

IPv6 na MikroTiku

Ladislav Růžička



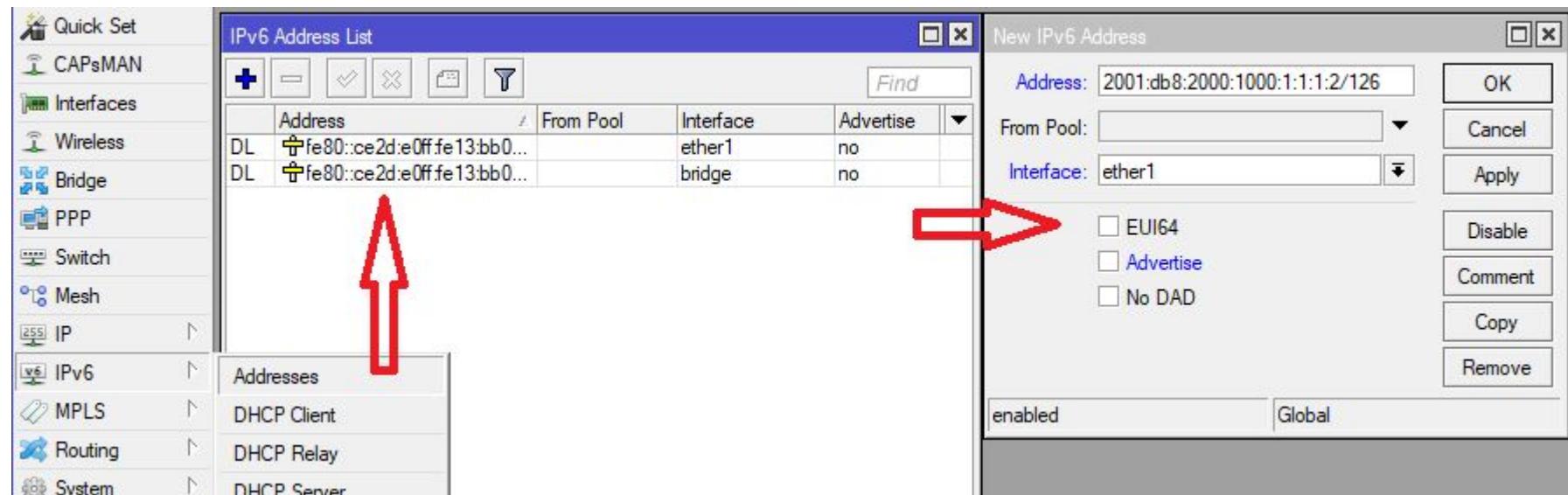
IPv6 - adresace

- rozčlenění sítě
- potřeby zákazníka
- potřeby ISP
 - /127 vs /126 vs /64

IPv6 - zavedení IP

/ipv6 address

add address=2001:db8:2000:1000:1:1:1:2/126 advertise=no interface=ether1



IPv6 - zavedení IP

IPv6 Address List				
	Address	From Pool	Interface	Advertise
DL	fe80::ce2d:e0ff:fe13:bb0d/64		ether1	no
DL	fe80::ce2d:e0ff:fe13:bb0e/64		bridge	no
G	2001:db8:2000:1000:1:1:1:2/126		ether1	no

IPv6 - routing

- static
- BGP 4+
- OSPFv3

IPv6 - routing

/ipv6 route

add gateway=2001:db8:2000:1000:1:1:1:1

The screenshot shows the 'IPv6 Route List' window with the following details:

	Dst. Address	Gateway	Distance
AS	::/0	2001:db8:2000:1000:1:1:1:1 reachable ether1	1
DAC	2001:db8:2000:1000:1:1:1:1	ether1 reachable	0

Below the table, a modal dialog titled 'IPv6 Route <::/0>' is open, showing the configuration for the route to ::/0:

- General tab selected.
- Dst. Address: ::/0
- Gateway: 2001:db8:2000:1000:1:1:1:1 (reachable via ether1)
- Check Gateway: (empty field)

IPv6 - routing

BGP

Instances VRFs Peers Networks Aggregates VPN4 Routes Advertisements

+ - ✓ ✎ Filter Find

Name	AS	Router ID	Out Filter	Confeder...	Confeder...	Cluster ID
default	65530					

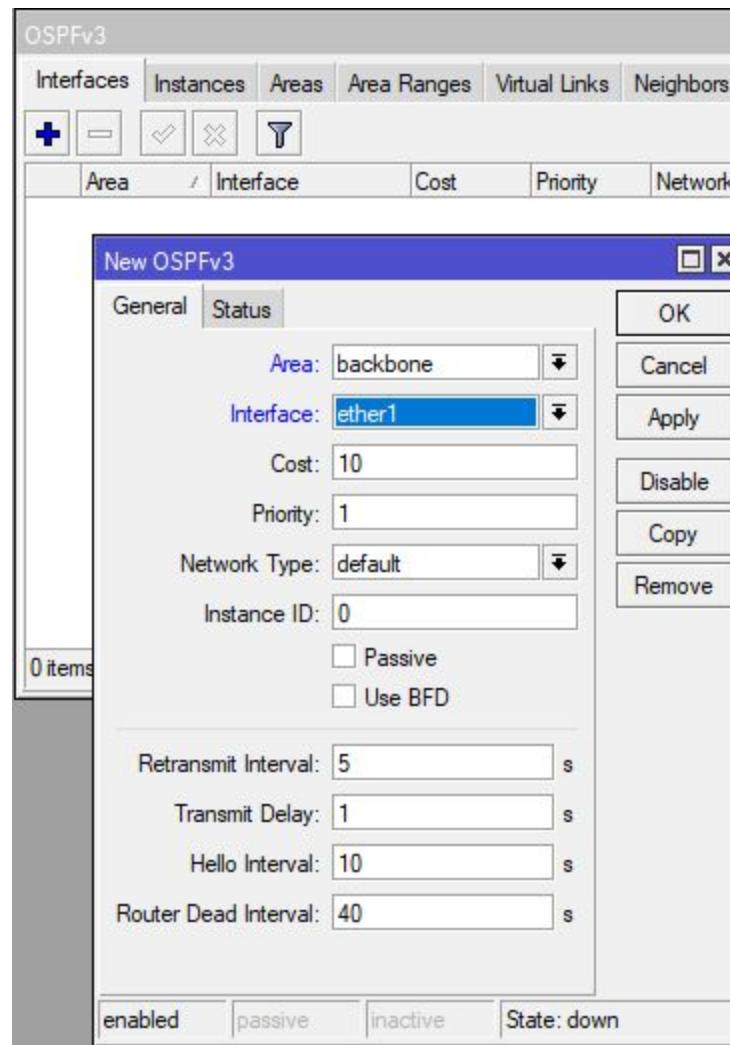
BGP Peer <peer1>

General Advanced Status

Name: peer-IPv6
Instance: default
Remote Address: 2001:db8:2000:1000:1:1:1:1
Remote Port:
Remote AS: 65529
TCP MD5 Key:

OK Cancel Apply Disable Comment Copy

IPv6 - routing



IPv6 - zavedení IP - vnitřní síť

/ipv6 address

add address=2001:db8:2000:2000::/64 interface=bridge advertise=yes eui-64=yes

The screenshot shows the Winbox interface for managing IPv6 addresses. On the left, there is a list of existing IPv6 addresses:

Address	From Pool	Interface
DL fe80::ce2d:e0ff:fe13:bb0d/64		ether
G 2001:db8:2000:1000:1:1:1:2/126		ether
DL fe80::ce2d:e0ff:fe13:bb0e/64		bridge

In the center, a modal dialog titled "New IPv6 Address" is open, allowing configuration of a new address:

New IPv6 Address

Address: 2001:db8:2000:2000::/64	OK
From Pool:	Cancel
Interface: bridge	Apply
<input checked="" type="checkbox"/> EUI64	Disable
<input checked="" type="checkbox"/> Advertise	Comment
<input type="checkbox"/> No DAD	Copy
enabled Global	

On the right, the main "IPv6 Address List" window shows the newly added address:

Address	From Pool	Interface
DL fe80::ce2d:e0ff:fe13:bb0d/64		ether
G 2001:db8:2000:1000:1:1:1:2/126		ether
G 2001:db8:2000:2000:ce2d:e0ff:fe13:bb0e/64		bridge
DL fe80::ce2d:e0ff:fe13:bb0e/64		bridge

IPv6 - DHCP server

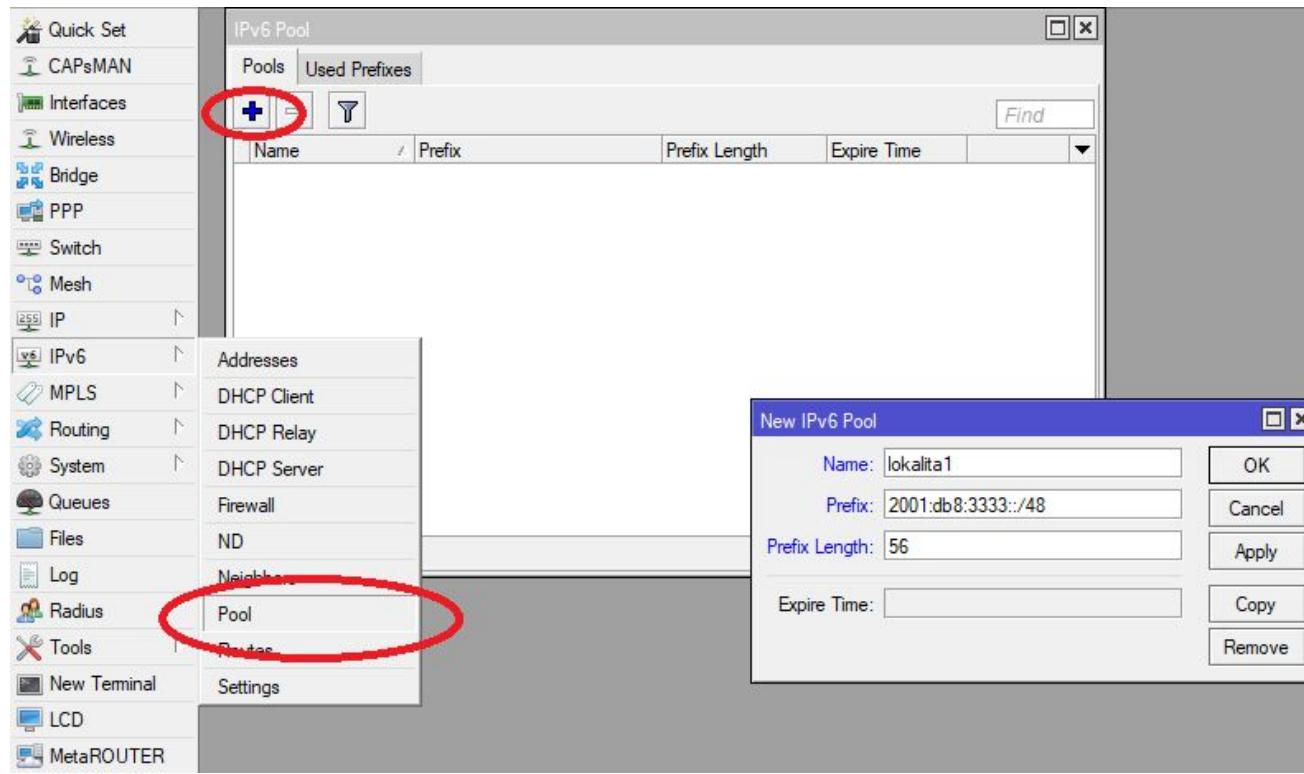
/ipv6 pool

```
add name=lokalita1 prefix=2001:db8:3333::/48 prefix-length=56
```

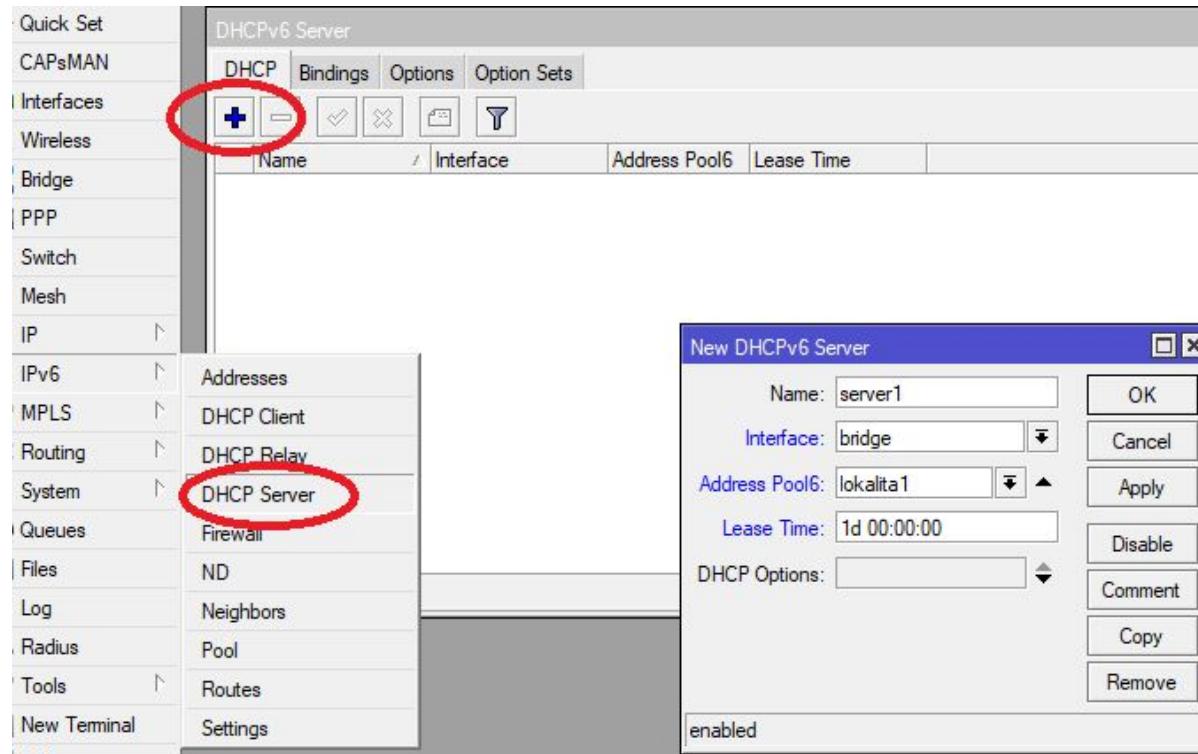
/ipv6 dhcp-server

```
add address-pool=lokalita1 interface=bridge lease-time=1d name=server1
```

IPv6 - DHCP server



IPv6 - DHCP server



IPv6 - DHCP client

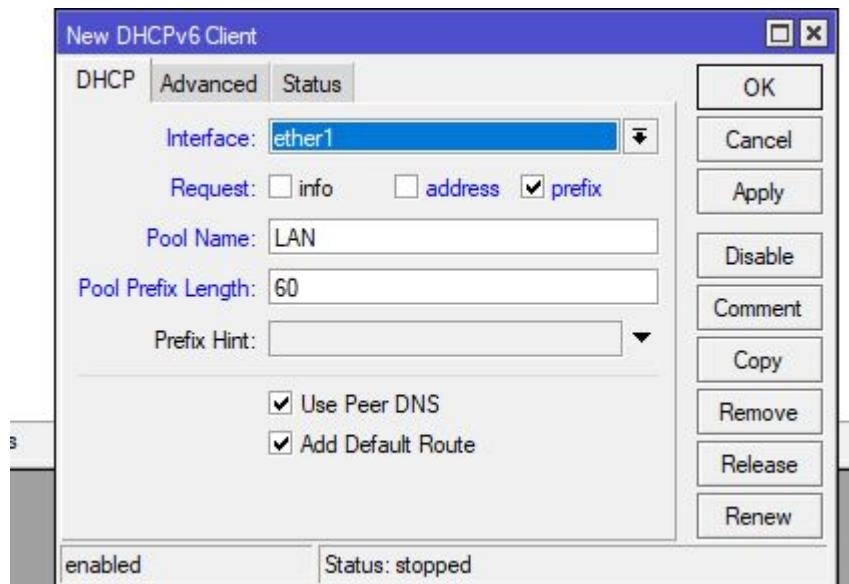
/ipv6 dhcp-client

```
add add-default-route=yes interface=ether1 pool-name=LAN pool-prefix-length=60  
request=prefix
```

/ipv6 address

```
add address=:/:64 eui-64=yes from-pool=LAN interface=bridge
```

IPv6 - DHCP client



IPv6 - DHCP client

DHCPv6 Client

Interface	Request	Pool Name	Pool Pr...	Use P...	Add D...	Prefix	Prefix Expir...	DUID	Status
ether1	prefix	LAN	60	yes	yes	2001:db8:3333::/56	23:59:11	0x00030001cc2d...	bound

DHCPv6 Client <ether1>

DHCP Advanced Status

Prefix: 2001:db8:3333::/56

Prefix Expires After: 23:59:11

Address:

Address Expires After:

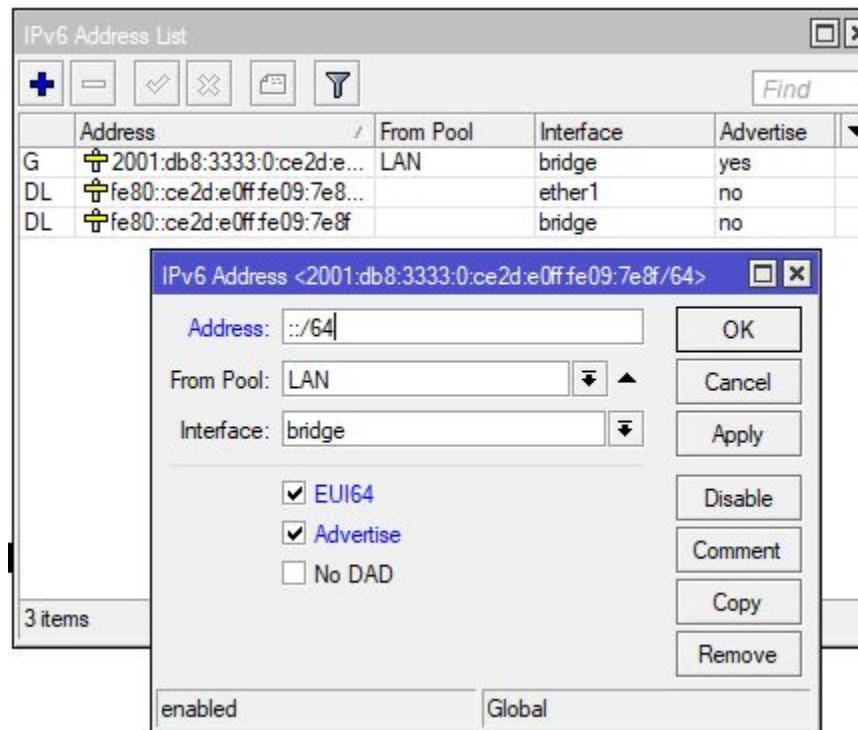
DUID: 0x00030001cc2de0097e8e

Server: fe80::ce2d:e0ff:fe13:bb0e

OK Cancel Apply Disable Comment Copy Remove

1 item (1 s)

IPv6 - DHCP client



IPv6 - DHCP server - STAV

DHCPv6 Server

DHCP Bindings Options Option Sets

	Address	DUID	IAID	Server	Prefix Pool	Expire Time	Status
D	2001:db8:3333::/56	0xcc2de0097e8e	2	server1	lokalita1	23:48:57	bound

DHCPv6 Binding <2001:db8:3333::/56>

Address:	2001:db8:3333::/56	OK
DUID:	0xcc2de0097e8e	Copy
IAID:	2	Remove
Server:	server1	Make Static
Life Time:	1d 00:00:00	
Prefix Pool:	lokalita1	
DHCP Options:		
Expire Time:	23:48:57	
Last Seen:	00:11:03	

1 item

dynamic bound

The screenshot shows a software interface for managing a DHCPv6 server. At the top, there's a menu bar with tabs for 'DHCP', 'Bindings', 'Options', and 'Option Sets'. Below the menu is a toolbar with icons for adding (+), deleting (-), selecting (checkmark), deleting (cross), and other operations. A main table lists a single binding entry. The table columns are: Address, DUID, IAIID, Server, Prefix Pool, Expire Time, and Status. The entry is for address 2001:db8:3333::/56, DUID 0xcc2de0097e8e, IAIID 2, Server server1, Prefix Pool lokalita1, Expire Time 23:48:57, and Status bound. Below the table, a detailed dialog box titled 'DHCPv6 Binding <2001:db8:3333::/56>' shows the same information in input fields. It includes fields for Address, DUID, IAIID, Server, Life Time, Prefix Pool, and various timestamps. There are also buttons for OK, Copy, Remove, and Make Static. At the bottom of the dialog, it says '1 item'.

IPv6 - DHCP server - STAV

DHCPv6 Server

	Address	DUID	IAID	Server	Prefix Pool	Expire Time	Status
D	2001:db8:3333::/56	0xcc2de0097e8e	2	server1	lokalita1	23:46:14	bound

IPv6 Route List

	Dst. Address	Gateway	Distance
AS	▶ ::/0	2001:db8:2000:1000:1:1:1:1 reachable ether1	1
DAC	▶ 2001:db8:2000:1000:1:1::/64	ether1 reachable	0
DAC	▶ 2001:db8:2000:2000::/64	bridge reachable	0
DAS	▶ 2001:db8:3333::/56	fe80::ce2d:e0ff:fe09:7e8e%bridge reachable	1

IPv6 Route <2001:db8:3333::/56>

General Attributes

Dst. Address: 2001:db8:3333::/56

Gateway: fe80::ce2d:e0ff:fe09:7e8e%bridge reachable

Check Gateway:

Type: unicast

IPv6 - DHCP client za DHCP clientem

Problém: zákaznické zařízení za naším routerem

```
/ipv6 pool
```

```
add name=LAN prefix=2000::/60 prefix-length=64
```

```
/ipv6 dhcp-server
```

```
add address-pool=LAN interface=bridge lease-time=1d name=server1
```

```
/ipv6 pool
```

```
rem 0
```