

# IPIP Tunnel Interfaces

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## Table of Contents

[Table of Contents](#)

[General Information](#)

[Summary](#)

[Quick Setup Guide](#)

[Specifications](#)

[Related Documents](#)

[Additional Documents](#)

[IPIP Setup](#)

[Description](#)

[Property Description](#)

[Notes](#)

[Description](#)

## General Information

### Summary

The IPIP tunneling implementation on the MikroTik RouterOS is RFC 2003 compliant. IPIP tunnel is a simple protocol that encapsulates IP packets in IP to make a tunnel between two routers. The IPIP tunnel interface appears as an interface under the interface list. Many routers, including Cisco and Linux based, support this protocol. This protocol makes multiple network schemes possible.

IP tunneling protocol adds the following possibilities to a network setups:

- to tunnel Intranets over the Internet
- to use it instead of source routing

### Quick Setup Guide

To make an IPIP tunnel between 2 MikroTik routers with IP addresses **10.5.8.104** and **10.1.0.172**, using IPIP tunnel addresses 10.0.0.1 and 10.0.0.2, follow the next steps.

- Configuration on router with IP address **10.5.8.104**:

1. Add an IPIP interface (by default, its name will be **ipip1**):

```
[admin@10.5.8.104] interface ipip> add local-address=10.5.8.104 \  
remote-address=10.1.0.172 disabled=no
```

2. Add an IP address to created **ipip1** interface:

```
[admin@10.5.8.104] ip address> add address=10.0.0.1/24 interface=ipip1
```

- Configuration on router with IP address **10.1.0.172**:

1. Add an IPIP interface (by default, its name will be **ipip1**):

```
[admin@10.1.0.172] interface ipip> add local-address=10.1.0.172 \  
remote-address=10.5.8.104 disabled=no
```

2. Add an IP address to created **ipip1** interface:

```
[admin@10.1.0.172] ip address> add address=10.0.0.2/24 interface=ipip1
```

## Specifications

Packages required: *system*

License required: *level1 (limited to 1 tunnel), level3 (200 tunnels), level5 (unlimited)*

Home menu level: */interface ipip*

Standards and Technologies: [IPIP \(RFC 2003\)](#)

Hardware usage: *Not significant*

## Related Documents

- [Package Management](#)
- [Device Driver List](#)
- [IP Addresses and ARP](#)
- [Log Management](#)

## Additional Documents

- <http://www.ietf.org/rfc/rfc1853.txt?number=1853>
- <http://www.ietf.org/rfc/rfc2003.txt?number=2003>
- <http://www.ietf.org/rfc/rfc1241.txt?number=1241>

## IPIP Setup

Home menu level: */interface ipip*

## Description

An IPIP interface should be configured on two routers that have the possibility for an IP level connection and are [RFC 2003](#) compliant. The IPIP tunnel may run over any connection that transports IP. Each IPIP tunnel interface can connect with one remote router that has a corresponding interface configured. An unlimited number of IPIP tunnels may be added to the router. For more details on IPIP tunnels, see [RFC 2003](#).

## Property Description

**name** (*name*; default: **ipipN**) - interface name for reference

**mtu** (*integer*; default: **1480**) - Maximum Transmission Unit. Should be set to 1480 bytes to avoid fragmentation of packets. May be set to 1500 bytes if mtu path discovery is not working properly

on links

**local-address** (*IP address*) - local address on router which sends IPIP traffic to the remote host

**remote-address** (*IP address*) - the IP address of the remote host of the IPIP tunnel - may be any RFC 2003 compliant router

## Notes

Use **/ip address add** command to assign an **IP address** to the IPIP interface.

There is no authentication or 'state' for this interface. The bandwidth usage of the interface may be monitored with the **monitor** feature from the **interface** menu.

MikroTik RouterOS IPIP implementation has been tested with Cisco 1005. The sample of the Cisco 1005 configuration is given below:

```
interface Tunnel0
 ip address 10.3.0.1 255.255.255.0
 tunnel source 10.0.0.171
 tunnel destination 10.0.0.204
 tunnel mode ipip
```

## Application Examples

### Description

Suppose we want to add an IPIP tunnel between routers **R1** and **R2**:

At first, we need to configure IPIP interfaces and then add **IP addresses** to them.

The configuration for router **R1** is as follows:

```
[admin@MikroTik] interface ipip> add
local-address: 10.0.0.1
remote-address: 22.63.11.6
[admin@MikroTik] interface ipip> print
Flags: X - disabled, R - running
#    NAME           MTU    LOCAL-ADDRESS    REMOTE-ADDRESS
0 X  ipip1           1480   10.0.0.1         22.63.11.6

[admin@MikroTik] interface ipip> en 0
[admin@MikroTik] interface ipip> /ip address add address 1.1.1.1/24 interface=ipip1
```

The configuration of the **R2** is shown below:

```
[admin@MikroTik] interface ipip> add local-address=22.63.11.6 remote-address=10.0.0.1
[admin@MikroTik] interface ipip> print
Flags: X - disabled, R - running
#    NAME           MTU    LOCAL-ADDRESS    REMOTE-ADDRESS
0 X  ipip1           1480   22.63.11.6       10.0.0.1

[admin@MikroTik] interface ipip> enable 0
[admin@MikroTik] interface ipip> /ip address add address 1.1.1.2/24 interface=ipip1
```

Now both routers can ping each other:

```
[admin@MikroTik] interface ipip> /ping 1.1.1.2
1.1.1.2 64 byte ping: ttl=64 time=24 ms
1.1.1.2 64 byte ping: ttl=64 time=19 ms
1.1.1.2 64 byte ping: ttl=64 time=20 ms
```

```
3 packets transmitted, 3 packets received, 0% packet loss  
round-trip min/avg/max = 19/21.0/24 ms  
[admin@MikroTik] interface ipip>
```