

How to setup secure remote maintenance access

First steps

At first the chosen computer has to be connected to the internet (as usual via a router). The computers IP-address should be configured static or by an DHCP-server in the network. A static setup is preferred because you also have to enter a static IP in the router configuration. If the IP-address of your system changes with every boot e.g. due to a DHCP-server then you have to create a IP-alias for your device. You can do this by editing the file `/etc/network/interfaces`. Take a look at the example:

```
# The primary network interface
auto eth0
iface eth0 inet dhcp
    up ifup eth0:ssh
    down ifdown eth0:ssh
```

This device is configured via DHCP. It starts the alias `eth0:ssh` (as seen below). If the computer contains two or more network adapters then be careful to choose the correct device. Now the alias:

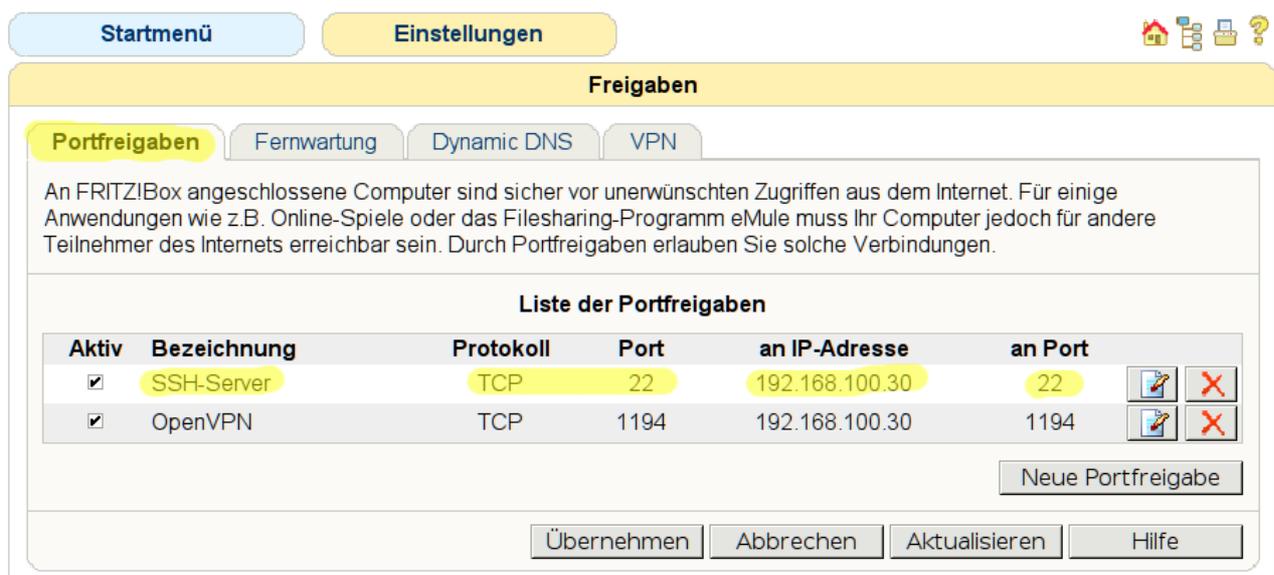
```
# IP-alias for ssh connection
iface eth0:ssh inet static
    address 192.168.100.30
    netmask 255.255.255.0
    broadcast 192.168.100.255
```

When you're ready you've to restart the network:

```
sudo /etc/init.d/networking restart
```

Configuring your router

Due to safety-reasons most ports are closed on common routers. To grant ssh-access you need to setup a NAPT (Network Adress Port Translation) on the router. If you don't know how to access your router then consult the manual of your router. As usual you can login with a webbrowser like Firefox. The manual should also contain information how to setup the NAPT (often also called NAT).



The screenshot shows the 'Freigaben' (Port Forwarding) section of the Fritz!Box web interface. The 'Portfreigaben' tab is selected. A text box explains that computers connected to the Fritz!Box are protected from unauthorized access, but some applications like online games or file sharing require port forwarding. Below this is a table titled 'Liste der Portfreigaben' (List of Port Forwarding) with the following data:

Aktiv	Bezeichnung	Protokoll	Port	an IP-Adresse	an Port		
<input checked="" type="checkbox"/>	SSH-Server	TCP	22	192.168.100.30	22		
<input checked="" type="checkbox"/>	OpenVPN	TCP	1194	192.168.100.30	1194		

At the bottom right of the table is a button 'Neue Portfreigabe'. At the bottom of the interface are buttons 'Übernehmen', 'Abbrechen', 'Aktualisieren', and 'Hilfe'.

This is an example of an NAPT-setup on a German router (AVM Fritz!box). The port for openssh is **22**. Save the configuration and ssh-connections to your system should be possible.

Another example from a ZyXEL router:

The screenshot shows the ZyXEL web interface for NAT configuration. The page title is "NAT - Edit SUA/NAT Server Set". On the left is a navigation menu with options like "Main Menu", "Advanced Setup", "Password", "LAN", "Wireless LAN", "WAN", "NAT", "Security", "Dynamic DNS", "Time and Date", "Remote Management", "UPnP", "Logs", "Media Bandwidth Mgmt.", and "Logout". The main content area contains a table with 12 rows and 4 columns: "Start Port No.", "End Port No.", and "IP Address". Row 1 has "All ports" for both start and end ports and "0.0.0.0" for the IP address. Row 2 has "22" for both start and end ports and "192.168.0.111" for the IP address. Rows 3 through 12 have "0" for both start and end ports and "0.0.0.0" for the IP address. Below the table are "Save" and "Cancel" buttons.

	Start Port No.	End Port No.	IP Address
1	All ports	All ports	0.0.0.0
2	22	22	192.168.0.111
3	0	0	0.0.0.0
4	0	0	0.0.0.0
5	0	0	0.0.0.0
6	0	0	0.0.0.0
7	0	0	0.0.0.0
8	0	0	0.0.0.0
9	0	0	0.0.0.0
10	0	0	0.0.0.0
11	0	0	0.0.0.0
12	0	0	0.0.0.0

Adding a fixed hostname

If you don't have a fixed IP-address due to a nameserver etc. then you can add a dynamic DNS. This can be done with a service like www.dyndns.com. You may have a router which supports the service of DynDNS out of the box, so it will be updating the IP automatically to DynDNS. If not, you have to install additional software (update client) on your system.

For a step-by-step tutorial on DynDNS (and additional software) visit this page: <http://www.dyndns.com/services/dns/dyndns/howto.html>