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1 Introduction

It is possible to use your own router in our network to connect more than one device and run **your own Wireless LAN** to connect mobile devices.

Most routers will work, but please be aware that some routers (e.g. the ones you got from your DSL-Carrier) might be more difficult to set up.

The good news is that it should be **no problem** if you bought the router yourself (even if it is a cheap router for about 20 Euro!) and of course we will help you as best as we can. In this HowTo, we will try to explain how you can get your router working the way it should.

Of course, if the following explanation does not lead to a working configuration you can always come to one of our office hours and bring the device with you. We will try to help you as best as we can!

<http://www.selfnet.de/en/support/oeffnungszeiten/>

2 Configuration

2.1 Configuration options

There are **two options**. The first option is to tell the router to **just relay** our network and do the wireless (broadcasting the wireless LAN and doing the encryption which is VERY important). This is called "bridging". We **prefer the bridging mode** because if there is a problem with your connection it is either us or the configuration on your computer and not the router itself. In addition, it should be much easier to set up.

The second option is using the router in "**router**" mode. In this case, the router gets assigned one single IP address from our network and builds its own private network. It will assign its own IP addresses to all devices you attach to it (via network cable or WiFi). You should know that – while in routing mode – (by default) **the router blocks** some of the services we offer (like SelfStreaming, ...).

There is a way to "unblock" the services but this is (in most cases) not trivial and sometimes only works with either more expensive routers or by using/installing a custom operating system (called firmware) on your device like OpenWrt or dd-wrt.

- OpenWrt – <https://openwrt.org/>
- dd-wrt – <http://dd-wrt.com/>

Using a custom firmware will (in most cases) **VOID YOUR WARRANTY!** It's a good way to learn a lot – but if you just want to "make it work" you can simply follow this guide.

If you really dare to setup your router with a custom firmware there is an article, that one of our active members wrote: <http://techbl.org/?p=131> (OpenWrt as a Dumb Access Point)

2.2 Comparison between bridging and router mode

bridging mode	routing mode
+ easy to setup	- can be complicated
+ high probability that it will also work with the "cheap" router you get for free from an ISP	- might not work if it is a "cheap" one from your internet service provider
+ will NOT block any network services provided by Selfnet	- you have to manually unblock certain services which might not be easy or even impossible
+ You do not need a "WAN" (wide area network) port.	- You absolutely need a WAN Port to use the router in routing mode. If the additional Port (besides the LAN Ports) states that it is a "DSL" Port it will probably NOT work.
	+ the router takes one IP address and all devices you attach to it will not concern us which means less work for us ;-)

2.3 Bridging mode

- **Connect** a computer to a LAN port of the router.
- Find out the **router IP address** (in most cases the router assigns all the important network settings to your computer).
 - Usually you can display the current network settings depending on which operating system you use. If you do not know how you could use the search engine of your choice then search for "Show IP address on YOUR OPERATING SYSTEM".
 - The IP address of the router is the one set as the "default gateway".
- **Take a note** of all the network settings you got from your router such as IP address (looks like 192.168.x.y), subnet (looks like 255.255.255.0) and enter the same things as static entries of your network interface¹.

¹If you do not know how to set your IP address statically you might want to go to the last page of this pdf. Of course, for now you set it to the complete opposite of what is told there.

- Open your Browser and **go to** `http://router-ip-address` (you should exchange "router-ip-address" with the actual router ip address you found as "default gateway" in your network settings).
- Now the **router configuration page** will pop up and ask for your login credentials (username and/or password). If you do not know you can "reset" the router (please consult the routers documentation on how to reset it to factory settings). Some routers have a sticker on the backside which contains the standard login credentials.
- After you logged in, you can (first of all) safely **disable the DHCP Server**.
- If you did a reset of the router to factory defaults you should set a new password for the router configuration.
- Wireless configuration:
 - Configure your **network name** (often called SSID) and (if there is the possibility) set the "country settings" to Germany (each country has its own laws/regulations on wireless radio broadcasts and that way you make sure not to break any laws).
 - Set the **encryption**. You should define a "pre shared key" and choose WPA2-AES/CCMP which is the current standard. You should NOT use an outdated encryption method like WEP because it has been broken for nearly a decade and is therefore HIGLY insecure!
- Now you have to **reboot the router**. After that just set your computer to get the network configuration automatically (via DHCP)² and connect the network plug we provided with a LAN port of your router.
- Every time you want to change the configuration of your router you just set the configuration of your device statically to the one you wrote down.

DO NOT USE THE "WAN" PORT FOR CONNECTING YOUR ROUTER WITH THE SELFNET NETWORK (WALL [NETWORK/RJ-45] OUTLET) IT DEFEATS THE PURPOSE OF BRIDGING MODE!

And besides, it will NOT work. ;-)

2.4 Router mode

- **Connect** a computer to a LAN port of the router.
- Find out the **router IP address** (usually the router assigns all the important network settings to your computer).
 - Usually you can display the current network settings depending on what operating system you use. If you do not know how you could use the search engine of your choice then search for "Show IP address on YOUR OPERATING SYSTEM".

²That is explained on the last page.

- The IP address of the router is the address that is set as the "default gateway".
- Open your Browser and **go to** `http://router-ip-address` (you should exchange "router-ip-address" with the actual router ip address you found as "default gateway" in your network settings. Some routers have a sticker on the backside which contains the standard login credentials.
- Now the **router configuration page** will pop up and ask for your login credentials (username and/or password). If you do not know you can "reset" the router (please consult the router's documentation on how to reset it to factory settings).
- If you did a reset of the router to factory defaults you should set a new password for the router configuration.
- Set your router to get an IP address **automatically** via DHCP using the WAN Port of your router.
- Wireless configuration:
 - Configure your **network name** (often called SSID) and (if there is the possibility) set the "country settings" to Germany (each country has its own laws/regulations on wireless radio broadcasts and that way you make sure not to brake any laws.
 - Set the **encryption**. Usually you should set a "pre shared key" and to WPA2-AES/CCMP which is currently the standard. You should NOT use an outdated encryption method like WEP because it has been broken for nearly a decade and is therefore HIGLY insecure!
- Usually you have to **reboot the router**. Now connect your router to the dormitory network using the "WAN" Port of your router. If it does not have a WAN Port (and only a DSL marked port instead of a WAN Port) the router mode will MOST PROBABLY NOT WORK.

Now all that is left to do is to configure the router to "not" block a network service (like SelfStreaming³) you want to use. But apart from trying to help you in one of our office hours we cannot help you further than telling you to consult your router's documentation.

In any case you should look into the documentation of the service that "doesn not work" you can always find on our website. We cannot guarantee that it will work because that depends on the model you are using.

³<http://www.selfnet.de/en/netzwerk/dienste/selfstreaming/>

Network configuration

Usually, your computer obtains its configuration from our network (DHCP) and you do not have to do anything besides plugging in your network cable. If this does not work, you will need to check your computer's configuration. Choose your operating system and follow the arrows for instructions.



Click **Start** -> **Control Panel** -> **Network and Internet Connections** -> **Network Connections** -> Right-click **Local Area Connection** and choose **Properties**. Click **Internet Protocol (TCP/IP)** once and then **Properties**.



Click the **start symbol** in the lower left corner -> Right-click **Network** and choose **Properties**. Click **View status** on the left. Click **Properties** at the bottom. Click **Continue**. Click **Internet Protocol Version 4 (TCP/IPv4)** once and then **Properties**.

In order for your computer to look for his configuration automatically both options need to be set like in the picture. The numbers are irrelevant.

Click **OK** and connect the network cable. Does your network work now?

You are finished!
You can now use your network access!

BEZIEHEN:

IP-Adresse automatisch beziehen

Folgende IP-Adresse verwenden:

IP-Adresse: [. . .]

Subnetzmaske: [. . .]

Standardgateway: [. . .]

DNS-Serveradresse automatisch beziehen

Folgende DNS-Serveradressen verwenden:

Bevorzugter DNS-Server: [. . .]

Alternativer DNS-Server: [. . .]

Erweitert...

OK Abbrechen



GNU/Linux

Since the permanent configuration of linux distributions is very variable, we present a temporary solution that might be lost after rebooting your computer.

Enter one of the following commands in your console as root (without #):

```
# dhclient
```

or:

```
# dhcpcd eth0
```

Click **OK** and connect the network cable. Does your network work now?

You are done!
You can now use your network access!