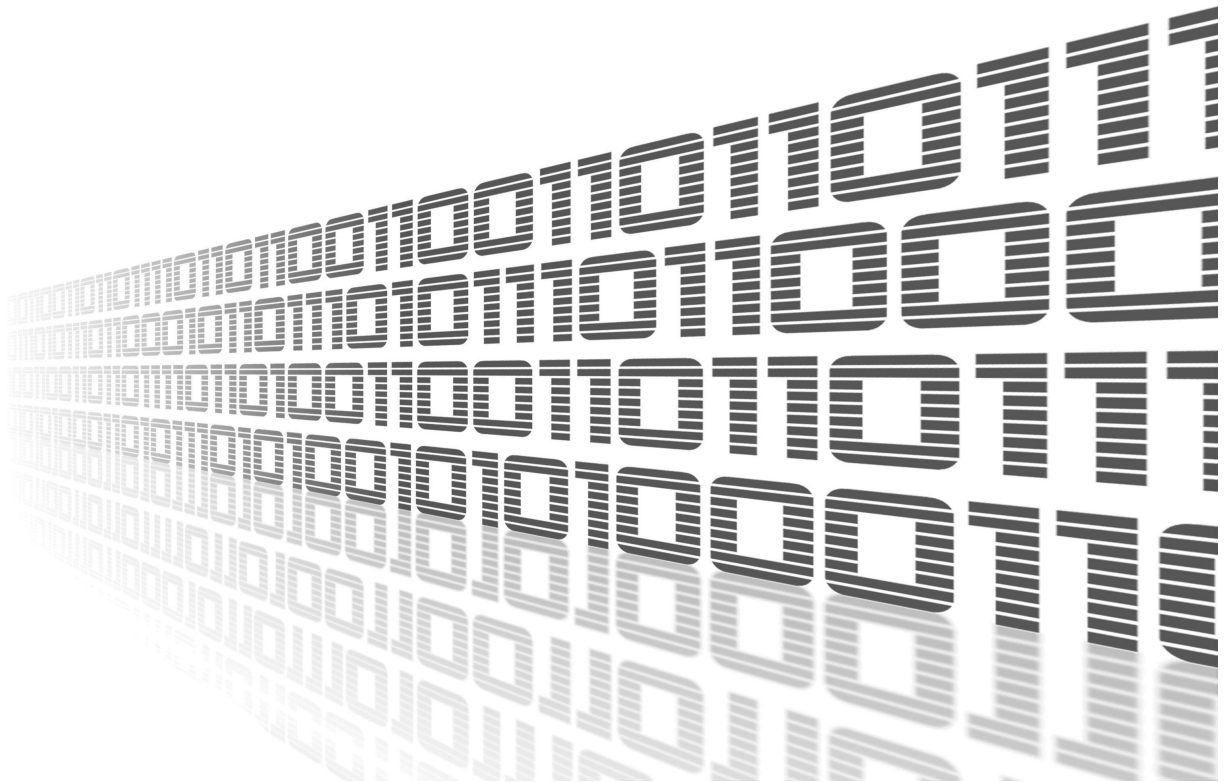




User Module

# NAT

APPLICATION NOTE



**ADVANTECH**

## 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



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

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.

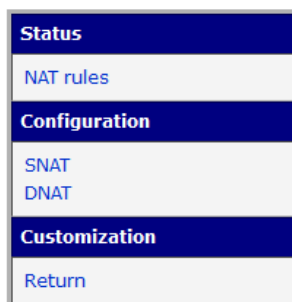


Figure 1: Menu

### 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

### 2.2.3 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.

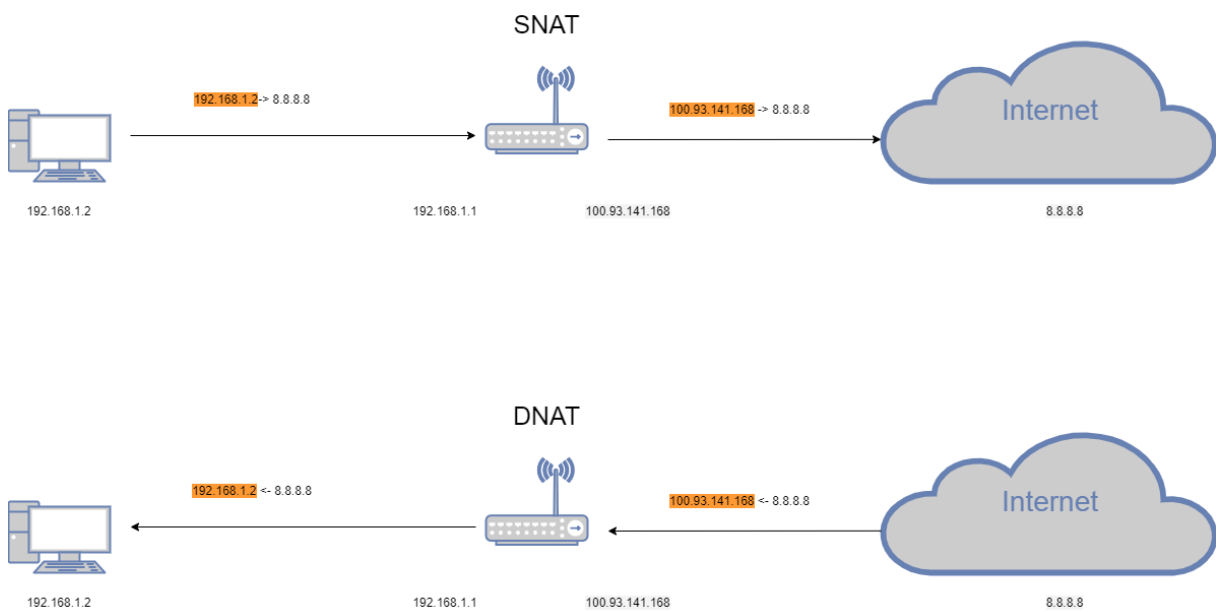


Figure 5: NAT Example



## 3. Related Documents

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