

# Netinstall

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## Introduction

Netinstall is a tool for installing and reinstalling MikroTik devices running RouterOS. Always try using Netinstall if you suspect that your device is not working properly. The tool is available for Windows (with a graphical interface) and for Linux (as a command line tool).

In short, the Netinstall procedure goes like this: Connect your PC directly to the **boot** port (Usually Ether1, the port labeled BOOT or as otherwise indicated in the product manual) of the device you will be reinstalling. Turn on the device while holding the **reset** button until it shows up in the Netinstall tool.



Careful. Netinstall re-formats the system's drive, all configuration and saved files will be lost. Netinstall does not erase the RouterOS license key, nor does it reset RouterBOOT related settings, for example, CPU frequency is not changed after reinstalling the device.

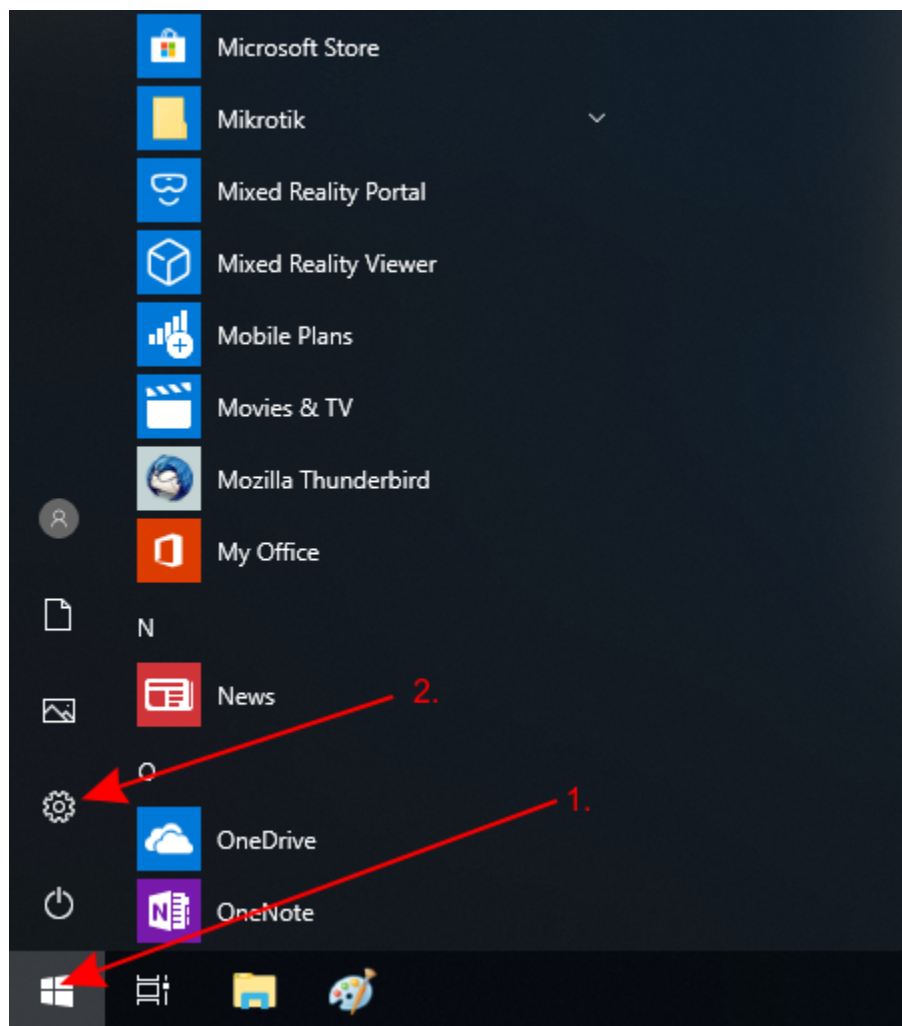
## Instructions for Windows

- Download the **Stable** or **Testing** version of the **Netinstall** utility from the [downloads](#) page;
- Download the RouterOS **Main package** from the [downloads](#) page;



You need to select a RouterOS version, preferably one marked as **Stable**. Additionally, choose the appropriate architecture (ARM, MIPS, SMIPS, TILE, etc.). If unsure, you can download the RouterOS package for all architectures, and Netinstall will determine the correct one for your device.

- Disable all computer network interfaces (WiFi, Ethernet, LTE, or any other type of connection) except for the one to be used for installation. Netinstall will only function with one active interface on your computer. It's strongly recommended to deactivate any other network interfaces to ensure Netinstall selects the correct one.
- Configure a static IP address for your Ethernet interface, open **Start**, and select **Settings**:



Netinstall can run also on a local network, in such case you could skip setting a static IP address, but it is highly recommended that you set a static IP address if you are not familiar with Netinstall.

- Open **Network & Internet** and select **Change adapter options**

## Windows Settings

**System**Display, sound, notifications,  
power**Devices**

Bluetooth, printers, mouse

**Phone**

Link your Android, iPhone

**Network & Internet**

Wi-Fi, airplane mode, VPN

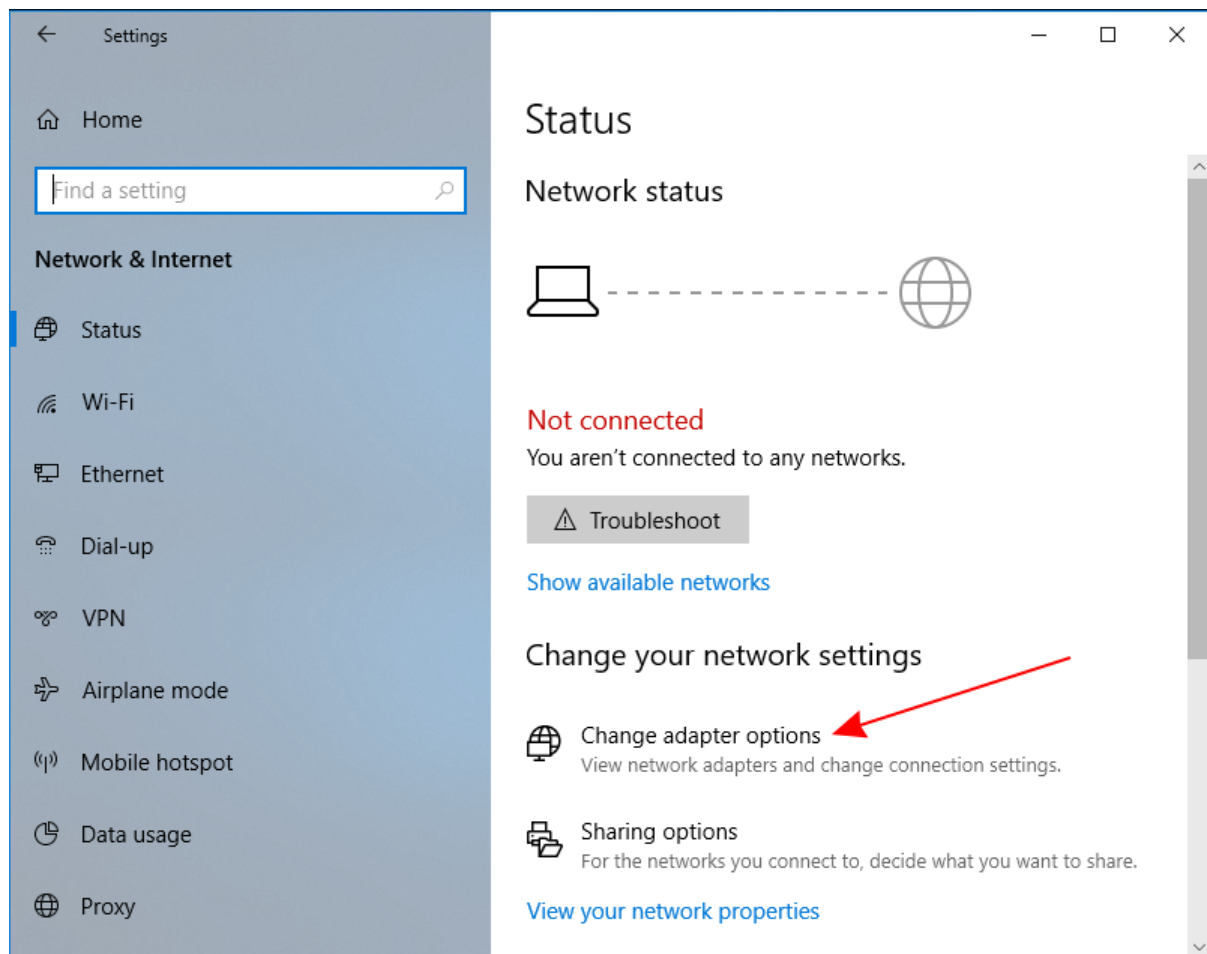
**Personalization**

Background, lock screen, colors

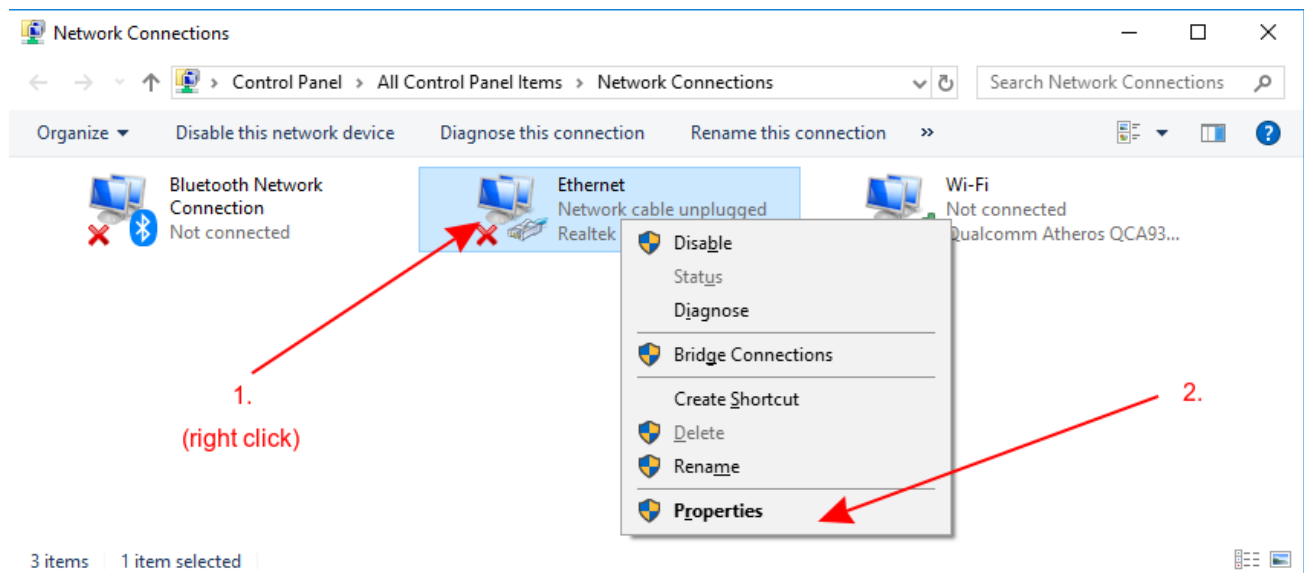
**Apps**Uninstall, defaults, optional  
features**Accounts**Your accounts, email, sync,  
work, family**Time & Language**

Speech, region, date

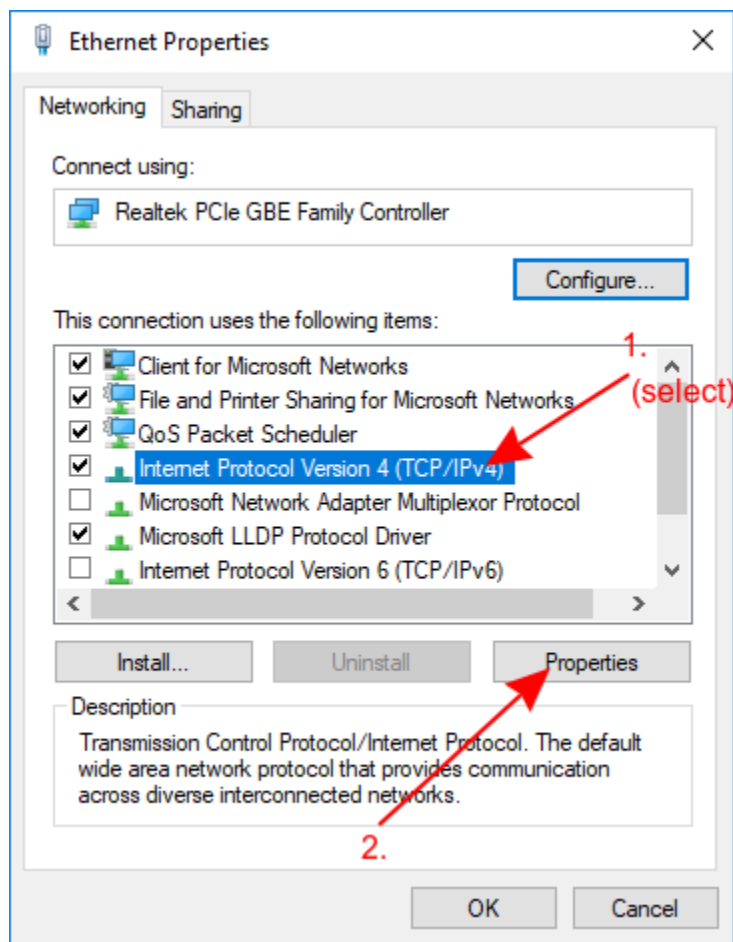




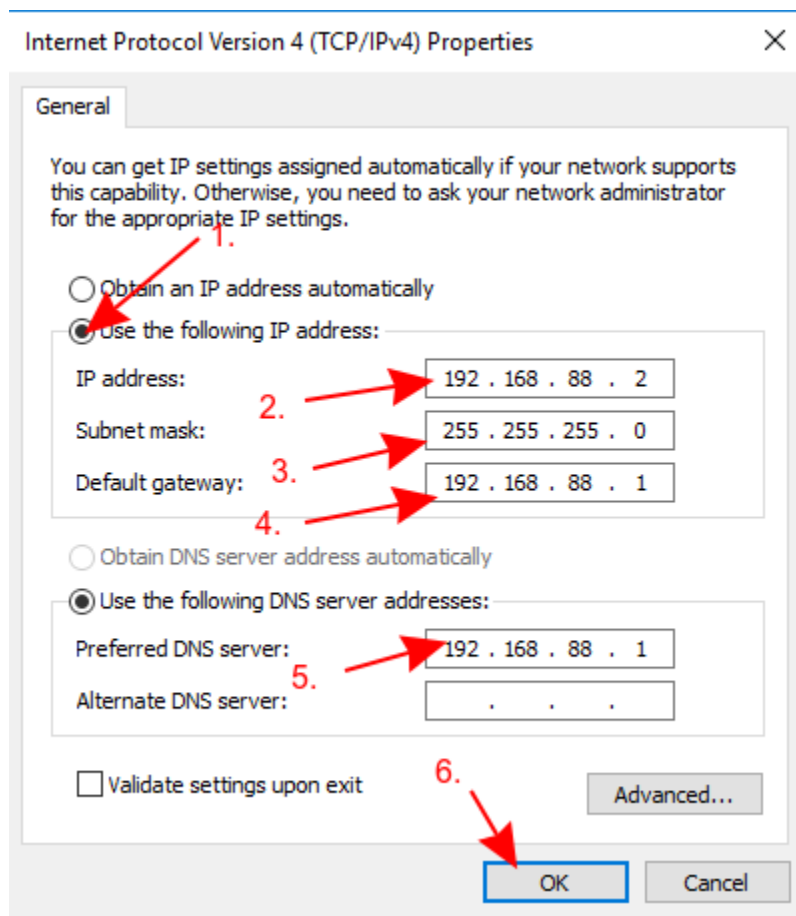
- Right-click on your Ethernet interface and select **Properties**



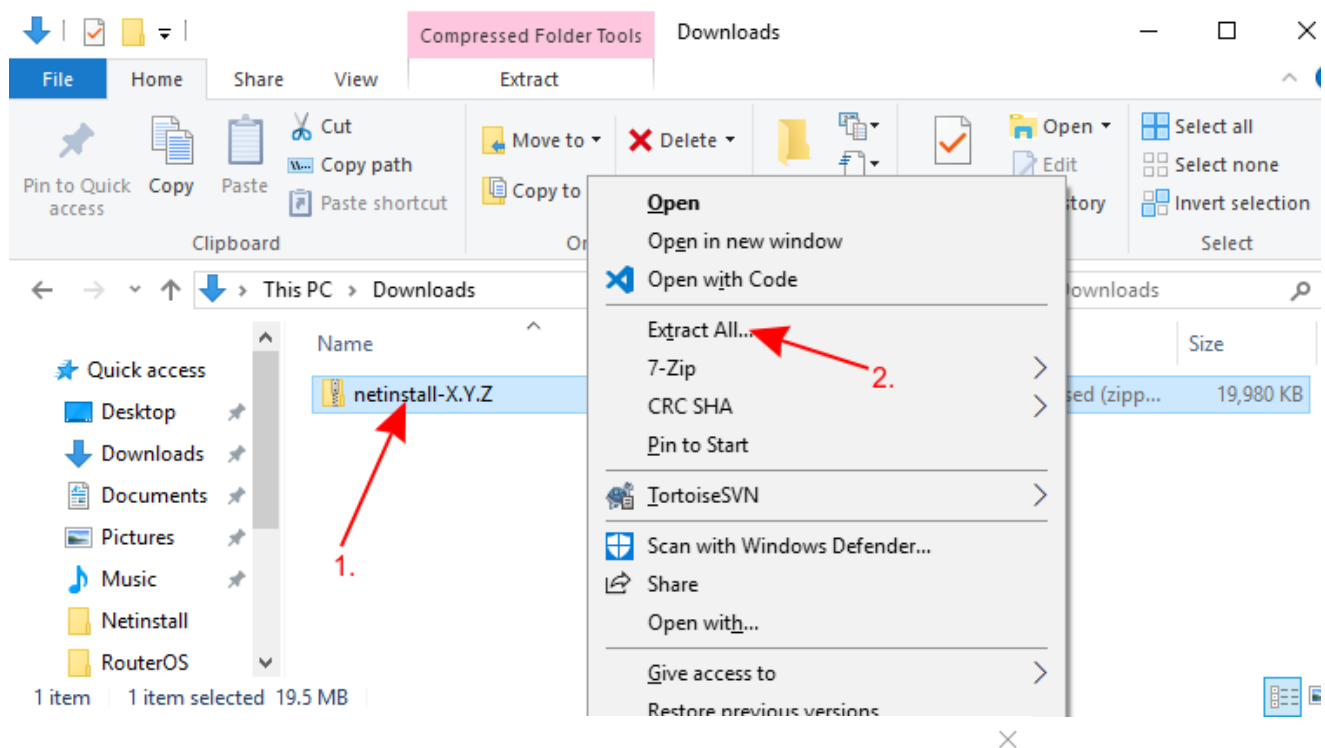
- Select **Internet Protocol Version 4 (TCP/IPv4)** and click **Properties**



- Check Use the following IP address and fill out the fields as shown in the image below



- Open your Downloads folder (or wherever you saved the downloaded files) and extract the Netinstall \*.zip file to a convenient place



← Extract Compressed (Zipped) Folders

### Select a Destination and Extract Files

Files will be extracted to this folder:

C:\Users\Support\Downloads\netinstall-X.Y.Z

Browse...

☒ Show extracted files when complete

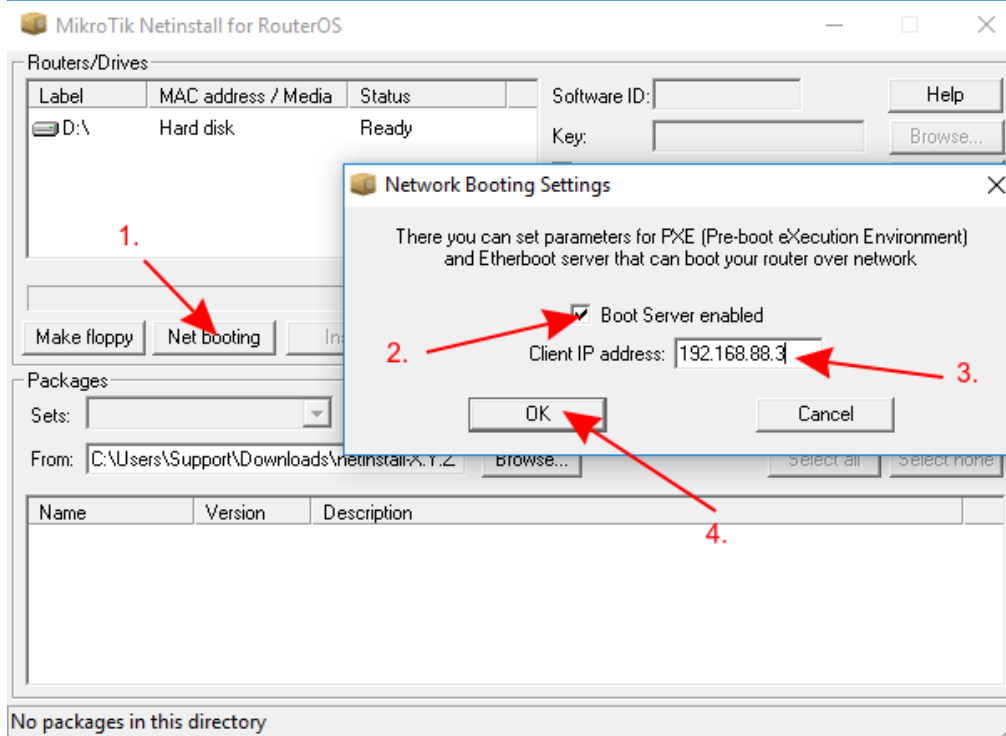
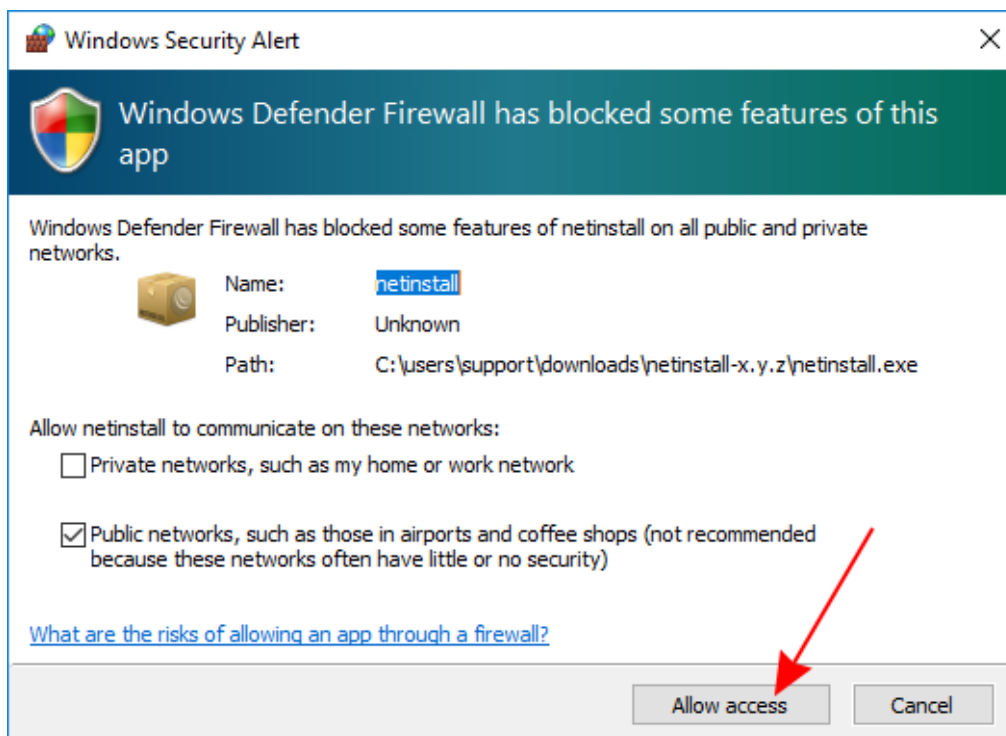


- Make sure that the Ethernet interface is running and launch Netinstall.exe. If you followed the guide precisely, then you should not have any Internet connection on your computer, Windows 10 wants to verify all apps that it runs, but will not be able to do it since lack of an Internet connection, for this reason, a warning might pop up, you should click **Run**.



Netinstall requires administrator rights, there should be a window asking for permissions to run Netinstall, you must accept these permissions in order for Netinstall to work properly.

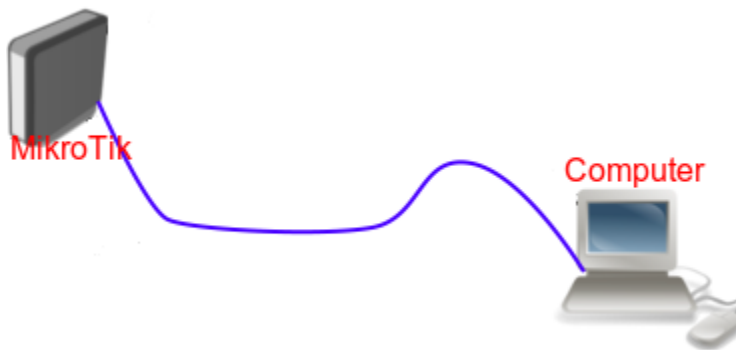
- Allow access for Netinstall in **Public** networks and configure **Net booting** settings and fill out the required fields as shown in the image below



The Client IP address must be unique! Don't use an existing IP address in your network, this also means that you should not use the computer's IP address as well. Use a completely different IP address from the same subnet.

- Connect your device to your computer using an ethernet cable directly (without any other devices in-between), plug the Ethernet cable into your device's Etherboot port.
- MikroTik devices are able to use Netinstall from their **first** port (Ether1), or from the port marked with "**BOOT**".





Some computers have a network interface (especially USB Ethernet adapters) that tend to create an extra link flap, which is enough for Netinstall to fail to detect a device that is in Etherboot mode. In such a case you can use a switch between your device and your computer or a router in bridge mode to prevent this issue.

Netinstall uses bootp packets, which are using the same port numbers as DHCP packets. If you're using a switch between your PC and the device to be Netinstalled, ensure that the ports in the bridge are not blocked by other network devices.

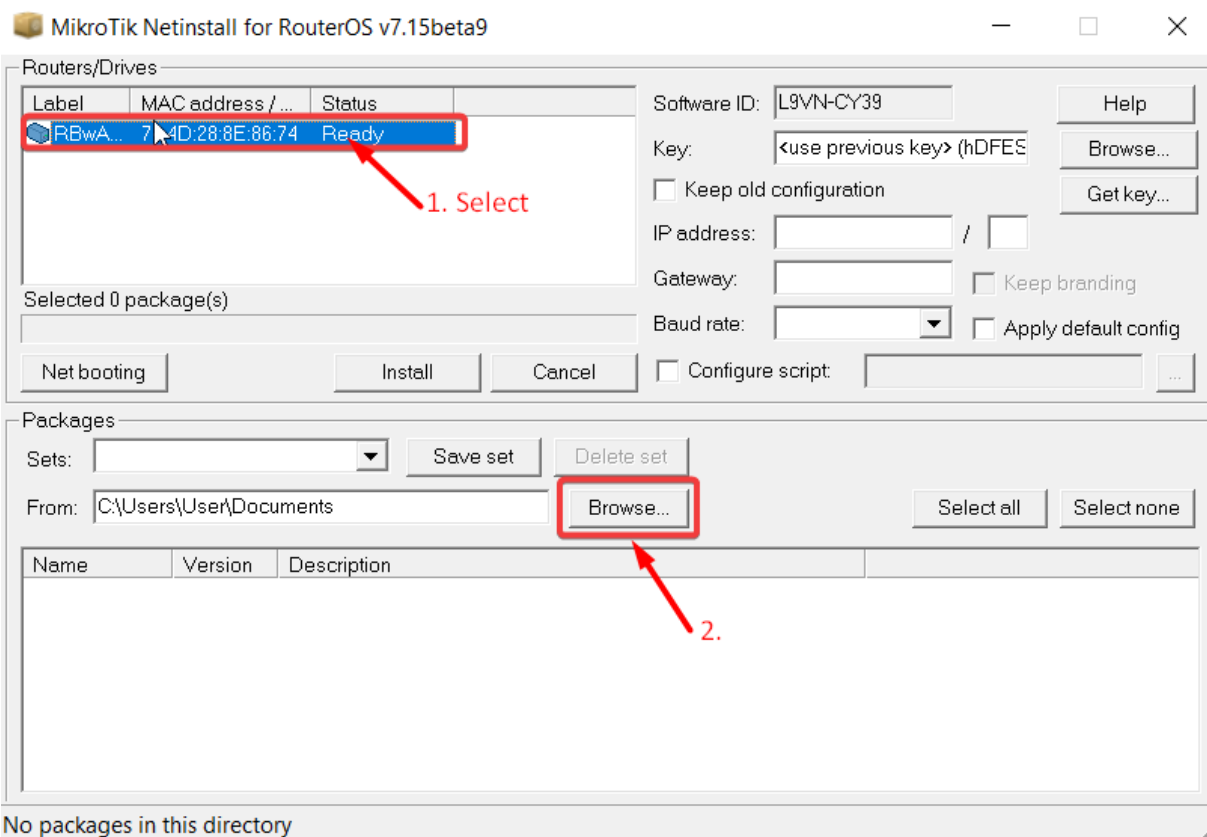
If you have dhcp-snooping enabled, make sure to enable "trusted" on the bridge ports facing the Netinstall PC.

- Power up your device and put it into etherboot mode

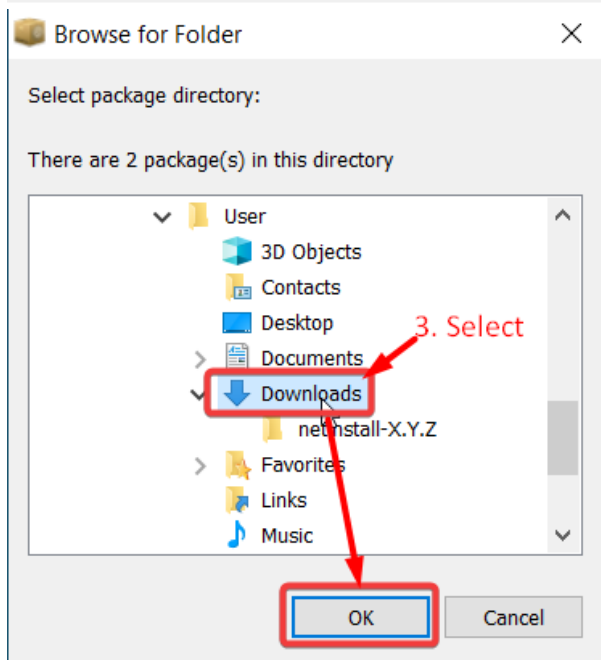


There are multiple ways how to put your device into Etherboot mode. Make sure you read the [Etherboot manual](#) before trying to put the device into this mode. Methods vary between different MikroTik devices.

- Wait for the device to show up in Netinstall, then select it and click **Browse**. Navigate to your **Downloads** folder (or wherever you saved your RouterOS packages) and press **OK**.



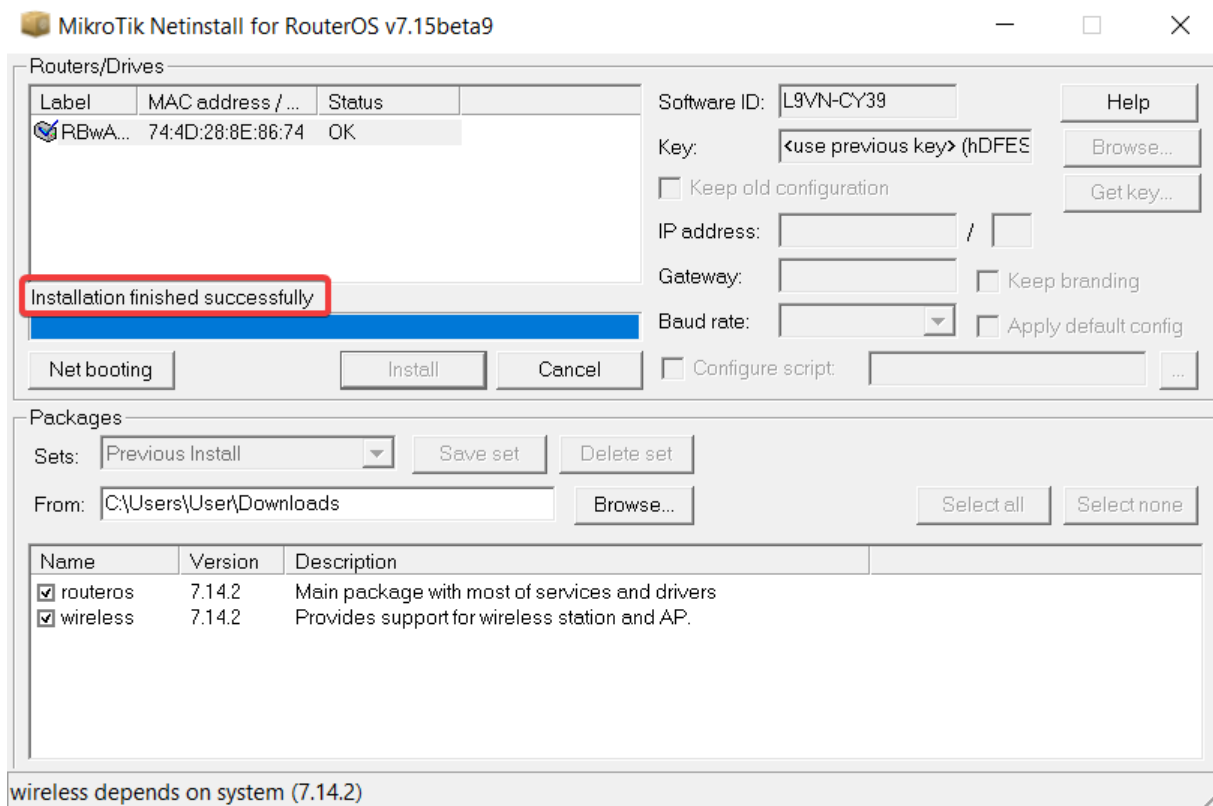
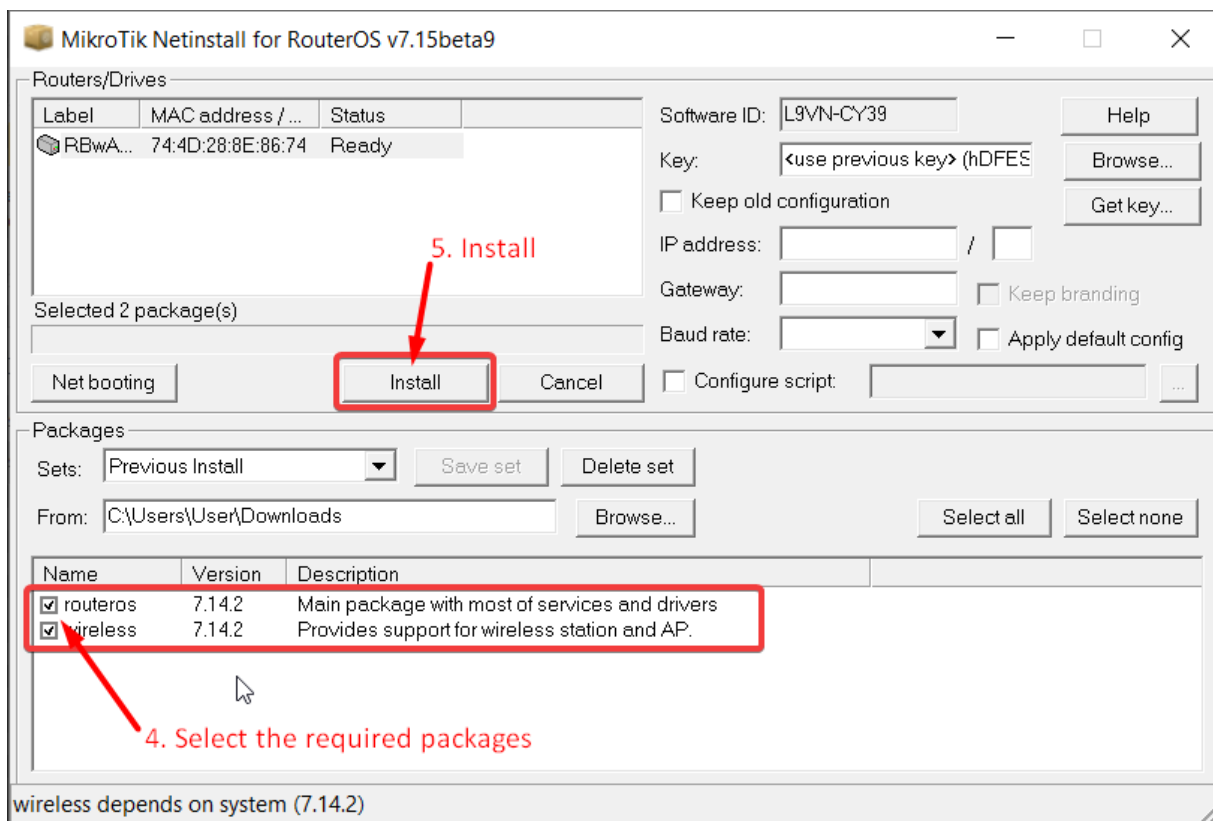
No packages in this directory



- Select your desired RouterOS packages and press **Install**. Wait for the installation to finish and press "**Reboot**" (Devices without serial console have to be rebooted manually).



If you have downloaded RouterOS packages for multiple architectures, Netinstall will only display the appropriate architecture packages for your device after you have selected it. Unsupported packages will not appear in this window once a device is selected.



If the installation does not start (progress bar is not moving or no status is shown), then you can try closing the Netinstall application and opening it up again or try to put the device into Etherboot mode again. If you are still unable to get Netinstall working, then you should try using it on a different computer since there might be an operating system's issue that is preventing Netinstall from working properly.



The **"Keep old configuration"** process involves downloading the configuration database from the router, reinstalling the router (including disk formatting), and uploading the configuration files back to it. However, it's important to note that this process solely applies to the configuration itself and does not impact the files, including databases like the User Manager database, Dude database, and others.

After using Netinstall the device will be reset to defaults (unless you specified not to apply default configuration). Some devices are not accessible through **ether1** port with the default configuration for security reasons. Read more about [Default configuration](#).

Option **"Keep branding"** allows you to retain the device's already installed branding package without reinstalling it using Netinstall.

**MikroTik Netinstall for RouterOS v7.15beta9**

Routers/Drives

Label	MAC address / ...	Status
RBwA...	74:4D:28:8E:86:74	Ready

Selected 2 package(s)

Net booting Install Cancel

Software ID: L9VN-CY39 Help

Key: <use previous key> (hDFES) Browse...

☐ Keep old configuration Get key...

IP address: /

Gateway: ☒ Keep branding

Baud rate: Apply default config

☐ Configure script

Packages

Sets: Previous Install Save set Delete set

From: C:\Users\User\Downloads Browse... Select all Select none

Name	Version	Description
<input checked="" type="checkbox"/> routeros	7.14.2	Main package with most of services and drivers
<input checked="" type="checkbox"/> wireless	7.14.2	Provides support for wireless station and AP.

wireless depends on system (7.14.2)



When using the **Configure script** option, it is suggested to introduce a [delay](#) before configuration execution.

- You're all set! Configure your device and reconnect it to your network. Your device should now be functioning correctly!

## Instructions for Linux

The Linux version is a command line tool, which offers nearly the same parameters as the Windows counterpart.

Download the tool from our download page (links not literal):

```
wget https://download.mikrotik.com/routeros/[VERSION]/netinstall-[VERSION].tar.gz
```

Extract it:

```
tar -xzf netinstall-[VERSION].tar.gz
```

Run the tool:

```
./netinstall-cli -a 192.168.0.1 routeros-arm64-[VERSION].npk
```



The tool requires privileged access and must be run as root, use sudo.

The available parameters are as follows:

Parameter	Meaning
-r	When the reinstallation process is performed, the current configuration will be reset, and for devices that have it, the default configuration will be applied (optional).
-e	Performing the reinstallation process will reset the device to an empty configuration.
-b	Option to discard the currently installed branding package from the device, otherwise it will be reinstalled together with RouterOS.
-k keyfile	Provides the device with a license key in .KEY format (optional).
-s userscript	Pre-configures the device with the provided configuration (text file in .RSC format). This configuration also takes place of the default configuration. The script can access factory passwords with read-only variables \$defconfPassword and \$defconfWifiPassword (starting from RouterOS 7.10beta8) (optional).
-a IP	Uses a specific IP address that the Netinstall server will assign to the device. Mandatory, but can be auto-assigned if interface parameter used.
PACKAGE	Specify a list of RouterOS.NPK format packages that Netinstall will try to install on the device (mandatory). <b>The system package must be listed first.</b>
-i	Allows you to specify an interface (optional).



If the "-r" or "-e-" parameter is not specified, *netinstall-cli* will reinstall RouterOS and will keep the current configuration by downloading current configuration database from the router, reinstalling the router (including disk formatting), and uploading the configuration back to it, the same as Netinstall **"Keep old configuration"** option. However, it's important to note that this process solely applies to the configuration itself and does not impact the files, including databases like the User Manager database, Dude database, and others.

First make sure you have set the IP on your computer's interface:

```
admin@ubuntu:~$ sudo ifconfig <interface> 192.168.88.2/24
```

Then run the Netinstall version 6 (an example that resets the configuration upon reinstallation procedure):

```
admin@ubuntu:~$ sudo ./netinstall -r -a 192.168.88.3 routeros-mipsbe-6.48.1.npk
Using server IP: 192.168.88.2
Starting PXE server
Waiting for RouterBOARD...
PXE client: 01:23:45:67:89:10
Sending image: mips
Discovered RouterBOARD...
Formatting...
Sending package routeros-mipsbe-6.48.1.npk ...
Ready for reboot...
Sent reboot command
```

Or run the Netinstall version 7 (an example that applies an empty configuration and discards the branding during the reinstallation procedure):

```
admin@ubuntu:~$ sudo ./netinstall-cli -e -b -i enx1234567ee890 -a 192.168.88.3 routeros-7.14.2-arm.npk wireless-7.14.2-arm.npk
Version: 7.15beta9(2024-03-27 20:41:15)
Will apply empty config
Will remove branding
Using Interface: enx1234567ee890
Wait for Link-UP on 'enx1234567ee890'. OK
Using Client IP: 192.168.88.3
Using Server IP: 192.168.88.10
Starting PXE server
Waiting for RouterBOARD...
client: 74:4D:28:8E:86:74
Detected client architecture: arm
Sending and starting Netinstall boot image ...
Installed branding package detected
Discovered RouterBOARD... 74:4D:28:8E:86:74
Formatting...
Sending package routeros-7.14.2-arm.npk ...
Sending package wireless-7.14.2-arm.npk ...
Sending empty config ...
Ready for reboot...
Sent reboot command
```

## Etherboot

Etherboot mode is a special state for a MikroTik device that allows you to reinstall your device using Netinstall. There are two types of booters available for use: the regular booter and the backup booter. It's essential to verify both options.

- To use the Regular booter press Ctrl+E to enter etherboot mode using the serial console or press the Reset button after a 1-2 second delay from when you power it on.
- To employ the backup booter, power OFF the device. Press the Reset button and power on your device (wait until the "USR" led is blinking then stable "On", and when the "USR" led is "Off" - release the Reset button) - the device is booting in bootp mode to reinstall RouterOS using Netinstall.

## Reset button

The **Reset** can be found on all MikroTik devices, this button can be used to put the device into Etherboot mode. An easy way to put a device into Etherboot mode using the **Reset** button is by powering off the device, hold the **Reset** button, power on the device while holding the **Reset** button and keep holding it until the device shows up in your **Netinstall** window.



If you have set up a [Protected bootloader](#), then the reset button's behavior is changed. Make sure you remember the settings you used to set up the Protected bootloader, otherwise you will not be able to use Eterboot mode and will not be able to reset your device.

## RouterOS

If your device is able to boot up and you are able to log in, then you can easily put the device into Etherboot mode. To do so, just connect to your device and execute the following command:

```
/system routerboard settings set boot-device=try-ethernet-once-then-nand
```

After that either reboot the device or do a power cycle on the device. Next time the device will boot up, then it will first try going into Etherboot mode. Note that after the first boot up, the device will not try going into Etherboot mode and will boot directly from NAND or from the storage type the device is using.

## Serial console

Some devices come with a serial console that can be used to put the device into Etherboot mode. To do so, make sure you configure your computer's serial console. The required parameters for all MikroTik devices (except for RouterBOARD 230 series) are as following:

```
115200bit/s, 8 data bits, 1 stop bit, no parity, flow control=none by default.
```

For RouterBOARD 230 series devices the parameters are as following:

```
9600bit/s, 8 data bits, 1 stop bit, no parity, hardware (RTS/CTS) flow control by default.
```

Make sure you are using a proper null modem cable, you can find the proper pinout [here](#). When the device is booting up, keep pressing **CTRL+E** on your keyboard until the device shows that it is **trying bootp protocol**:

```
RouterBOOT booter 7.14.2

CRS328-4C-20S-4S+

CPU frequency: 800 MHz
  Memory size: 512 MiB
  Storage size: 16 MiB

Press Ctrl+E to enter etherboot mode
Press any key within 2 seconds to enter setup
trying bootp protocol.... OK
Got IP address: 192.168.88.3
resolved mac address 84:69:93:9E:E6:49
transfer started ..... transfer ok, time=2.00s
```

At this point your device is in Etherboot mode, now the device should show up in your Netinstall window.