

Universal Client Interface

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General Information

Summary

Universal Client Interface allows to work with clients regardless of their IP addresses, translating these addresses to the ones the router is able to work with. It gives a possibility to provide a network access (for example, Internet access) to mobile clients that are not willing to change their networking settings. The feature is intended to use with HotSpot, but may be useful even without HotSpot.

Specifications

Packages required: *system*

License required: *level1*

Home menu level: */ip hotspot universal*

Hardware usage: *Not significant*

Description

Universal client accepts any incoming address from a connected network interface and does one to one network address translation so that data may be routed through standard IP networks. Clients may use any

preconfigured addresses. If the Universal client feature is set to translate a client's address to a public IP address, then the client may even run a server or any other service that requires a public IP address. It is possible to add static entries, so that some clients will get the specified addresses.

Universal client is changing source address of each packet just after it is received by the router (even mangle 'sees' the translated address).

Note also that **arp** mode must be **enabled** on the interface you set Universal Client Interface on.

Universal Client Interface Setup

Home menu level: */ip hotspot universal*

Property Description

interface (*name*) - interface to run universal client on

address-pool (*name*) - IP address pool name

arp (*all-arp* | *no-arp*; default: **all-arp**) - ARP handling mode:

- **all-arp** - respond to all ARP requests
- **no-arp** - respond to ARP requests normally

use-dhcp (*yes* | *no*; default: **yes**) - do not translate the addresses assigned by DHCP server

idle-timeout (*time*; default: **5m**) - idle timeout (maximal period of inactivity) for client added dynamically

addresses-per-mac (*integer*; default: **2**) - maximal amount of IP addresses assigned to one MAC address

Notes

Setting **arp** in **all-arp** is generally a good idea because in most cases you cannot know what is the gateway's IP address configured on the clients, but it can potentially disturb some network protocols.

Example

To enable Universal Client Interface on **ether1** interface that will take the addresses to translate to from the **exp** pool:

```
[admin@MikroTik] ip hotspot universal> add address-pool=exp interface=ether1
[admin@MikroTik] ip hotspot universal> print
Flags: X - disabled, I - invalid
#  INTERFACE  ADDRESS-POOL  ADDRESSES-PER-MAC  ARP      USE-DHCP  IDLE-TIMEOUT
0 X ether1    exp           2                 all-arp  yes       5m

[admin@MikroTik] ip hotspot universal> enable 0
[admin@MikroTik] ip hotspot universal> print
Flags: X - disabled, I - invalid
#  INTERFACE  ADDRESS-POOL  ADDRESSES-PER-MAC  ARP      USE-DHCP  IDLE-TIMEOUT
0  ether1    exp           2                 all-arp  yes       5m

[admin@MikroTik] ip hotspot universal>
```

Universal Host List

Home menu level: */ip hotspot universal host*

Description

The list shows the current translation table. There are three ways a client may be added to the table:

- Each time router receives a packet from an unknown client (determined by three properties: **mac-address**, **address** and **interface**), it adds the client to the list
- Client may be added by DHCP server

Property Description

mac-address (*read-only: MAC address*) - client's MAC address

address (*read-only: IP address*) - client's IP address

to-address (*read-only: IP address*) - IP address to translate the address to

interface (*read-only: name*) - interface name the client is connected to

idle-time (*read-only: time*) - inactivity time

uptime (*read-only: time*) - how long the client is active

bytes-in (*read-only: integer*) - the amount of bytes received from the client

bytes-out (*read-only: integer*) - the amount of bytes sent to the client

packets-in (*read-only: integer*) - the amount of packets received from the client

packets-out (*read-only: integer*) - the amount of packets sent to the client

Example

To check the current translation table:

```
[admin@MikroTik] ip hotspot universal host> print
Flags: I - invalid, H - DHCP, D - dynamic
#   MAC-ADDRESS      ADDRESS      TO-ADDRESS    INTERFACE
0 D 00:05:5D:5F:4E:34 10.1.0.144   192.168.0.254 int
[admin@MikroTik] ip hotspot universal host>
```

Universal Access List

Home menu level: */ip hotspot universal access*

Description

You can specify manually what IP address will a given IP and/or MAC addresses get.

Property Description

mac-address (*MAC address*) - client's MAC address

address (*IP address*) - client's IP address

to-address (*IP address*) - IP address to translate the address to

interface (*name | empty*) - interface name the client is connected to

Example

To add an entry specifying that IP address **10.20.30.40** should be translated to **10.0.0.20** for packets coming from **ether1** interface:

```
[admin@MikroTik] ip hotspot universal access> add address=10.20.30.40 \
...\ interface=ether1 to-address=10.0.0.20
[admin@MikroTik] ip hotspot universal access> print
Flags: X - disabled, I - invalid, H - DHCP, D - dynamic
#   MAC-ADDRESS      ADDRESS      TO-ADDRESS      INTERFACE  IDLE-TIME
0   10.20.30.40      10.0.0.20      ether1          1s
[admin@MikroTik] ip hotspot universal access>
```

Service Port

Home menu level: */ip hotspot universal service-port*

Description

Just like for classic NAT, the Universal Client Interface 'breaks' some protocols that are incompatible with address translation. To leave these protocols consistent, helper modules must be used. For the Universal Client Interface the only such a module is for FTP protocol.

Property Description

name (*read-only: name*) - protocol name

ports (*read-only: integer*) - list of the ports on which the protocol is working

Example

To set the FTP protocol uses both 20 and 21 TCP ports:

```
[admin@MikroTik] ip hotspot universal service-port> print
Flags: X - disabled
#   NAME      PORTS
0   ftp       21
[admin@MikroTik] ip hotspot universal service-port> set ftp ports=20,21
[admin@MikroTik] ip hotspot universal service-port> print
Flags: X - disabled
#   NAME      PORTS
0   ftp       20
                                21
[admin@MikroTik] ip hotspot universal service-port>
```