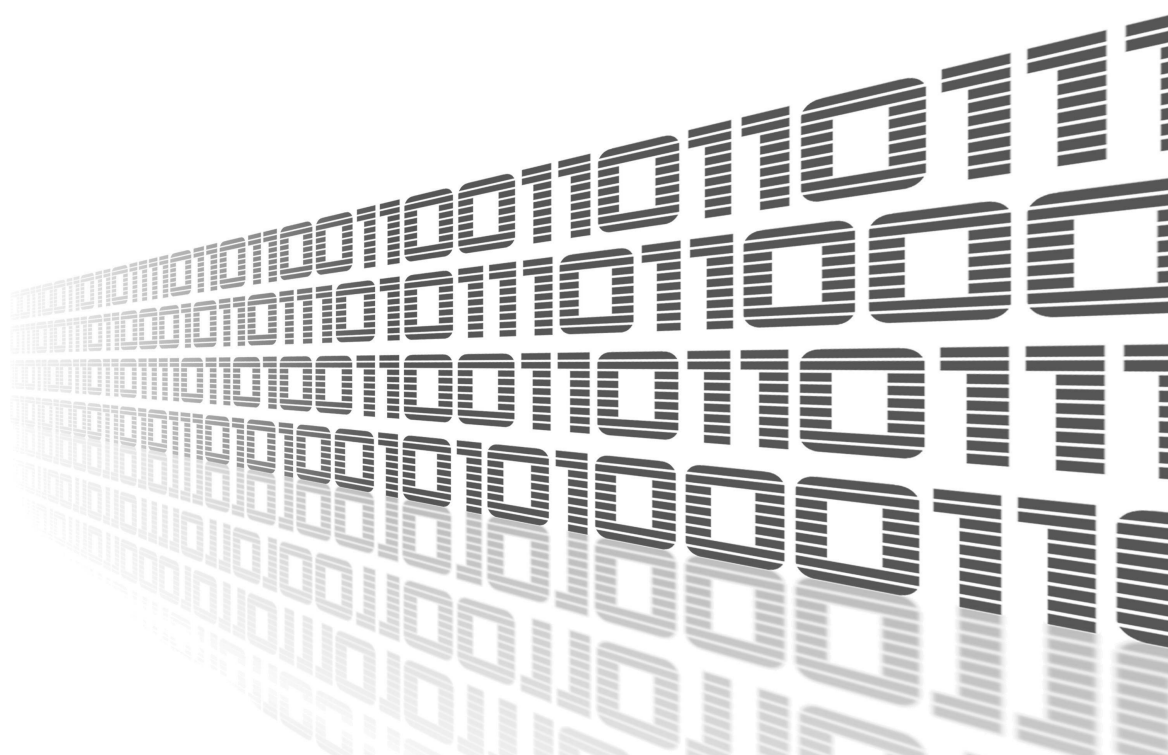




User Module

# NAT

APPLICATION NOTE



## Used symbols



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



*Attention* – Problems that may arise in specific situations.



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



*Example* – example of function, command or script.



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# 1. Description of the module



This user module is not installed on *Advantech* routers by default. See *Configuration Manual* for the description how to upload a user module to the router. For more information see the *Configuration manual*, chapter *Customization* → *User Modules*.

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

## 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 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.

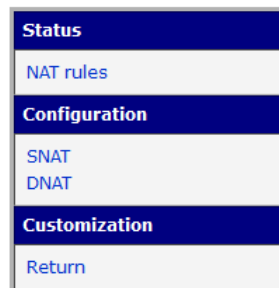


Figure 1: Menu

### 2.1 Status

#### 2.1.1 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

## 2.2 Configuration

### 2.2.1 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 32 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

## 2.2.2 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 32 rules.

DNAT Configuration							
<input checked="" type="checkbox"/> Enable DNAT							
Interface *	Protocol	Source *	Port *	Destination *	Port *	To Destination	To Port *
<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, 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 Destination	Enter To Destination IP address.
To Port	Enter To Destination port.

Table 2: DNAT Configuration Example Items Description

## 3. Related Documents

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



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