

Saab TransponderTech

R4 Transponder Upgrade Tool User Instruction



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Saab TransponderTech AB, SWEDEN

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iv Questions and Support

Contact Saab TransponderTech Support:

support@transpondertech.se , ph +46 13 189420.

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1 OVERVIEW

The R4 Transponder Upgrade Tool is a software utility for upgrade of the Saab TransponderTech R4 AIS Transponder through its serial interface.

The tool is to be executed on a 'PC' type computer (Windows ME or later) equipped with an RS422 serial port connected to the 'Pilot Port' of the R4 Transponder.

Features:

- Automatically upgrades the R4 AIS Transponder application software and the firmware of the internal GPS module (if necessary) based on inputs from a single .pak file.
- Options for storage and retrieval of transponder configuration settings using .r4 configuration files
- Executes a typical upgrade including new GPS firmware in about 15 minutes.

In this document it is assumed that the following equipment is available:

- A PC.
- The R4 Transponder Upgrade Tool executable file and an associated .pak file.
- Power supply for the R4 Transponder (power cable and 24V power source).
- A bi-directional RS422 interface set up between the PC and the 'Pilot port' of the R4 Transponder.

For a seamless installation it is recommended that the following equipment is used:

- A PC with USB port
- An R4 Transponder SW Update Cable (7000 100-179), ordered separately from Saab TransponderTech AB
- A USB to RS422 I/O Adapter (7000 000-181) including CD and installation guide, ordered separately from Saab TransponderTech AB or separately from e.g. one of the suppliers listed in Appendix A

2 BEFORE PROGRAMMING THE R4 TRANSPONDER UNIT

IMPORTANT! Although it is possible to store and retrieve most R4 Transponder settings during the upgrade, it must be expected that configuration data may be lost. Thus, if the upgrade is performed on a system configured and in use for a particular installation, all configuration data should be recorded before the upgrade in order to be subsequently restored.

To aid this procedure, a document 'R4 AIS Class A Transponder System Settings List (7000 100-851) is available to provide a table of configuration parameters for the two principal AIS system versions 4.0 and 5.0. Use this as a guide and note all current settings (if required) before the transponder and/or display is programmed.

3 CONNECTION BETWEEN COMPUTER AND TRANSPONDER UNIT

There are two options when it comes to setting up the serial connection: using the recommended equipment (USB to RS422 I/O Adapter and R4 Transponder SW Update Cable) or using a custom RS422 port (e.g. PCI-card or RS232-RS422 adapter). Depending on the equipment configuration the serial connection should be set up as described in the following chapters.

3.1.1 Using the Recommended Equipment

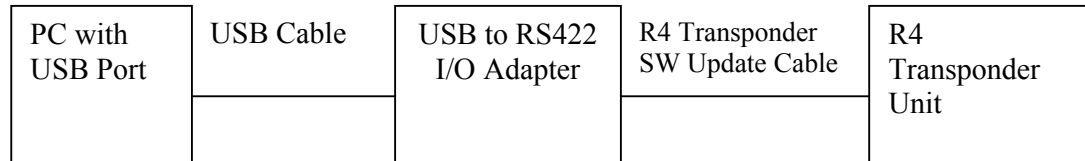


Figure 1: Serial Connection Using USB-RS422 Adapter

The R4 Transponder unit can be programmed through the USB to RS422 I/O Adapter and the R4 Transponder SW Update Cable as seen in Figure 1. To connect the R4 Transponder to a PC with the recommended adapter, follow these steps:

1. Install the USB to RS422 I/O Adapter according to its installation guide
2. Make sure the adapter is properly installed and connected to the USB port of the PC
3. Connect the R4 Transponder SW Update Cable to the USB to RS422 I/O Adapter and to the R4 Transponder
4. Make sure the R4 Transponder unit is connected to a 24V power source

3.1.2 Using a Custom RS422 Adapter

The R4 Transponder is programmed through a serial port called “Pilot port” (see the Installation Manual for more details). If a custom RS422 Adapter is used, the pins of that port can be connected either to the R4 Transponder SW Update Cable (9-pole DSUB connector) or directly to the R4 Transponder (50-pole D-Sub connector) to set up a serial connection, see Table 1 for wiring details.

	R4 Transponder Data Connector 50-pole DSUB (F)	R4 Transponder SW Update Cable Connector, DSUB 9-pole	Custom RS422 Adapter
Function	Pin nr.	Pin nr.	Connect To Function
Rx- (A)	14	1	Tx- (A)
Rx+ (B)	15	2	Tx+ (B)
Tx+ (B)	32	3	Rx+ (B)
Tx- (A)	31	4	Rx- (A)
Shield	50	5	Shield

Table 1: Pin-Assignment of Transponder and Update Cable for Custom RS422 Adapter Connection

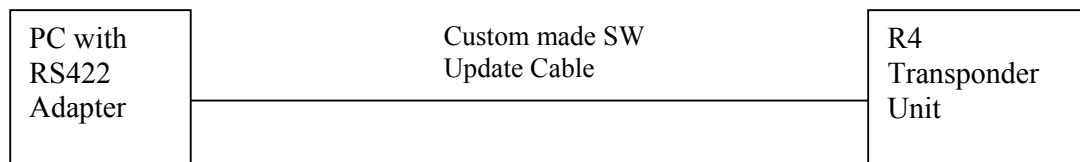


Figure 2: Serial Connection Using a Custom RS422 Adapter

To connect the R4 Transponder to a PC with a custom RS422 port (Figure 2), follow these steps:

1. Make sure the RS422 interface is properly installed and that it is configurable for 115200bps, 8 data bits, 1 stop bit, no parity and no flow control
2. If the update cable is to be used, make sure that it is connected to the R4 Transponder
3. Connect the pins of the R4 Transponder 50 pole D-Sub / Update Cable 9 pole D-SubB connector to the correct pins of the custom RS422 port, see Table 1
4. Make sure that the R4 Transponder unit is connected to a 24V power source

4 INSTALLATION OF THE R4 TRANSPONDER UPGRADE TOOL SOFTWARE

1. Copy the R4 Transponder Upgrade Tool files (.exe and .pak) provided by Saab TransponderTech to a new folder in your hard drive.
2. Determine the COM port used by the RS422 Adapter (check adapter installation guide)

5 UPGRADING THE R4 TRANSPONDER

To upgrade the R4 Transponder, follow these steps:

1. Make sure the R4 Transponder configuration data has been noted, see chapter 2.
2. Make sure the serial connection is properly set up in accordance with previous chapters.
3. Apply power to the R4 Transponder unit and verify that the R4 Transponder power LED (green) is lit

NOTE: MAKE SURE POWER SUPPLY IS STABLE DURING THE COMPLETE UPDATE PHASE

4. Start the program R4 Transponder Upgrade Tool V1.n.exe on your PC (n may be any number).
5. In the first dialog (Figure 3) the PC communication port number and Baud rate is selected.

Select the communication port number assigned to the interface with the R4 Transponder. Choose the same baud rate as the pilot port has been set to from the R4 AIS Display unit. Unless manually changed, this baud rate is 38400 by default. Press the “Next” button to continue.

If there is no connection between the PC and the R4 Transponder, see chapter 7 “Troubleshooting” in this instruction.

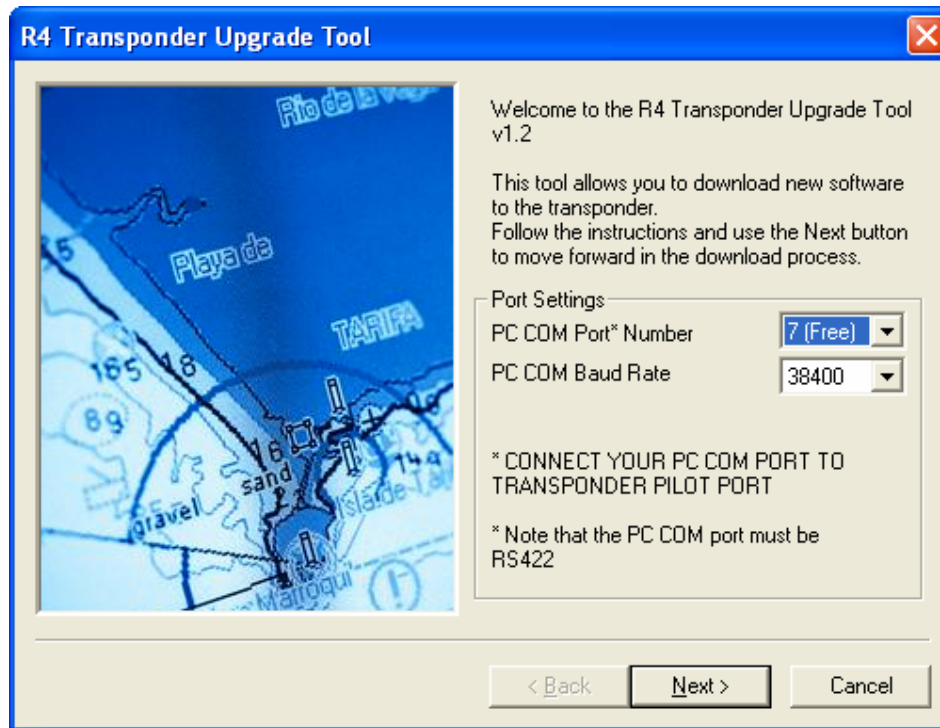


Figure 3: Port Settings Dialog

6. In the second dialog (Figure 4), Press the ‘Open File’ button and locate the appropriate .pak file for the upgrade process

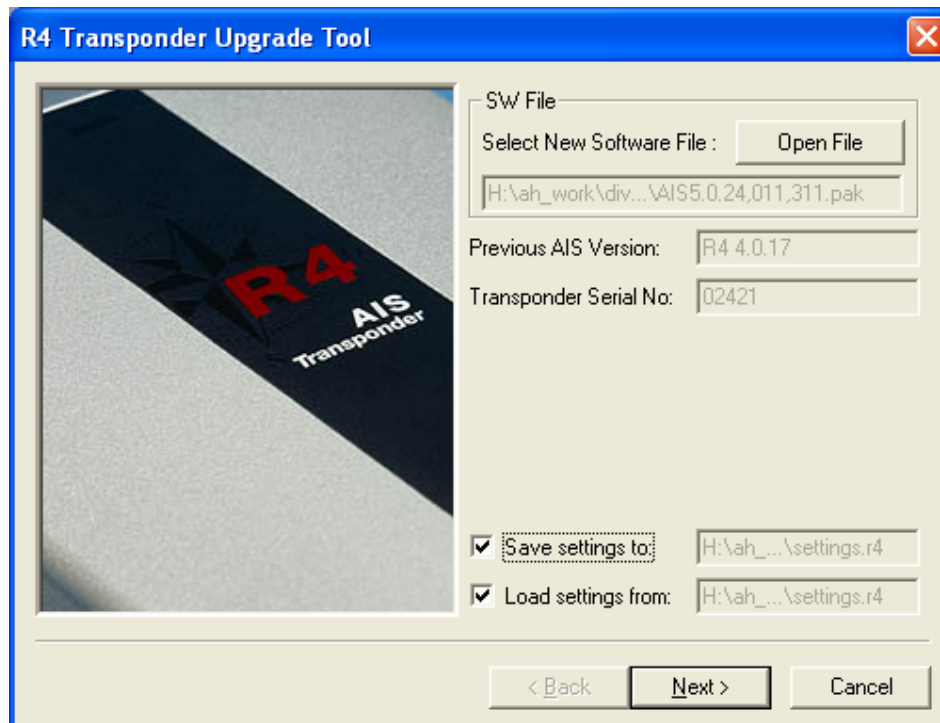


Figure 4: Select File Dialog

If the .pak file includes a transponder loadfile protected by a license key, a new input field will be provided in the dialog. Enter the appropriate license key associated with the transponder serial number. This license key is to be provided as part of the purchase of the license protected software upgrade and may also be provided through Saab TransponderTech support.

Check the Save settings box to have the Upgrade Utility save the transponder settings to a file. A dialog will open and the user will be prompted to provide a filename and a location for the settings file. The Load Settings checkbox will be automatically checked, and the previously chosen save file will be selected. These saved settings will be downloaded to the R4 transponder after the upgrade is complete.

Press Next.

Note: It is possible to deselect the Load Settings checkbox and select it again, in order to load settings from a different file than the save settings file. It is also possible to check only the Load Settings checkbox, in order to discard current settings and load new settings from a file.

Settings NOT saved: Height Over Keel, Admin and User Passwords, any settings related to the R4 AIS Display such as Alarm popup settings and AIS Display settings.

Settings saved: Ship Static data (except Height Over Keel), Voyage data, GNSS Antenna positions, VHF Radio settings, Long Range settings, Port Rate and Checksum settings, External Alarm settings.

Regional Area parameter settings will remain unchanged during the upgrade procedure.

7. The download progress screen will provide status information about this upgrade process (Figure 5). A right click on the status printout window will copy all contents to the clipboard, if desired. In case something goes wrong a popup will appear telling the user to restart the program and perform another upgrade attempt.

Press 'Next' when prompted.

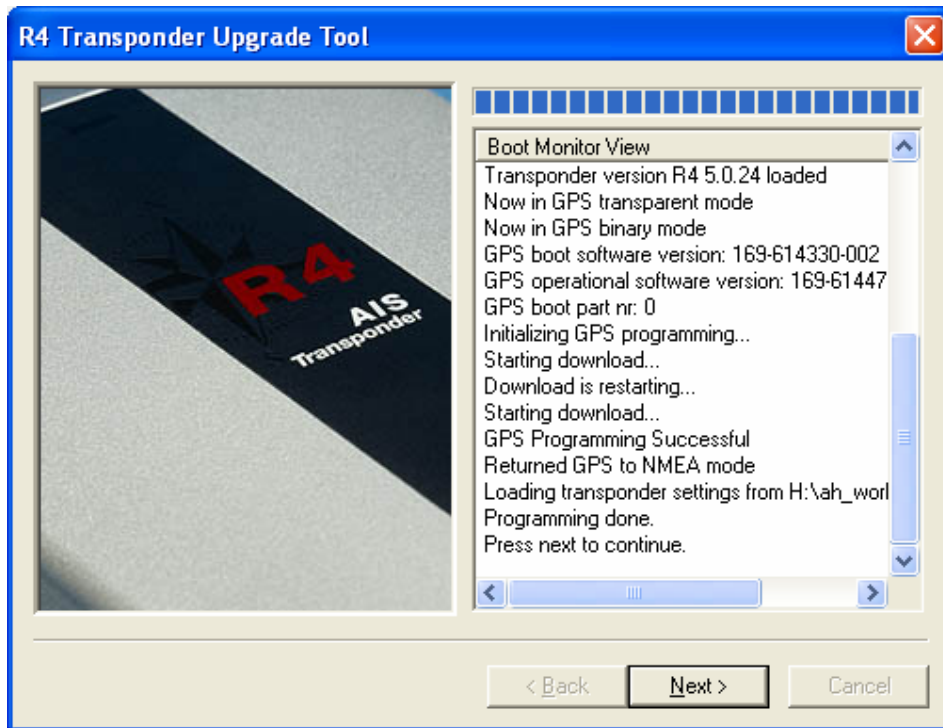


Figure 5: Download Progress Screen

8. A final screen will be presented (Figure 6). The R4 Transponder application software and GPS module firmware versions before and after the upgrade will be displayed. These can be noted for reference.

Press the *Finish* button to exit the download session.

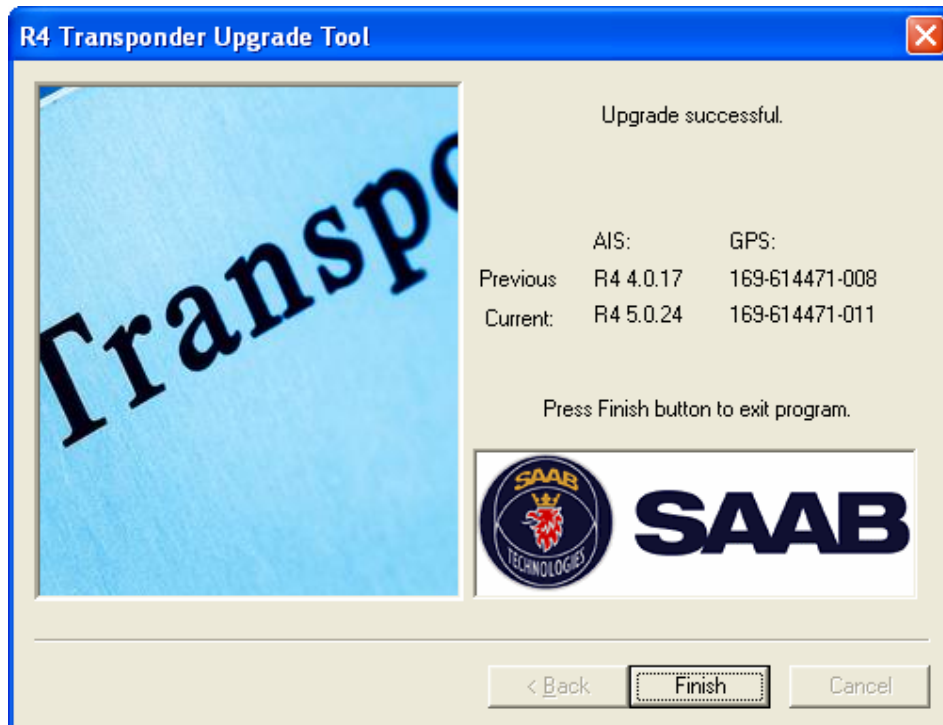


Figure 6: AIS R4 Download Finish Dialog

9. Disconnect the R4 Transponder unit from the R4 Update Cable.

6 VERIFICATION OF CONFIGURATION DATA

If the save/load settings options has been used (as described under point six in the previous chapter), settings in the R4 Transponder shall have remained unchanged. However, refer to the notes taken before the upgrade and verify that all parameters are as desired. Thus, inspect, restore or change parameters as required using the R4 Display (see Installation Manual for details).

7 TROUBLESHOOTING

7.1 No connection

- Check the connections and cables.
- Restart the R4 Transponder unit by cycling the power.
- Repeat the download procedure from start but try different Baud Rate settings starting from 9600 to 57600 Baud.

7.2 Interrupted download

- Repeat the download procedure (cycle the R4 Transponder power before retrying).

7.3 No restart after download

- Download may have been interrupted. Repeat the download procedure.

8 APPENDICES

8.1 Appendix A – USB to RS422 I/O Adapter Ordering Info

The USB to RS422 I/O Adapter (7000 000-181), or “USB-COMi USB to RS422/RS485 Adapter”, can be ordered from the locations listed below. The adapter can also be supplied by Saab TransponderTech AB (for contact information see the Installation Manual).

Note: Make sure the adapter ordered is the USB to RS422/RS485 Adapter (COMi) and not the USB to RS232 Adapter (COM). Manufacturer name is VSCom.

Asia

<http://esysmall.com>

Australia

<http://www.dontronics.com>

Europe

<http://www.easysync.co.uk>

USA

<http://www.saelig.com>

Manufacturer Homepage

<http://www.vscom.de>