

Extreme Update Procedure

SENSX EXTREME





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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	Jan 2021	Initial Document
1.1	J. Major	May 2021	Add resolution for clock issue
1.2	J. Major	August 2021	Using the RFID console to set clock
1.3	N.Mitchell	November 2021	Updated copyright
1.4	N.Mitchell	March 2022	Added checking for internet connection & cleaning certs



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CHAPTER 1 Introduction

The document describes the upgrade procedure for the SensThys Extreme reader.

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

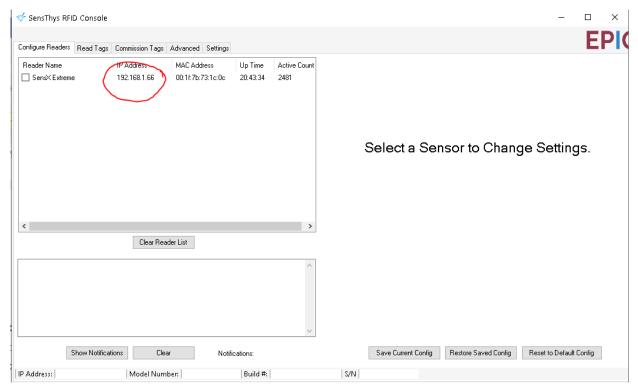
The output of this process is that your reader will be brought fully up to date with the latest Extreme software offered by SensThys.

Chapter 2 Install

Step 1 Find the reader IP address

First find the IP address of the Extreme. This can be done by using a program that listens to UDP broadcast message. If you have one, listen to port 3988. You will be able to see the "heartbeat" of your Extreme. From that heartbeat, find the IP address.

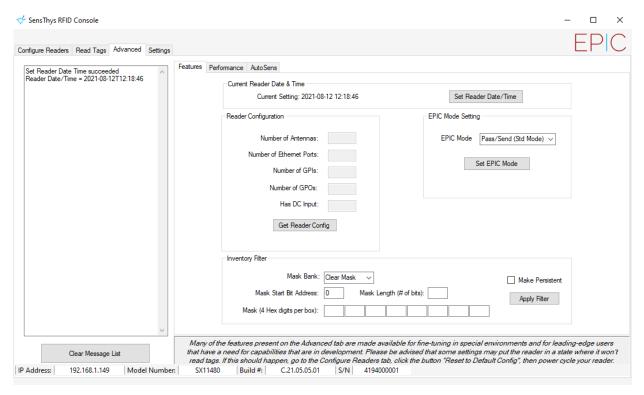
Otherwise launch the SensThys RFID Console, which can be found at SensThys.com. You can then easily find the IP Address.



Step 1.a Setting the time on your Extreme

Go to the Advanced tab and select Features. Hit the "Set Reader Date/Time" button. In the column on the left, you'll see a confirmation that the reader time has been successfully set.





Step 2 Getting into your Extreme

Open the Command Prompt



Type **ssh root@IP Address**. The IP Address is the address found in the RFID Console or your listener.



Command Prompt Microsoft Windows [Version 10.0.19041.685] (c) 2020 Microsoft Corporation. All rights reserved. C:\Users\Jo Major>ssh root@192.168.1.66

When you see "Are you sure...." type in yes.

```
Command Prompt - ssh root@192.168.1.68

Microsoft Windows [Version 10.0.19041.685]

(c) 2020 Microsoft Corporation. All rights reserved.

C:\Users\Jo Major>ssh root@192.168.1.68

The authenticity of host '192.168.1.68 (192.168.1.68)' can't be established.

RSA key fingerprint is SHA256:POPHWeXk1QoHkEvhP/8uEzzvEKfgCr0D4n87UjjqS8o.

Are you sure you want to continue connecting (yes/no)? yes
```

Enter the password. The password is sensthys 1701

NOTE: the password will not show, in any way, as you are entering it. This is what you'll see when successful.

```
Microsoft Windows [Version 10.0.19041.685]
(c) 2020 Microsoft Corporation. All rights reserved.

C:\Users\Jo Major>ssh root@192.168.1.68

The authenticity of host '192.168.1.68 (192.168.1.68)' can't be established.

RSA key fingerprint is SHA256:POPHWeXk1QoHkEvhP/8uEzzvEKfgCr0D4n87UjjqS8o.

Are you sure you want to continue connecting (yes/no)? yes

Warning: Permanently added '192.168.1.68' (RSA) to the list of known hosts.

root@192.168.1.68's password:

root@pico-imx6:~#
```



Step 3 Update Preparation

Check that the reader can access the internet (the fact your PC is connected to the internet is not sufficient). To do this type the following from the shell prompt on the reader:

ping -c4 google.com

If the reader cannot contact the network the user will see an error message indicating 100% packet loss. Solution:

- Make sure the wired LAN and/or Wi-Fi is set up properly and is connected to a router that can access the Internet.
- If this is ok, then the problem is likely to be with your DNS server or Gateway address. Find out IP addresses for these and input them into the Network tab as a fixed network setup rather than automatic. Retry the ping test.

After you have confirmed network access from the reader, type in apt-get update and enter.

```
Microsoft Windows [Version 10.0.19041.685]
(c) 2020 Microsoft Corporation. All rights reserved.

C:\Users\Jo Major>ssh root@192.168.1.68
The authenticity of host '192.168.1.68 (192.168.1.68)' can't be established.
RSA key fingerprint is SHA256:POPHWeXk1QoHkEvhP/8uEzzvEKfgCr0D4n87UjjqS8o.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '192.168.1.68' (RSA) to the list of known hosts.
root@192.168.1.68's password:
root@pico-imx6:~# apt-get update
```

This will launch a series of actions working through the various files of the Extreme. If all goes well, you should see the following screen.



```
OpenSSH SSH client
C:\Users\Jo Major>ssh root@192.168.1.68
The authenticity of host '192.168.1.68 (192.168.1.68)' can't be established.
RSA key fingerprint is SHA256:POPHWeXk1QoHkEvhP/8uEzzvEKfgCr0D4n87UjjqS8o.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '192.168.1.68' (RSA) to the list of known hosts.
oot@192.168.1.68's password:
oot@pico-imx6:~# apt-get update
Ign:1 https://www.sensthys.com extremepackage/ InRelease
Ign:2 https://www.sensthys.com fwpackage/ InRelease
Ign:3 https://www.sensthys.com bleserver/ InRelease
Ign:4 https://www.sensthys.com python3/ InRelease
Ign:5 https://www.sensthys.com extremepackage/ Release
Ign:6 https://www.sensthys.com fwpackage/ Release
Ign:7 https://www.sensthys.com bleserver/ Release
Ign:8 https://www.sensthys.com python3/ Release
Ign:9 https://www.sensthys.com extremepackage/ Packages.diff/Index
Ign:10 https://www.sensthys.com extremepackage/ Translation-en
Ign:11 https://www.sensthys.com fwpackage/ Packages.diff/Index
Ign:12 https://www.sensthys.com fwpackage/ Translation-en
Ign:13 https://www.sensthys.com bleserver/ Packages.diff/Index
Ign:14 https://www.sensthys.com bleserver/ Translation-en
Ign:15 https://www.sensthys.com python3/ Packages.diff/Index
Ign:16 https://www.sensthys.com python3/ Translation-en
Ign:17 https://www.sensthys.com extremepackage/ Packages
Ign:10 https://www.sensthys.com extremepackage/ Translation-en
Ign:18 https://www.sensthys.com fwpackage/ Packages
Ign:12 https://www.sensthys.com fwpackage/ Translation-en
Ign:19 https://www.sensthys.com bleserver/ Packages
Ign:14 https://www.sensthys.com bleserver/ Translation-en
Ign:20 https://www.sensthys.com python3/ Packages
Ign:16 https://www.sensthys.com python3/ Translation-en
Ign:17 https://www.sensthys.com extremepackage/ Packages
Ign:10 https://www.sensthys.com extremepackage/ Translation-en
Ign:18 https://www.sensthys.com fwpackage/ Packages
Ign:12 https://www.sensthys.com fwpackage/ Translation-en
Ign:19 https://www.sensthys.com bleserver/ Packages
Ign:14 https://www.sensthys.com bleserver/ Translation-en
Ign:20 https://www.sensthys.com python3/ Packages
Ign:16 https://www.sensthys.com python3/ Translation-en
Get:17 https://www.sensthys.com extremepackage/ Packages [366 B]
Ign:10 https://www.sensthys.com extremepackage/ Translation-en
Hit:18 https://www.sensthys.com fwpackage/ Packages
Ign:12 https://www.sensthys.com fwpackage/ Translation-en
Hit:19 https://www.sensthys.com bleserver/ Packages
Ign:14 https://www.sensthys.com bleserver/ Translation-en
Hit:20 https://www.sensthys.com python3/ Packages
Ign:16 https://www.sensthys.com python3/ Translation-en
etched 366 B in 1min 24s (4 B/s)
Reading package lists... Done
```

The successful response to the apt-get update command. If seen, please go to Step 4. Occasionally, this process will show error messages. you'll see that the reader has duplicate names in the file system. We list the errors know to us, and how to resolve them. Please contact us if you come across an error not discussed here.



Step 3.1 Fixing the "Configured Multiple Times"

```
Fetched 366 B in 1min 24s (4 B/s)

Reading package lists... Done

W: Target Packages (Packages) is configured multiple times in /etc/apt/sources.list:2 and /etc/apt/sources.list:5

w: Target Translations (en) is configured multiple times in /etc/apt/sources.list:2 and /etc/apt/sources.list:5

Y: Target Packages (Packages) is configured multiple times in /etc/apt/sources.list:2 and /etc/apt/sources.list:5

W: Target Translations (en) is configured multiple times in /etc/apt/sources.list:2 and /etc/apt/sources.list:5

root@pico-imx6:~#
```

Here we see the "configured multiple times" message.

To start, please type:

cd /etc/apt

```
This changes the targeted directory and should return this screen.
```

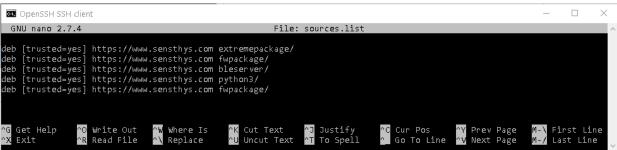
```
w: Target Packages (Packages) is configured multipw: Target Translations (en) is configured multipw: Target Packages (Packages) is configured multipw: Target Translations (en) is configured multiproot@pico-imx6:~# cd /etc/apt root@pico-imx6:/etc/apt#
```



Next type in nano sources.list

```
Ign:16 https://www.sensthys.com python3/ Translation-
Fetched 366 B in 1min 24s (4 B/s)
Reading package lists... Done
W: Target Packages (Packages) is configured multiple
W: Target Translations (en) is configured multiple
W: Target Packages (Packages) is configured multiple
W: Target Translations (en) is configured multiple
Troot@pico-imx6:~# cd /etc/apt
root@pico-imx6:/etc/apt# nano sources.list
```

This will show you a list. Examining the following list, you'll see that the second and fifth lines are identical.



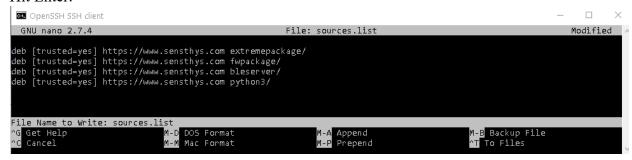
Using your arrow keys to erase the bottom line. That should give you this screen. On this screen please Exit using ^X as shown in the bottom left.





That will bring you to this screen. Note the line that says "File Name to Write: sources.list"

Hit Enter.



Now let's verify that the issue has been resolved.



Please enter apt-get update, and you should now see your problem resolved.

```
oot@pico-imx6:/etc/apt# apt-get update
Ign:1 https://www.sensthys.com extremepackage/ InRelease
Ign:2 https://www.sensthys.com fwpackage/ InRelease
gn:3 https://www.sensthys.com bleserver/ InRelease
Ign:4 https://www.sensthys.com python3/ InRelease
Ign:5 https://www.sensthys.com extremepackage/ Release
gn:6 https://www.sensthys.com fwpackage/ Release
Ign:7 https://www.sensthys.com bleserver/ Release
Ign:8 https://www.sensthys.com python3/ Release
Ign:9 https://www.sensthys.com extremepackage/ Packages.diff/Index
[gn:10 https://www.sensthys.com extremepackage/ Translation-en
Ign:11 https://www.sensthys.com fwpackage/ Packages.diff/Index
Ign:12 https://www.sensthys.com fwpackage/ Translation-en
Ign:13 https://www.sensthys.com bleserver/ Packages.diff/Index
Ign:14 https://www.sensthys.com bleserver/ Translation-en
[gn:15 https://www.sensthys.com python3/ Packages.diff/Index
Ign:16 https://www.sensthys.com python3/ Translation-en
Ign:17 https://www.sensthys.com extremepackage/ Packages
Ign:10 https://www.sensthys.com extremepackage/ Translation-en
[gn:18 https://www.sensthys.com fwpackage/ Packages
Ign:12 https://www.sensthys.com fwpackage/ Translation-en
gn:19 https://www.sensthys.com bleserver/ Packages
Ign:14 https://www.sensthys.com bleserver/ Translation-en
Ign:20 https://www.sensthys.com python3/ Packages
Ign:16 https://www.sensthys.com python3/ Translation-en
Ign:17 https://www.sensthys.com extremepackage/ Packages
Ign:10 https://www.sensthys.com extremepackage/ Translation-en
Ign:18 https://www.sensthys.com fwpackage/ Packages
Ign:12 https://www.sensthys.com fwpackage/ Translation-en
Ign:19 https://www.sensthys.com bleserver/ Packages
[gn:14 https://www.sensthys.com bleserver/ Translation-en
Ign:20 https://www.sensthys.com python3/ Packages
Ign:16 https://www.sensthys.com/python3/ Translation-en
Hit:17 https://www.sensthys.com extremepackage/ Packages
Ign:10 https://www.sensthys.com extremepackage/ Translation-en
Hit:18 https://www.sensthys.com fwpackage/ Packages
Ign:12 https://www.sensthys.com fwpackage/ Translation-en
Hit:19 https://www.sensthys.com bleserver/ Packages
Ign:14 https://www.sensthys.com bleserver/ Translation-en
Hit:20 https://www.sensthys.com python3/ Packages
Ign:16 https://www.sensthys.com python3/ Translation-en
Reading package lists... Done
oot@pico-imx6:/etc/apt#
```



Step 3.2 Fixing the Certificates Issue

If you see a series of errors discussion "certificates", then your reader needs to have its clock set. The Extreme does not have an onboard clock with battery backup. When the Extreme boots up, if there is nothing in the environment that "sets" the clock of the Extreme, the clock will be far enough off that the validation of certificates involved with the Apt-Get process doesn't work.

Let's first figure out if this is the issue – starting with requesting the reader tell us the date and time. Two notes – the time is expressed in a 24h format and the time is UTC. Coordinated Universal Time (UTC) is 7 hours ahead of Pacific Time.

Request time and date

root@pico-imx6:~# date Wed May 12 16:23:49 UTC 2021

Now set the date and time. Please note the exact format of this command. Set this to the actual date and time.

root@pico-imx6:~# date "2021-05-12 16:23:00" Wed May 12 16:23:00 UTC 2021

Verify that the date and time are now correct.

root@pico-imx6:~# date Wed May 12 16:23:03 UTC 2021

Next it is advised to clean up the certificate list. This is done with the following command.

root@pico-imx6: sed -i.bak "s/^mozilla\/DST_Root_CA_X3.crt\$/\!mozilla\/DST_Root_CA_X3.crt/g" /etc/ca-certificates.conf && update-ca-certificates

A correct response to this command should show 1 certificate removed.

Please enter **apt-get update**, and you should now see your problem resolved.



```
oot@pico-imx6:/etc/apt# apt-get update
[gn:1 https://www.sensthys.com extremepackage/ InRelease
Ign:2 https://www.sensthys.com fwpackage/ InRelease
Ign:3 https://www.sensthys.com bleserver/ InRelease
gn:4 https://www.sensthys.com/python3/ InRelease
Ign:5 https://www.sensthys.com extremepackage/ Release
Ign:6 https://www.sensthys.com fwpackage/ Release
gn:7 https://www.sensthys.com bleserver/ Release
gn:8 https://www.sensthys.com python3/ Release
gn:9 https://www.sensthys.com extremepackage/ Packages.diff/Index
Ign:10 https://www.sensthys.com extremepackage/ Translation-en
gn:11 https://www.sensthys.com fwpackage/ Packages.diff/Index
ign:12 https://www.sensthys.com fwpackage/ Translation-en
gn:13 https://www.sensthys.com bleserver/ Packages.diff/Index
Ign:14 https://www.sensthys.com bleserver/ Translation-en
Ign:15 https://www.sensthys.com/python3/Packages.diff/Index
[gn:16 https://www.sensthys.com python3/ Translation-en
Ign:17 https://www.sensthys.com extremepackage/ Packages
[gn:10 https://www.sensthys.com extremepackage/ Translation-en
Ign:18 https://www.sensthys.com fwpackage/ Packages
Ign:12 https://www.sensthys.com fwpackage/ Translation-en
ign:19 https://www.sensthys.com bleserver/ Packages
Ign:14 https://www.sensthys.com bleserver/ Translation-en
Ign:20 https://www.sensthys.com python3/ Packages
Ign:16 https://www.sensthys.com/python3/ Translation-en
Ign:17 https://www.sensthys.com extremepackage/ Packages
Ign:10 https://www.sensthys.com extremepackage/ Translation-en
gn:18 https://www.sensthys.com fwpackage/ Packages
Ign:12 https://www.sensthys.com fwpackage/ Translation-en
Ign:19 https://www.sensthys.com bleserver/ Packages
Ign:14 https://www.sensthys.com bleserver/ Translation-en
Ign:20 https://www.sensthys.com python3/ Packages
Ign:16 https://www.sensthys.com python3/ Translation-en
Hit:17 https://www.sensthys.com extremepackage/ Packages
Ign:10 https://www.sensthys.com extremepackage/ Translation-en
Hit:18 https://www.sensthys.com fwpackage/ Packages
Ign:12 https://www.sensthys.com fwpackage/ Translation-en
Hit:19 https://www.sensthys.com bleserver/ Packages
Ign:14 https://www.sensthys.com bleserver/ Translation-en
Hit:20 https://www.sensthys.com python3/ Packages
Ign:16 https://www.sensthys.com/python3/ Translation-en
Reading package lists... Done
oot@pico-imx6:/etc/apt#
```



Step 4 Update the Reader

Now enter apt-get install extremepackage

```
Ign:12 Inttps://www.sensthys.com bleserver/ Parkages
Hit:19 https://www.sensthys.com bleserver/ Parkages
Ign:14 https://www.sensthys.com python3/ Parkages
Hit:20 https://www.sensthys.com python3/ Parkages
Ign:16 https://www.sensthys.com python3/ Translation-en
Reading parkage lists... Done
root@pico-imx6:/etc/apt# apt-get install extremeparkage
```

Step 4.1 Fixing the dpkg error

If the install process provides responds with "dpkg was interrupted, you must manually run "dpkg – configure -a" because the reader has picked up a dpkg bug.

If you didn't see this message, please proceed to 4.2

If you did see this message, please enter dpkg - configure -a

```
Section: custom
Installed-Size: 32000
Maintainer: www.sensthys.com
Architecture: all
Version: 1.1.37
Description: Extreme software core services, web interface updates, LLRP support, AutoSens, & BLE hooks
root@pico-imx6:/etc/apt# dpkg --configure -a
root@pico-imx6:/etc/apt#
```

March 2022



Step 4.2 Installing extremepackage

Please type in apt-get install extremepackage.

When you see "Do you want to continue", please enter Y.

```
Description: Extreme software core services, web interface updates, LLRP root@pico-imx6:/etc/apt# dpkg --configure -a root@pico-imx6:/etc/apt# apt-get install extremepackage
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
   bleserver
The following packages will be upgraded:
   bleserver extremepackage
2 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
1 not fully installed or removed.
Need to get 4222 kB/5494 kB of archives.
After this operation, 2048 kB of additional disk space will be used.
Do you want to continue? [Y/n]
```

Following the upgrade process, the reader will go down to reboot.

```
After this operation, 2048 kB of additional disk space will be used.

Do you want to continue? [Y/n] Y

Get:1 https://www.sensthys.com extremepackage/ extremepackage 1.1.40 [4222 kB]

Fetched 4222 kB in 3s (1266 kB/s)
(Reading database ... 230 files and directories currently installed.)

Preparing to unpack .../bleserver_1.0.1_all.deb ...

Unpacking bleserver (1.0.1) over (1.0.1) ...

Preparing to unpack .../extremepackage_1.1.40_all.deb ...

Unpacking extremepackage (1.1.40) over (1.1.37) ...

Setting up bleserver (1.0.1) ...

Setting up extremepackage (1.1.40) ...

Broadcast message from root@pico-imx6 (pts/1) (Wed Feb 10 21:56:29 2021):

The system is going down for reboot NOW!

Root@pico-imx6:/etc/apt#
```



Chapter 5 Verify the Update

Please close the RFID Console.

Relaunch the console and wait for the Extreme to appear. Click on the reader. It may be that the reader isn't fully UP and in the messages it asked you to click on the reader again. Once the reader is up and running, the lower message should say "No errors logged".

If you select the Sensor tab, the build # will reflect that the software package has been updated.

