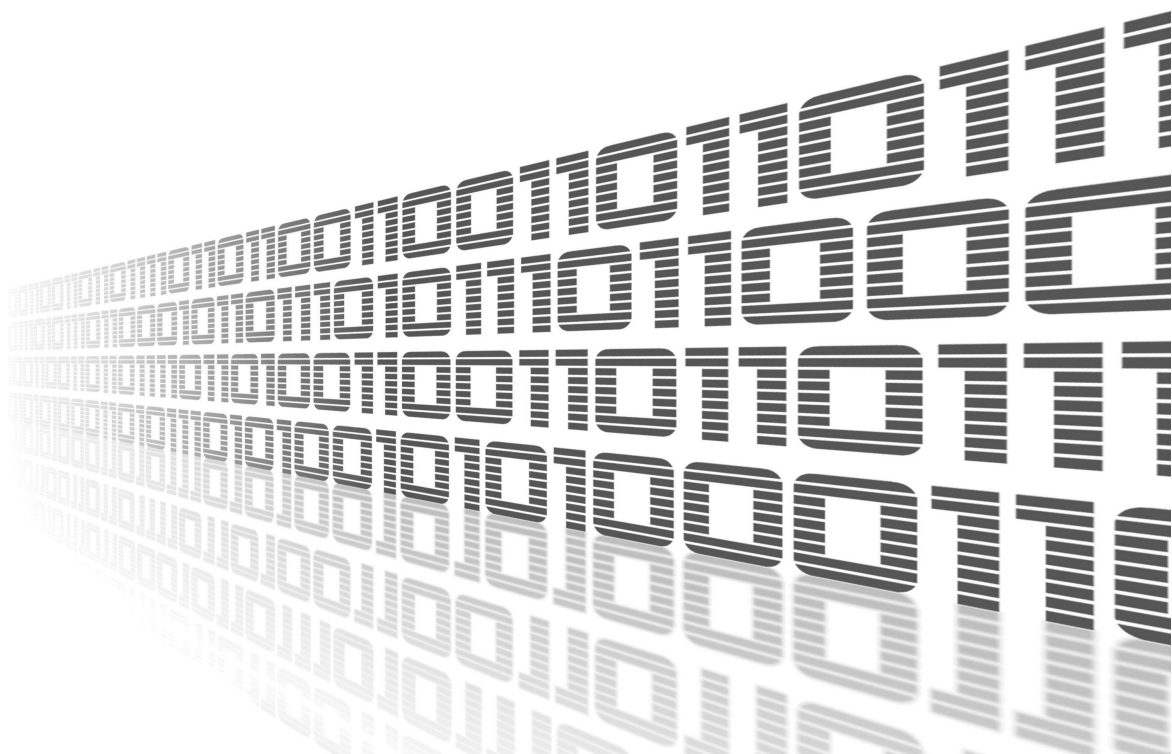




User Module

DHCP Relay

APPLICATION NOTE



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. User Module DHCP Relay

1.1 Description



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

This user module provides the *DHCP relay agent* to enable the communication from a DHCP server to DHCP clients on subnets other than the one the server resides on. Moreover, the DHCP server can reside on a **virtual interface** such as **IPSec** or **OpenVPN**. The DHCP relay agent transfers DHCP messages from DHCP clients located on a subnet without a DHCP server to other subnets. It also relays answers from DHCP servers to DHCP clients. For the functional scheme of the DHCP relay functionality, see Figure 1.

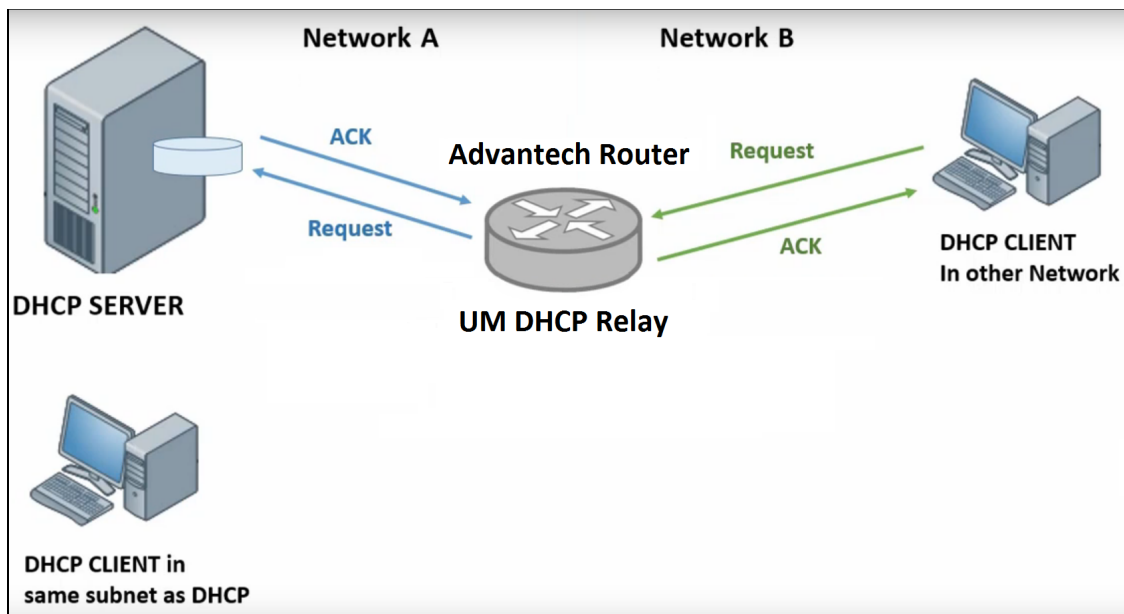


Figure 1: DHCP Relay Functional Scheme

The DHCP relay agent is transparent to both the client and the server. Neither side is aware of the communications that pass through the DHCP relay agent. As DHCP clients broadcast requests, the DHCP relay agent receives the packets and forwards them to the DHCP server. During this process, the DHCP relay agent increases the hop count by one before forwarding the DHCP message to the server. A DHCP server includes the hop count from the DHCP request that it receives in the response that it returns to the client.

1.2 Installation

The latest version of *DHCP Relay* user module can be downloaded from the Engineering Portal [EP] at <https://ep.advantech-bb.cz/products/software/user-modules>.

In the GUI of the router navigate to *Customization* -> *User Modules* page. Here choose the downloaded module's installation file and click to the *Add or Update* button.

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. Figure 2 shows the main menu of the module. It has the *Status* menu section, followed by the *Configuration*, *Information* and *General* menu sections. To return back to the router's web GUI, click on the *Return* item.

DHCP Relay

Status
Overview
System Log
Configuration
Global
Information
Licenses
Customization
Return

Figure 2: Main Menu

1.3 Module Configuration

Configuration of this user module can be done on *Global* page, under *Configuration* menu section. Up to six different rules can be configured. Configuration form is shown in Figure 3. All configuration items are described in Table 1.

Global Configuration				
<input checked="" type="checkbox"/> Enable DHCP Relay service				
Enabled	Local Interface	Local IP Address	Outgoing Interface	DHCP Server IP Address
<input checked="" type="checkbox"/>	eth0	192.168.1.1	eth2	192.163.3.254
<input checked="" type="checkbox"/>	eth1	192.168.2.1	ipsec0	192.163.10.254
<input type="checkbox"/>	eth0		ipsec0	
<input type="checkbox"/>	eth0		ipsec0	
<input type="checkbox"/>	eth0		ipsec0	
<input type="checkbox"/>	eth0		ipsec0	
<input type="button" value="Apply"/>				

Figure 3: Configuration Example

There are two DHCP Relay rules defined in the configuration example above.

The first rule forwards the DHCP requests from 192.168.1.0/24 network connected to the ETH0 interface to the DHCP server (IP 192.163.3.254) on ETH2 interface connected to the 192.168.1.0/24 network.

The second rule forwards the DHCP requests from 192.168.2.0/24 network connected to the ETH1 interface to the DHCP server (IP 192.163.10.254) on the 192.168.10.0/24 network connected through the first IPsec tunnel.

Item	Description
Enable DHCP Relay service	If enabled, the functionality of the module (DHCP Relay agent) is turned on.
Enabled	Enables the rule configured in a relevant row configuration.
Local Interface	The incoming interface connected to the network without the DHCP server.
Local IP Address	IP address of the local interface.
Outgoing Interface	The outgoing interface connected to the network having the DHCP server.
DHCP Server IP Address	IP address of the DHCP server running in the network connected to the outgoing interface.

Table 1: Description of Configuration Items

1.4 Other Pages

The status of all of the DHCP Relay Services can be observed at Overview page under the *Status* menu section, see Figure 4.

Status Overview	
Services	
DHCP Relay Service 1 : Running	
Nov 3 14:06:04 dnsmasq[12091]: started, version 2.81 DNS disabled	
Nov 3 14:06:04 dnsmasq-dhcp[12091]: DHCP relay from 192.168.1.1 to 192.163.3.254	
DHCP Relay Service 2 : Stopped	
DHCP Relay Service 3 : Stopped	
DHCP Relay Service 4 : Stopped	
DHCP Relay Service 5 : Stopped	
DHCP Relay Service 6 : Stopped	

Figure 4: Status Page

The *System Log* page under the *Status* menu section, contains the full system log messages, not just the module related.

The *Licenses* page under the *Information* menu section, contains information related the licensees related to the user module.

2. 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)



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