

How to Upgrade to AES-256 Firmware

for

P4dragon DR-7X00 HF Modems

(Valid for Firmware versions 2.42.00 or 2.41.00_ALE and higher)

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1. Introduction

The **Advanced Encryption Standard (AES)** allows state-of-the-art data encryption, now also directly on the **SCS** HF modems - i.e. “on the fly” of an on-going PACTOR connection. The application software thus no longer has to provide encryption in the case of secure/classified data that must be passed to the other side of an HF link.

The AES-256 option allows all information transmitted via PACTOR to be encrypted, independently of the PACTOR level (PACTOR-1/2/3/4).

The AES-256 option is available since ALE firmware version 2.40.00_ALE and standard firmware version 2.42.00.

To use the AES-256 option **you need a license key available from SCS or authorized resellers**. This license code, the so-called **feature license**, needs to be stored in the non-volatile memory of the modem to activate the AES-256 option!

See https://www.p4dragon.com/download/SCS_Feature_Licenses_How_To_1.0.pdf for more details.

2. How to Upgrade the Modem Firmware

If you want to use AES-256, you need to upgrade your modem to a modem firmware that also supports AES. We recommend to upgrade to standard firmware 2.42.00 (or higher) for adding AES capability to your **SCS** modem. Special ALE firmware 2.41.00_ALE (or higher) does also contain AES capability.

For finally using AES you need to obtain a so-called features license from SCS.

Two tools are available for the actual firmware upgrade, the well-known **SCSupdate.exe** and the **P4config.exe** especially for DR-7X00 modems. It is up to you which tool you prefer.

Please make sure that you use the most recent version of your preferred tool!

P4config:

https://www.p4dragon.com/download/SCS_P4config%20V1.1.zip

SCSupdate:

<https://www.p4dragon.com/download/SCSupdate.exe>

Connect your modem to a PC either via USB, Bluetooth or Ethernet. How this works in detail is described in the installation manual.

For an USB connection you need the SCS USB driver! For a Bluetooth connection you need the optional Bluetooth module installed in the modem. Ethernet works only on a P4dragon DR-7800 with the optional network module installed.

https://www.p4dragon.com/download/InstallationGuide_DR-7X00.pdf

The Windows USB drivers can be obtained from:

https://www.p4dragon.com/download/SCS_USB_Driver_2_08_24_setup.exe

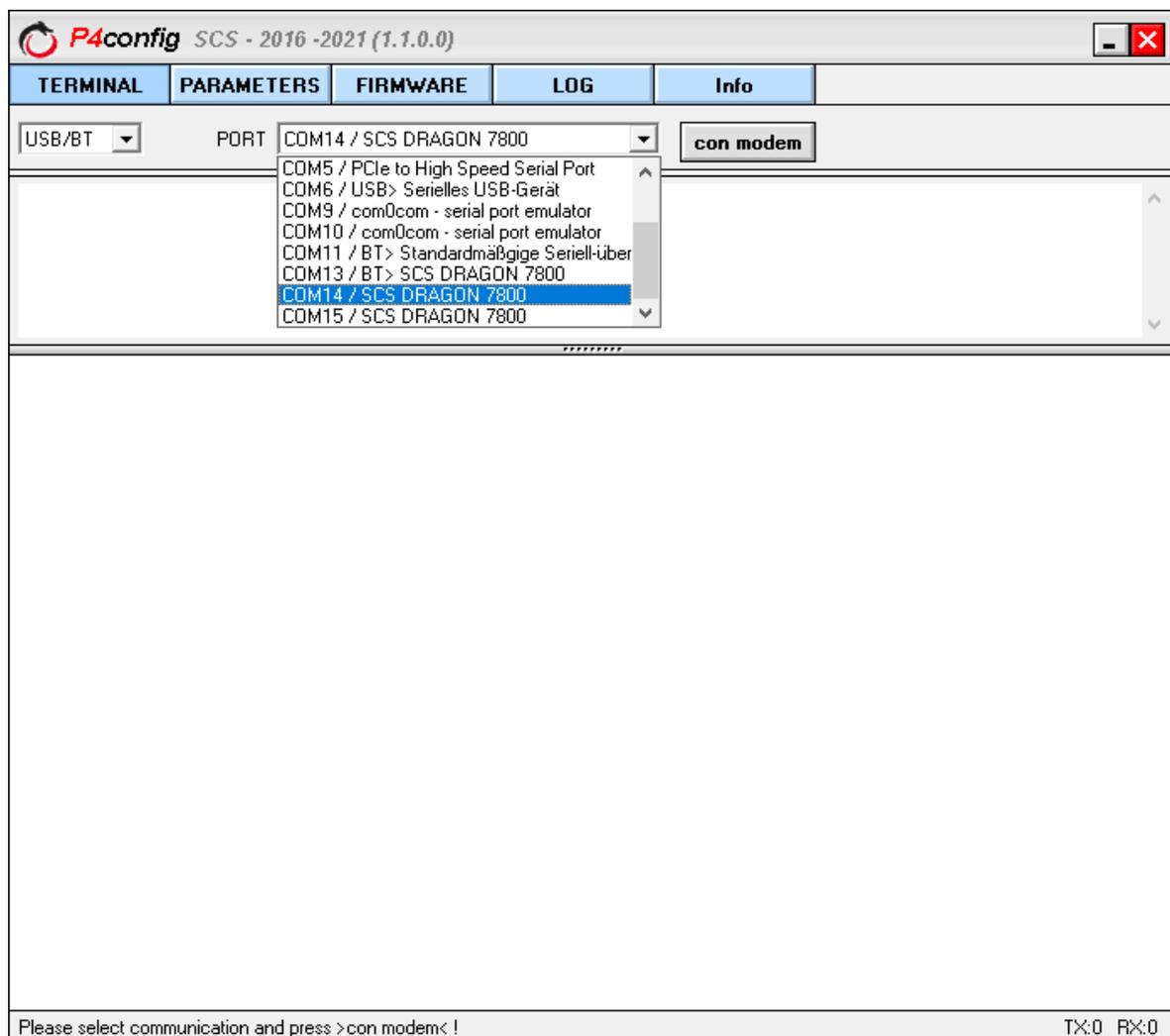
Make sure that you can access (talk to) the modem!

2.1 Using P4config.exe

P4config.exe is available from the **SCS** website as a ZIP compressed archive and should be downloaded to your standard download folder and then decompressed into a separate (new) folder, e.g. “\P4config\”. Extracting P4config.exe can simply be done by means of the MS Windows file Explorer, which allows to extract files from ZIP archives.

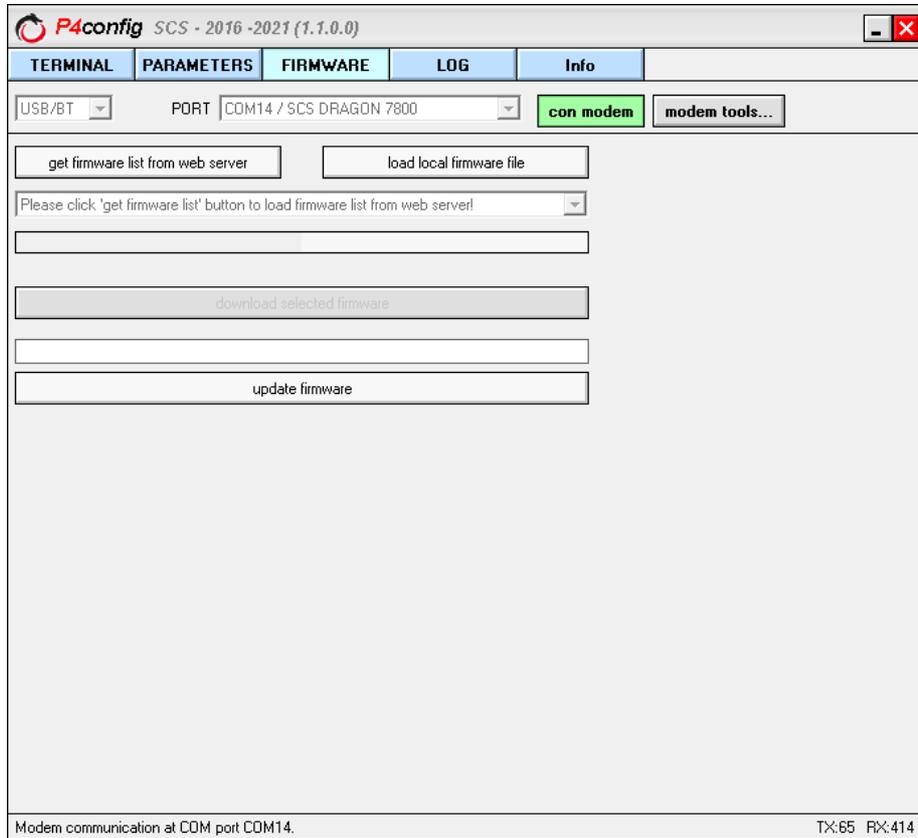
After the download and decompression are completed, double-click the P4config.exe executable.

The welcome dialog appears asking you for the (virtual) COM port the modem is connected to. Select the modem (or COM port respectively) and click “**con modem**”.

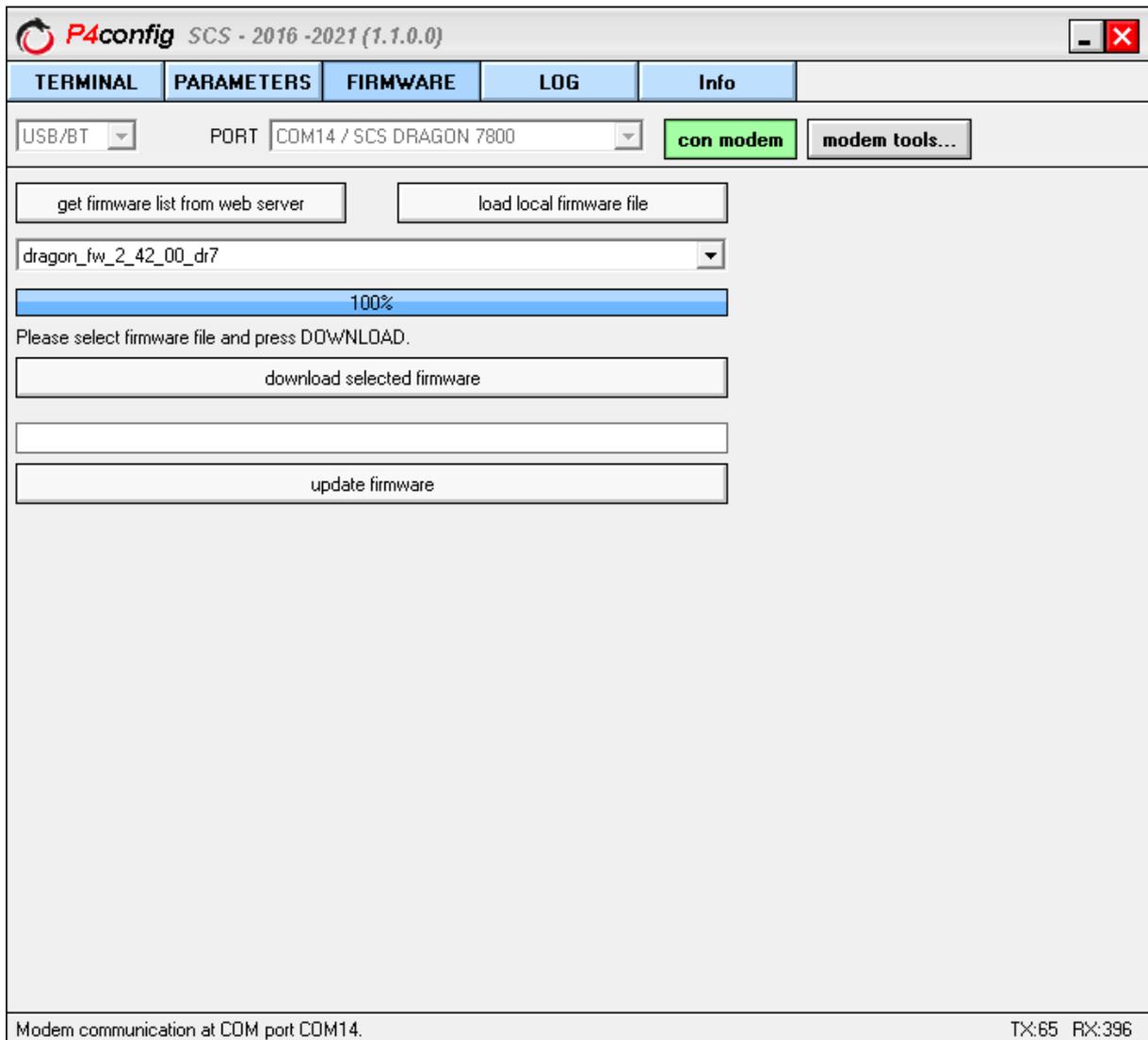


P4config immediately connects to the modem and the **con modem** button gets green. Then click **FIRMWARE**.

The following dialog appears:

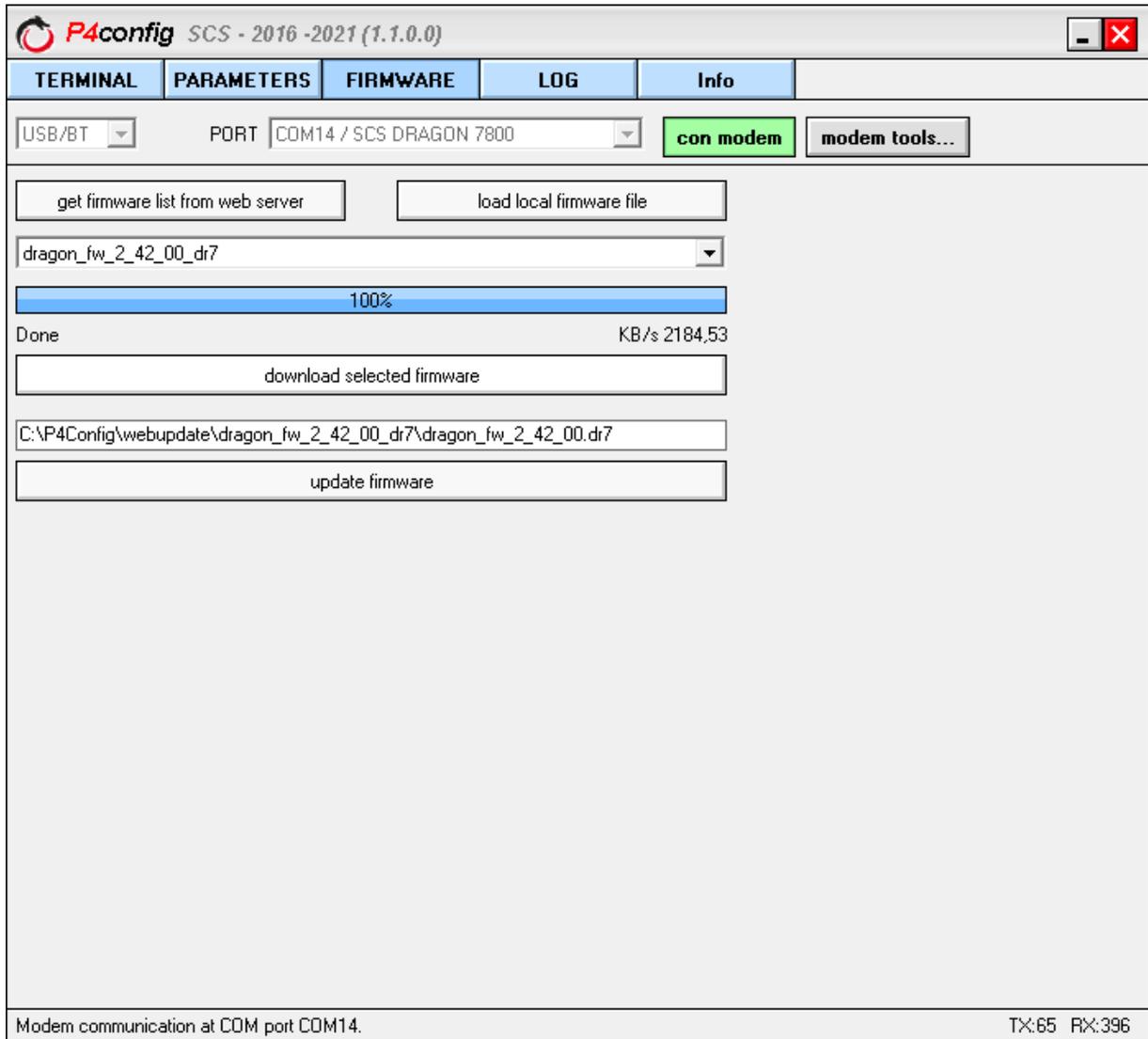


First press **get firmware list from web server**.



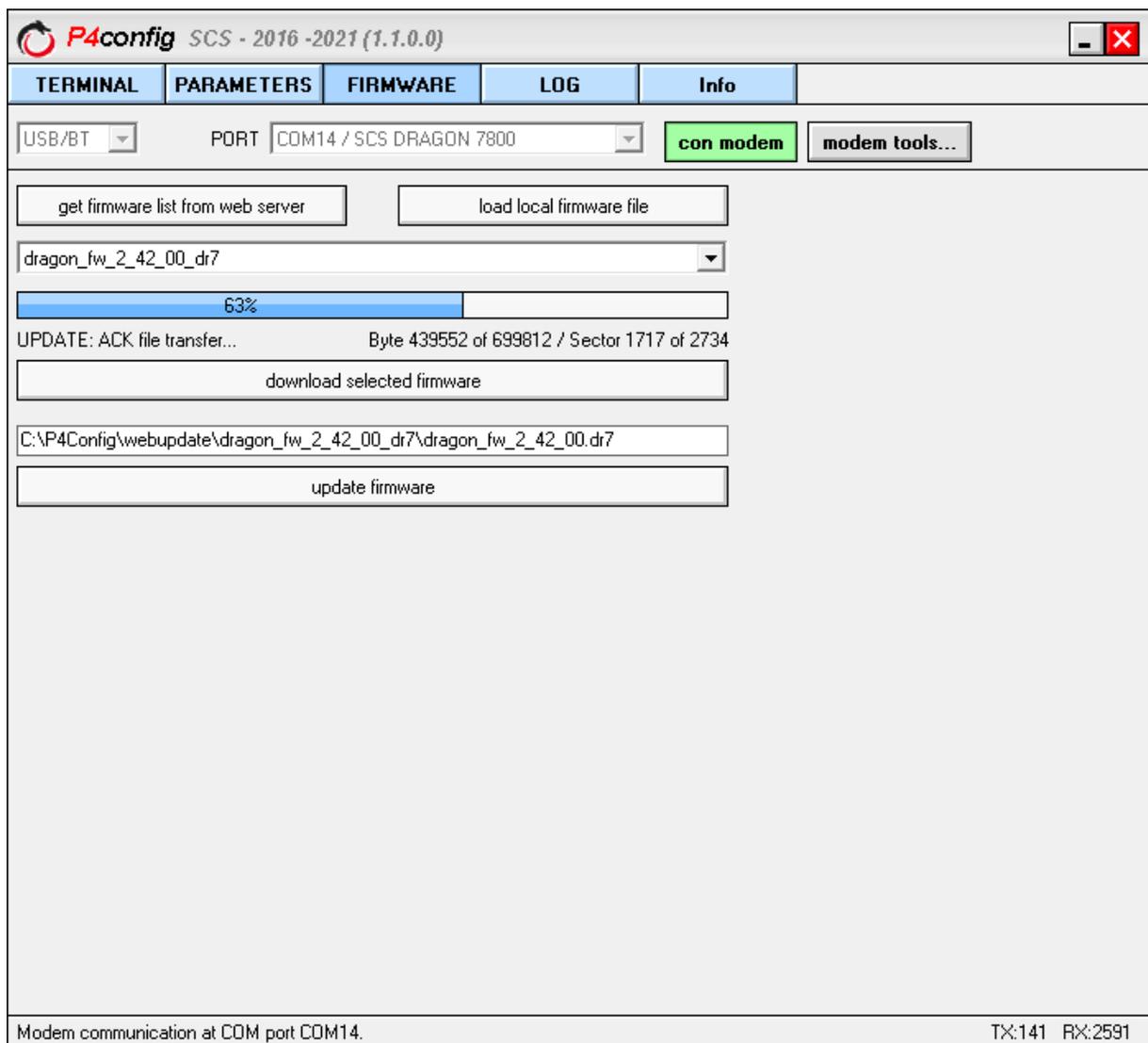
Please choose the appropriate firmware “dragon_fw_2_42_00.dr7” (or 2_41_00_ALE.dr7). The firmware version number must be equal or higher than **2.42** (or 2.41.00_ALE for special ALE firmware, respectively) for HF networks using “**dynamic key AES**”

Click **download selected firmware**. The firmware then will be downloaded from the **SCS** update server to your local drive on your computer.



Click **update firmware** to start the actual firmware updating process...

Now the new firmware will be loaded into your modem:



As soon as the progress bar reaches 100 %, the update is completed.

The modem now re-boots, which takes about 20-30 seconds, and then is available using the new firmware. **Congrats!**

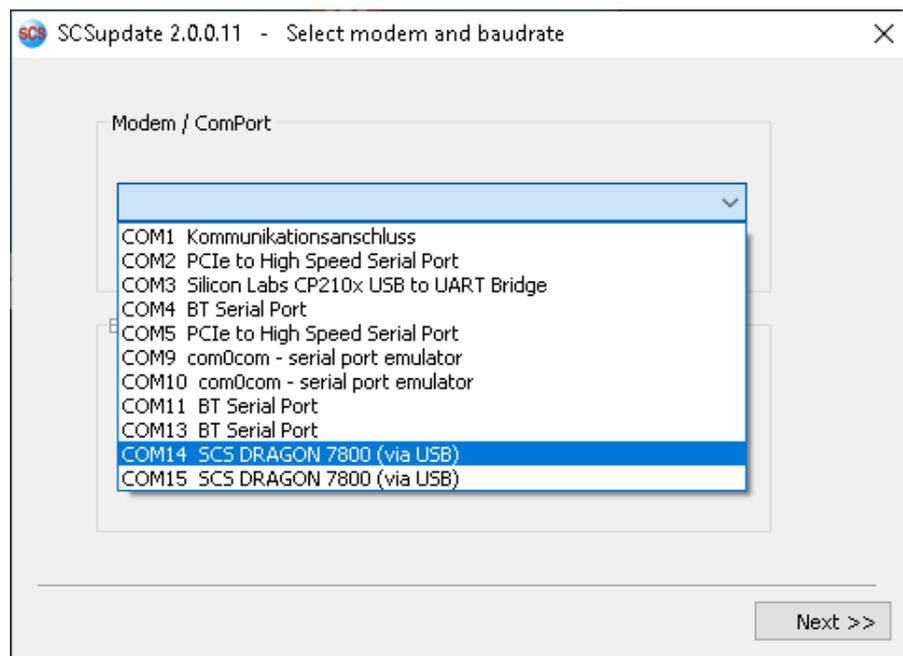
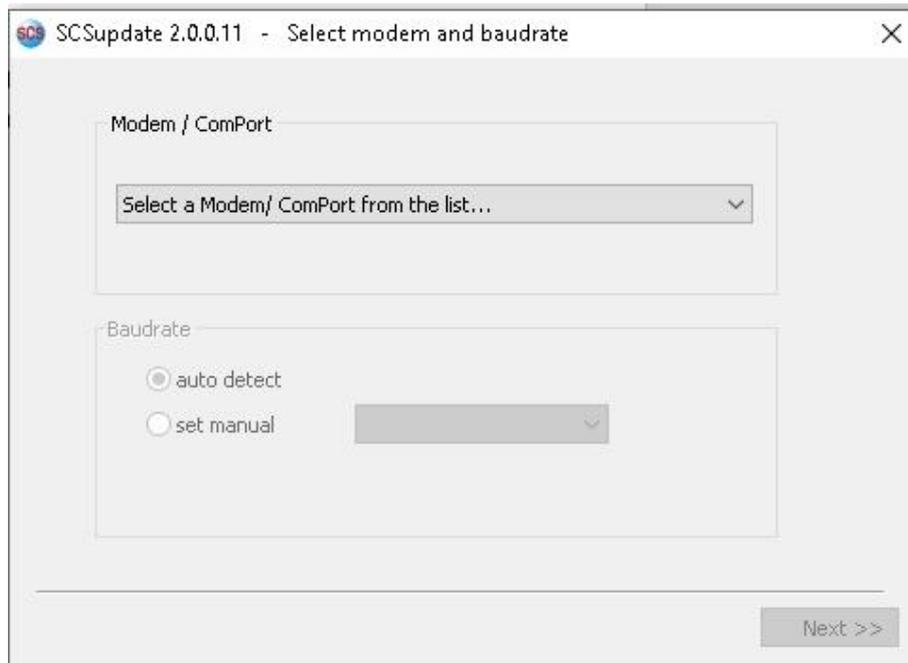
You now may close P4config.exe again if no other operation is required.

2.2 Using SCSupdate.exe

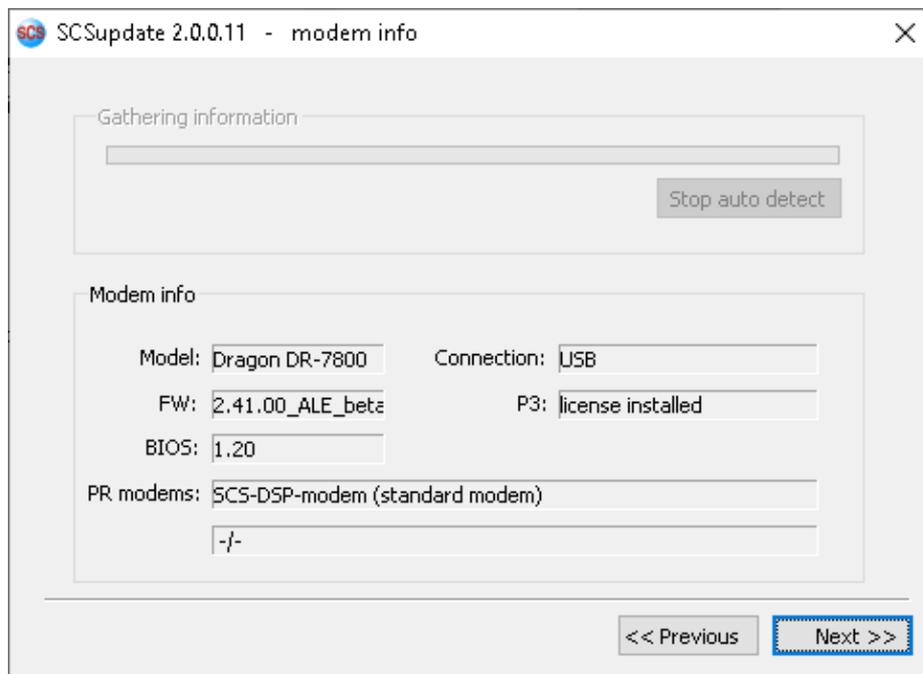
SCSupdate.exe is available from the **SCS** website and should be downloaded into a separate (new) folder, e.g. “\SCSupdate\”.

After the download has finished, double-click the SCSUpdate.exe executable.

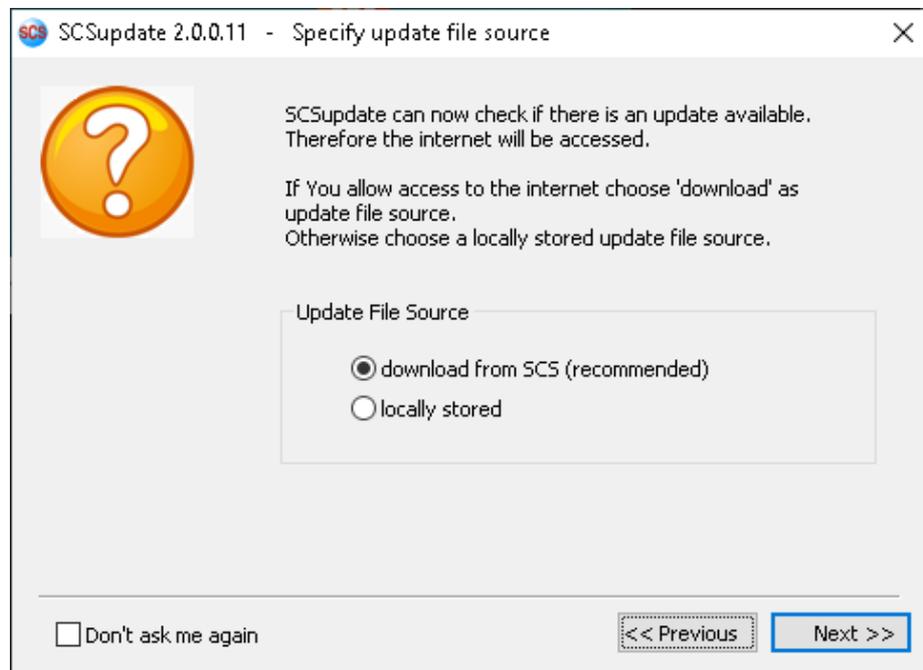
The welcome dialog appears asking you for the (virtual) COM port the modem is connected to. Select the modem (or COM port respectively) and click **Next >>**.



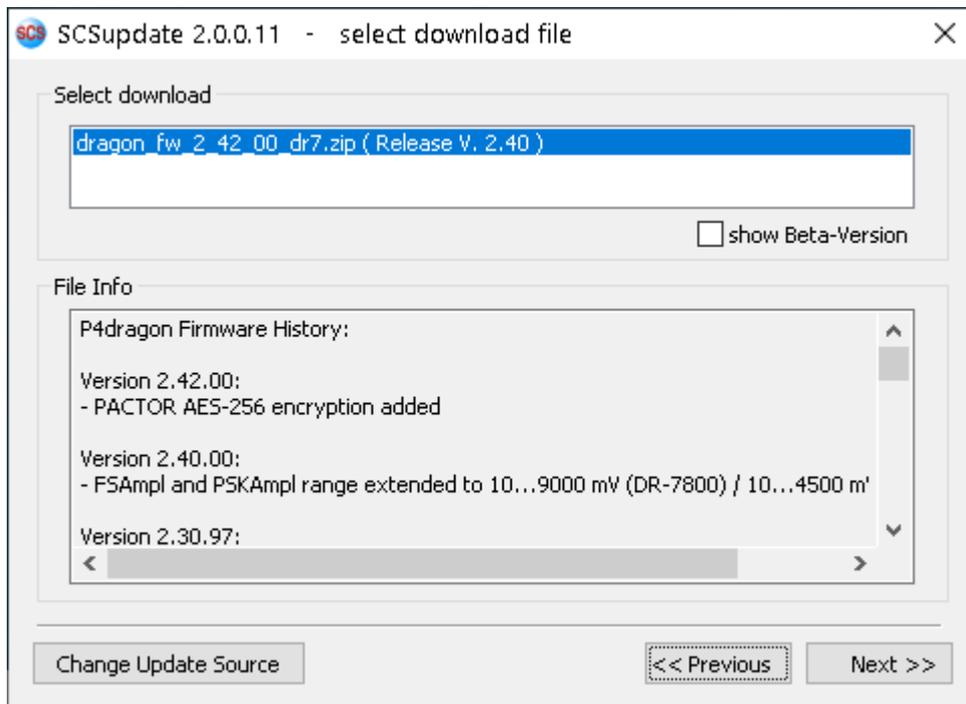
SCSupdate then connects to the modem and retrieves the version of the current firmware as well as other modem features.



Click **Next >>** and then choose “download from **SCS** (recommended)”, then again click **Next >>**.

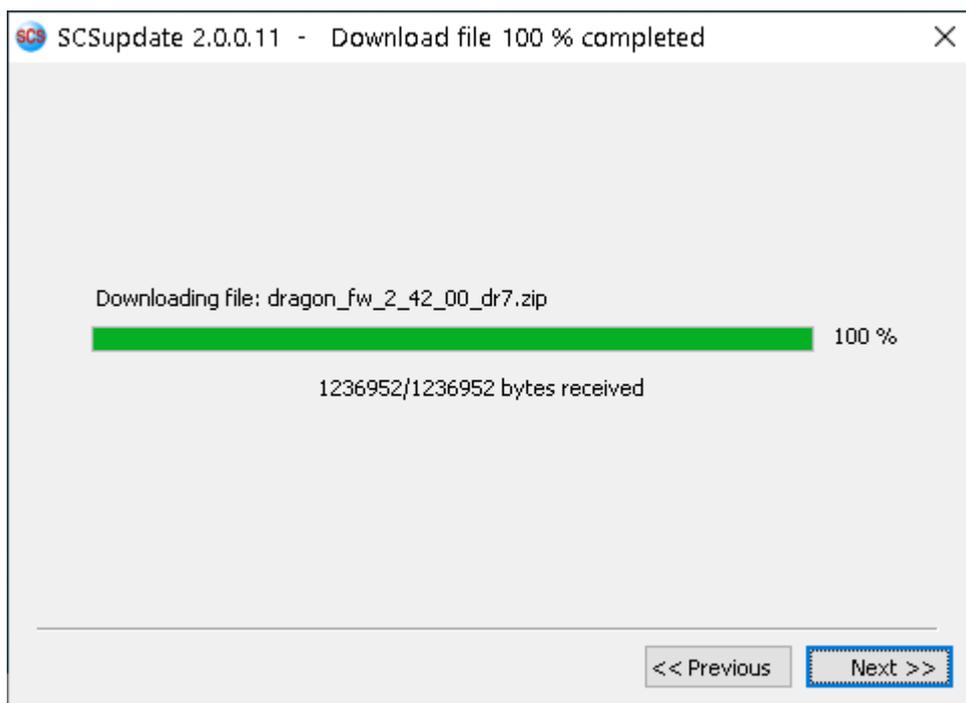


Please then choose the appropriate firmware “dragon_fw_2_42_00.dr7.zip. The firmware version number must be equal or higher than **2.42** (or 2.41.00_ALE for the special ALE firmware, respectively) for HF networks using “**dynamic key AES**”.

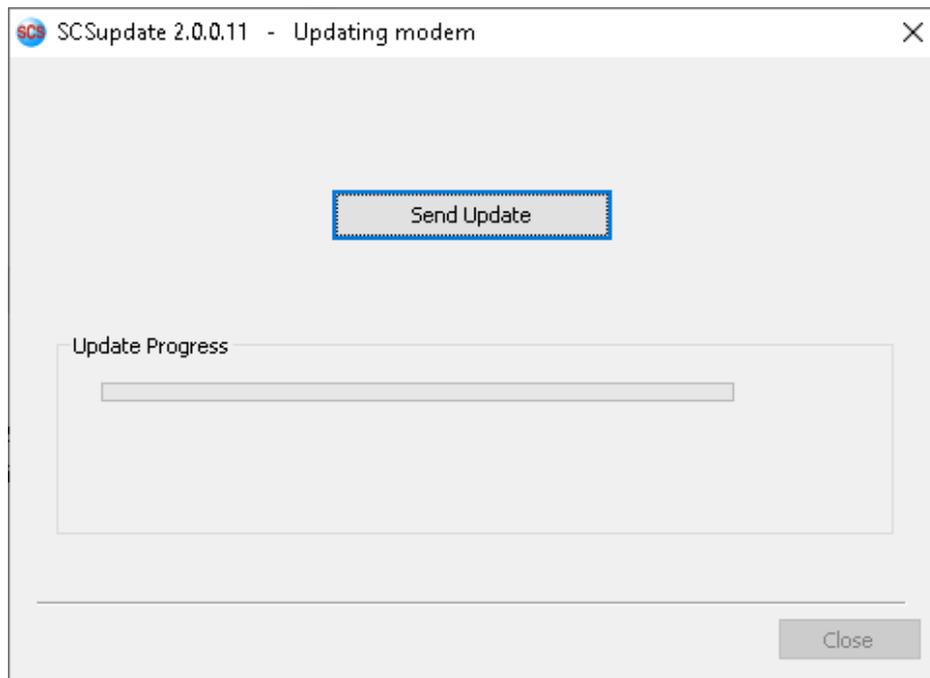


Then again click **Next >>**.

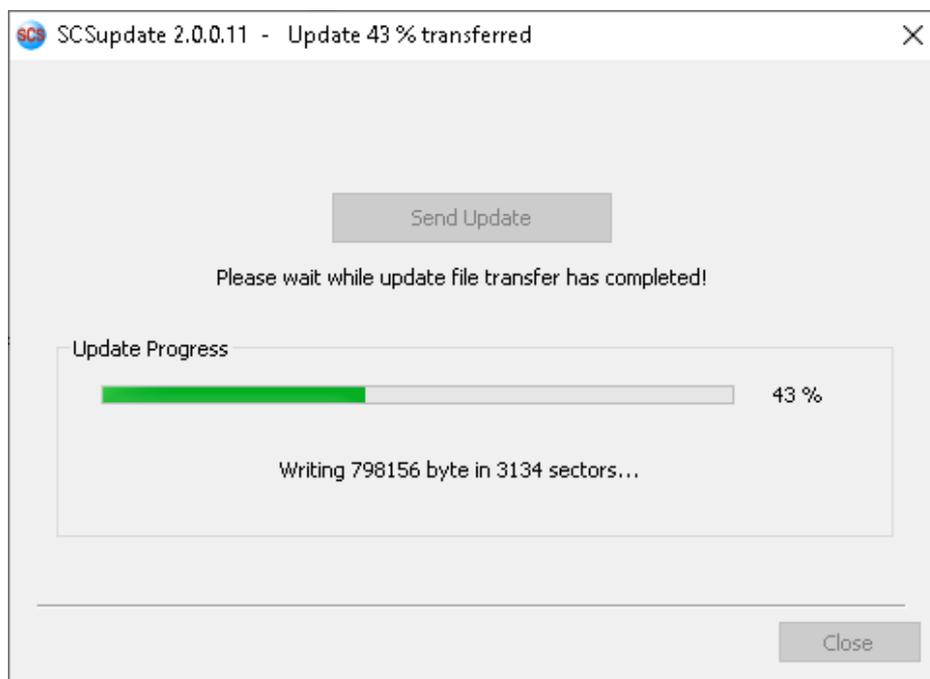
The firmware then will be downloaded from the SCS update server to your local disc on your computer:



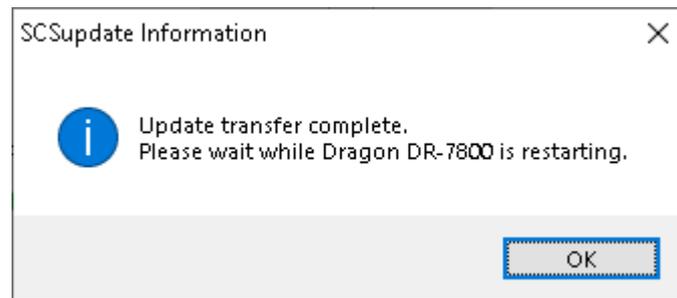
Then again click **Next >>**



Click **Send Update** to start the actual firmware updating process...



As soon as the firmware upload is completed, the following message appears:



The modem now re-boots, which takes about 20-30 seconds, and then is available using the new firmware. **Congrats!**

3. Ordering a License Key, Storing it to the Modem

How to obtain and store a license key for special modem features is described in the following document:

https://www.p4dragon.com/download/SCS_Feature_Licenses_How_To_1.0.pdf

Also see general information on AES and other special features in the “P4dragon ALE firmware” on the **SCS** download page:

<https://www.scs-ptc.com/downloads.html>

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