



ADVANTECH Router App Layer 2 Firewall User Guide

[Home](#) » [Advantech](#) » ADVANTECH Router App Layer 2 Firewall User Guide 

Contents

- [1 ADVANTECH Router App Layer 2 Firewall](#)
- [2 Product Information](#)
- [3 Used symbols](#)
- [4 Changelog](#)
- [5 Module usage](#)
- [6 Related Documents](#)
- [7 Documents / Resources](#)
 - [7.1 References](#)

ADVANTECH

ADVANTECH Router App Layer 2 Firewall



Product Information

The Layer 2 Firewall is a router app developed by Advantech Czech s.r.o. It allows users to specify filtering rules

for data incoming to the router based on the source MAC address. The rules are processed on the Data link layer, which is the second layer of the OSI model. Unlike other firewall apps, the Layer 2 Firewall applies the rules to all interfaces, not just the WAN interface.

Module Usage

The Layer 2 Firewall router app is not included in the standard router firmware. To use this app, you need to upload it, and the process is described in the Configuration manual found in the Related Documents chapter.

Description of the Module

The Layer 2 Firewall router app allows you to define filtering rules for incoming data based on source MAC addresses. This means you can control which data packets are allowed or blocked at the second layer of the OSI model. The module's functionality is available on all interfaces, providing comprehensive protection for your network.

Web Interface

After installing the module, you can access its graphical user interface (GUI) by clicking on the module name in the router apps page of the router's web interface. The GUI consists of a menu with different sections: Status, Configuration, and Customization.

Configuration Section

The Configuration section contains the Rules page for defining the filtering rules. Make sure to click the Apply button at the bottom of the page to save any changes made.

Customization Section

The Customization section only includes the Return item, which allows you to switch back from the module's web page to the router's web configuration pages.

Rules Configuration

- To configure the filtering rules, go to the Rules page under the Configuration menu section. The page provides 25 rows for defining the rules.
- To enable the entire process of filtering, check the checkbox labeled "Enable filtering of layer 2 frames" at the top of the page. Remember to click the Apply button to apply any changes made.
- Note that if you disable incoming packets for all MAC addresses (empty definition field), it will result in the inability to access the router for administration. In such cases, performing a hardware reset of the router will restore it to its default state, including the settings of this router app.

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Used symbols

- Danger – Information regarding user safety or potential damage to the router.
- Attention – Problems that can arise in specific situations.
- Information – Useful tips or information of special interest.
- Example – Example of function, command or script.

Changelog

Layer 2 Firewall Changelog

- v1.0.0 (2017-04-20)
First release.
- v1.0.1 (2020-06-05)
Fixed bug in coexistence with other iptables rules.
- v1.1.0 (2020-10-01)
Updated CSS and HTML code to match firmware 6.2.0+.

Module usage

This router app is not contained in the standard router firmware. Uploading of this router app is described in the Configuration manual (see Chapter Related Documents).

Description of the module

Layer 2 Firewall router app 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.

Web interface

Once the installation of the module is complete, the module's GUI can be invoked by clicking the module name on the router apps 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.

Status
Global
Configuration
Rules
Customization
Return

Figure 1: Main menu

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.

Rules Configuration	
<input type="checkbox"/> Enable filtering of layer 2 frames	
Source MAC Address *	Action
<input type="checkbox"/> <input type="text"/>	allow ▼
<input type="checkbox"/> <input type="text"/>	allow ▼
<input type="checkbox"/> <input type="text"/>	allow ▼
<input type="checkbox"/> <input type="text"/>	allow ▼
* can be blank	
<input type="button" value="Apply"/>	

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 router app.

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.

Rules Configuration

☒ Enable filtering of layer 2 frames

Source MAC Address *	Action
<input checked="" type="checkbox"/> A4:4C:C8:80:C7:53	allow ▾
<input checked="" type="checkbox"/> E1:C3:FF:85:A5:8C	allow ▾
<input checked="" type="checkbox"/> E1:3D:74:52:E0:A1	allow ▾
<input checked="" type="checkbox"/> B7:C1:88:80:E1:50	allow ▾
<input checked="" type="checkbox"/>	deny ▾
<input type="checkbox"/>	allow ▾

☐ allow ▾

* can be blank

Apply

Figure 3: Example of rules configuration

Module status

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

Global Status

Module l2fw, iptables chain mod_l2fw, is running
Module l2fw, ip6tables chain mod_l2fw, is running


Figure 4: Status page

Related Documents

- You can obtain product-related documents on Engineering Portal at icr.advantech.cz address.

- To get your router's Quick Start Guide, User Manual, Configuration Manual, or Firmware go to the Router Models page, find the required model, and switch to the Manuals or Firmware tab, respectively.
 - The Router Apps installation packages and manuals are available on the Router Apps page.
 - For the Development Documents, go to the DevZone page.
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Documents / Resources

	<p>ADVANTECH Router App Layer 2 Firewall [pdf] User Guide Router App Layer 2 Firewall, App Layer 2 Firewall, Layer 2 Firewall, 2 Firewall</p>
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References

- [A Advantech 4G, 5G Cellular Routers & Gateways for IoT applications - Engineering Portal](#)
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- [A DevZone - Cellular Routers Engineering Portal](#)
- [A Router Apps - Cellular Routers Engineering Portal](#)
- [A Router Models - Cellular Routers Engineering Portal](#)

Manuals+.