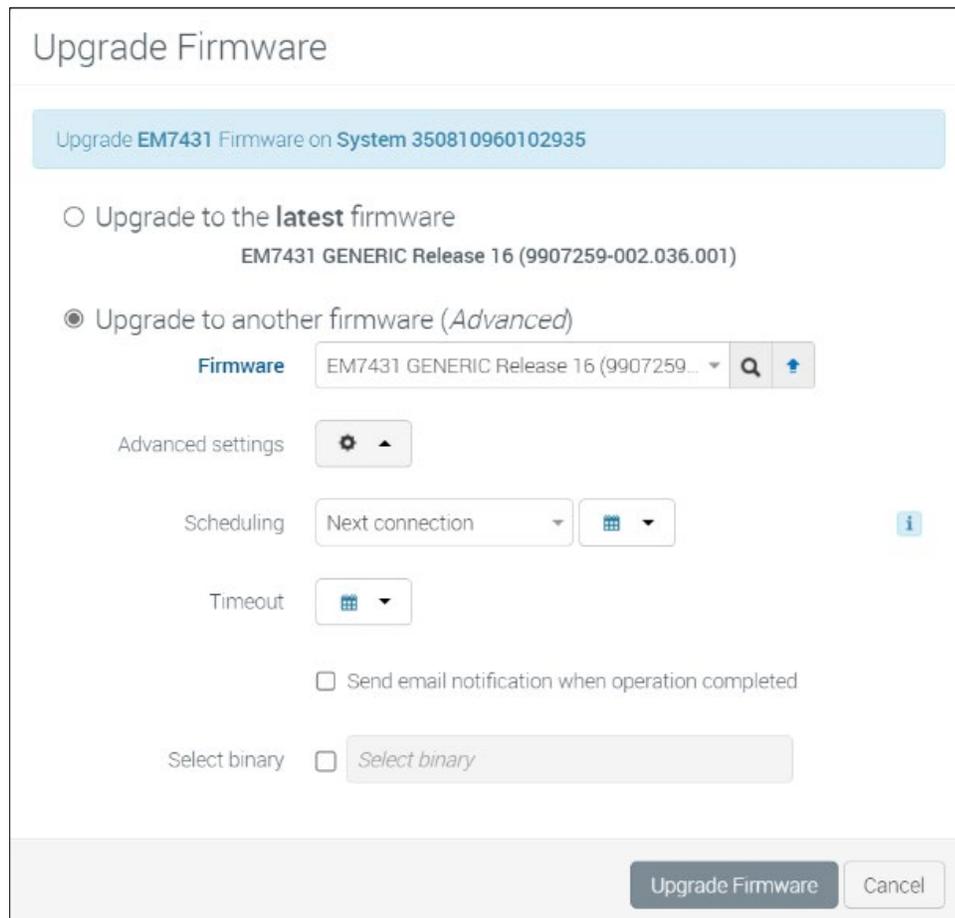
2.  In the **Scheduling** field, select **Next connection** and click the calendar tab next to it. Select the required date and time for **Next connection**. Once the connection is initiated, the firmware upgrade starts.

    Use the **Timeout** option to upgrade firmware within a specific time frame. If the device is unable to establish a connection, it stops trying to initiate a connection after the specified **Timeout**.

    If the firmware download or installation is still in progress at the specified **Timeout,** the process aborts.

3.  Select the **Send Email notification when operation completed** option to receive notification.

4.  Click **Upgrade Firmware**.