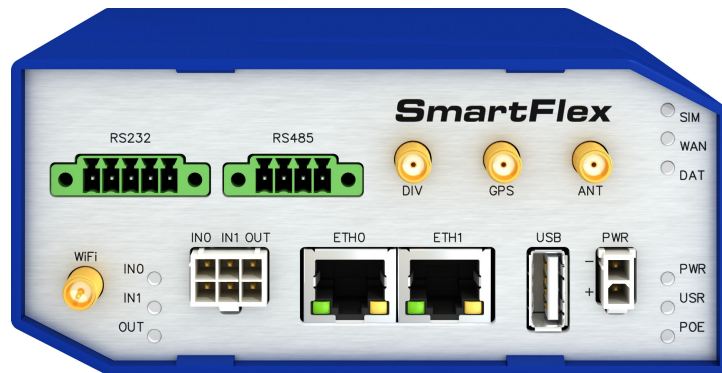# User Module

Layer 2 Firewall

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.

Example – example of function, command or script.

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1. Module usage

1.1 Description of the module

Layer 2 Firewall user module can be used to specify filtering rules for data incoming to the router based on source MAC address. The rules are processed on Data link layer, which is second layer of the OSI model, and are applied to all interfaces, not just for WAN interface.

> This user module is not installed on *Advantech* routers by default. See the *Configuration Manual* for the description how to upload an user module to the router. References for manuals and applications are on page 2.

This user module is only compatible with *Advantech* routers of v2 and v3 platforms.

1.2 Web interface

Once the installation of the module is complete, the module's GUI can be invoked by clicking the module name on the *User modules* page of router's web interface.

Left part of this GUI contains menu with *Status* section, followed by *Configuration* section which contains the configuration page *Rules* for definition of the rules. *Customization* section contains only the *Return* item, which switches back from the module's web page to the router's web configuration pages. The main menu of module's GUI is shown on figure 1.
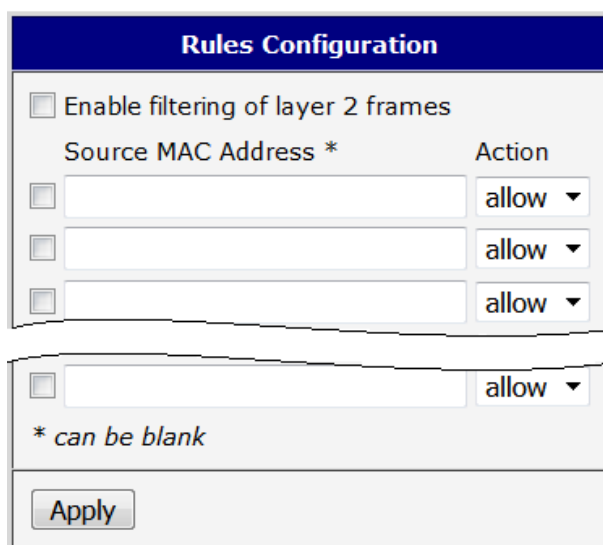
Figure 1: Main menu

1.3   Rules configuration

Configuration of the rules can be done on *Rules* page, under *Configuration* menu section. Configuration page is shown on figure 2. There are twenty five rows for the rules definition.

Each line consists of the check box, *Source MAC Address* field and *Action* field. Checking the checkbox enables the rule on the line. Source MAC address must be entered in double dots format and is case insensitive. This field can be left blank, which means it match all the MAC addresses. An action can be set to allow or to deny option. Based on that, it allows incoming packets or denies incoming packets. The rules are processed from the top to the bottom. If a MAC address of an incoming data match the condition on a rule line, it is evaluated and the processing is terminated.

Checking the check box called *Enable filtering of layer 2 frames* at the top of the page will enable the entire process of filtering. To apply any changes on the *Rule* configuration page the *Apply* button at the bottom of the page must be clicked on.

Figure 2: Example of rules configuration

Disabling incoming packet for all MAC addresses (empty definition field) will cause impossibility of administration access to the router. The only solution then will be to perform HW reset of the router which will set the router to the default state including the setting of this user module.

1.4 Configuration example

On figure 3 is shown an example of rules configuration. In this case incoming communication from only four different MAC addresses is permitted. The fifth line with deny action must be set up to restrict communication from all other MAC addresses. The source address for this line is empty, so it match all MAC addresses.

Figure 3: Example of rules configuration

1.5 Module status

Current global status of the module can be listed on *Global* page under *Status* section as shown on figure 4.

Figure 4: Status page

2. Recommended Literature

[1] Advantech B+B SmartWorx: **v2 Routers Configuration Manual** (MAN-0021-EN)
[2] Advantech B+B SmartWorx: **SmartFlex Configuration Manual** (MAN-0023-EN)
[3] Advantech B+B SmartWorx: **SmartMotion Configuration Manual** (MAN-0024-EN)
[4] Advantech B+B SmartWorx: **SmartStart Configuration Manual** (MAN-0022-EN)
[5] Advantech B+B SmartWorx: **ICR-3200 Configuration Manual** (MAN-0042-EN)

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