SmartWi Toolbox

User Manual

Date: 2008-07-07

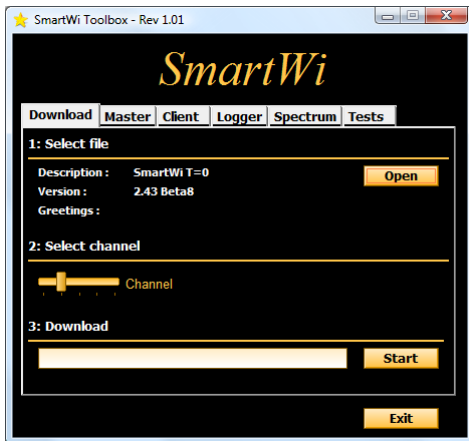**Version:**   1.00

Firmware: 2.43 ->

The software **SmartWi Toolbox** is intended for upgrading, configuring and monitoring your **'SmartWi Multi Room Solution'**.

Note:

Please close any old SmartWi programs like 'SmartWi Loader' and 'SmartWi Display', before using Toolbox.
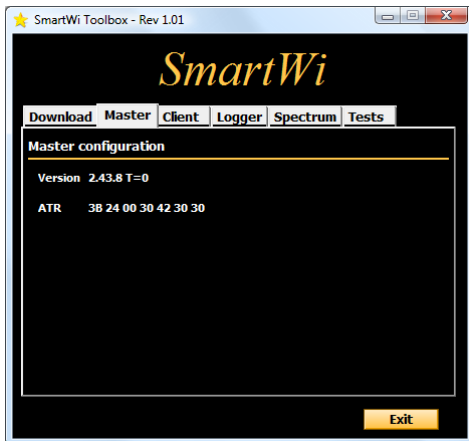
1. Download

The main function of the Toolbox is to download a new firmware to your SmartWi system. You must first connect the SmartWi Master box to your PC, via a standard USB cable.

1) Press 'Open' button and select your firmware file.
2) With the 'Select channel' slider, you have the option to select between 5 different communication channels/frequencies. Unless you have more than one SmartWi system, it is normally adequate just to use the first channel.
3) Remove any cards from the Master box and then press 'Start' to begin the download operation. It takes about 6 seconds to download the firmware.
4) You will hear a short beep (👂) if the download was successful, otherwise you will get an error message.

Please read the following two sections, to see how you upgrade the Client cards.
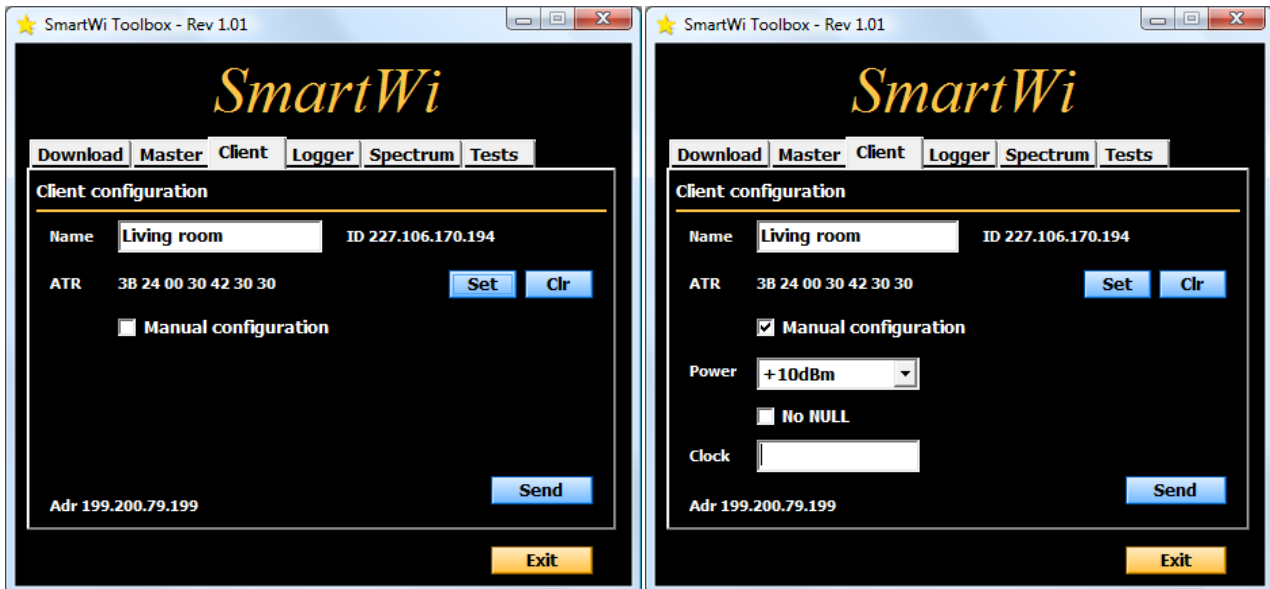
2. Master

After the download, you must insert the smartcard from your service provider.

- The SmartWi applications starts and the version information is sent to the Toolbox. This function is only compatible with firmware 2.43 and newer.
- The green LED on the Master box will then give two short flashes.
- If the green LED continues to flash with a 2.5 seconds interval, the smartcard cannot be read correct. Please try:
    - o Re-insert the smartcard
    - o Clean the smartcard contacts
    - o Check if you have the correct firmware. T=1 for Irdeto and T=0 for other systems.
- A copy of the ATR is displayed on the Toolbox.

3. Client

The Client cards must also be upgraded with the latest firmware, which is present in the Master box. So to upgrade the Client cards, simply:

- Insert them into the Master box.
- The LED will flash quickly for about 5 seconds, while the firmware is transferred.
- When the LED starts to flash slowly, please remove the Client card again. If the Client card isn't removed with 30 seconds, the ATR string will be erased and the Client will not work properly in the receiver.

In the field 'Name' you can give your different Client cards a name, so they easy can be identified.

3.1 ATR

Every smartcard is required to give an answer when it is being reset. This reset occurs when it is being powered-up by the receiver, usually upon insertion. In the reset-stage the card and the reader get introduced to one another and the foundation for the communication session is being made.

In order to operate correct, the SmartWi Client cards must know the ATR string, from the original smartcard in the Master box. It is recommended that the ATR string is programmed onto the Client cards, to make sure that they will work correctly in all your receivers.

3.2 Manual Configuration

All Client cards are normally programmed with the same configuration. With some digital receivers on the market, it may be necessary to program the Client card with a unique configuration.

To do so, please insert the Client card into the Master box and then select the 'Manual configuration' check box.

Below you will find a description of the three parameters which can be configured. When you have changed the configuration, you must press the 'Send' button, to program the Client with the new configuration.

Power:

If you see a pixilation in your picture, when the Client cards communicates with the Master box and the green LED flashes, this can be due to

- Bad shielding of the tuner inside the digital receiver.
- Bad design of smartcard power-supply inside the digital receiver. This has been seen on the Force Electronics 3xx series.

To solve this problem, you can try two different solutions:

- Change the communication channel, when you download the firmware.
- Reduce the radios transmission power. This will also reduce the wireless range, so do not place the Master box to far way, when you test this.

The transmission power can be set to 4 different levels: +10dBm (max), +6dBm, -2dBm and -10dBm (min).

No NULL:

With SmartWi, there will be more than on receiver sharing a single smartcard, which can lead to longer answer times. To handle this problem, the Client cards keep sending an ISO command call 'NULL', to the receiver at regular intervals. This NULL command tells the receiver to 'be patient' and reset the timeout timer.

- Most receivers will not work with SmartWi, if the NULL command isn't received.
- Some receivers will also work properly without the NULL command.
- A few old SECA receivers, do unfortunate NOT accept the NULL command. To handle these receivers, the NULL command must be disabled with the 'No NULL' option.

Known receivers which does not support the NULL command: Philips DSX 6010, Pioneer 1430, Kenwood DTF-1 and X-Cam?

Notes:

- The problem has so far only been seen on old SECA receivers.
- You will not see the problem when only one receiver is active.
- The NULL command is not used by T=1 receivers (Irdeto).

Clock:

There is unfortunate a small limitation in the Client card hardware, it is not able to detect/handle if the receiver (STB) changes the smartcard clock after the ATR has been transmitted.

To handle this problem, a fixed 'Clock' value can be programmed onto the Client.

Known Clock values:

- **Humax**   CX Fox C   Conax   10017
- **Dreambox**   CCCam   Conax   10203
- **Dreambox**   CCCam   Seca   8932
- **Dreambox**   CCCam   Viaccess   11443
- **Octagon**   SF318   Conax   10885
- **Grundig**   DCR 1784 CO   Conax   9920

How to find the correct 'Clock' value if necessary:

- Program the Clock to **'64444'** and write the configuration to a Client card.
- Insert smartcard into Master and Client card into the 'problematic' receiver.
- You should then see two numbers at the bottom of the Client window: **'13334 -> 10017'**.
- If there is a significant difference between the two numbers (> 1%), you should use the right most value (10017).

Notes:

- The 'Clock' is not supported by the T=1 firmware.

4. Logger

The Logger is a tool, which makes it possible to record the communication between the Master box and the Client cards and the Master box and the inserted subscription smartcard.
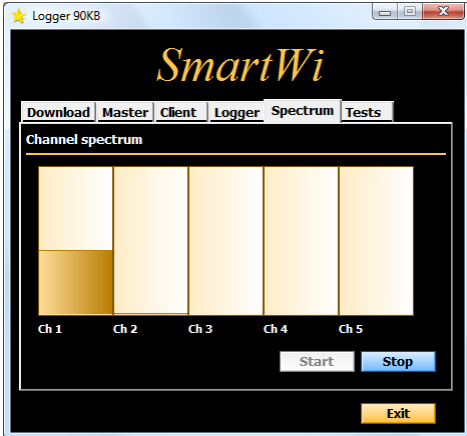
The log-files are used by the SmartWi support and development team, which will analyze them and find the cause for any problems.

The generated log-files can be sent to freddy@smartwi.net
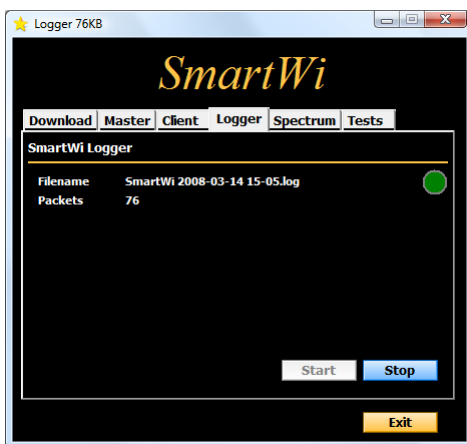
5. Spectrum

This function is still under development.

6. Tests

This function is still under development.