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.

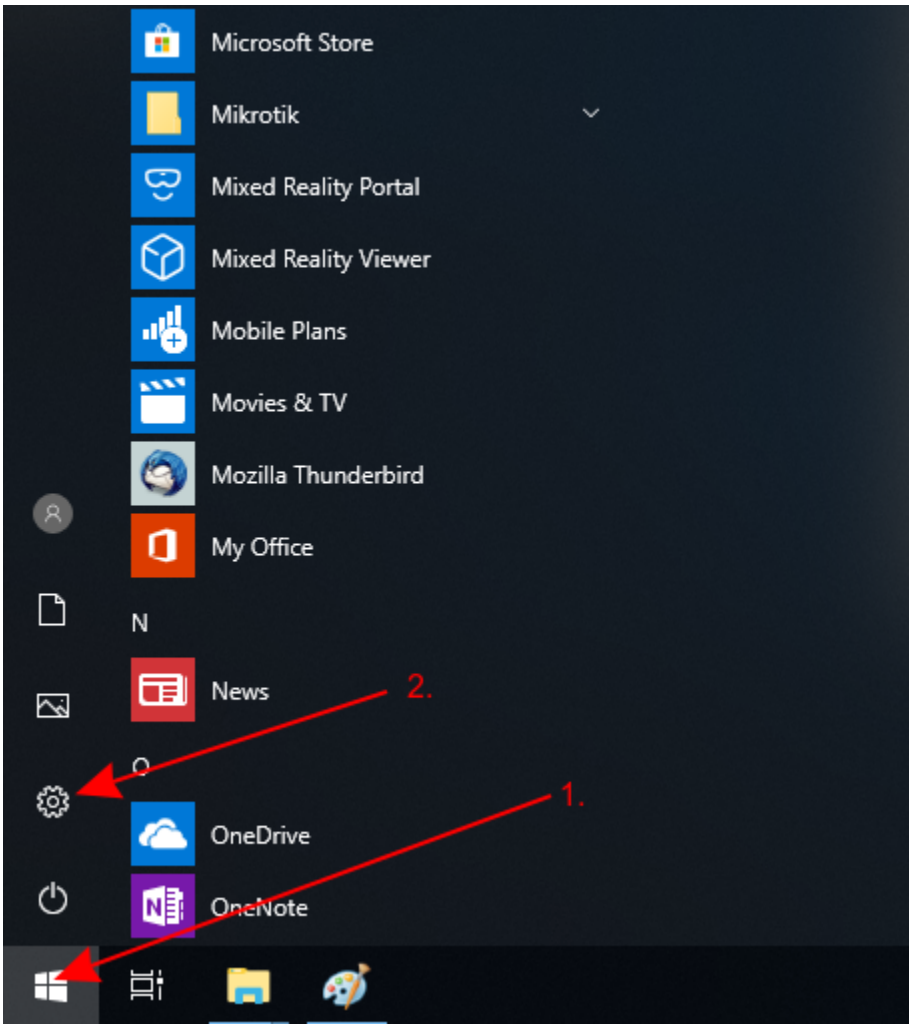
Careful. Netinstall re-formats the system's drive, all configuration and saved files will be lost. Netinstall does not erase the RouterOS license key, nor does it reset RouterBOOT related settings, for example, CPU frequency is not changed after reinstalling the device.

Instructions for Windows

- Download **Netinstall** from the downloads page. If you are not sure which version you need, then you can always select the version that is marked as **Current** (stable);
- Download the RouterOS **Main package** from the downloads page;

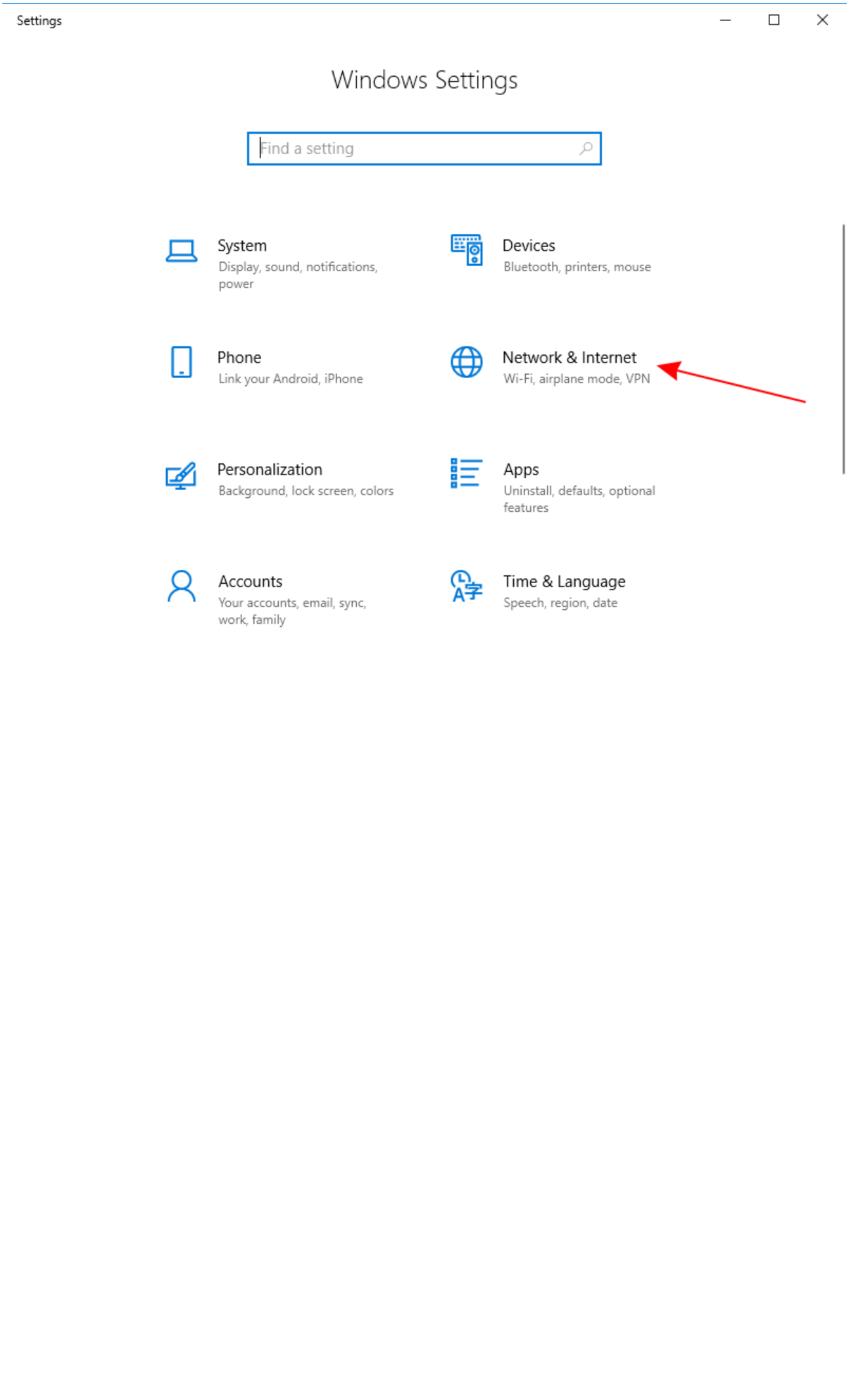
  You must choose a RouterOS version. You can always select the version that is marked as **Current**. You must also select the architecture (ARM, MIPS, SMIPS, TILE, etc...), but if you are not sure, then you can download the RouterOS package for **ALL** architect ures, Netinstall will choose the right architecture for you.

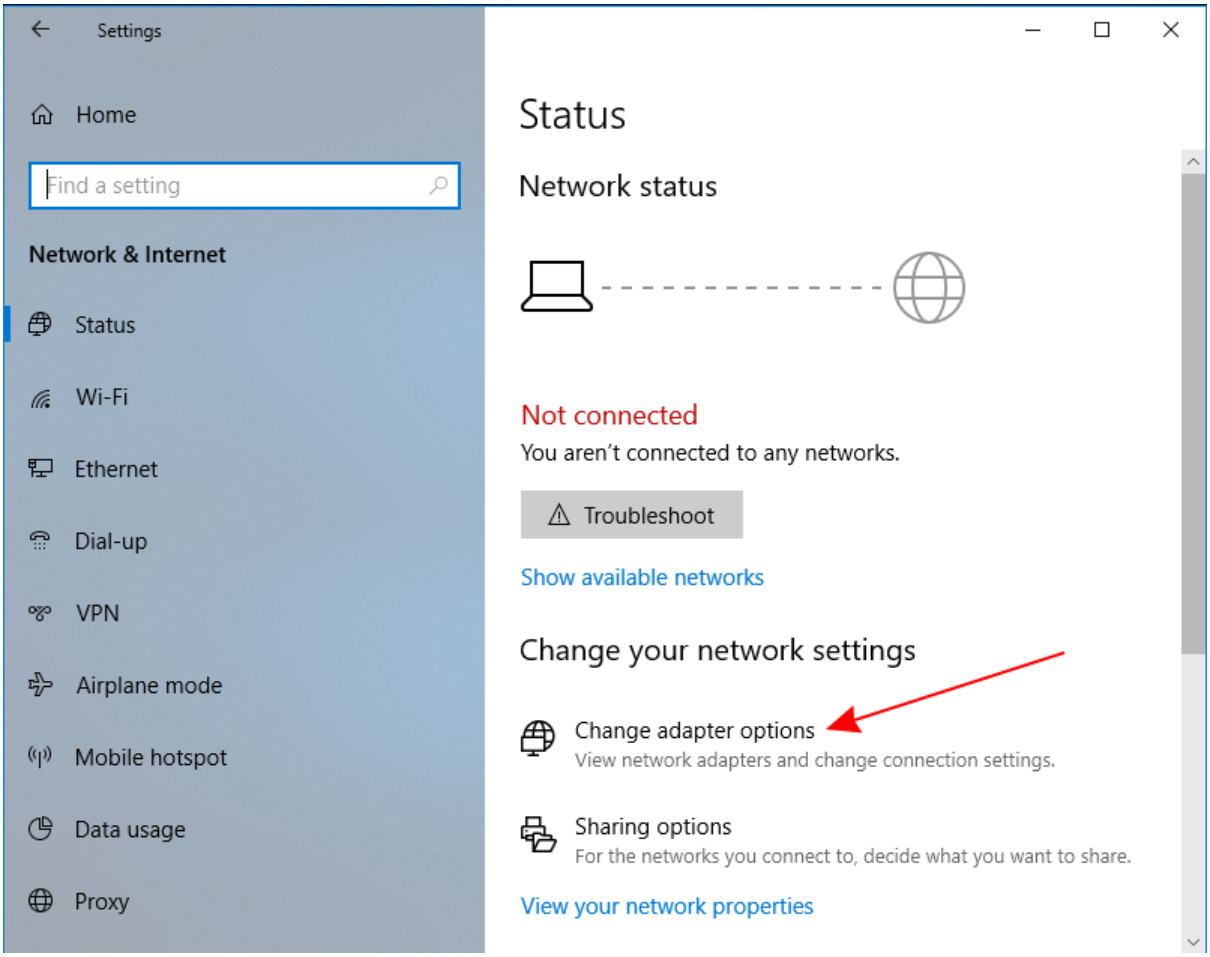
- Disable all of your computer network interfaces (WiFi, Ethernet, LTE, or any other type of connection) besides the one that will be used for installation! Netinstall will only work on one active interface on your computer, it is highly recommended that you disable any other network interfaces to be sure that Netinstall will select the right network interface.
- Configure a static IP address for your Ethernet interface, open **Start,** and select **Settings**:



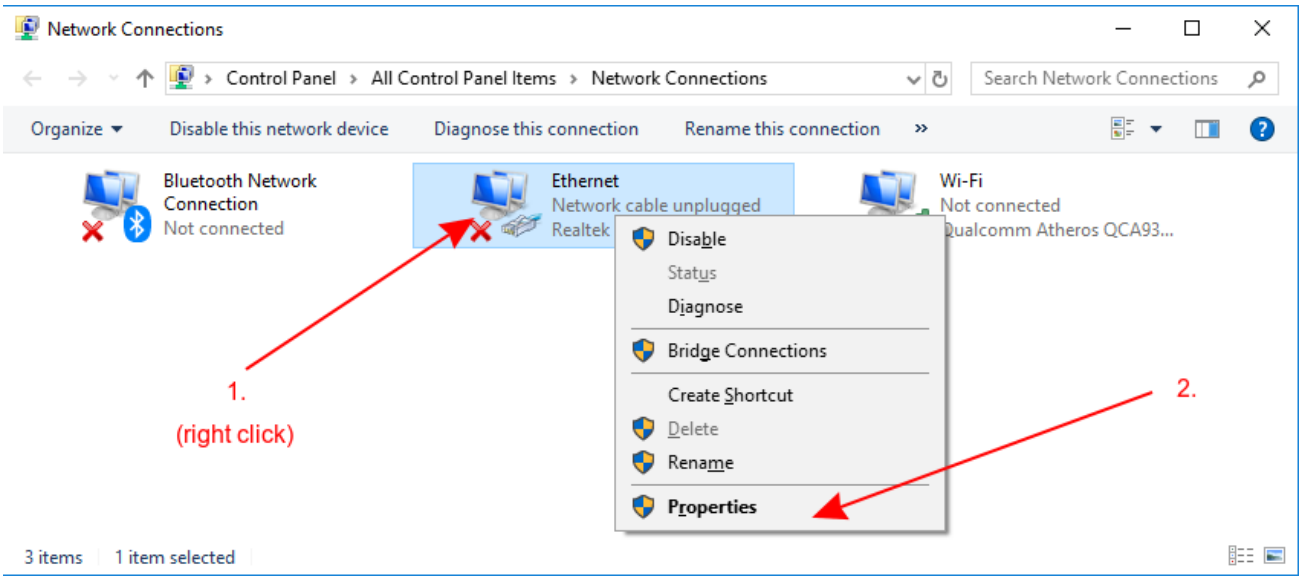
Netinstall can run also on a local network, in such case, you could skip setting a static IP address, but it is highly recommended that you set a static IP address if you are not familiar with Netinstall.

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

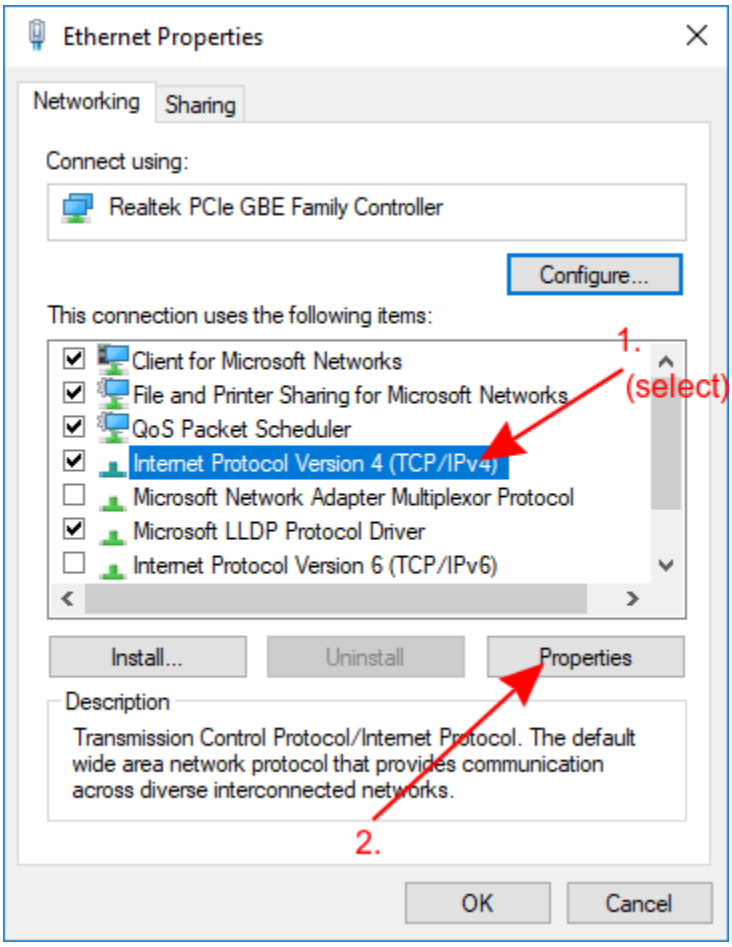

Settings
Windows Settings
Find a setting
System
Display, sound, notifications, power
Devices
Bluetooth, printers, mouse
Phone
Link your Android, iPhone
Network & Internet
Wi-Fi, airplane mode, VPN
Personalization
Background, lock screen, colors
Apps
Uninstall, defaults, optional features
Accounts
Your accounts, email, sync, work, family
Time & Language
Speech, region, date



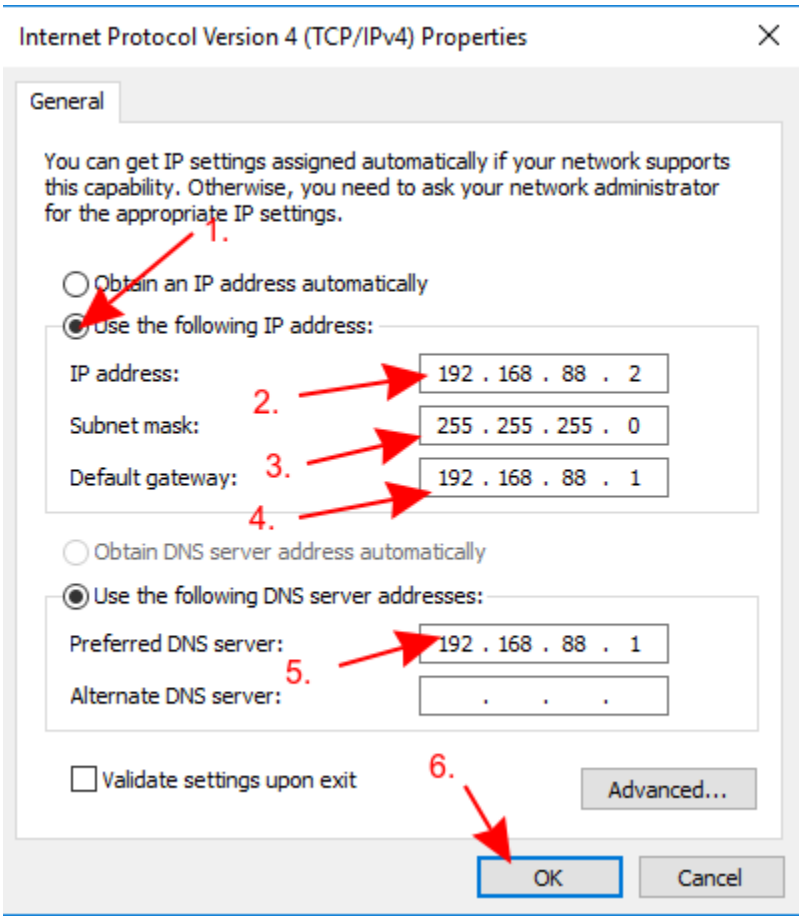
- Right-click on your Ethernet interface and select **Properties**



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

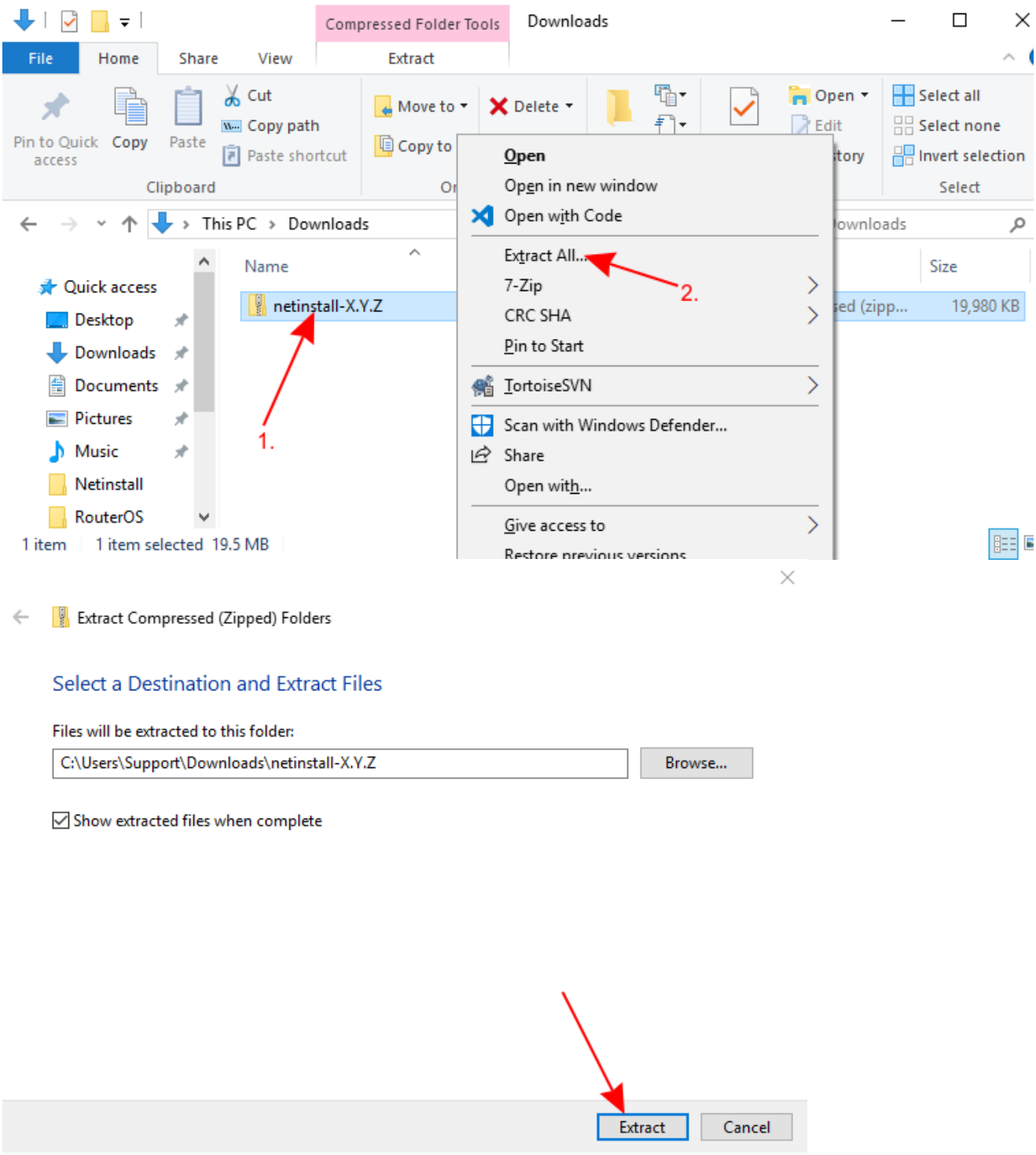


- Check Use the following IP address and fill out the fields as shown in the image below

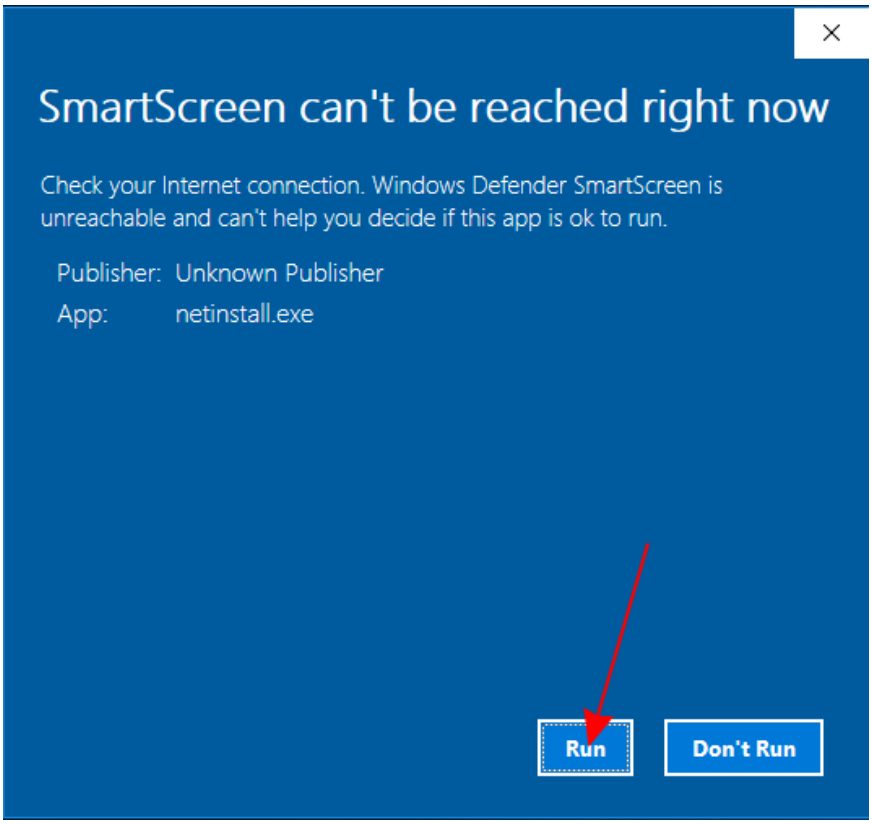


If you have a working router, then you can use it and skip the setting up a static IP part of this tutorial, but it requires you to know your LAN address since you will need to specify an unused IP address in your network for the network boot server. For this reason, it is recommended to apply a static IP address and follow this guide precisely, if you are not sure how to get these parameters out of your network.

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

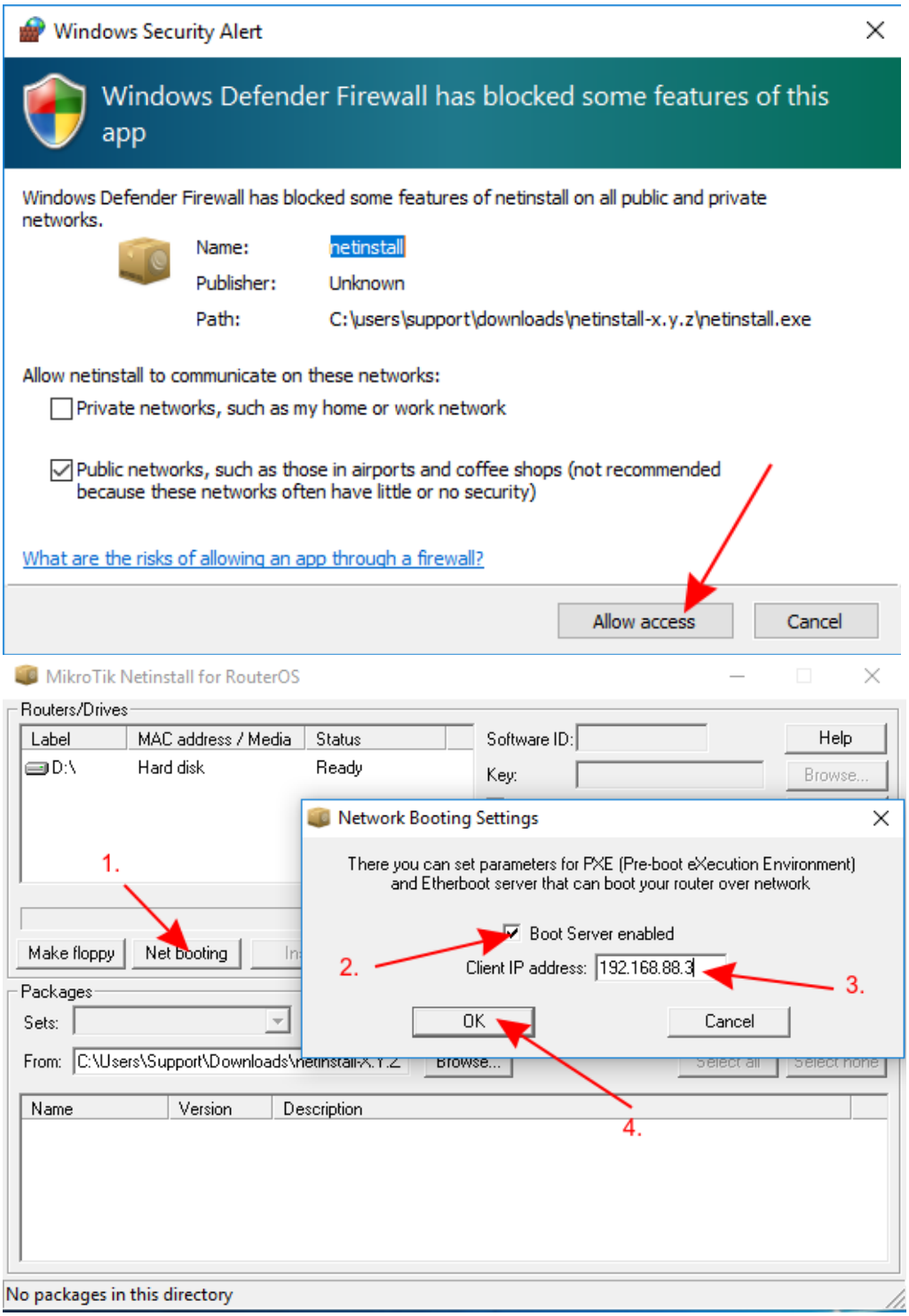


- Make sure that the Ethernet interface is running and launch Netinstall.exe. If you followed the guide precisely, then you should not have any Internet connection on your computer, Windows 10 wants to verify all apps that it runs, but will not be able to do it due to lack of an Internet connection,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



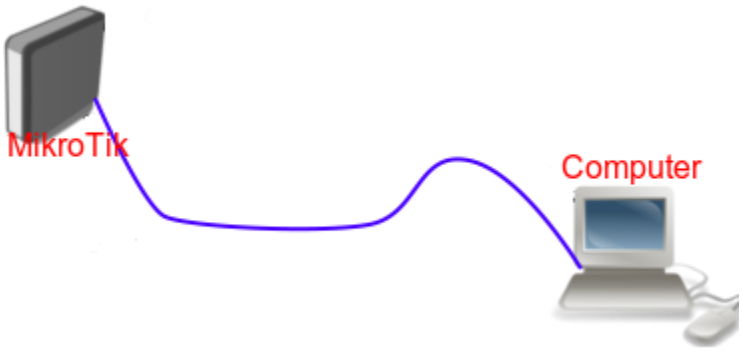
Netinstall requires administrator rights, there should be a window asking for permissions to run Netinstall, you must accept these permissions for Netinstall to work properly.

- 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), and plug the Ethernet cable into your device's Etherboot port.
- MikroTik devices can 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.

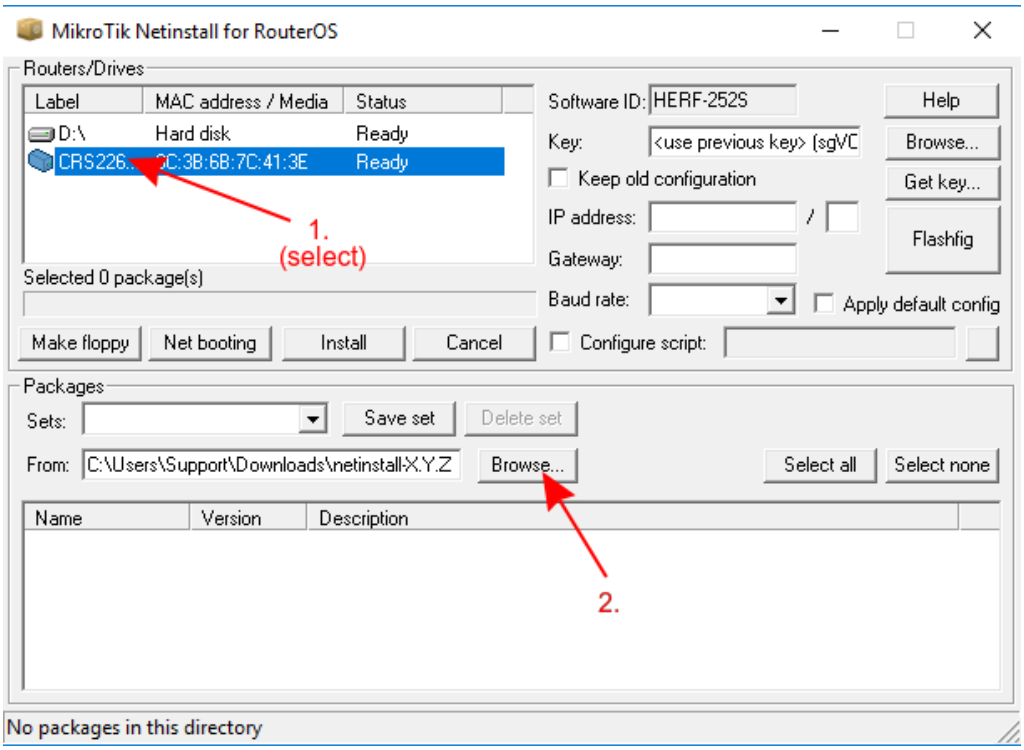
Netinstall uses bootp packets, which use the same port numbers as DHCP packets. If you're using a switch between your PC and the device to be Netinstalled, ensure that the ports in the bridge are not blocked by other network devices.

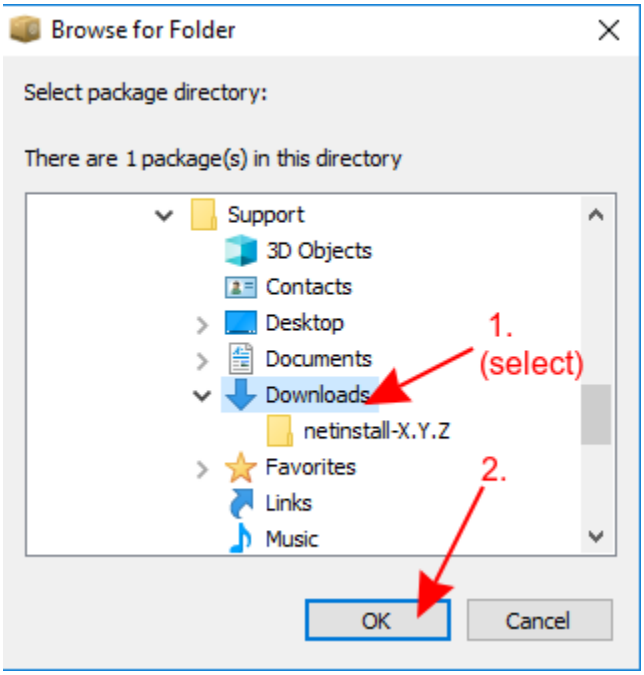
If you have dhcp-snooping enabled, make sure to enable "trusted" on the bridge ports facing the Netinstall PC.

- 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.

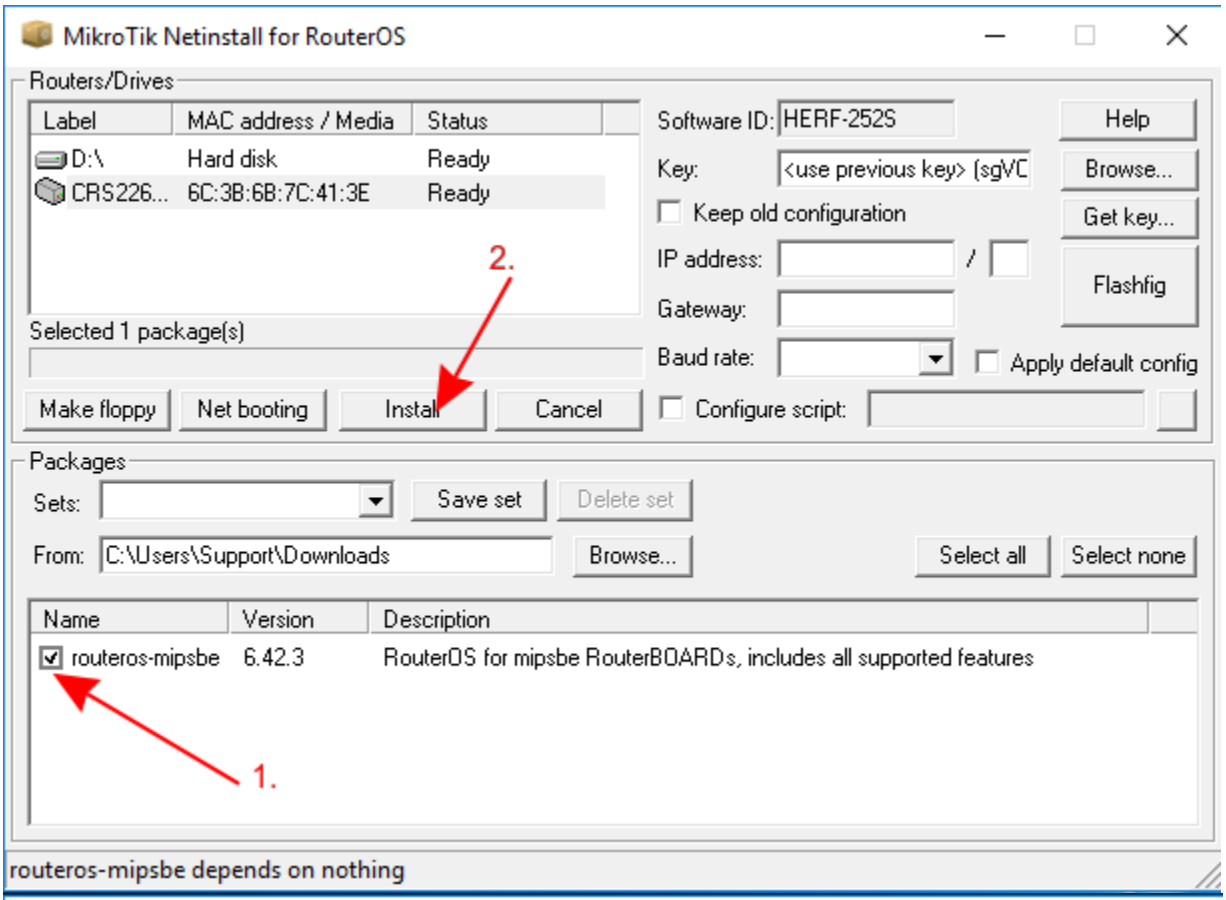
- Wait for the device to show up in Netinstall, select it, and press **Browse.** Navigate to your **Downloads** folder (or wherever you saved your RouterOS packages) and press **OK**

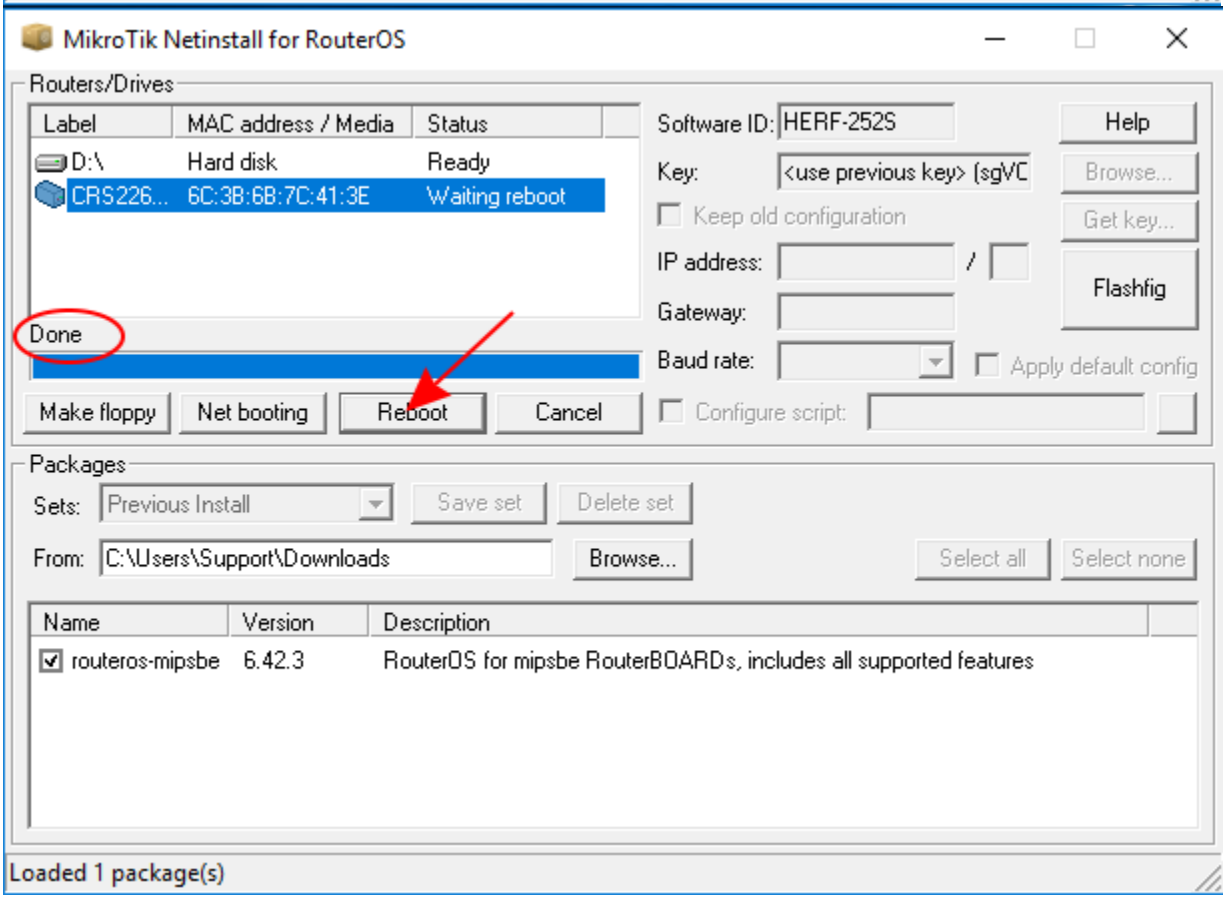




- Select your desired RouterOS version and press **Install.** Wait for the installation to finish and press "**Reboot**" (Devices without serial console have to be rebooted manually)

⚠ If you downloaded RouterOS packages for multiple architectures, then Netinstall will only show the appropriate architecture packages for your device after you have selected it. All unsupported packages will not show up in this window after you have selected a device.


MikroTik Netinstall for RouterOS
Routers/Drives
Label
MAC address / Media
Status
D:\
Hard disk
Ready
CRS226...
6C:3B:6B:7C:41:3E
Ready
Selected 1 package(s)
Make floppy
Net booting
Install
Cancel
2.
Software ID:
HERF-252S
Key:
<use previous key> (sgVC
Keep old configuration
IP address:
Gateway:
Baud rate:
Help
Browse...
Get key...
Flashfig
Apply default config
Configure script:
Packages
Sets:
Save set
Delete set
From:
C:\Users\Support\Downloads
Browse...
Select all
Select none
Name
Version
Description
routeros-mipsbe
6.42.3
RouterOS for mipsbe RouterBOARDs, includes all supported features
1.
routeros-mipsbe depends on nothing


MikroTik Netinstall for RouterOS
Routers/Drives
Label
MAC address / Media
Status
D:\
Hard disk
Ready
CRS226...
6C:3B:6B:7C:41:3E
Waiting reboot
Done
Make floppy
Net booting
Reboot
Cancel
Software ID:
HERF-252S
Key:
<use previous key> (sgVC
Keep old configuration
IP address:
Gateway:
Baud rate:
Help
Browse...
Get key...
Flashfig
Apply default config
Configure script:
Packages
Sets:
Previous Install
Save set
Delete set
From:
C:\Users\Support\Downloads
Browse...
Select all
Select none
Name
Version
Description
routeros-mipsbe
6.42.3
RouterOS for mipsbe RouterBOARDs, includes all supported features
Loaded 1 package(s)

If the installation does not start (the 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.

- You are done! Remove the device from power, remove the Ethernet cable, place the device back in your network and your device should be running properly now!

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 keep the device's already installed branding package without reinstalling it using Netinstall.

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.

When using the **Configure script** option, it is suggested to introduce a delay before configuration execution.

Configure script pre-configures the device with the provided configuration (text file in .RSC format). This configuration also takes the place of the default configuration. The script can access factory passwords with read-only variables $defconfPassword and $defconfWifiPassword

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 configuration is reset, and for devices that have it, the default configuration will be applied. (optional)
-e	When the reinstallation process is performed reset the device to 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 the 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 is used.
PACKAGE	Specify a list of RouterOS.NPK format packages that Netinstall will try to install on the device. (mandatory)
-i	Allows you to specify an interface. (optional)

> **Note**
>
> If the "-r" or "e-" parameter is not specified, *netinstall-cli* will reinstall RouterOS and will keep the current configuration by downloading the 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 resets the configuration upon reinstallation procedure):

```
admin@ubuntu:~$ sudo ./netinstall-cli -r -a 192.168.88.3 routeros-7.5-mipsbe.npk
Version: 7.5 (2022-08-30 09:34:59)
Using server IP: 192.168.88.2
Use Netmask: 255.255.255.0
Starting PXE server
Waiting for RouterBOARD...
PXE client: C4:AD:34::89:10
Sending image: mips
Discovered RouterBOARD...
Formatting...
Sending package routeros-mipsbe-7.5.npk ...
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 several ways to put your device into Etherboot mode depending on the device you are using.

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, holding the **Reset** button, powering 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 can boot up and you can 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 to go 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 follows:

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

For RouterBOARD 230 series devices the parameters are as follows:

```
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 6.42.3

CRS125-24G-1S

CPU frequency: 600 MHz
 Memory speed: 175 MHz
  Memory size: 128 MiB
    NAND size: 128 MiB

Press any key within 2 seconds to enter setup
Ethernet link absent...
trying bootp protocol.....................
```

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