Manual:IP/DHCP Client

From MikroTik Wiki
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Applies to
RouterOS: v3, v4 +

Summary

The MikroTik RouterOS DHCP client may be enabled on any Ethernet-like interface at a time. The client will accept an address, netmask, default gateway, and two dns server addresses. The received IP address will be added to the interface with the respective netmask. The default gateway will be added to the routing table as a dynamic entry. Should the DHCP client be disabled or not renew an address, the dynamic default route will be removed. If there is already a default route installed prior the DHCP client obtains one, the route obtained by the DHCP client would be shown as invalid.

RouterOS DHCP cilent asks for following options:

- option 1 - SUBNET_MASK,
- option 3 - GATEWAY_LIST,
- option 6 - TAG_DNS_LIST,
- option 33 - STATIC_ROUTE,
- option 42 - NTP_LIST,

- option 121 - CLASSLESS_ROUTE,

Option

DHCP client has a possibility to set up options that are sent to DHCP server. For example, hostname and MAC address. Syntax is same as for DHCP server options.

Note: This feature is available since RouterOS 6.0

Currently, there are three variables that can be used in options:

- HOSTNAME;
- CLIENT_MAC - client interface MAC address;
- CLIENT_DUID - client DIUD of the router, same as used fir the DHCPv6 client. In conformance with rfc4361

DHCP client default options include these default Options:

Name	code	value
clientid_duid	61	0xff$(CLIENT_DUID)
clientid	61	0x01$(CLIENT_MAC)
hostname	12	$(HOSTNAME)

IPv6

Starting from v5.8 DHCP Client can receive delegated prefixes from DHCPv6 server. Currently received prefix is added to IPv6 pool, which later can be used for example in pppoe server configuration. Starting from v5.9, DHCPv6 client configuration was moved to /ipv6 sub-menu. `Read-more >>`

Quick setup example

Add a DHCP client on ether1 interface:

```
/ip dhcp-client add interface=ether1 disabled=no
```

After interface is added, you can use "print" or "print detail" command to see what parameters DHCP client acquired:

```
[admin@MikroTik] ip dhcp-client> print detail
Flags: X - disabled, I - invalid
 0   interface=ether1 add-default-route=yes use-peer-dns=yes use-peer-ntp=yes
     status=bound address=192.168.0.65/24 gateway=192.168.0.1
     dhcp-server=192.168.0.1 primary-dns=192.168.0.1 primary-ntp=192.168.0.1
     expires-after=9m44s
[admin@MikroTik] ip dhcp-client>
```

Note: If interface used by DHCP client is part of VRF configuration, then default route and other received routes from DHCP server will be added to VRF routing table.

Lease script example

Since RouterOS v6.39rc33, it is possible to execute a script when DHCP client obtains new lease or loses existing. This is an example script that automatically adds a default route with routing-mark=WAN1 and removes it

when the lease expires or is removed.

```
/ip dhcp-client
add add-default-route=no dhcp-options=hostname,clientid disabled=no interface=ether2 script="{
    \n    :local rmark \"WAN1\"\r\
    \n    :local count [/ip route print count-only where comment=\"WAN1\"]\r\
    \n    :if (\$bound=1) do={\r\
    \n        :if (\$count = 0) do={\r\
    \n            /ip route add gateway=\$\"gateway-address\" comment=\"WAN1\" routing-mark=\$
    \n        } else={\r\
    \n            :if (\$count = 1) do={\r\
    \n                :local test [/ip route find where comment=\"WAN1\"]\r\
    \n                :if ([/ip route get \$test gateway] != \$\"gateway-address\") do={\r\
    \n                    /ip route set \$test gateway=\$\"gateway-address\"\r\
    \n                }\r\
    \n            } else={\r\
    \n                :error \"Multiple routes found\"\r\
    \n            }\r\
    \n        }\r\
    \n    } else={\r\
    \n        /ip route remove [find comment=\"WAN1\"]\r\
    \n    }\r\
    \n}\r\
    \n"
```

Properties

Sub-menu: `/ip dhcp-client`

Property	Description
`add-default-route` (*yes* | *no* | *special-classless*; Default: **yes**)	Whether to install default route in routing table received from dhcp server. By default RouterOS client complies to RFC and ignores option 3 if classless option 121 is received. To force client not to ignore option 3 set *special-classless*. This parameter is available in v6rc12+ - **yes** - adds classless route if received, if not then add default route (old behavior) - **special-classless** - adds both classless route if received and default route (MS style)
`client-id` (*string*; Default:)	Corresponds to the settings suggested by the network administrator or ISP. If not specified, client's MAC address will be sent
`comment` (*string*; Default:)	Short description of the client
`default-route-distance`	Distance of default route. Applicable if `add-default-`

(*integer:0..255*; Default:)	`route` is set to `yes`.
`disabled` (*yes* | *no*; Default: **yes**)	
`host-name` (*string*; Default:)	Host name of the client sent to a DHCP server. If not specified, client's system identity will be used.
`interface` (*string*; Default:)	Interface on which DHCP client will be running.
`script` (*script*; Default:)	Execute script on status change. This parameter is available in v6.39rc33+ These are available variables that are accessible for the event script: ▪ `bound` - 1 - lease is added/changed; 0 - lease is removed ▪ `server-address` - server address ▪ `lease-address` - lease address provided by server ▪ `interface` - name of interface on which client is configured ▪ `gateway-address` - gateway address provided by server ▪ `vendor-specific` - stores value of option 43 received from DHCP server `Example >>`
`use-peer-dns` (*yes* | *no*; Default: **yes**)	Whether to accept the DNS settings advertised by DHCP Server. (Will override the settings put in the `/ip dns` submenu.
`use-peer-ntp` (*yes* | *no*; Default: **yes**)	Whether to accept the NTP settings advertised by DHCP Server. (Will override the settings put in the `/system ntp client` submenu)

Status

Command `/ip dhcp-client print detail` will show current status of dhcp client and **read-only** properties listed in table below:

Property	Description
`address` (*IP/Netmask*)	IP address and netmask, which is assigned to DHCP Client from the Server
`dhcp-server` (*IP*)	IP address of the DHCP server.

`expires-after` (*time*)	Time when the lease expires (specified by the DHCP server).
`gateway` (*IP*)	IP address of the gateway which is assigned by DHCP server
`invalid` (*yes* | *no*)	Shows whether configuration is invalid.
`netmask` (*IP*)	
`primary-dns` (*IP*)	IP address of the primary DNS server, assigned by the DHCP server
`primary-ntp` (*IP*)	IP address of the primary NTP server, assigned by the DHCP server
`secondary-dns` (*IP*)	IP address of the secondary DNS server, assigned by the DHCP server
`secondary-ntp` (*IP*)	IP address of the secondary NTP server, assigned by the DHCP server
`status` (*bound* | *error* | *rebinding...* | *requesting...* | *searching...* | *stopped*)	Shows the status of DHCP Client

Menu specific commands

Property	Description
`release` (*numbers*)	Release current binding and restart DHCP client
`renew` (*numbers*)	Renew current leases. If the renew operation was not successful, client tries to reinitialize lease (i.e. it starts lease request procedure (rebind) as if it had not received an IP address yet)

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