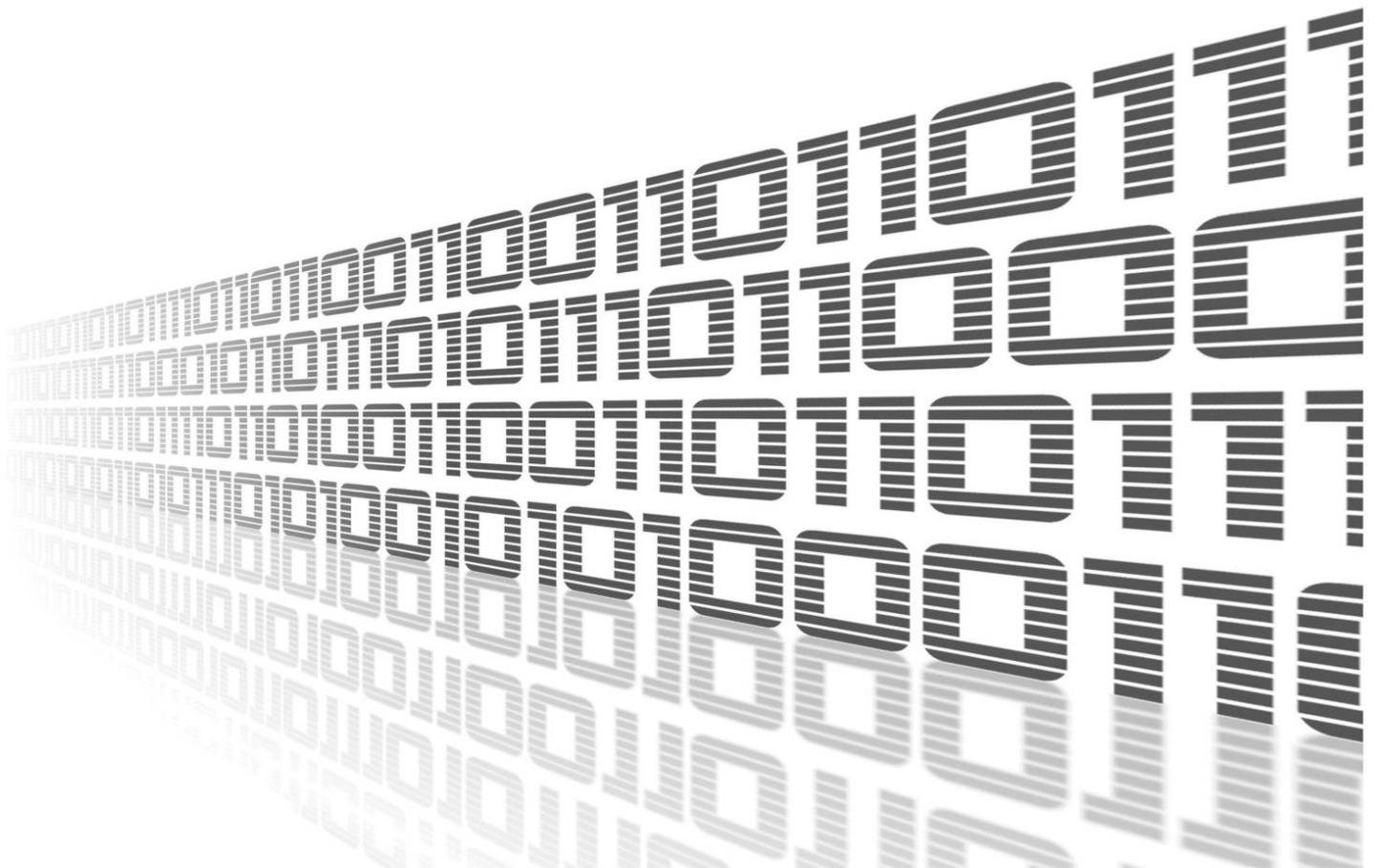


# ADVANTECH



## NAT



© 2024 Advantech Czech s.r.o. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photography, recording, or any information storage and retrieval system without written consent. Information in this manual is subject to change without notice, and it does not represent a commitment on the part of Advantech.

Advantech Czech s.r.o. shall not be liable for incidental or consequential damages resulting from the furnishing, performance, or use of this manual.

All brand names used in this manual are the registered trademarks of their respective owners. The use of trademarks or other designations in this publication is for reference purposes only and does not constitute an endorsement by the trademark holder.

# 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.

# Contents

<b>1. Changelog</b>	<b>1</b>
1.1 NAT Changelog . . . . .	1
<b>2. Description of the module</b>	<b>2</b>
<b>3. Web Interface</b>	<b>3</b>
3.1 Status . . . . .	3
3.1.1 NAT rules . . . . .	3
3.2 Configuration . . . . .	4
3.2.1 SNAT . . . . .	4
3.2.2 DNAT . . . . .	5
3.2.3 NAT Example . . . . .	6
<b>4. Related Documents</b>	<b>7</b>

## List of Figures

1	Menu . . . . .	3
2	Status Overview . . . . .	3
3	SNAT Configuration . . . . .	4
4	DNAT Configuration . . . . .	5
5	NAT Example . . . . .	6

## List of Tables

1	SNAT Configuration Example Items Description . . . . .	4
2	DNAT Configuration Example Items Description . . . . .	5

# 1. Changelog



This Router App has been tested on a router with firmware version 6.3.10. After updating the router's firmware to a higher version, make sure that a newer version of the Router App has not also been released, as it is necessary to update it as well for compatibility reasons.

## 1.1 NAT Changelog

### v1.0.0 (2016-10-10)

- First release.

### v1.1.0 (2020-05-29)

- Increased number of rules to 32.
- Added option TCP+UDP.

### v1.2.0 (2020-07-22)

- Added description field.

### v1.3.0 (2020-10-01)

- Updated CSS and HTML code to match firmware 6.2.0+.

### v1.3.1 (2022-01-19)

- Widened description field.

### v1.4.0 (2024-01-05)

- Reworked license information
- Added 'br0' interface
- Extended from 32 to 64 SNAT/DNAT entries
- Added description and summary files
- Recompiled with ModulesSDK 2.1.0

## 2. Description of the module



Router app *NAT* is not contained in the standard router firmware. Uploading of this router app is described in the Configuration manual (see Chapter [Related Documents](#)).

NAT router app allows router to translate addresses from one IP address space into another by modifying network address information in the IP header of packets.

# 3. 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 menu section and Configuration menu section. Customization menu 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.

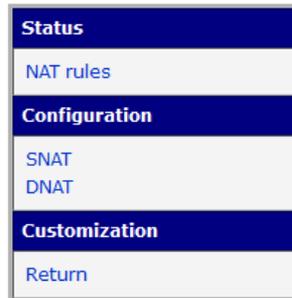


Figure 1: Menu

## 3.1 Status

### 3.1.1 NAT rules

An overview of the current status can be viewed by clicking on the *Overview* item in the main menu of module web interface. At the beginning of this page is a list of SNAT and DNAT rules and information about whether the corresponding service is active or not.

Status Overview										
SNAT rules:										
Chain mod_nat_post (1 references)										
pkts	bytes	target	prot	opt	in	out	source	destination		
0	0	SNAT	tcp	--	*	eth1	10.20.20.38	10.20.30.40	tcp	spt:80 dpt:99 to:40.50.60.70:55
0	0	SNAT	udp	--	*	tun0	9.120.89.112	89.10.2.150	udp	spt:60 dpt:70 to:12.80.150.10:25
DNAT rules:										
Chain mod_nat_pre (1 references)										
pkts	bytes	target	prot	opt	in	out	source	destination		
0	0	DNAT	tcp	--	eth2	*	80.52.123.11	98.80.60.125	tcp	spt:55 dpt:44 to:98.56.25.222:44
0	0	DNAT	tcp	--	usb0	*	87.8.98.180	65.44.80.220	tcp	spt:12 dpt:45 to:67.50.50.12:66
0	0	DNAT	udp	--	usb0	*	87.8.98.180	65.44.80.220	udp	spt:12 dpt:45 to:67.50.50.12:66

Figure 2: Status Overview

## 3.2 Configuration

### 3.2.1 SNAT

Source NAT (SNAT) is the most common form of NAT. SNAT changes the source address of the packets passing through the Router. SNAT is typically used when an internal (private) host needs to initiate a session to an external (public) host; in this case, the device that is performing NAT changes the private IP address of the source host to some public IP address.

Configuration of SNAT can be done on Global page, under Configuration menu section. All configuration items for SNAT configuration page are described in the table below. SNAT configuration can handle up to 64 rules.

SNAT Configuration								
<input checked="" type="checkbox"/> Enable SNAT								
Interface *	Protocol	Source *	Port *	Destination *	Port *	To Source *	To Port *	
<input checked="" type="checkbox"/> eth1	TCP	10.20.20.38	80	10.20.30.40	99	40.50.60.70	55	
<input checked="" type="checkbox"/> tun0	UDP	9.120.89.112	60	89.10.2.150	70	12.80.150.10	25	
<input type="checkbox"/>	all							
<input type="checkbox"/>	all							
<input type="checkbox"/>	all							

Figure 3: SNAT Configuration

Item	Description
Enable SNAT	Enabled, SNAT functionality of the module is turned on.
Interface	Select router interface for this rule.
Protocol	Select protocol for this rule. You can choose among: <ul style="list-style-type: none"> <li>• all</li> <li>• TCP</li> <li>• UDP</li> <li>• TCP+UDP</li> <li>• UDP</li> </ul>
Source	Enter source IP address.
Port	Enter source port.
Destination	Enter destination IP address.
Port	Enter destination port.
To Source	Enter To Source IP address.
To Port	Enter To Source port.

Table 1: SNAT Configuration Example Items Description

### 3.2.2 DNAT

While SNAT changes the source address of packets, destination NAT (DNAT) changes the destination address of packets passing through the Router. DNAT is typically used when an external (public) host needs to initiate a session with an internal (private) host. The source address of return packets is automatically translated back to the IP address of the source host.

Configuration of DNAT can be done on Global page, under Configuration menu section. All configuration items for DNAT configuration page are described in the table below. DNAT configuration can handle up to 64 rules.

DNAT Configuration								
<input checked="" type="checkbox"/> Enable DNAT								
<input checked="" type="checkbox"/>	eth2	TCP	80.52.123.11	55	98.80.60.125	44	98.56.25.222	44
<input checked="" type="checkbox"/>	usb0	TCP+UDP	87.8.98.180	12	65.44.80.220	45	67.50.50.12	66
<input type="checkbox"/>		all						
<input type="checkbox"/>		all						
<input type="checkbox"/>		all						

Figure 4: DNAT Configuration

Item	Description
Enable DNAT	Enabled, DNAT functionality of the module is turned on.
Interface	Select router interface for this rule.
Protocol	Select protocol for this rule. You can choose among: <ul style="list-style-type: none"> <li>• all</li> <li>• TCP</li> <li>• UDP</li> <li>• TCP+UDP</li> <li>• UDP</li> </ul>
Source	Enter source IP address.
Port	Enter source port.
Destination	Enter destination IP address.
Port	Enter destination port.
To Destination	Enter To Destination IP address.
To Port	Enter To Destination port.

Table 2: DNAT Configuration Example Items Description

### 3.2.3 NAT Example

*SNAT* (Source Network Address Translation) changes the private IP address of the source host to public IP address. It may also change the source port in the TCP/UDP headers. SNAT is typically used by internal users to access the Internet. It is performed after the routing decision is made.

*DNAT* (Destination Network Address Translation) changes the destination address in IP header of a packet. It may also change the destination port in the TCP/UDP headers. DNAT is used when we need to redirect incoming packets with a destination of a public address/port to a private IP address/port inside your network. It is performed before the routing decision is made.

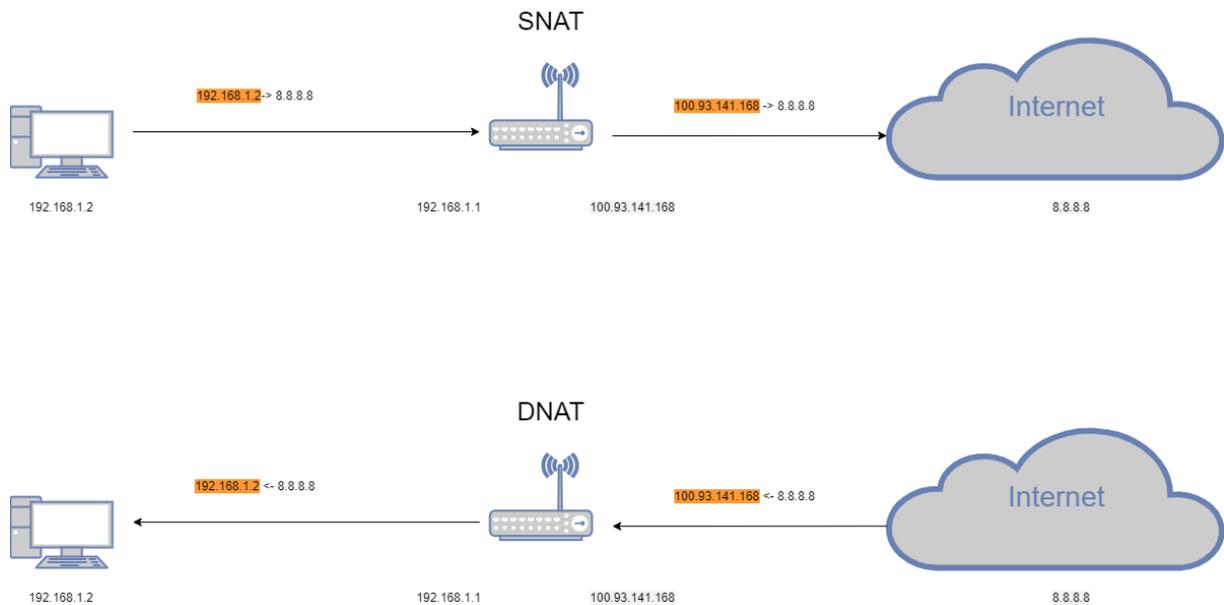


Figure 5: NAT Example

## 4. Related Documents

You can obtain product-related documents on *Engineering Portal* at [icr.advantech.com](http://icr.advantech.com) 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.