

# **IPv6 Configuration and Setup Guide for R-Series and Mikrotik Router**

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## Introduction

This document provides details on configuring R-Series and Mikrotik routers. For more information, please refer the User Guide and Knowledge Base documents of R-series and Mikrotik, or contact Cambium Support.

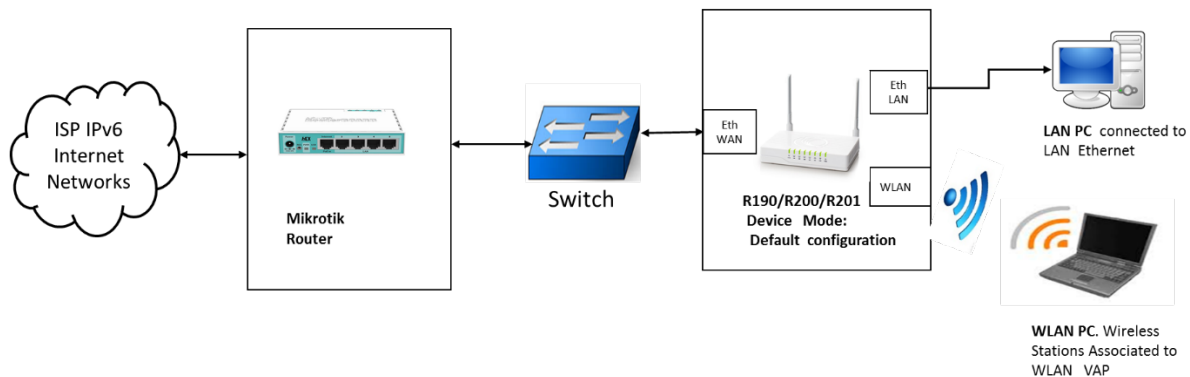
### R-Series Knowledge Base documents

Cambium Community URL: [http://community.cambiumnetworks.com/t5/cnPilot-R-Series-Home-Small/bd-p/Getting\\_Started](http://community.cambiumnetworks.com/t5/cnPilot-R-Series-Home-Small/bd-p/Getting_Started)

### R-Series User Guide

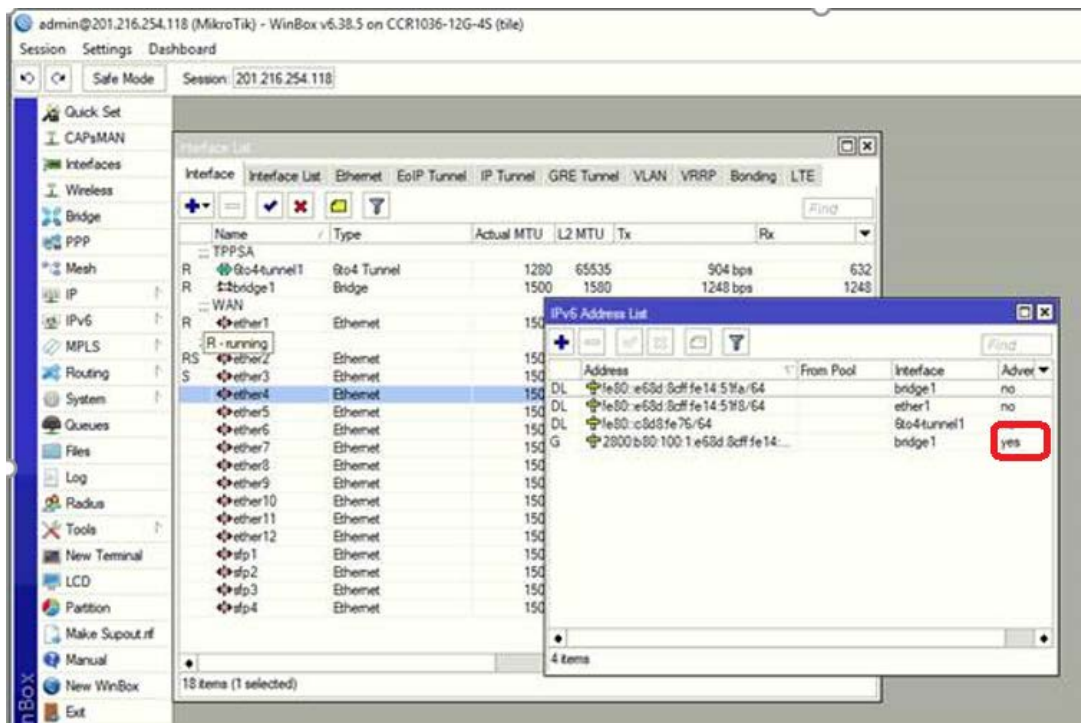
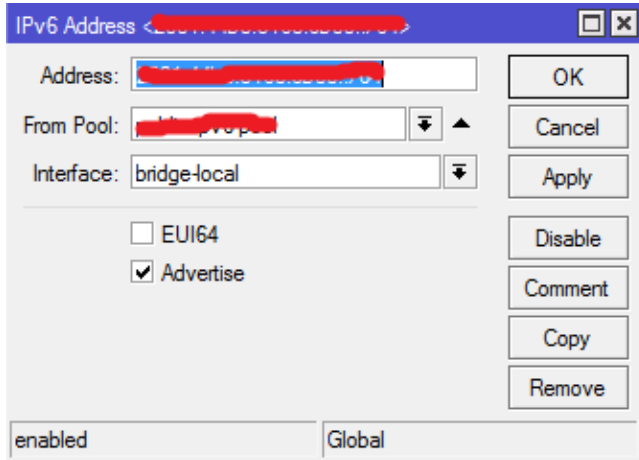
Mikrotik IPv6 Wiki page URL: <https://wiki.mikrotik.com/wiki/Manual:IPv6>.

## Setup Diagram



## Configuring MikroTik and R-series Routers

1. Configure and run Router Advertised (RA) in MikroTik router. (To send the RA message to downlink network, after receiving the RA message, R-series adds WAN IP (SLAAC) and default route with the link-local address.)



2. In the MikroTik router, configure and run the DHCPv6 server to delegate the IPv6 prefix pool that receives from uplink /ISP.

RouterOS WinBox

Safe Mode Session: 192.168.88.1

DHCP Server

DHCP Networks Leases Options Option Sets Alerts

DHCP Config DHCP Setup

Name	Interface	Relay	Lease Time	Address Pool	Add AR...
defconf	bridge		00:10:00	default-dhcp	no
servervlan10	bridge-vlan10		1d 00:10:00	pool1-10	no
servervlan20	vlan20		1d 00:10:00	pool2-20	no

DHCPv6 Server

DHCP Bindings

Name	Interface	Address Pool6	Lease Time
vlan10	vlan10	pool-v6-vlan10	3d 00:00:00

IPv6 Pool

Pools Used Prefixes

Name	Prefix	Prefix Length	Expire Time
pool-v6-vlan10	2406:7400:5e:e5ba::/64	64	01:39:27

3 re

3. In the MikroTik router, configure DNS address.

RouterOS WinBox

Safe Mode Session: 192.168.88.1

DHCP Server

DHCP Networks Leases Options Option Sets Alerts

DHCP Config DHCP Setup

Name	Interface	Relay	Lease Time	Address Pool	Add AR...
defconf	bridge		00:10:00	default-dhcp	no
servervlan10	bridge-vlan10		1d 00:10:00	pool1-10	no
servervlan20	vlan20		1d 00:10:00	pool2-20	no

ARP

Accounting

Addresses

Cloud

DHCP Client

DHCP Relay

DHCP Server

DNS

Firewall

Hotspot

IPsec

Neighbors

Packing

Pool

Routes

SMB

SNMP

Services

Settings

Socks

TFTP

Traffic Flow

UPnP

Web Proxy

DNS Settings

Servers: [ ] OK

Dynamic Servers: 202.83.21.28 Cancel

8.8.8.8 Apply

2001.4860.4860::8888 Static

2001.4860.4860::8844 Cache

Allow Remote Requests

Max UDP Packet Size: 4096

Query Server Timeout: 2,000 s

Query Total Timeout: 10,000 s

Max. Concurrent Queries: 100

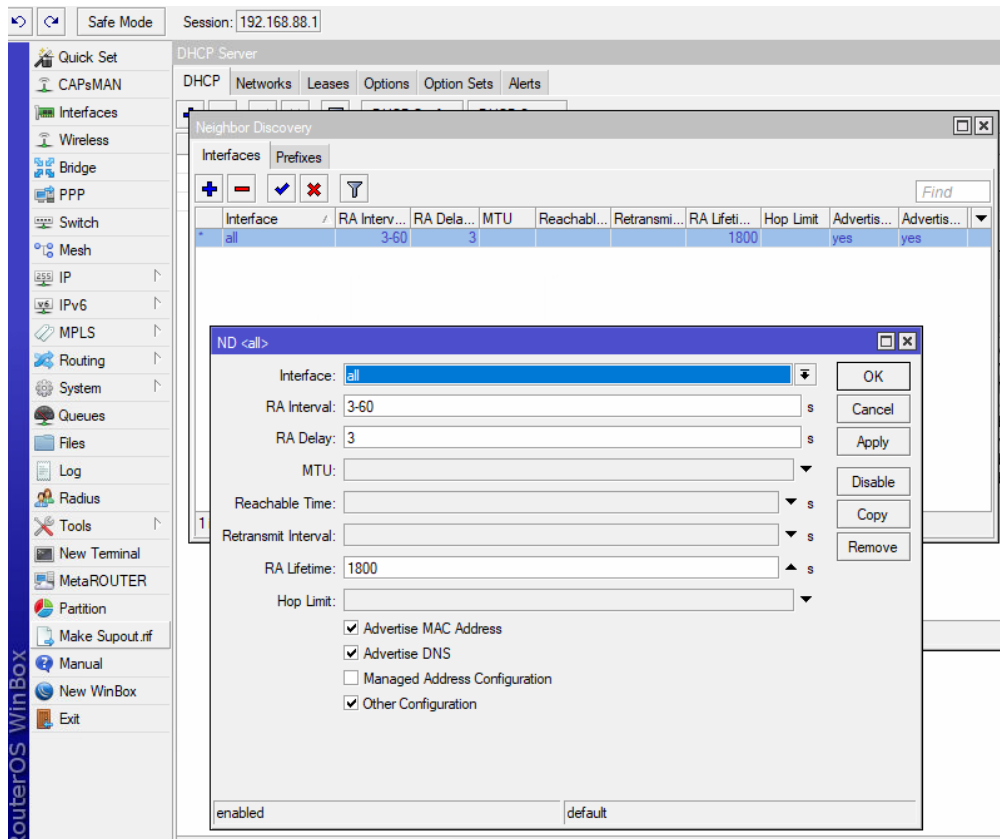
Max. Concurrent TCP Sessions: 20

Cache Size: 2048 KB

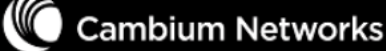
Cache Max TTL: 7d 00:00:00

Cache Used: 23 KB

4. In the MikroTik router, configure the ND feature to send the RA message with correct and proper parameters.



5. Configure R-series router in default mode.
6. In R-series router, enable IPv6 mode, and then configure in DHCP Stateless or DHCP Stateful mode as per configuration of Mikrotik router/uplink router and enable prefix delegation mode to delegate IPv6 address to LAN side. In the case of the Mikrotik router, enable DHCP stateless mode.



[Status](#) | **[Network](#)** | [Wireless 2.4GHz](#) | [Wireless 5GHz](#) | [SIP](#) | [FXS1](#) | [FXS2](#) | [Security](#) | [Application](#)

[WAN](#) | [LAN](#) | [IPv6 Advanced](#) | [IPv6 LAN](#) | [VPN](#) | [Port Forward](#) | [DMZ](#) | [DDNS](#) | [QoS](#) | [Port Setting](#) | [Route](#)

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**INTERNET**

**WAN**

Connect Name:  Delete Connect  
 Service:   
 IP Protocol Version:   
 WAN IP Mode:   
 MAC Address Clone:   
 NAT Enable:   
 Overwrite NAT IP:   
 VLAN Mode:   
 VLAN ID:  (1-4094)  
 DNS Mode:   
 Primary DNS:   
 Secondary DNS:   
 DHCP Renew:   
 DHCP Vendor (Option 60):   
 DHCPv6 Address Settings:   
 Prefix Delegation:   
 Port Bind:  Port\_1  Port\_2  Port\_3  Port\_4  
 Wireless(SSID)  Wireless(SSID1)  Wireless(SSID2)  Wireless(SSID3)

Note: A port can be mapped to only a single WAN profile. If a port is selected in multiple WAN profiles then, only the most recent selection is retained.

7. Save in R-series, then reboot the device.
8. Download the configuration from R-series and then add or append below configuration to the downloaded file then upload the configuration file.

Configuration: `" misc_cmd=sleep 30; ip -6 route del default dev eth2.1 metric 1024 mtu 1500 advmss 1440 hoplimit 0"`.



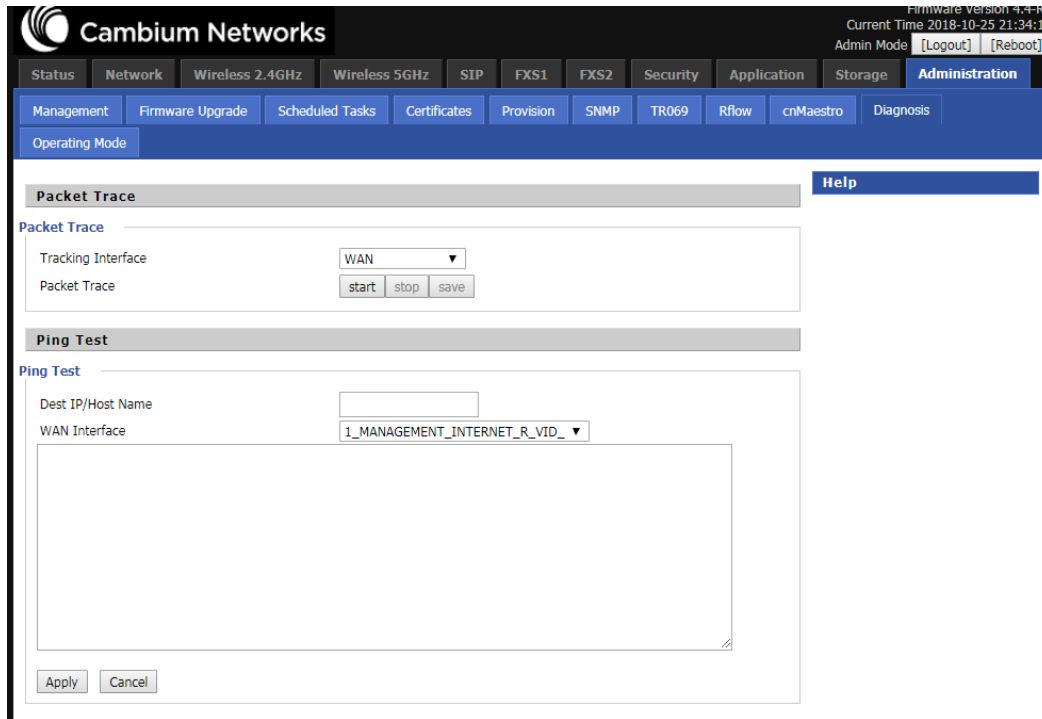
**Note**

Please check the internet connectivity in the LAN/WLAN client. The device should delegate prefix using RA (prefix is received by R-series from MikroTik router) and R-series should send DNS information using DHCP stateless.

# Troubleshooting

This section provides procedure to troubleshoot when the user is not able to connect to the Internet by checking the configuration and connectivity of R-series and Mikotik.

1. Check the ping connectivity to the linternet IP from the device (Example: ping connectivity to Google.com )



The screenshot displays the Cambium Networks web interface. At the top, there is a navigation bar with tabs for Status, Network, Wireless 2.4GHz, Wireless 5GHz, SIP, FXS1, FXS2, Security, Application, Storage, and Administration. Below this is a sub-navigation bar with tabs for Management, Firmware Upgrade, Scheduled Tasks, Certificates, Provision, SNMP, TR069, Rflow, cnMaestro, and Diagnosis. The main content area is titled 'Operating Mode' and contains two sections: 'Packet Trace' and 'Ping Test'. The 'Packet Trace' section has a 'Tracking Interface' dropdown menu set to 'WAN' and buttons for 'start', 'stop', and 'save'. The 'Ping Test' section has a 'Dest IP/Host Name' input field, a 'WAN Interface' dropdown menu set to '1\_MANAGEMENT\_INTERNET\_R\_VID\_', and a large empty text area for results. At the bottom of the 'Ping Test' section are 'Apply' and 'Cancel' buttons. The top right corner of the interface shows 'Firmware Version 4.4-R7', 'Current Time 2018-10-25 21:34:15', and 'Admin Mode [Logout] [Reboot]'.

2. Check IP address of the WAN interface. R-series device should generate IP using RA Message (RA message will be sent by MikroTik).
3. Check IP address of DNS in status page of R-Series, If DNS IP is not available then check DNS server configuration of MikroTik.
4. Check the prefix delegation IP address in status page of R-series, if IP is not available then check DHCP server configuration of MikroTik.
5. Check the IP range/subnet of LAN PC client. IP range should be as per prefix/subnet which is received from MikroTik (R-Series will get prefix/subnet from MikroTik router). if LAN IP of the subnet does not match with prefix/subnet, execute the IP and IP renew process in LAN PC to get new IP.
6. Check the default gateway of LAN client. Default gateway IP should be the link-local address of the LAN interface of the device (br0). To check link-local address br0 interface, login into the device.
7. Using SSH execute the "ifconfig" command.



## Note

Check DNS IP of LAN client, If DNS IP is not available then DNS IP status R-Series, MikroTik should send DNS information using DHCP stateless. Please check the DNS configuration and ND feature option.



## Contacting Cambium Networks

Support website: <http://www.cambiumnetworks.com/support>

Main website: <http://www.cambiumnetworks.com>

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