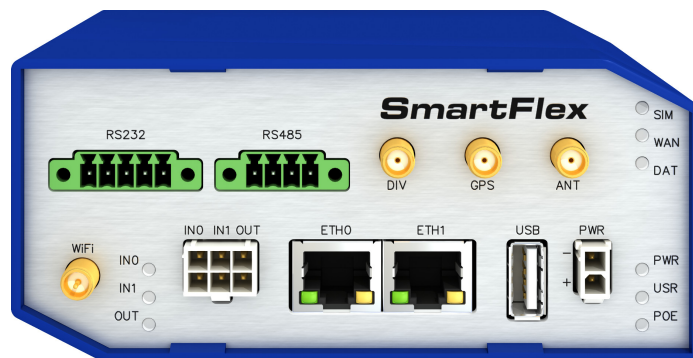
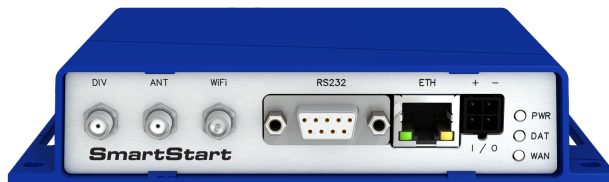


User Module

Firmware Over-The-Air

APPLICATION NOTE



ADVANTECH

Used symbols



Danger – Information regarding user safety or potential damage to the router.



Attention – Problems that can arise in specific situations.



Information, notice – Useful tips or information of special interest.



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1. User Module Description

The *Firmware Over-The-Air* (FOTA) user module is an additional feature of Advantech B+B SmartWorx routers. This allows the router to update the firmware of the cellular module automatically. Only the firmware of the cellular module is updated (not the firmware of the router). The user module is easy to use – it can be activated with just one checkbox. The router must be connected to the Internet in order to use FOTA updates. The connection to the server with firmware files provided by Advantech B+B SmartWorx is already defined in the user module, but it is possible to enter your own server credentials. The FOTA user module checks for the new cellular module firmware every 24 hours. It is also possible to check for new firmware manually.



Figure 1: FOTA User Module Operation

To upload the user module archive file, go to the *User Modules* page in the *Customization* section of the router's Web interface. After uploading the user module to the router, go to its Web interface by clicking on the user module's name. On the left you will then see the user module's menu as in Figure below. There is an *Automatic Update (fota)* landing page in the *Configuration* section. In the *Status* section there is a *System Log* page. You can return to the Web interface of the router and the main menu using the *Return* button in the *Customization* section.

Firmware Over-The-Air

Status	fota
System Log	<input type="checkbox"/> Enable automatic update
Configuration	URL * <input type="text"/>
Automatic Update	Username * <input type="text"/>
Customization	Password * <input type="text"/>
Return	<input type="button" value="Apply"/> <input type="button" value="Start Manually"/>

Figure 2: Firmware Over-The-Air User Module



The user module *Firmware Over-The-Air* is not part of the standard router firmware. See the *Configuration Manual* [1, 2] for instructions on how to upload this user module to the router. This user module is available for routers of v3 production line.

2. Configuration

In this chapter, the configuration of the FOTA user module is described. Go to the *Automatic Update* page in the *Configuration* section – this is also the home page of the FOTA user module. To enable the FOTA user module, tick the *Enable automatic update* checkbox and click *Apply*. The other configuration items are described in the table below. The behavior of the FOTA user module is described below the table.


Figure 3: Automatic Update Configuration

Item	Description
Enable automatic update	Enable the FOTA user module. There is a preset connection to the Advantech B+B SmartWorx FOTA server with up to date firmware information.
URL	Optionally fill-in a different server address where the JSON file with firmware information is stored, along with firmware files.
Username	Optional. Specify only if you have specified URL. The preset username "conel" for the preset server is saved in the user module.
Password	Optional. Specify only if you have specified URL. The preset password for the preset server is saved in the user module.
Apply	Configuration changes will take effect after pressing the <i>Apply</i> button.
Start Manually	Press this button to check manually for a new cellular module firmware. Otherwise, a check for updates takes place every 24 hours at the same time that user module was first enabled.

Table 1: FOTA Configuration

2.1 Behavior of the FOTA User Module

When the FOTA user module is enabled, it will connect to the preset server to check for new firmware update. It is then done every 24 hours at the same time the user module was enabled. You can also run this firmware update check manually using the *Start Manually* button.

 The preset FOTA server to check for new firmware availability contains a file in JSON format with cellular module names, associated firmware revision numbers and links to firmware files. The user module will download this file and compare it to the current firmware revision number. If there is new firmware available (higher revision number), the firmware file for the cellular module is downloaded. The router needs a stable connection and power supply to download the firmware file properly. If the downloading of the firmware fails, the user module will recognize the incomplete file when next attempting to download the firmware file. It will then continue to download the rest of the file – it does not unnecessarily download duplicate data again.

The user module will regularly check for new firmware when it is connected to the Internet (it does not matter which interface is used). The preset server address, username and password are saved in the user module, so there is no need to fill-in credentials unless you want to use another server.

3. System Log

The *System Log* page displays System Log messages. It is the same system log as the one in the main menu of the router. FOTA user module messages are indicated by *fota* strings. You can check the operation of the user module in the log or view any messages in the event of configuration problems. You can download these messages and save them to a computer as a text file (.log) by clicking the *Save Log* button. You can also download a detailed report (.txt) for communication with technical support by clicking the *Save Report* button.

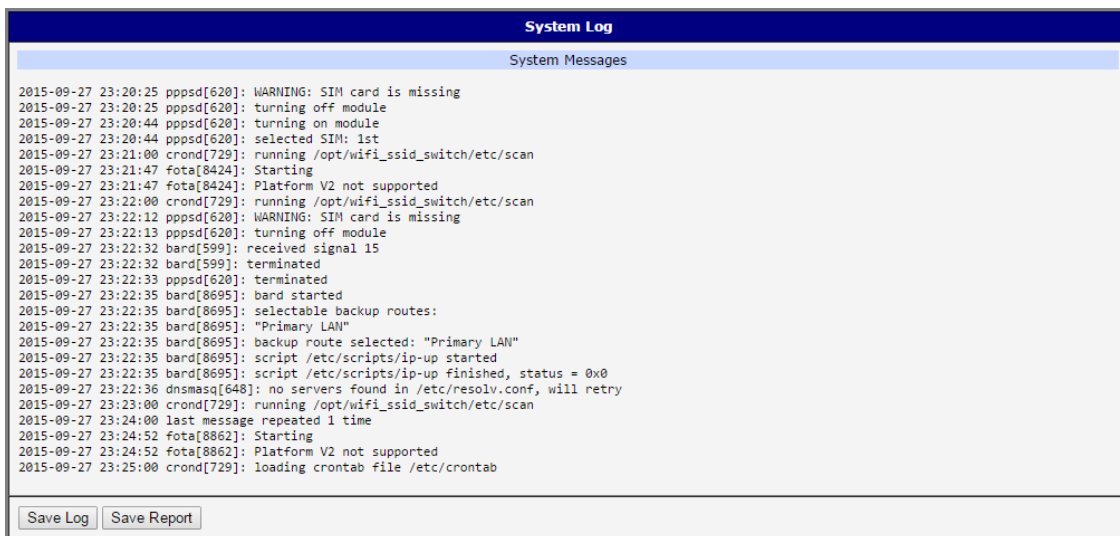


Figure 4: System Log

4. Recommended Literature

- [1] Advantech B+B SmartWorx: **SmartFlex Configuration Manual** (MAN-0023-EN)
- [2] Advantech B+B SmartWorx: **SmartMotion Configuration Manual** (MAN-0024-EN)
- [3] Advantech B+B SmartWorx: **SmartStart Configuration Manual** (MAN-0022-EN)
- [4] Advantech B+B SmartWorx: **ICR-3200 Configuration Manual** (MAN-0042-EN)



Product related documents can be obtained on *Engineering Portal* at <https://ep.advantech-bb.cz/> address.