

Enterprise/Pro M200 Update Procedure



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FCC Compliance

This equipment has been tested and found to comply with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any change or modification to this product voids the user's authority to operate per FCC Part 15 Subpart A. Section 15.21 regulations.

Industry Canada Compliance

This device complies with Industry Canada License-exempt RSS standards. Operation is subject to the following two conditions: (1) this device may not cause interference and (2) this device must accept any interference, including interference that may cause undesired operation of the device. This device has been designed to operate with a variety of different gain (dBi). The reader maximum output power is set by the gain of the antenna. Using an antenna having a higher gain is strictly prohibited per regulations of Industry Canada. In addition, using the reader at a power exceeding the maximum output power for a given antenna is also strictly prohibited. The required antenna impedance is 50 ohms. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (EIRP) is not more than that required for successful communication.

Conformité d'Industrie Canada

Cet appareil est conforme aux normes RSS exemptées de licence d'Industrie Canada. L'opération est soumise aux deux conditions suivantes: (1) cet appareil ne doit pas provoquer d'interférence et (2) cet appareil doit accepter toute interférence, y compris les interférences susceptibles de provoquer un fonctionnement indésirable de l'appareil. Cet appareil a été conçu pour fonctionner avec une variété de gains différents (dBi). La puissance de sortie maximale du lecteur est définie par le gain de l'antenne. L'utilisation d'une antenne ayant un gain plus élevé est strictement interdite par règlement d'Industrie Canada. En outre, l'utilisation du lecteur à une puissance supérieure à la puissance de sortie maximale pour une antenne donnée est également strictement interdite. L'impédance d'antenne requise est de 50 ohms. Afin de réduire les interférences radio potentielles avec d'autres utilisateurs, le type d'antenne et son gain devraient être choisis de manière à ce que la puissance émise isotropiquement (EIRP) équivalente soit supérieure à celle requise pour une communication réussie.

Caution

Reader antennas should be positioned so that personnel in the area for prolonged periods may safely remain at least 31 cm (12.2 in) in an uncontrolled environment from the antenna's surface. See FCC OET Bulletin 56 "Hazards of radio frequency and electromagnetic fields" and Bulletin 65 "Human exposure to radio frequency electromagnetic fields."

Vorsicht

Reader Antennen sollten so positioniert werden, dass das Personal im Bereich über einen längeren Zeitraum kann sicher bleiben mindestens 31 cm (12.2 Zoll) entfernt von der Antenne Oberfläche, in einer unkontrollierten Umgebung. Siehe FCC OET Bulletin 56 "Gefahren der Radiofrequenz und elektromagnetische Felder" und Bulletin 65 "Human Exposition gegenüber hochfrequenten elektromagnetischen Feldern."

Revision History

| Version | Author | Date | Changes |
|------------|----------|------|------------------|
| 1.0 | J. Major | 2021 | Initial Document |

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CHAPTER 1 Introduction

The document describes the upgrade procedure for the M200 reader module contained within the SensThys Pro and Enterprise reader.

While the main upgrade commands are easy, we have also documented places where we have seen error messages and how to navigate those errors.

The output of this process is that your M200 module will be brought fully up to date with the latest offerings from SensThys.

Chapter 2 Install

Step 1 Find the reader IP address

Launch the SensThys RFID Console, which can be found at SensThys.com. You can then easily find the IP Address.

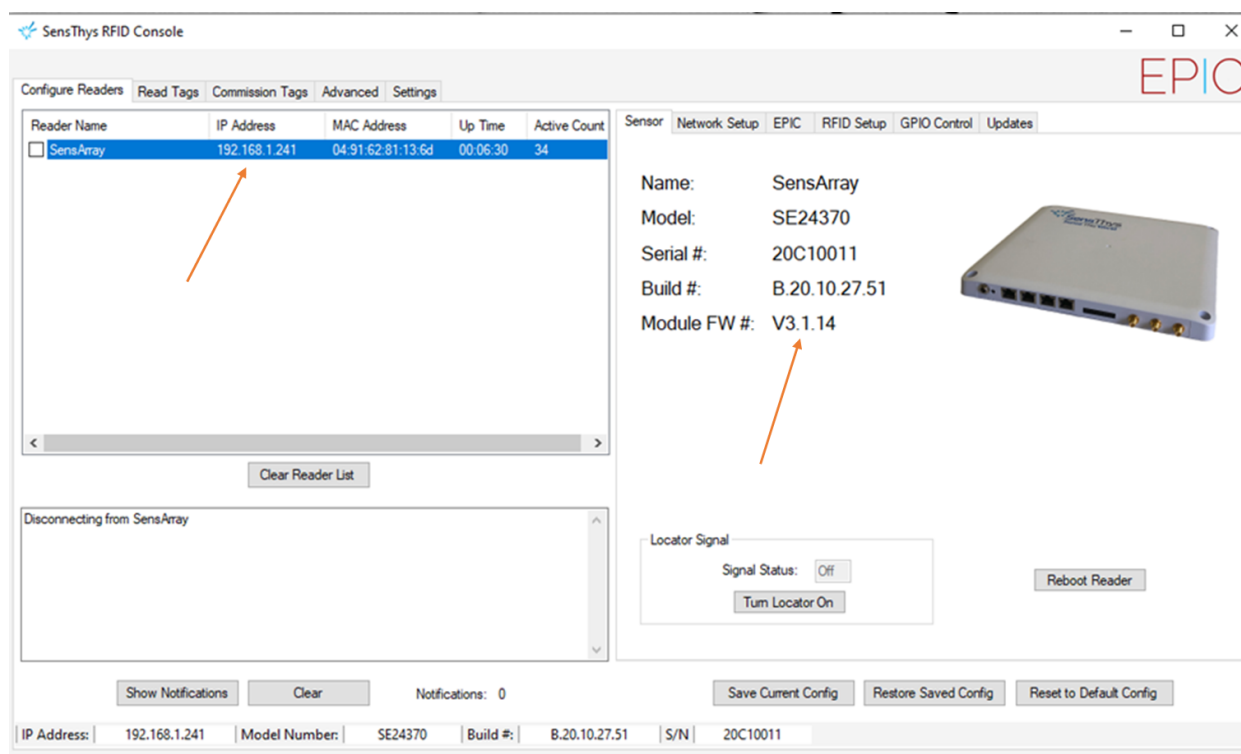


Figure 1 The home screen of the RFID Console .

First, select the reader you are going to work upon. Once you selected it, you should note some information.

The first is simply to record the IP address. In our example here, the IP address is 192.168.1.214.

Next, take note of the module FW#, here it is V3.1.14.

Right click on the reader, and then select the command to disconnect.

Step 2 Launch a CMD window

If you are unsure of CMD commands, we are specific about commands here, but suggest that you consult reference materials.

Navigate to the folder that contains the updater files using the CD command.

Use the DIR command to verify the the firmware and installer are both present. The firmware is the .bin file, the installer is the .exe file.

```
C:\SensThys>cd Releases

C:\SensThys\Releases>cd M200 Firmware

C:\SensThys\Releases\M200 Firmware>dir
Volume in drive C is OS
Volume Serial Number is 5E80-5939

Directory of C:\SensThys\Releases\M200 Firmware

03/15/2021  02:19 PM    <DIR>          .
03/15/2021  02:19 PM    <DIR>          ..
06/26/2020  01:16 PM             2,769,920 m200updater.exe
03/11/2021  05:35 PM             204,800 v4.2.0.bin
                2 File(s)          2,974,720 bytes
                2 Dir(s)  125,409,968,128 bytes free

C:\SensThys\Releases\M200 Firmware>
```

Figure 2 Navigate to the folder that has the updater and the firmware file.

Next, type in m200updater.exe

```
03/15/2021 02:19 PM <DIR> .
03/15/2021 02:19 PM <DIR> ..
06/26/2020 01:16 PM      2,769,920 m200updater.exe
03/11/2021 05:35 PM      204,800 v4.2.0.bin
          2 File(s)      2,974,720 bytes
          2 Dir(s)  125,409,968,128 bytes free

C:\SensThys\Releases\M200 Firmware>m200updater.exe

Usage: m200updater.exe {--dryrun|--program} filename IPAddress [PortNumber]

C:\SensThys\Releases\M200 Firmware>
```

Figure 3 Enter m200updater.exe

This provides the usage rules for the updater.

The general idea is that you will provide three pieces of information - first, is this a practice run or programming run, the filename of the M200 firmware file (in this case, v4.2.0), and the IP address of the reader (recall we got this very early on with the console).

Next, let's do a dryrun - this will help us figure out certain errors before actually interacting with the reader.

The command is...

M200updater.exe --dryrun filename IPAddress

This dryrun exposes errors. Here we see the filename was wrong, specifically, the .bin was left off of the filename.

```
Usage: m200updater.exe [--dryrun|--program] filename IPAddress [PortNumber]

C:\SensThys\Releases\M200 Firmware>m200updater.exe --dryrun v4.2.0 192.168.1.241

Programming RF Module firmware:
  Dry run only
  Firmware image file: v4.2.0
  URI: 192.168.1.241:5000

File failed to open or does not exist
Did not read code file correctly

C:\SensThys\Releases\M200 Firmware>m200updater.exe --dryrun v4.2.0.bin 192.168.1.241
```

Figure 4 Attempting a dry run of the updater

If all entire command is correct, we see the program running a simulated install.

```
Programming RF Module firmware:
  Dry run only
  Firmware image file: v4.2.0.bin
  URI: 192.168.1.241:5000

Firmware file (v4.2.0.bin) successfully read.
Firmware file is valid
File Firmware Version: V4.2.0
Connected to reader.

Current baud rate: 921600
Successfully set baud rate to 115200 baud

Current firmware version: V3.1.14
Entering InitiateFirmwareUpdate
Waiting for module to reset & initialize
Sending Update_EnterUpdateMode packet.
  EnterUpdateMode got Begin Packet
  EnterUpdateMode got FirmwareUpdateCfg Packet
  EnterUpdateMode got End Packet
  EnterUpdateMode got Status Packet
Successfully Entered Update Mode

0X00404000 *****
0X00405000 *****
0X00406000 *****
0X00407000 *****
0X00408000 *****
0X00409000 *****
0X0040A000 *****
```

Figure 5 Running a successful dry run of the updater.

Here is what this looks like after the dryrun. It looks like an install was done, but in fact the module firmware is unchanged.

```
0X0042F000 *****
0X00430000 *****
0X00431000 *****
0X00432000 *****
0X00433000 *****
0X00434000 *****
0X00435000 *****

All code data successfully sent to module.
Sending Update_Complete packet.
Dry run (testMode = true) succeeded.
Resetting Module
Waiting for re-initialization . . . . .
Post-update firmware version: V3.1.14
Successfully reset baud rate to 921600 baud

Module firmware for reader 192.168.1.241 has been successfully updated.

C:\SensThys\Releases\M200 Firmware>
```

Figure 6 After the dry run. Note that the FW version has not been updated.

So next we actively program. Everything looks like the dry run, except it is clearly a “Real Programming Run”.

```
C:\SensThys\Releases\M200 Firmware>m200updater.exe --program v4.2.0.bin 192.168.1.241

Programming RF Module firmware:
  Real programming run ←
  Firmware image file: v4.2.0.bin
  URI: 192.168.1.241:5000

Firmware file (v4.2.0.bin) successfully read.
Firmware file is valid
File Firmware Version: V4.2.0
Connected to reader.

Current baud rate: 921600
Successfully set baud rate to 115200 baud

Current firmware version: V3.1.14
Entering InitiateFirmwareUpdate
Waiting for module to reset & initialize
Sending Update_EnterUpdateMode packet.
  EnterUpdateMode got Begin Packet
  EnterUpdateMode got FirmwareUpdateCfg Packet
  EnterUpdateMode got End Packet
  EnterUpdateMode got Status Packet
Successfully Entered Update Mode

0X00404000 *****
0X00405000 *****
0X00406000 *****
0X00407000 *****
```

Figure 7 A real programming run.

Step 3 Verify Update

Finally, return to the console, click on the reader and verify operation. No errors! By inspecting the Module FW#, we see a successful update to V4.2.0! Good job!

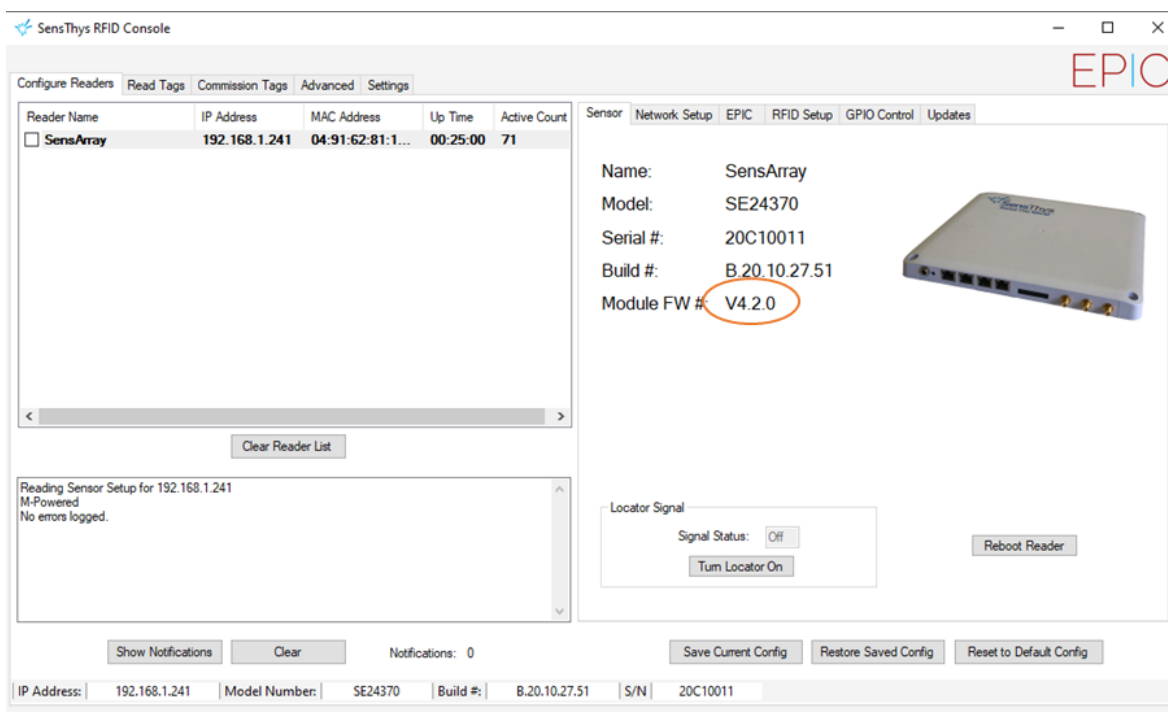


Figure 8 Verifying reader firmware update has been completed.