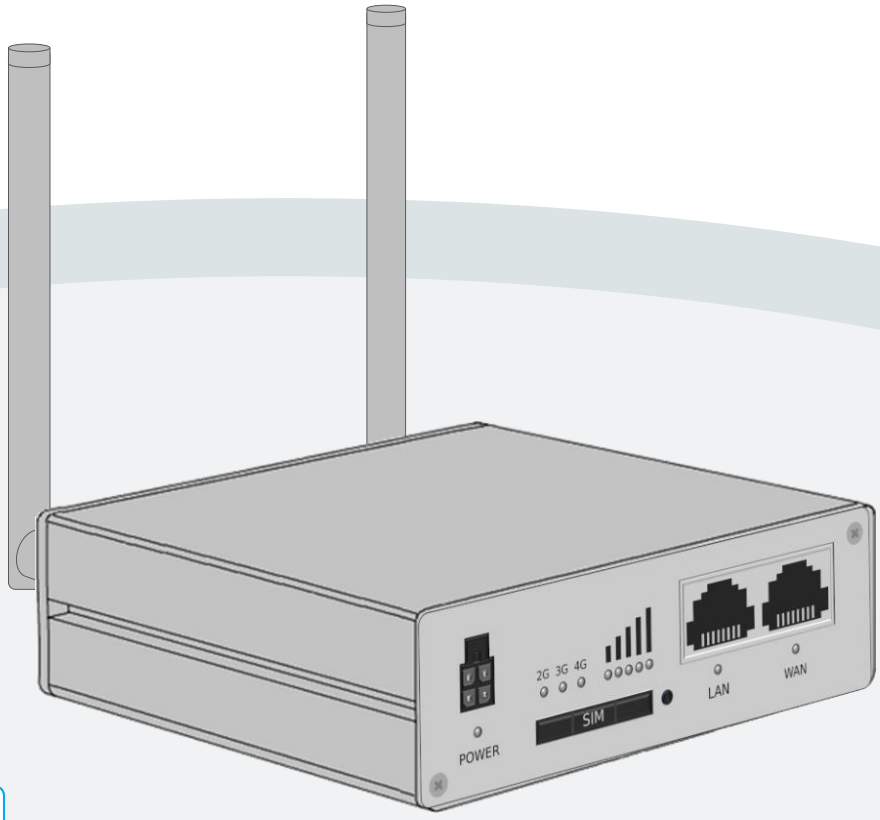
Setup Guide



MX560 Anleitungen

Seite 2

MX560 Manuals

Page 2

mdex Router

MX560

Release: October 1, 2020 (v.1.6)

This Setup Guide describes the commissioning of the **mdex Router** MX560 with the commonly used functions.

These setup instructions may differ on delivery of the MX560 with individual configuration, in the project business or as an mdex package/bundle (e.g. with an mdex fixed.IP+/public.IP via OpenVPN or an mdexSIM with public.IP). Please observe the enclosed supplementary instructions and/or the additional Router labels.

MX560 Anleitungen

Diese MX560 Einrichtungsanleitung sowie weitere Anleitungen des MX560 Routers stehen als PDF-Datei unter nachfolgendem Link oder QR-Code zum Download bereit:

www.mdex.de/MX560-Anleitungen

MX560 Manuals

The English MX560 Setup Guide and other available MX560 manuals can be downloaded as PDF file from the following link or QR code:

www.mdex.de/MX560-Manuals

Further support information for all mdex products can be found at **wiki.mdex.de**.

Table of Contents

1 Specifications

The mdex Router MX560 is an LTE mobile Router for 2G, 3G and 4G mobile networks.
For further details see chapter **1.2 Technical specifications** (Page 5).

1.1 Scope of delivery

	Quantity
mdex Router MX560	1
Power cable with Router connector plug	1
SIM slot needle (to pull out the SIM holder)	1
MX560 Setup Guide	1
LTE rod antenna	optional
LTE antenna - with cable and magnetic base	optional
WiFi rod antenna	optional
WiFi antenna - with cable and magnetic base	optional
EU plug Power supply unit (with Router connector plug) (Input: 100-240 VAC / Output: 9 VDC)	optional
UK plug Power supply unit (with Router connector plug) (Input: 100-240 VAC / Output: 9 VDC)	optional
DIN rail bracket 'Standard	optional
DIN rail bracket 'Compact'	optional
Wall bracket	optional
Network cable (Ethernet)	optional

1.2 Technical specifications

Hardware:

Dimensions (L x W x H):	74 mm x 84 mm x 25 mm (without DIN rail bracket)
Weight:	approx. 160g (without DIN rail bracket)
CPU / RAM:	400 MHz MIPS CPU, 64 MB RAM
Input voltage:	9 - 30 VDC, max. 5W
2-port switch (configurable):	WAN/LAN: 10/100 Mbit/s BASE-T, Auto MDI/MDIX

Environmental conditions:

Temperature range (operation):	-40° to +70° C
Humidity (operation):	10% to 90%, non-condensing
Temperature range (storage):	-40° to +80° C
Humidity (storage):	5% to 95%, non-condensing

Mobile radio & WIFI:

4G LTE:	max. 150 Mbit/s Download / 50 Mbit/s Upload
3G HSPA+:	max. 42.2 Mbit/s Download / 5.76 Mbit/s Upload
3G HSPA:	max. 14.4 Mbit/s Download / 5.76 Mbit/s Upload
3G UMTS:	max. 384 kbit/s Download / 384 kbit/s Upload
2G GPRS/EDGE:	max. 236.8 kbit/s Download / 236.8 kbit/s Upload
WIFI:	IEEE 802.11 b/g/n (2.4 GHz), WEP/WPA/WPA2 encryption, 1T1R (150 Mbps max.)

1.3 Presets (factory default)

The MX560 is pre-configured for the operation of an **mdexSIM Vodafone** and for accessing one connected terminal device. Here you will find the factory default in detail.

> ⚠ The pre-configuration of the MX560 may vary accordingly for orders with individual configuration, in the project business or as another mdex package/bundle.

Network settings

LAN IP-address:	192.168.0.1
LAN Router Access:	HTTP Port: 8080 | HTTPS Port: 443 | SSH Port: 22
Remote Router Access:	HTTP port 8080: enabled (via WAN IP of SIM card) HTTPS Port 443: disabled | SSH Port 22: disabled
Login:	Username: admin | Password: admin01
DHCP-server:	enabled (IP address 192.168.0.100 is assigned)
Port-Forwarding:	Host forwarding to 192.168.0.100
Wireless LAN (WIFI):	disabled
NTP (Time Server):	Time synchronization enabled (Time Server: time.mdex.de)

Mobile settings

The mobile settings are preconfigured for an **mdexSIM Vodafone**:

APN:	m2m.cda.vodafone.de
Username:	mdex@m2m.mdex.de
Password:	mdex
PIN:	none
Roaming:	allowed ⚠ Roaming allows the use of external mobile networks (e.g. abroad or in border regions), which can lead to high mobile costs depending on the SIM card tariff!

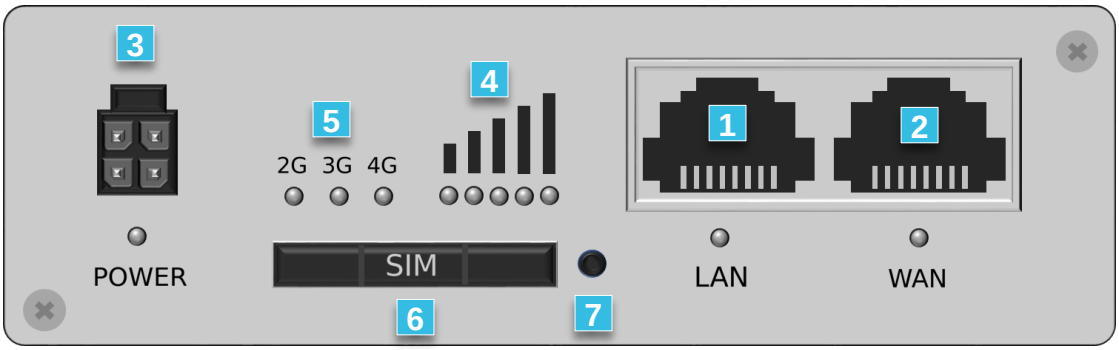
Settings for stable connection

Daily Restart	enabled (daily at 23:19)
Ping Reboot:	enabled (every 5 minutes)
Ping server:	ping.mdex.de ⚠ The mdex server **ping.mdex.de** is only accessible from the mdex network! See **3.2.1 Important notes about Ping Reboot** (Page 17).

1.4 Connectors and Interfaces

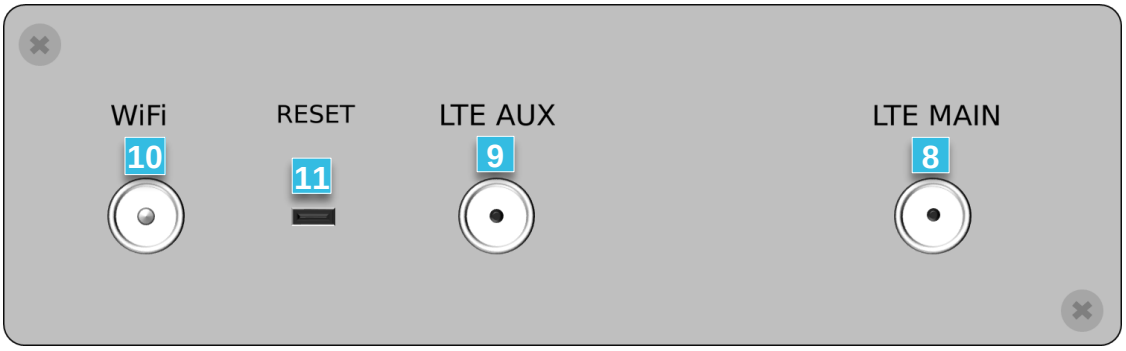
⚠ **<u>No</u> PoE** (Power over Ethernet) powered network cable may be connected to the LAN/WAN sockets! The PoE voltage would destroy the MX560!

Front panel



1	LAN Ethernet socket with status LED for connection of a PC or terminal device
2	WAN Ethernet socket with status LED for special functions to connect the MX560 to external networks or Routers. This port can be optionally reconfigured as LAN, see Chapter **4.1 Configure WAN port as LAN** (Page 33). (If present, remove the dummy connector before using the WAN socket.)
3	Connection for power supply (9-30V DC, 5W) with Power LED
4	Signal strength → **4.3 Connection status and signal strength** (Page 4)
5	Display of the current mobile network (2G, 3G, 4G) → **4.3 Connection status and signal strength** (Page 4)
6	SIM holder for SIM cards with form factor 2FF (25 mm × 15 mm)
7	Button to pull out the SIM holder (with the SIM slot needle)

Back panel



8	SMA connector for main LTE antenna (MAIN)
9	SMA connector for additional LTE antenna (AUX)
10	RP-SMA connector for WiFi antenna
11	RESET button for restart and reset to factory default

2 Installation

Please observe the notes in chapter **5 Important Information** (Page 41).

2.1 Quick start

Depending on the intended use of the MX560, you will find the necessary setup steps for quick commissioning in the following descriptions.

ⓘ For further individual adaptations of the MX560, please refer to chapters **3 Configuration** and **4 Additional functions** corresponding descriptions.

2.1.1 Own SIM card without mdex IP service

Use of the MX560 as an Internet Router with its own SIM card, without mdex IP service (fixed.IP+ / public.IP) for remote access to a connected terminal device.

1. Insert your own SIM card according to chapter **2.2 Insert SIM card** (Page 10).
2. Connect LTE mobile antennas according to chapter **2.3 Connecting antennas** (Page 11).
3. Connect the power supply according to chapter **2.4 Powering** (Page 12).
4. Change the Login Password according to chapter **3.3 Login Password** (Page 18).
5. Set mobile settings (APN, Username, password, PIN) for your SIM card according to chapter **3.5 Mobile settings** (Page 19).
6. Extend the DHCP IP address range according to chapter **3.8 DHCP-Server** (Page 25) for the number of connected terminal devices.
7. Deactivate 'DMZ configuration' according to chapter **3.9 Forwarding** (Page 27).
8. According to chapter **3.11 Ping Reboot** (Page 31), a publicly accessible server must be set as the ping server, e.g. 'public-ping.mdex.de' (185.39.176.22).
9. If remote access is not required, it should be deactivated for security reasons according to chapter **3.10 Configuration access / Remote access** (Page 29).
10. Connect terminal devices according to chapter **2.6 Connection of terminal devices** (P. 14).

2.1.2 mdexSIM with fixed.IP+ / public.IP

Using the MX560 with **mdexSIM,** optionally with fixed.IP+ or public.IP.

1. The mdex SIM card must be unlocked in the Management Portal.
2. The mdexSIM must be located in the Router; if necessary, insert the SIM-card according to Chapter **2.2 Insert SIM card** (Page 10).
3. Connect LTE mobile antennas according to chapter **2.3 Connecting antennas** (Page 11).
4. Connect the power supply according to chapter **2.4 Powering** (Page 12).
5. Change the Login Password according to chapter **3.3 Login Password** (Page 18).
6. If remote access is not required, it should be deactivated for security reasons according to chapter **3.10 Configuration access / Remote access** (Page 29).
7. Connect terminal device(s) according to chapter **2.6 Connection of terminal devices** (P.14).

2.1.3 mdex mobile device fixed.IP+ / public.IP (own SIM card)

Using the MX560 with own Vodafone/Telekom SIM card and a mdex IP service (fixed.IP+ / public.IP) as network type 'Vodafone' or 'Telekom'.

1. Insert your SIM card according to chapter **2.2 Insert SIM card** (Page 10).
2. Connect LTE mobile radio antennas according to **2.3 Connecting antennas** (Page 11).
3. Connect the power supply according to chapter **2.4 Powering** (Page 12).
4. Change the Login Password according to chapter **3.3 Login Password** (Page 18).
5. If remote access is not required, it should be deactivated for security reasons as described in chapter **3.10 Configuration access / Remote access** (Page 29).
6. Set the mobile settings (APN, Username, password) according to the mdex mobile device. If necessary, enter the PIN of your SIM card according to **3.5 Mobile settings** (Page 19).
7. Connect terminal device(s) according to chapter **2.6 Connection of terminal devices** (P.14).

2.1.4 mdex fixed.IP+ via OpenVPN

Using the MX560 with own SIM card and the mdex IP service 'fixed.IP+' as network type 'OpenVPN'.

1. Insert your SIM card as described in chapter **2.2 Insert SIM card** (Page 10).
2. Connect LTE mobile radio antennas as described at **2.3 Connecting antennas** (Page 11).
3. Connect the power supply according to chapter **2.4 Powering** (Page 12).
4. Change the Login Password according to chapter **3.3 Login Password** (Page 18).
5. Set mobile settings (APN, Username, password, PIN) for your SIM card according to chapter **3.5 Mobile settings** (Page 19).
6. Set up the OpenVPN client according to chapter **3.6 mdex OpenVPN Client** (Page 21) with the "Role" **mdex fixed.IP+ (default).**
7. Change the 'Source zone' for forwarding to "VPN" according to chapter **3.6.2 Change Forwarding to OpenVPN** (Page 23).
8. Change the source zone for remote access to "VPN" according to chapter **3.6.3** (Page 23). If no remote access to the MX560 is required, please deactivate it as described in chapter **3.10 Configuration access / Remote access** (Page 29).
9. Connect terminal device(s) according to chapter **2.6 Connection of terminal devices** (P.14).

2.1.5 mdex public.IP via OpenVPN

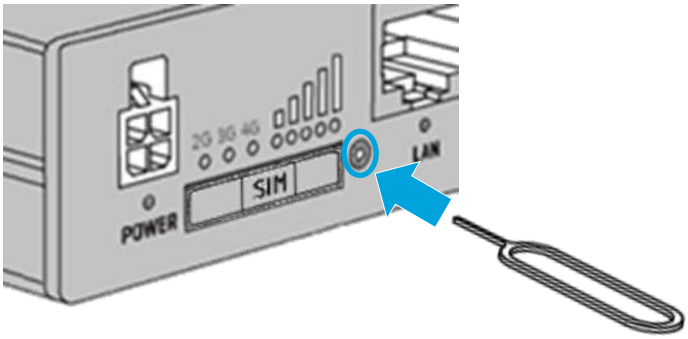
Using the MX560 with own SIM card and the mdex IP service 'public.IP' as network type 'OpenVPN'.

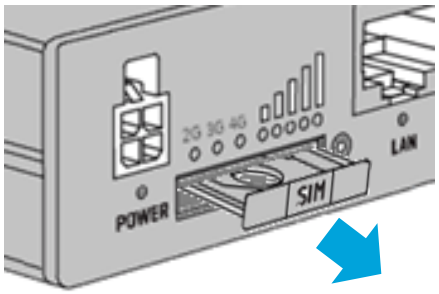
1. Install your SIM card according to chapter **2.2 Insert SIM card** (Page 10).
2. Connect LTE mobile radio antennas according to **2.3 Connecting antennas** (Page 11).
3. Connect the power supply according to chapter **2.4 Powering** (Page 12).
4. Change the Login Password according to chapter **3.3 Login Password** (Page 18).
5. Set mobile settings (APN, Username, password, PIN) for your SIM card according to chapter **3.5 Mobile settings** (Page 19).
6. Set up the OpenVPN client according to chapter **3.6 mdex OpenVPN Client** (Page 21) with the "Role" **mdex public.IP.**
7. Change the 'Source zone' for forwarding to "VPN" according to chapter **3.6.2 Change Forwarding to OpenVPN** (Page 23).
8. Change the source zone for remote access to "VPN" as described in chapter **3.6.3** (Page 23). If no remote access to the MX560 is required, please deactivate it as described in chapter **3.10 Configuration access / Remote access** (Page 29).
9. Connect terminal device(s) according to chapter **2.6 Connection of terminal devices** (P. 14).

2.2 Insert SIM card

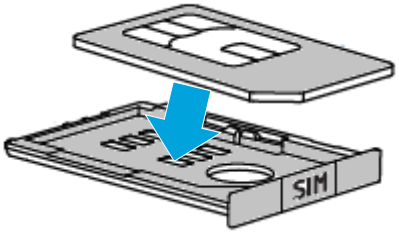
To insert a SIM card into the Router, follow the steps below.

1. Press the button on the right side of the SIM slot with the SIM slot needle (or another pointed object) and pull out the SIM holder.



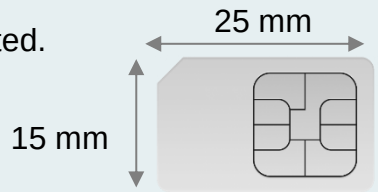


2. Insert the SIM card as marked in the SIM holder.



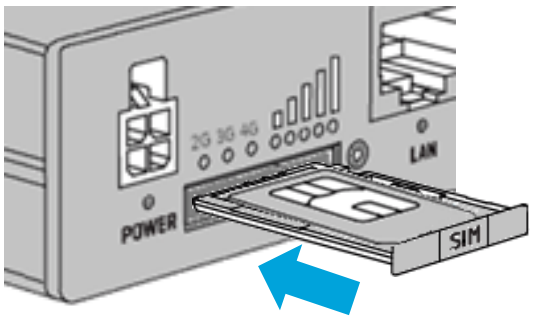
SIM cards with the Shape size 2FF supported.

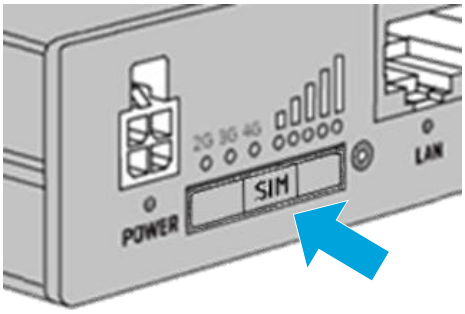
Length: 25 mm
width: 15 mm
thickness: 0,76 mm



A commercially available SIM adapter is required for the use of a Nano/Micro SIM card.

3. Push the SIM holder back into the Router and press it firmly.

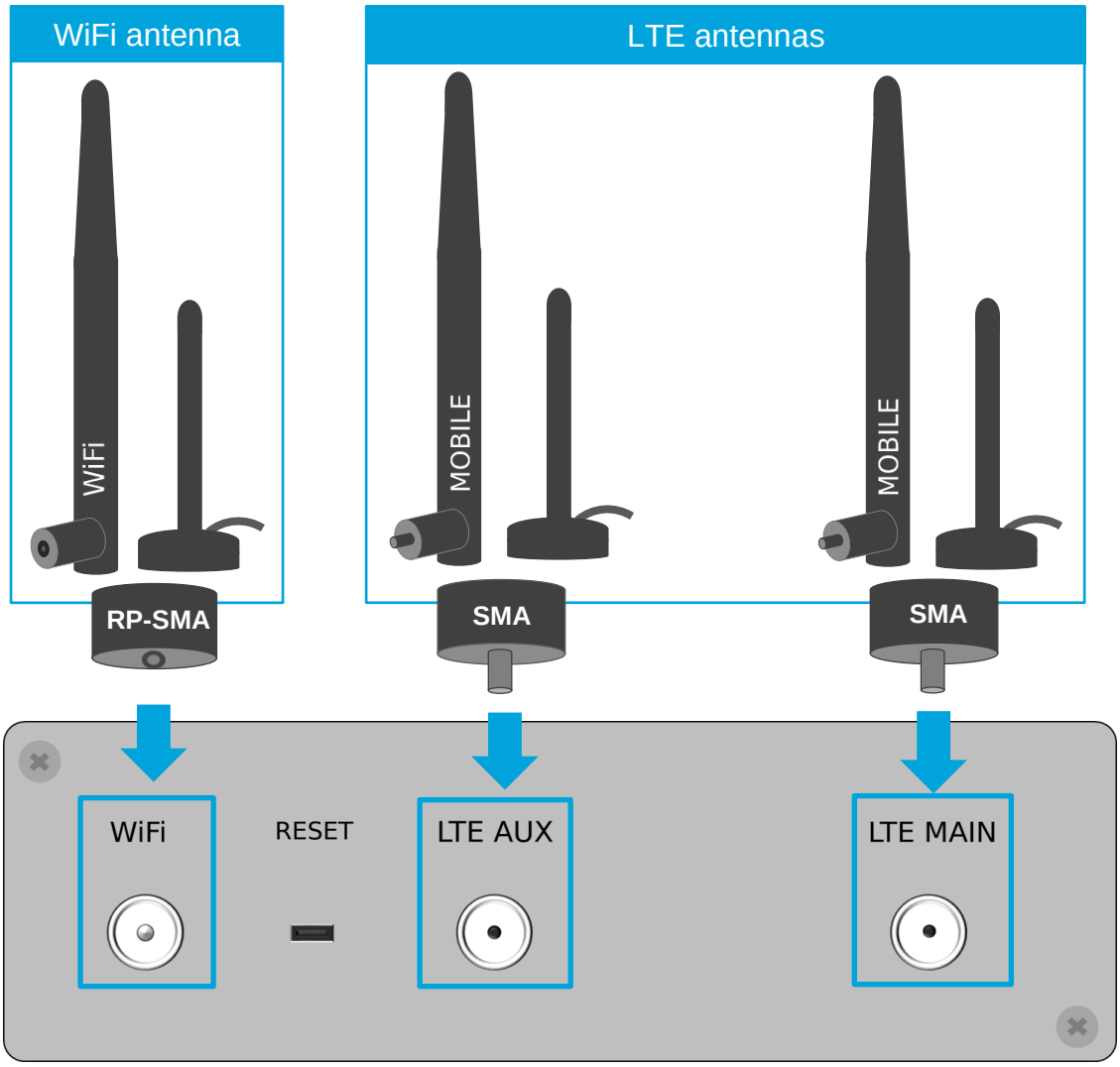




4. The mobile settings of the MX560 must be adjusted to use the installed SIM card according to chapter **3.5 Mobile settings** (Page 19).

2.3 Connecting antennas

To operate the Router, the appropriate antennas must be connected.
Note: The scope of delivery does not include any antennas.



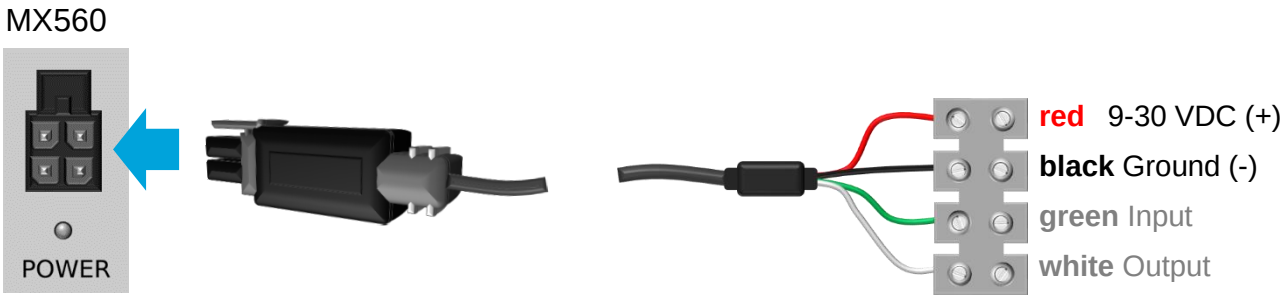
LTE (MOBILE)	To use the MX560 as LTE Router, compatible LTE antennas with SMA connectors must be connected. To establish a mobile connection, an LTE antenna must be connected to the right **LTE MAIN** socket. If a second LTE antenna is connected to the left **LTE AUX** socket, the LTE download rate can be increased.
WiFi	Only when using the WIFI access point of MX560, a WiFi antenna with RP-SMA plug must be connected to the **WiFi** socket.

Antennas with magnetic base have the best possible reception strength when mounted on a metal surface. Optional outdoor antennas can also be used to further improve mobile reception.

2.4 Powering of Router

The maximum power consumption of the MX560 is 5 Watt.
The MX560 is powered with 9-30 VDC either with the optional Power Supply unit or with a separate power supply (e.g. a DIN rail power supply unit) by using the enclosed power cable.

Power cable with Router connector (included)



The 9-30 VDC power source must be connected to the red wire (+) and black wire (-).
(The green wire (input) and the white wire (output) are not required to power the MX560.)

EU power supply with Router plug (optional)

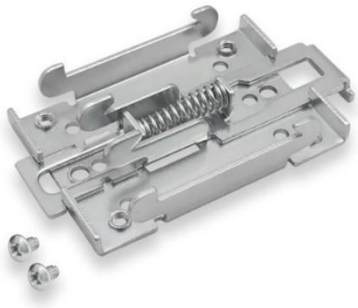
UK power supply with Router plug (optional)

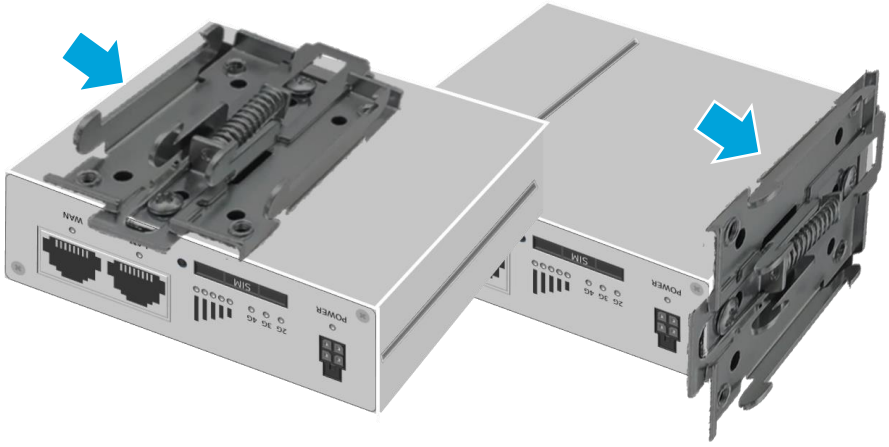
2.5 Wall and DIN rail mounting

The MX560 can be mounted on a DIN rail or on a wall.
Please note that the wall and DIN rail brackets are optional and not included with the Router.

DIN rail bracket 'Standard’

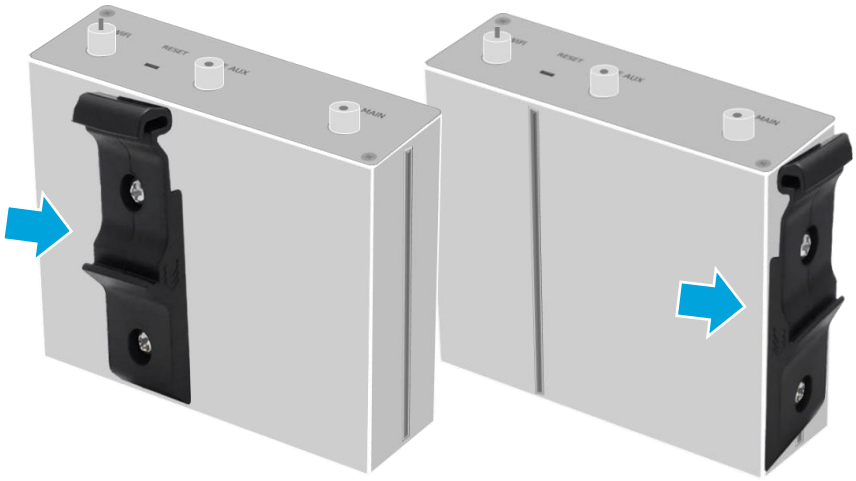
The DIN rail bracket 'Standard' (metal) is fastened with the enclosed screws either in the groove on the left side, right side or bottom of the router.





DIN rail bracket 'Compact'

The DIN rail bracket 'Compact' (plastic) is fastened with the enclosed screws either in the groove on the left side, right side or bottom of the router.



Wall bracket

The wall bracket consists of 2 plastic holders, which can be fastened with the enclosed screws either in the groove on the left side, right side or bottom of the router.

2.6 Connection of terminal devices

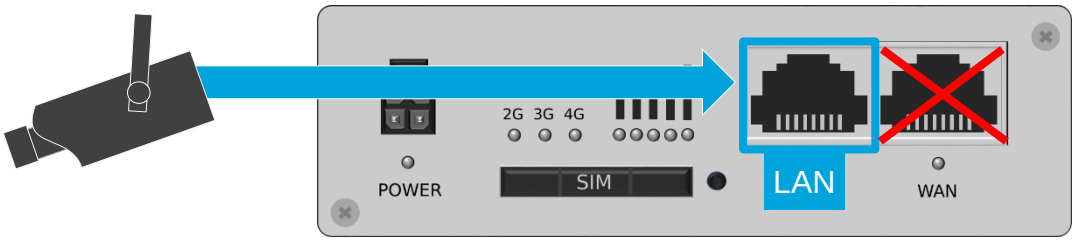
The terminal devices can be connected via a LAN socket (or optionally via WIFI).

⚠ **No PoE** (Power over Ethernet) powered network cable may be connected to the LAN/WAN sockets of the MX560! The PoE voltage would destroy the MX560!

2.6.1 Connection of one terminal device

The MX560 is already preconfigured for the connection of a terminal device.
Please observe the following instructions.

1. Connect the terminal device to the **LAN** port using a network cable.
   (By default, the WAN port is not intended for connecting terminal devices!)



2. Perform the network setting of the connected terminal device:

   The terminal device can be set to '***Obtain IP address automatically***'**.** The MX560 is preconfigured in the pre-configuration for a dynamic allocation of IP addresses (DHCP) and then assigns the IP address **192.168.0.100.**

   ⚠ **The MX560 assigns only one IP address by default!**

   If you have connected a PC to the Router for configuration, the IP address 192.168.0.100 assigned to the PC will only be assigned to another connected terminal after 5 minutes (timer preset Leasetime) after the PC has been removed. A Router restart immediately releases the IP address again.

   Alternatively, the network settings can also be permanently set in the terminal device:

IP address:	192.168.0.100	
Default gateway:	192.168.0.1	(LAN IP address of MX560)
DNS server:	192.168.0.1	(LAN IP address of MX560)

   The IP address range of the DHCP-server should then be changed according to Chapter **3.8 DHCP-Server** (Page 25) so that 192.168.0.100 is no longer assigned automatically.

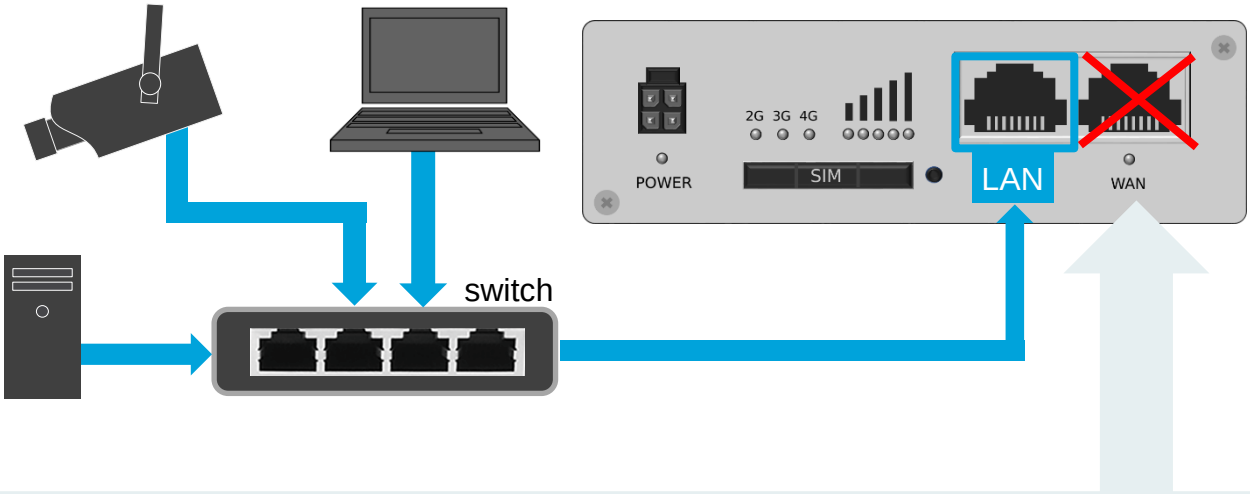
3. All incoming data packets to the WAN IP address of the MX560 (SIM card) will be forwarded to the IP address **192.168.0.100**. This terminal device can thus be accessed remotely.

   ⚠ If a **public.IP** is used, unrestricted access via the Internet is possible. For security reasons, the end device should therefore be protected against unauthorized access with a firewall. Additional protection is provided if, instead of port forwarding is only set up for the required ports as described in Chapter **3.9.2 Port-Forwarding** (Page 28).

2.6.2 Connection of several terminal devices

To connect several terminal devices to the MX560, please observe the following instructions:

1. Several terminal devices are connected using a standard Ethernet switch (e.g. mdex Ethernet Switch), which is connected to the LAN port of the MX560. The terminal devices are then connected to the Ethernet switch.



For the connection of only **two terminals** it is possible to switch the WAN port to LAN port as described in Chapter **4.1 Configure WAN port as LAN** (Page 33).

2. Network settings of the connected terminal devices:

   If the terminal devices are set to obtain their IP addresses automatically from the MX560, you must extend the DHCP-server to assign additional IP addresses as described in chapter **3.8 DHCP-Server** (Page 25) and, if necessary, configure a fixed assignment as described in chapter **3.8.1 Fixed assignment of IP addresses** (Page 26).

   Alternatively, you can also permanently set the IP addresses in the terminal devices.

IP address:	192,168.0.2 to 192,168.0.255	
Default gateway:	192.168.0.1	(LAN IP address of MX560)
DNS server:	192.168.0.1	(LAN IP address of MX560)

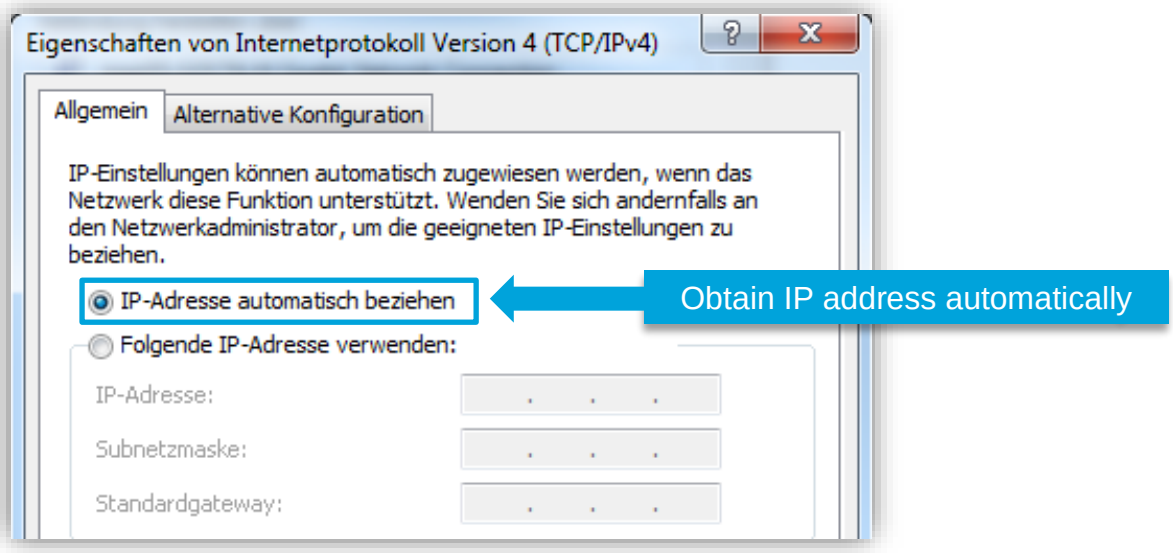
3. If several connected terminals should be accessible remotely, a forwarding according to chapter **3.9.2 Port-Forwarding** (Page 28) must be configured in the MX560.

If remote access is not desired for a connected terminal device, the preset 'DMZ Configuration' should be deactivated for security reasons according to chapter **3.9.1 Host-Forwarding (DMZ Configuration)** (Page 27).

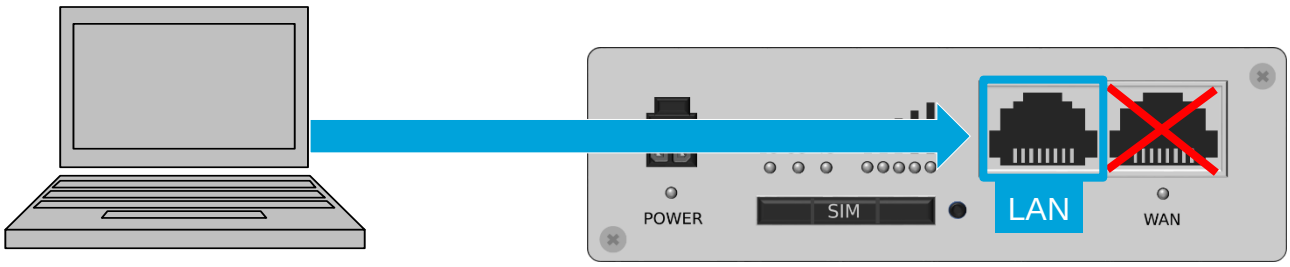
3 Configuration

3.1 Connecting the PC

The network card of the PC can be set to ***Obtain IP address automatically.***



Plug the network cable of the PC into the **LAN** socket of the MX560.
(By default, the WAN socket is not intended for connecting devices!)



The MX560 is preconfigured for a dynamic assignment of IP addresses (DHCP) and automatically assigns the IP address **192.168.0.100 to** the connected PC.

⚠ The MX560 DHCP-Server assigns only one IP address (192.168.0.100) to a connected PC or terminal device!

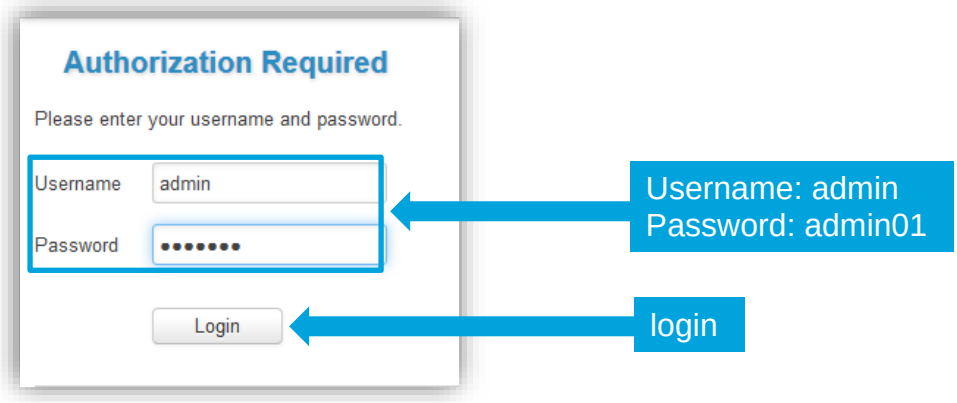
- If another terminal device is already connected which has already obtained the IP address 192.168.0.100 automatically, remove this device again.
- The IP address 192.168.0.100 is only **released after 5 minutes** and then assigned to your connected PC. By restarting the MX560, the IP address is immediately released and then assigned to your connected PC.
- Alternatively, you can set the PC network card to a fixed IP address from the IP address range 192.168.0.2 to 192.168.0.255 (e.g. 192.168.0.20).

The PC and the MX560 are now in the same IP address range so that the PC can access the MX560 web server with a web browser.

3.2 Login to WebUI

Enter this URL in your web browser: **http://192.168.0.1:8080**
(Or the current IP address of the MX560, if this has been changed.)

Username: **admin**
Password: **admin01** (or the current password if it has already been changed.)



3.2.1 Important notes about Ping Reboot

The automatic connection check to the ping server **ping.mdex.de** is activated by default. Please observe the following instructions for the preset Ping Reboot.

⚠ **Without connection to mdex, the MX560 is automatically rebooted every 15 minutes.**

- During the MX560 configuration the "Ping-Reboot" should be deactivated temporarily to prevent an unwanted restart of the Router.

  Services →Auto reboot: Tab Ping Reboot

  The changed setting must be saved by clicking on Save.

- The "Ping Reboot" should then be reactivated for operation.

- The default server '*ping.mdex.de' can* only be reached from the mdex network!

  If you use the MX560 without mdex IP service (fixed.IP+ / public.IP) or without mdex SIM, you must set a publicly accessible server at Edit, e.g. **public-ping.mdex.de** (185.39.176.22).

ⓘ For detailed instructions about Ping Reboot please refer to chapter **3.11 Ping Reboot** (P. 31).

3.3 Login Password

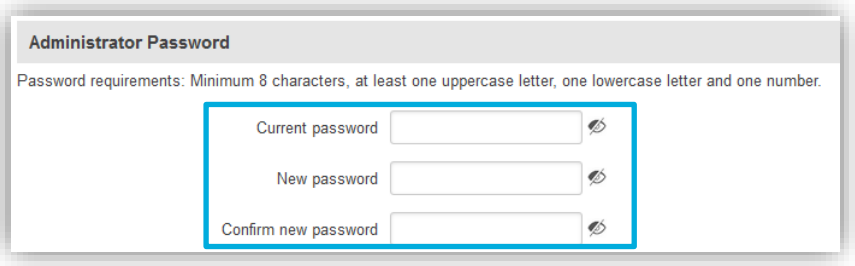
The Login Password is used to access the WebUI and SSH interface of the MX560.

⚠ Especially if the MX560 can be reached from the Internet via a public IP address, a secure Login Password must be set for security reasons!

If the default password **admin01** has not yet been changed, you will first be prompted to change the password after first login.

The new Login Password must consist of at least 8 characters and must contain at least one upper case letter, one lower case letter and one number.

The Login Password can be changed again at **System → Administration** in Tab General:



ⓘ Click on to display the set password in plain text.

Current password requires you to enter the current Login Password of the MX560.
The new Login Password is entered for **New password** and **Confirm new password**.
Click on button Save to apply the new Login Password.

3.4 Setup Wizard

After login to MX560 WebUI first time, the Setup Wizard is usually started for the following settings.
The setup wizard can be called later again at **System → Setup Wizard**.

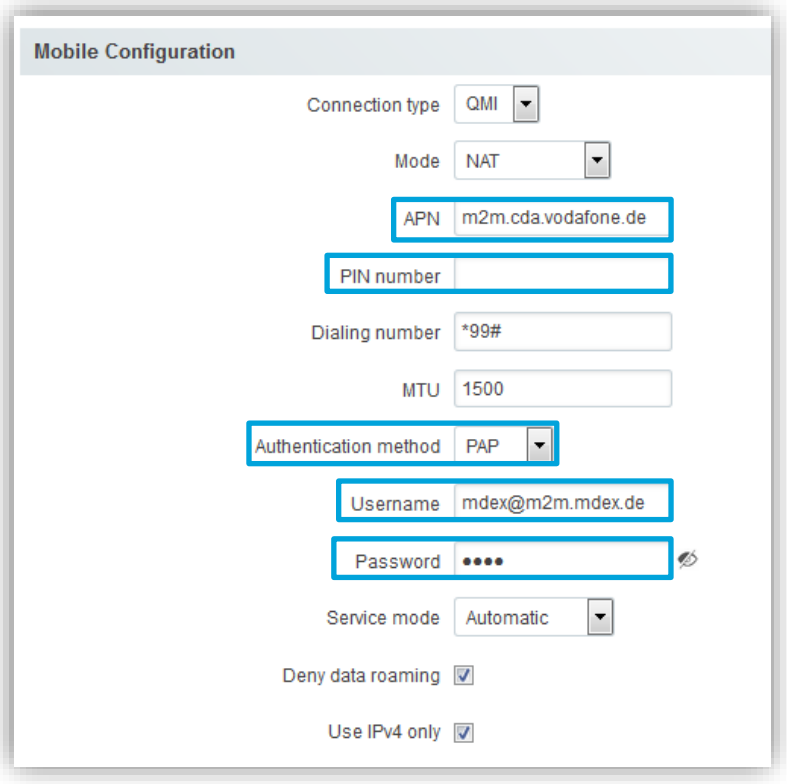
Step 1 - General:	At 'Time Zone Settings' you can set the time zone. (For Germany: Europe/Berlin). More details can be found in chapter **4.4 NTP time server** (Page 37).
Step 2 - Mobile:	Set the mobile settings for the operation of the SIM. More details can be found in chapter **3.5 Mobile settings** (Page 19). ⓘ To set the mobile settings, the profile of the desired SIM card / mdexSIM can be selected at **operator profile.**
Step 3 - LAN:	The network settings of the MX560 can be adjusted. More details can be found in chapter **3.7 Router LAN IP address** (Page 24).
Step 4 - WiFi:	The WIFI Access Point of MX560 is disabled by default. More details to activate and setup the WIFI Access Point can be found in chapter **4.2 WIFI (Wireless Access Point)** (Page 34).

3.5 Mobile settings

The Router is preconfigured to operate an **mdexSIM Vodafone**.

If another SIM card is used, the mobile settings must be adjusted accordingly.

Network Mobile→: Tab General



The required (highlighted) mobile settings are described in chapter **3.5.1** (Page19).

For information on the additional options, refer to chapter **3.5.2** (Page 20).

3.5.1 SIM card settings

APN:	Access point of your mobile network operator for the mobile connection. For use with mdex, please refer to your mdex order confirmation e-mail or the mdex Management Portal.
PIN number:	PIN of the SIM card. Since an mdex SIM usually does not have an active PIN, please leave this field blank when using an mdexSIM. We recommend that you do not PIN your SIM card. Otherwise, the SIM card will be blocked immediately if the PIN is incorrect.
Authentication method:	Method for authentication (PAP, CHAP or None). **PAP** must be set for an authentication to mdex.
Username:	Username (Username/Device-Username) of the mobile network operator. For use with mdex, please refer to your mdex order confirmation e-mail or the mdex Management Portal.

Password:	Enter the APN password of your mobile network operator here. For the use of an mdex IP service, please refer to your mdex order confirmation e-mail or the mdex Management Portal.

3.5.2 Other mobile settings

Connection type:	The type of mobile connection can be set here. Recommended preset: **QMI** The alternative setting "PPP" should only be set in special cases, e.g. if the setting "QMI" causes problems or malfunctions.
Fashion:	Mode of the SIM card IP address. **NAT** is the recommended default. The alternative settings "Bridge" or "Passthrough" are only intended for special cases, e.g. if the IP address of the SIM card is to be transparently passed through to the LAN socket.
Dialing number:	***99#** is the recommended default setting for most SIM cards used to connect.
MTU:	1500 is the recommended maximum packet size for most SIM cards. In case of data transmission problems, the MTU value should be slightly reduced.
Service mode:	Here you can set the priority for the mobile connection. **Automatic:** Recommended preset for the best possible mobile connection depending on availability. **2G only:** The connection is only established to the 2G mobile network (GPRS/EDGE). **3G only:** The connection is only established to the 3G mobile network (HSPA/UMTS). **4G (LTE) only:** The connection is only established to the 4G mobile network (LTE).
Deny data roaming:	Disable Roaming to prevent a mobile connection to foreign mobile networks, e.g. international networks in border areas. ☐ Roaming is possible, if the SIM card is authorized. (default setting) ⚠ By roaming, foreign mobile networks (e.g. abroad or border regions) can be used, which can lead to high mobile costs depending on the SIM card tariff! ☑ Roaming is not allowed. The SIM may only use its own mobile network.

3.6 mdex OpenVPN Client

The built-in OpenVPN Client of the Router is designed to use an mdex IP-service via OpenVPN, e.g.:

- fixed.IP+ **via OpenVPN**
- public.IP **via OpenVPN**

⚠ The OpenVPN device data of the **mdex control station device** are only intended for PCs/Smartphones and not for the mdex OpenVPN client integrated in the MX560!

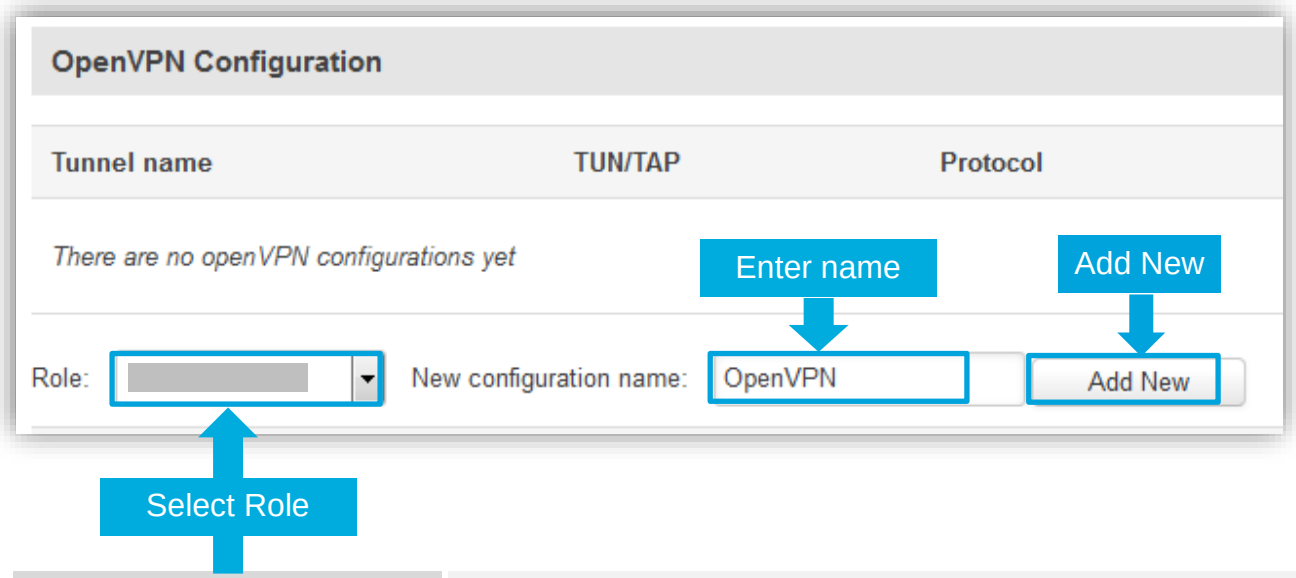
When using an **mdexSIM** or an mdex mobile device, where the connection to mdex is established directly with the SIM card, it`s not necessary to use the MX560 OpenVPN client!

3.6.1 Setup mdex OpenVPN client

Please following the steps below to setup the mdex OpenVPN client in the MX560:

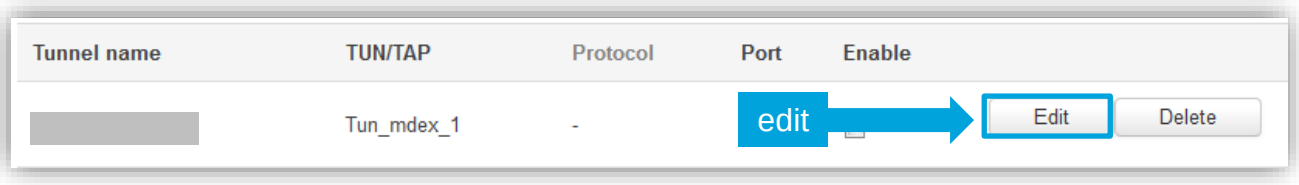
1. Click on **Services → VPN**: Tab OpenVPN

   Please select at **Role** the mdex IP service you have ordered. Then enter a **name** (e.g. OpenVPN) and add the client by clicking on Add New button.

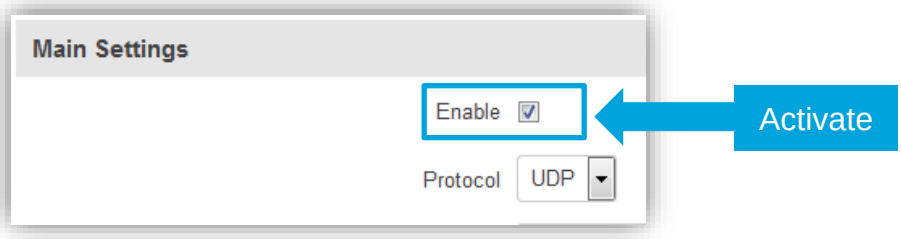


mdex fixed.IP+ (default):	Recommended default setting for using an mdex fixed.IP+ via OpenVPN.
mdex fixed.IP+ (TCP):	Only in special cases when using an mdex fixed.IP+ via OpenVPN, if the OpenVPN connection must be established for technical reasons via TCP.
mdex public.IP:	Only for use with mdex public. IP via OpenVPN. ⚠ The OpenVPN encryption is disabled (to increase data rate). Only a public.IP requires no encryption. Do not use this role for a 'fixed.IP+ via OpenVPN'!

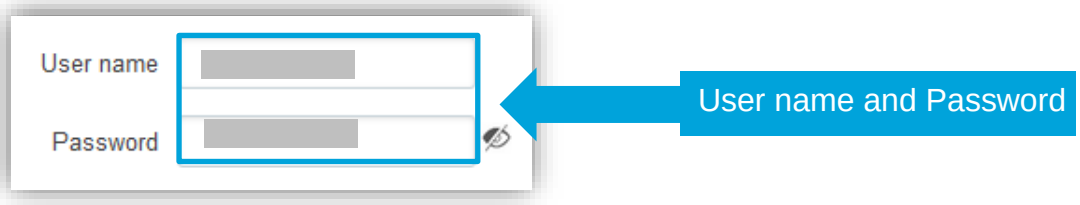
2. Click on Edit button at the added OpenVPN client.



3. Activate the OpenVPN client with **Enable** ☑:



4. Enter the **User name** and **Password** of the mdex OpenVPN device:



The User name & Password of the mdex OpenVPN device can be found in the mdex order confirmation e-mail or in the mdex Management Portal at **https://manager.mdex.de.**

Do not enter the Username and Password of the **mdex control station device** here!

5. Save the OpenVPN settings by clicking Save.

   The OpenVPN client now establishes an OpenVPN connection to mdex via the Internet connection of the MX560 (e.g. SIM card).

The OpenVPN status is displayed at **Status → Network** in the tab **OpenVPN**. More details can be found in chapter **4.3.3 OpenVPN Status** (Page 37).

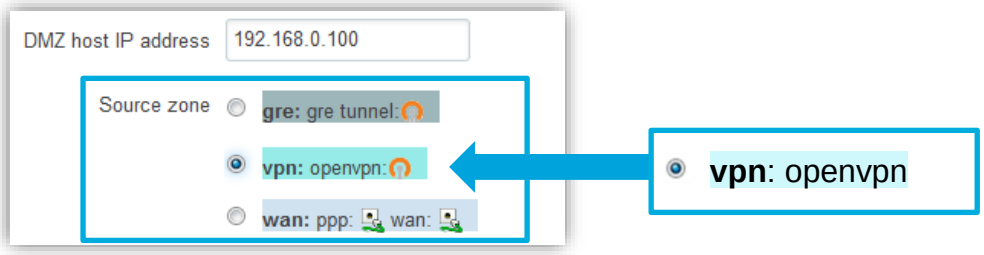
6. Make the following adjustments in the MX560:

   - Chapter **3.6.2 Change Forwarding to OpenVPN** (Page 23)
   - Chapter **3.6.3 Change remote access to OpenVPN** (Page 23)

3.6.2 Change Forwarding to OpenVPN

The **source zone** of 'DMZ Configuration' must be switched from WAN to **VPN**.
Only then all incoming data packets are forwarded via the OpenVPN connection to the default IP address (192.168.0.100).

Network → Firewall: Tab General Settings at **DMZ Configuration**



When using an individual port forwarding, the source zone must be also set to VPN. More details can be found in chapter 3.9.2 Port-Forwarding (Page 28).

3.6.3 Change remote access to OpenVPN

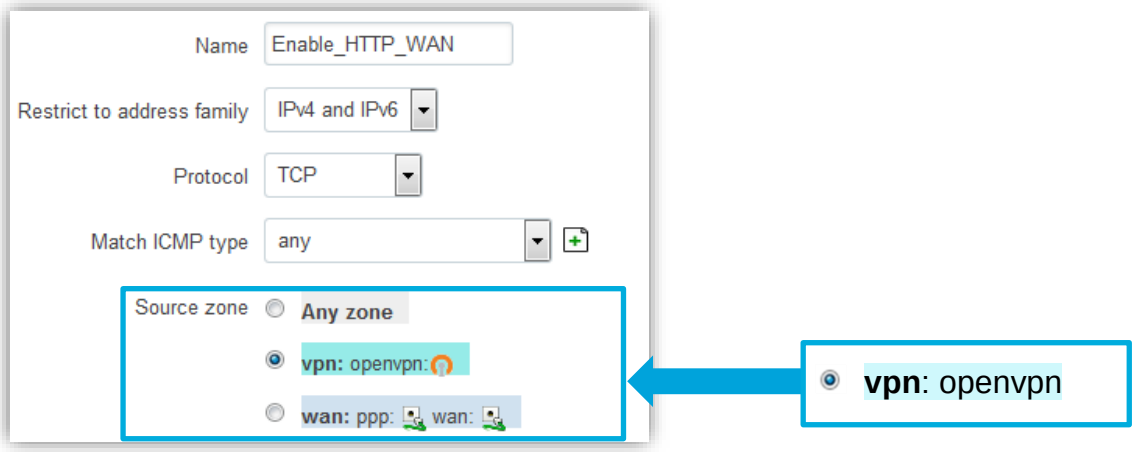
To enable remote access to the MX560 Router via the OpenVPN connection, the following changes are required in the Router:

1. Switch traffic rule to VPN

The **source zones** in the the following firewall rule(s) must be switched from WAN to VPN:

Enable_HTTP_WAN → HTTP remote access to the MX560 WebUI
Enable_HTTPS_WAN → HTTPS remote access to the MX560 WebUI

Network → Firewall: Tab Traffic Rules



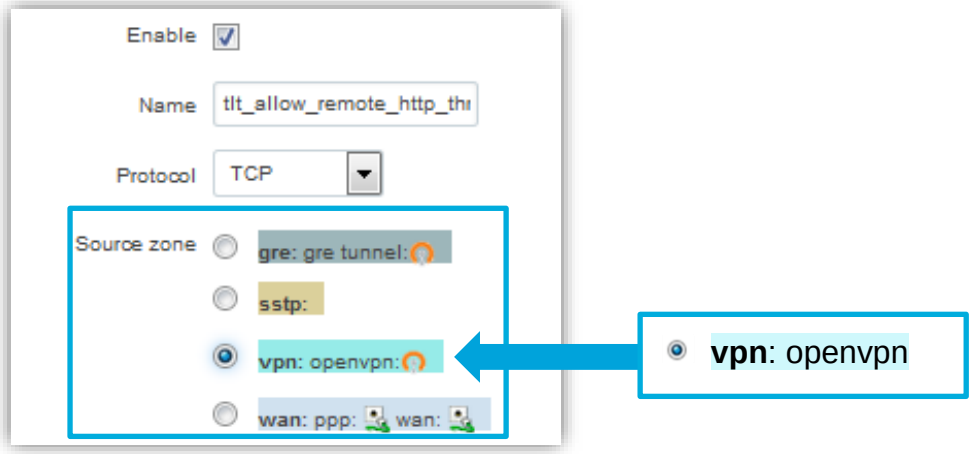
2. Switch DMZ forwarding rule to VPN

If 'DMZ Configuration' is activated as described in chapter **3.9.1 Host-Forwarding (DMZ Configuration)** (Page 27), a forwarding rule is automatically created for MX560 remote access:

tlt_allow_remote_http_through_DMZ → HTTP remote access with active 'DMZ configuration'.
tlt_allow_remote_https_through_DMZ → HTTPS remote access with active 'DMZ configuration'.

The **source zone** of the existing rule must be switched from WAN to VPN:

Network → Firewall: Tab Port-Forwarding

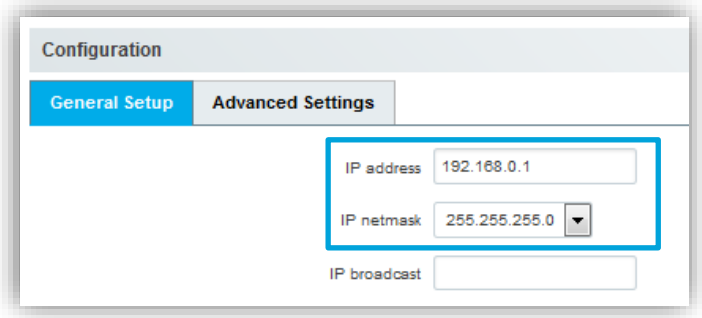


The remote access to the MX560 by using an mdex fixed.IP+/public.IP via OpenVPN is now controlled as described in chapter **3.10 Configuration access / Remote access** (Page 29).

3.7 Router LAN IP address

The default LAN network address (192.168.0.1) of the MX560 can be changed.

Network → LAN: Configuration



IP address:	Current LAN IP address of the MX560
IP netmask:	Netmask of the MX560

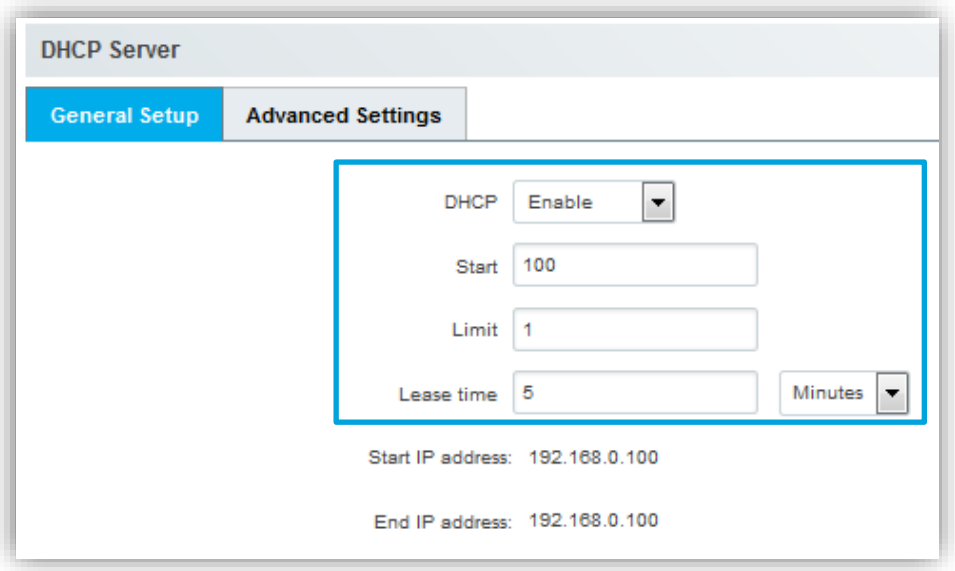
(For **IP broadcast** usually nothing has to be entered.)

3.8 DHCP-Server

The built-in DHCP-server automatically assigns an IP address to the connected terminal device. The terminal device must be set to '*Obtain IP address automatically*' (DHCP). The default settings of the DHCP-server can be changed in the Router.

ⓘ The DHCP-server is preset to assign the IP address **192.168.0.100.**

Network LAN→: DHCP Server :



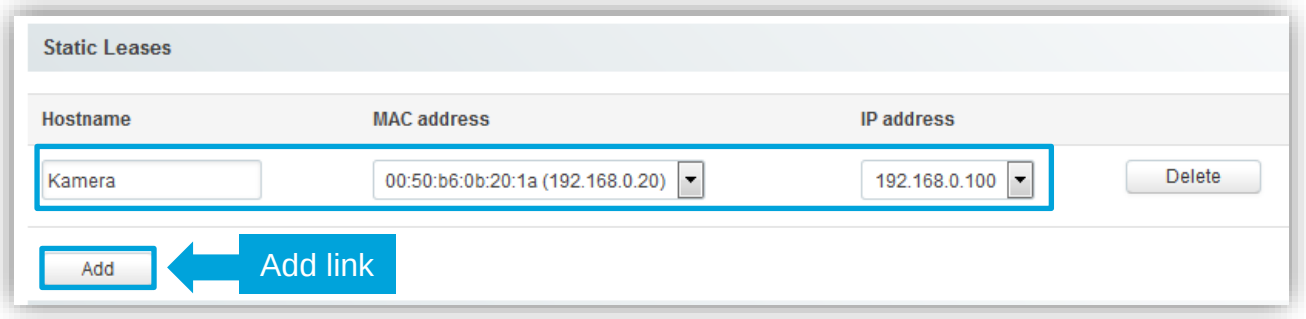
DHCP:	Enables or disables the DHCP-server.
Start IP:	First IP address of the set MX560 netmask that the DHCP-server should assign to a connected terminal device.
IP pool size:	Number of IP addresses to be assigned by the DHCP-server. **Example** LAN 'IP address': 192.168.1.250 LAN 'IP netmask': 255.255.255.0 DHCP 'Start IP': 51 DHCP 'IP pool size': 10 The DHCP-server assigns 10 IP addresses, starting with the 51st IP address of the set netmask: 192.168.1.51 to 192.168.1.60
Leasetime:	For this period in minutes or hours, an assigned IP address is reserved for a terminal device. Only after this timer has expired another terminal device can obtain this IP address automatically.

3.8.1 Fixed assignment of IP addresses

If certain terminal devices should always receive the same IP address from the MX560 DHCP-server, they can be assigned permanently as link to the MAC address.

This fixed assignment is necessary, for example, if port forwarding for remote access has been set for certain terminal devices and the respective terminal device should obtain its IP address automatically.

1. At **Network → LAN** under **Static Leases** add the desired link by clicking on Add button.



Hostname:	Enter a name for the link or the name of the terminal device.
MAC address:	Select the MAC address of the terminal device. If the terminal device has already communicated with the MX560 Router (e.g. obtained an IP address automatically from the MX560), the MAC address can be selected directly. Otherwise the MAC address must be entered manually.
IP address:	Set the desired IP address that should be permanently assigned to the terminal device. This IP address must be within the LAN IP address range of the MX560 Router (192.168.0.2 to 255). ⓘ It is also possible to enter an IP address outside the defined IP address range of the MX560 DHCP-server, e.g. 192.168.0.50. This terminal will then always be assigned this IP address from now on.

2. If necessary, repeat this procedure until all the desired links have been set in the Router. To save all links press on the on Save button.

3. If necessary, adjust port forwarding to the assigned IP addresses as described in Chapter **3.9 Forwarding** (Page 27) so that the respective terminal devices can be reached remotely.

ⓘ At **Status → Network** in the tab LAN at **DHCP-Leases** all terminal devices are displayed, that have currently obtained an IP address from the DHCP-server of the MX560 (incl. MAC address, IP address and lease time).

3.9 Forwarding

For remote access to the connected terminal devices, the incoming ports/data packets must be forwarded to the local IP address of the terminal device.

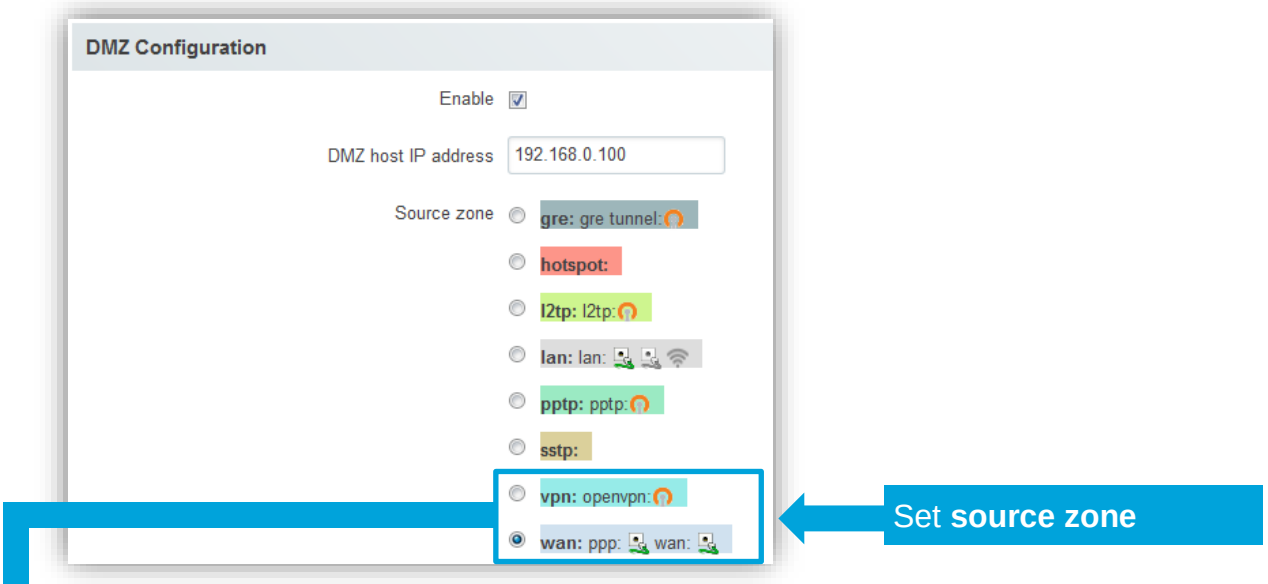
By default, all incoming data packets to the installed SIM card (Source zone WAN) are forwarded to the IP address **192.168.0.100.**

3.9.1 Host-Forwarding (DMZ Configuration)

All incoming data packets (all ports) are forwarded to the “DMZ host IP address” (terminal device).

When using a public.IP, unrestricted access via the Internet is possible. The terminal device should be protected against unauthorized access from the Internet with a firewall. More protection is provided if only the required ports are forwarded according to the Chapter **3.9.2 Port-Forwarding** (Page 28).

Network → Firewall: Tab General Settings at **DMZ Configuration**

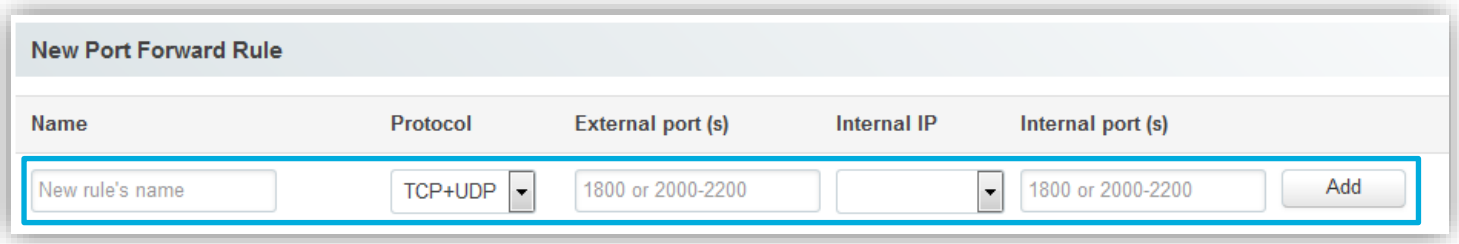


Enable:	☑ The forwarding of all data packets is activated. ☐ The forwarding of all data packets is deactivated.
DMZ host IP address:	IP address of terminal device for all incoming data packets.
Source zone:	Interface of the incoming data packets: **vpn**: openvpn Remote access to the terminal device via fixed.IP+/public.IP of the integrated **mdex OpenVPN Client** (chapter **3.6**, Page 21). **wan:** ppp: wan: Remote access to the terminal device via SIM card IP address (fixed.IP+/public.IP) or external WAN IP address of the MX560.

3.9.2 Port-Forwarding

With Port-Forwarding it´s possible to access several connected terminal devices by remote via the external IP address and the respective port.

Network → Firewall: Tab Port-Forwarding



Name:	Desired name of this forwarding.
Protocol:	Set the desired protocol (TCP/UDP).
External port (s):	Incoming port for forwarding. (You can also set port ranges (e.g. 2000-2200).)
Internal IP:	Destination IP address of the terminal device.
Internal port(s):	Destination port of the terminal device. (Port ranges can also be defined.)
Add:	This forwarding is added as source zone **wan**: ppp: wan: . The terminal device is accessible by remote with the port and the IP address of the SIM card (fixed.IP+/public.IP) or ext. WAN IP address of the MX560. ⚠ For remote access with a mdex fixed.IP+/public.IP **via OpenVPN** (3.6 mdex OpenVPN Client, Page 21) to the terminal device, each added port forwarding rule must be edited by clicking on Edit and switched manually to the **source zone vpn**: openvpn :
Edit:	Adaptation of port forwarding, e.g. switching the source zone
Save:	All edited settings will be saved.

⚠ All other ports and protocols (they are not added as port forwarding rule) are forwarded to the 'DMZ host IP address' according to 3.9.1 Host-Forwarding (DMZ Configuration) (Page 27). If this is not desired, the option **DMZ Configuration** must be disabled.

3.10 Configuration access / Remote access

LAN configuration access and remote access to the MX560 can be customized.

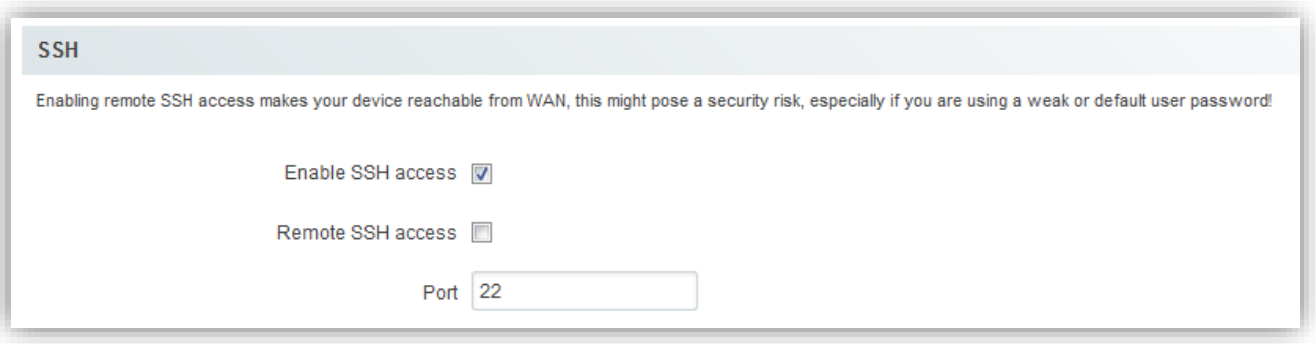
The WebUI of the MX560 is accessible via HTTP port 8080 locally with the LAN IP address and remotely with the IP address of the SIM card (Source Zone WAN).

For remote access to the MX560 with mdex fixed.IP+ / public.IP **via OpenVPN** (**3.6 mdex OpenVPN Client**, Page 21), the settings in chapter **3.6.3 Change remote access to OpenVPN** (Page 23) must be executed first.

3.10.1 SSH Access

Local and remote access to the Secure Shell (SSH) interface of the MX560 can be set. SSH access is only required in special cases. The SSH-Login is done with the user name "root".

System → Administration: Tab Access Control

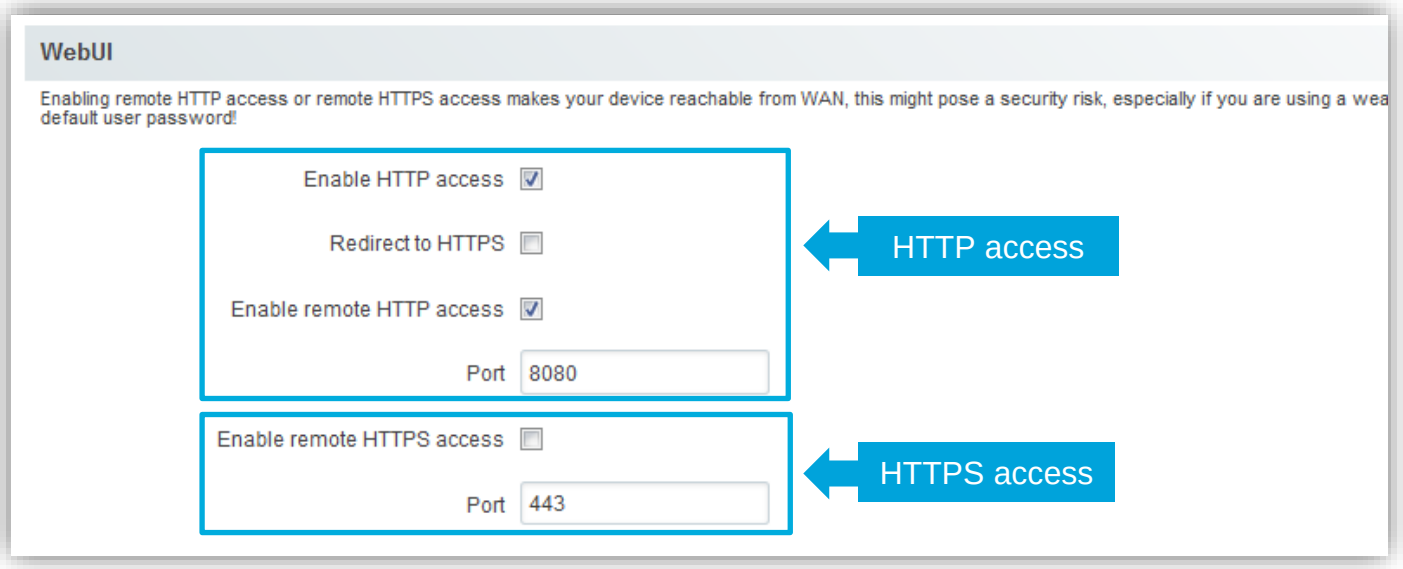


Enable SSH access:	Allows local SSH access to the MX560. ☑ SSH access enabled SSH access disabled ☐
Remote SSH Access:	Allows SSH remote access to the MX560. ☑ SSH remote access enabled ☐ SSH remote access disabled SSH remote access is usually not required and should remain disabled for security reasons.
Port:	Port for SSH access (port 22 is the default port)

3.10.2 Access to the WebUI

⚠ For remote access to the MX560 with mdex fixed.IP+ / public.IP **via OpenVPN** (3.6 mdex OpenVPN Client, Page 21), the settings in chapter 3.6.3 Change remote access to OpenVPN (Page 23) must be executed first.

System → Administration: Tab Access Control



HTTP Access

Enable HTTP access:	Allows local HTTP access to the MX560 WebUI with the set port (8080): ☑ enabled ☐ disabled
Redirect to HTTPS	HTTP requests are redirected to the MX560 HTTPS web server.
Enable remote HTTP access:	Enables remote HTTP access to the MX560 WebUI with the set port (8080): ☑ enabled ☐ disabled.
Port:	HTTP port of the MX560 web server (WebUI) for local and remote access to the WebUI.

HTTPS Access

Enable remote HTTPS access:	Enables remote HTTPS access to the MX560 WebUI with the set port (443): ☑ enabled ☐ disabled. Local HTTPS access to the MX560 WebUI is basically possible, even if this option is deactivated.
Port:	HTTPS port of the MX560 web server for local and remote access to the WebUI.

3.11 Ping Reboot

The Ping Reboot should be activated so that the MX560 and the terminal devices can always be reached reliably, even after maintenance work or faults in the mobile network.

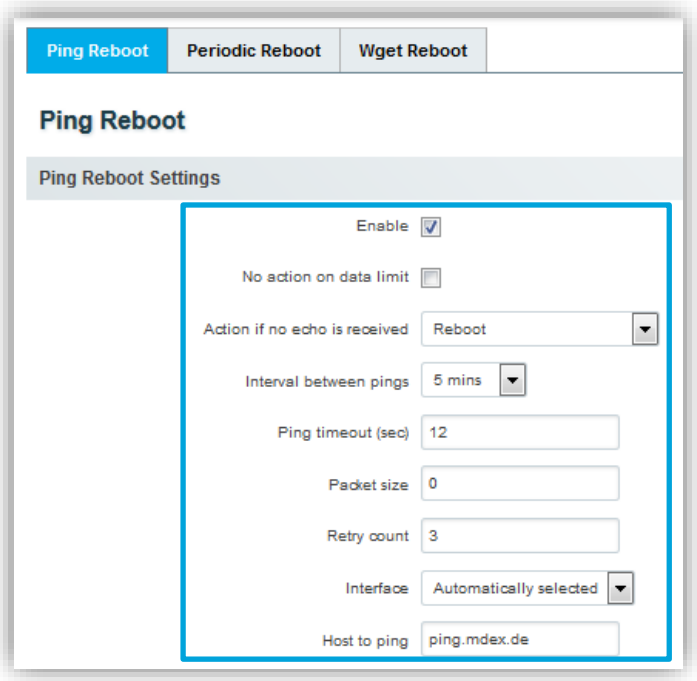
The MX560 sends a ping to the set destination server. If no response is received from the target server within the defined time period, the Router assumes a connection error and triggers a desired action to re-establish the connection.

⚠ The function Ping Reboot is activated by default for the ping server **ping.mdex.de.**

However, the server "ping.mdex.de" can only be reached from the mdex network!
If you are using the MX560 with your own SIM card **without** mdex IP service (fixed.IP+ / public.IP), you must set up a publicly accessible server here, e.g. **public-ping.mdex.de** (185.39.176.22).

Services → Auto Reboot: Tab Ping Reboot

The Ping Reboot function can be customized by clicking the Edit button.



Enable:	Enables or disables the Ping Reboot function.
Action:	This action is executed when a connection error is detected: **Reboot:** A restart of the MX560 is triggered. **Modem restart:** The mobile modem is restarted. **Restart mobile connection:** The mobile connection is terminated and restored. **(Re-)Register:** Re-registration in the mobile network. **None:** No action is triggered.

Interval between pings:	Interval (specified in minutes) in which the MX560 sends a ping to the set destination server. (The minimum setting is 5 minutes). Please note that data is generated by each ping. The smaller the interval is set, i.e. the more often a ping is sent, the more data is generated in the mobile network.
Ping timeout (sec):	If the target server does not respond within this period (specified in seconds), it is considered an unsuccessful ping attempt.
Retry count:	If after the set attempts no response has been received in sequence from the target server, the MX560 triggers the set action.
Host to ping:	Target server for connection verification ⚠ If you are using the MX560 with your own SIM card **without** mdex IP service (fixed.IP+ / public.IP), you must set a publicly accessible server here, e.g. **public-ping.mdex.de** (185.39.176.22).

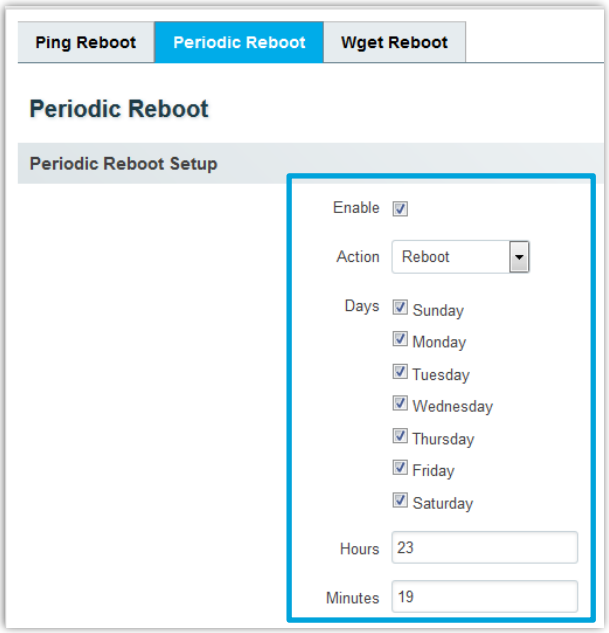
3.12 Periodic Reboot

At the set time (Hours, Minutes) the MX560 automatically reboots on the desired days of the week.

ⓘ According to the pre-configuration, an automatic reboot is triggered daily at 23:19 hrs.

To avoid delays when re-establishing a connection (due to high load at 23:19 h), it is better to set a different reboot time.

Services → Auto Reboot: Tab Periodic Reboot



This function can be deactivated by disableing the parameter ☐ **Enable**.

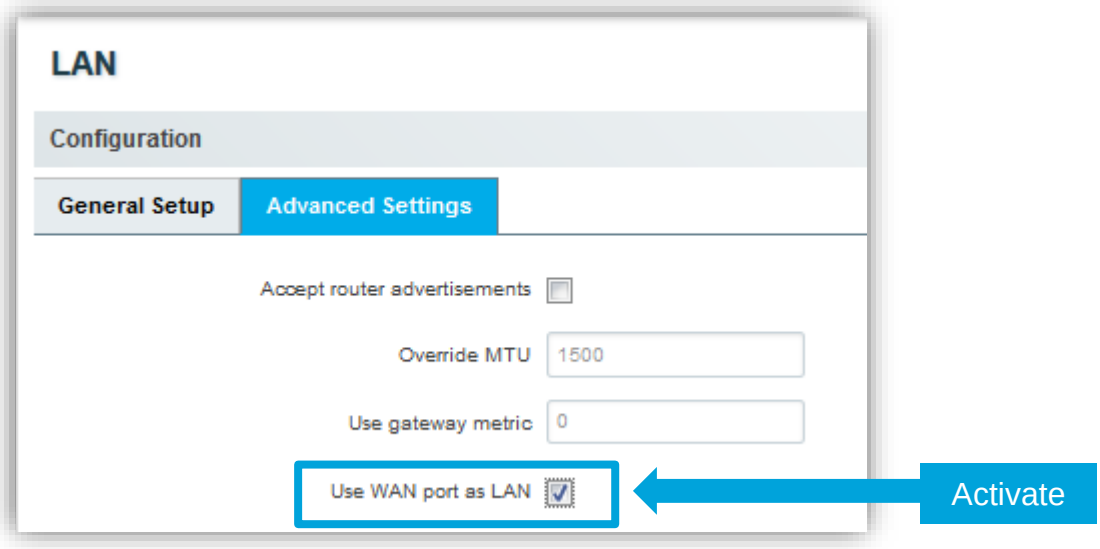
4 Additional functions

4.1 Configure WAN port as LAN

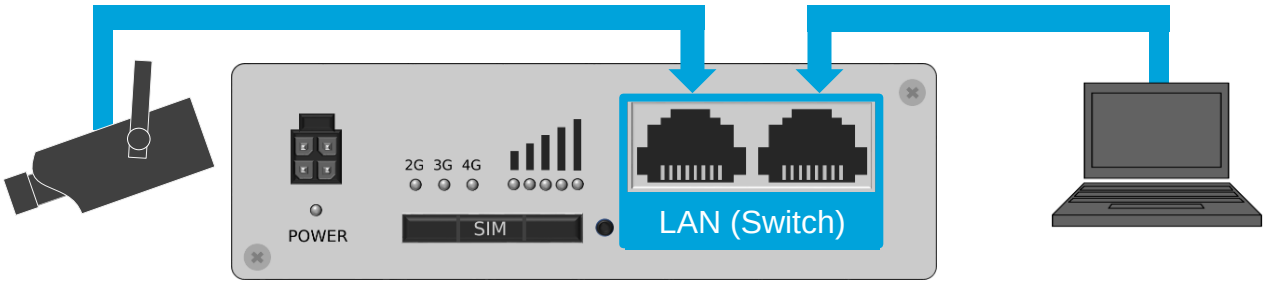
It is possible to convert the WAN port as LAN. The WAN socket and LAN socket are working then as switch, so that 2 terminal devices can be connected directly to the MX560 Router.

⚠ Note that the WAN functions of the MX560 will be no longer available after the changeover. (For example, connecting the MX560 to an external Internet Router is no more supported.)

1. Click on **Network → LAN**, then click on the tab Advanced Settings.
2. Activate the option **Use WAN port as LAN** and click on button Save.



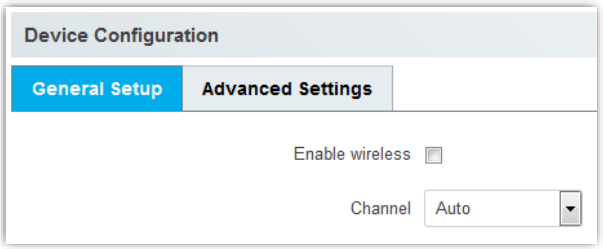
3. Remove the dummy plug from the WAN socket (if present).
4. Now the two desired terminal devices can be connected to the LAN socket and/or the WAN socket of the MX560.



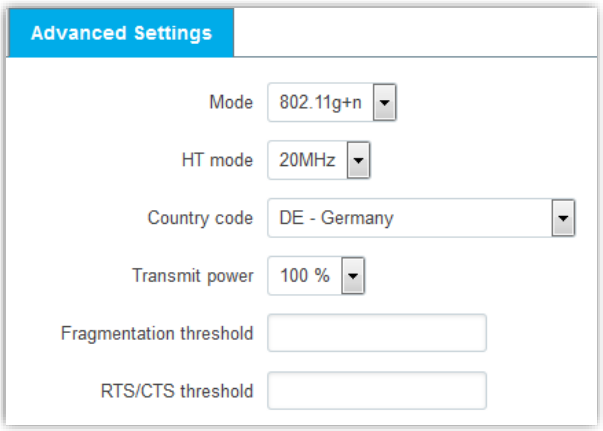
4.2 WIFI (Wireless Access Point)

In the MX560, the **wireless access point** can be activated so that terminal devices can connect to the MX560 via WIFI. The WIFI is already preconfigured, but still deactivated.

The WIFI can be activated at **Network → Wireless** with Enable and configured with Edit.

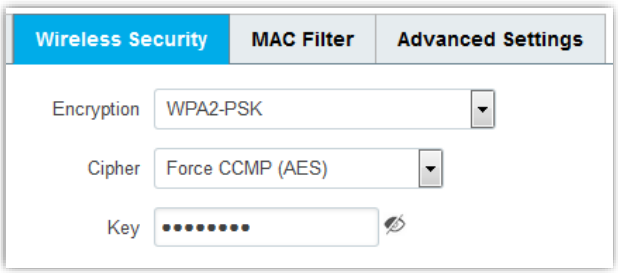


Enable wireless:	WIFI activated / deactivated
Channel:	WIFI channel Auto / 1-13



Mode:	The WIFI mode Auto, 802.11b, 802.11g, 802.11 g+n is adjustable
HT mode:	20 MHz (not changeable)
Country code:	country setting
Transmit power:	WIFI Transmission power

SSID:	WIFI name
Hide SSID:	Hide WIFI name



Encryption:	encryption protocol
Cipher:	encryption algorithm
Key:	WIFI network key Press on to display in plain text.

⚠ The MX560 DHCP-server assigns only one IP address by default. When connecting more terminal devices, follow the instructions in chapter **2.6 Connection of terminal devices** (P.14).

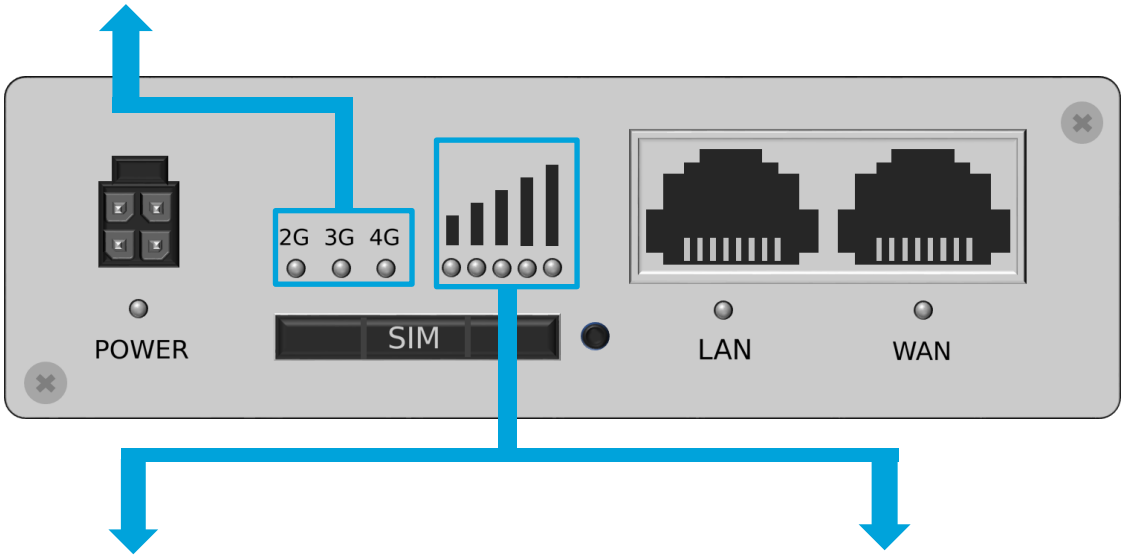
4.3 Connection status and signal strength

The mobile connection status and the available signal strength can be read at different locations.

4.3.1 LED status indicators

The current mobile signal strength and the used mobile network (2G, 3G, 4G) are displayed on the front of the Router.

2G | **3G** | **4G**	Current mobile network (**2G**: GPRS/EDGE | **3G**: UMTS/HSPA | **4G**: LTE). The respective LED flashes when the mobile connection is establishing and lights up permanently as soon as the mobile connection has been established successfully.



LEDs	mobile signal strength
No LED	-111 dBm (no mobile reception)
1 LED	-100 dBm to -97 dmB (very weak signal strength)
2 LEDs	-96 dBm to -82 dBm (weak signal strength)

LEDs	mobile signal strength
3 LEDs	-81 dBm to -67 dBm (acceptable signal strength)
4 LEDs	-66 dBm to -52 dBm (good signal strength)
5 LEDs	-51 dBm (or better) (optimal signal strength)

Please note that the mobile reception power according to chapter **4.3.2 Mobile** (Page 36) is also relevant for good data transmission.

4.3.2 Mobile Status (WebUI)

In order to determine the current mobile reception power for good data transmission, different reception values are relevant depending on the mobile network. A detailed display of the relevant values can be found in the MX560 at **Status → Network** in the tab Mobile:

4G connection	
Mobile	
Data connection state	Connected
IMEI	
IMSI	
ICCID	
Sim card state	Ready
Signal strength	-59 dBm
Cell ID	0539D01
RSRP	-89 dBm
RSRQ	-9 dBm
SINR	-14 dBm
Operator	Vodafone.de
Operator state	Registered (home)
Connection type	4G (LTE)

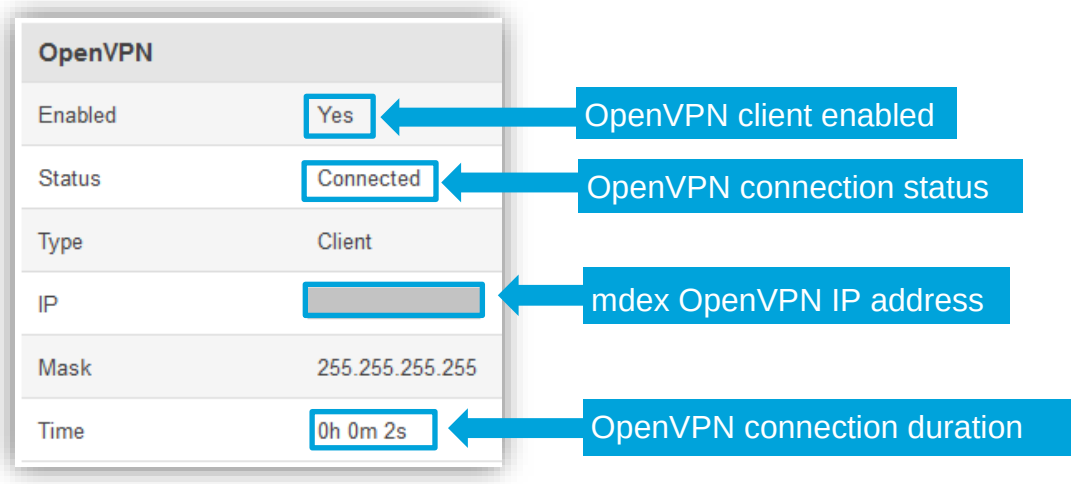
3G / 2G connection	
Mobile	
Data connection state	Connected
IMEI	
IMSI	
ICCID	
Sim card state	Ready
Signal strength	-75 dBm
Cell ID	29536E7
RSCP	-82 dBm
Ec/Io	-4 dBm
Operator	Vodafone.de
Operator state	Registered (home)
Connection type	3G (WCDMA)

RSRP (reference signal Received Power)		**RSRQ** (**R**eference **S**ignal **R**eceived **Q**uality)		**RSSI** (3G) (Received signal Strength Indicator)		**RSSI** (2G) (Received signal Strength Indicator)	
dBm	Data trans-mission	dBm	Data trans-mission	dBm	Data trans-mission	dBm	Data trans-mission
-75	ideal	-3	ideal	-70	ideal	-60	ideal
-80		-6		-75	well	-65	
-85	well		well	-80		-70	well
-90		-9		-85		-75	
-95		-12		-90	possibly disturbed	-80	possibly disturbed
-100	possibly disturbed	-15	possibly disturbed	-95		-85	
-105		-18		-100		-90	
- 110	not possible		not possible	-105	not possible	-95	not possible

4.3.3 OpenVPN Status

Displays the OpenVPN connection status of the MX560.

Status → Network: Tab OpenVPN



4.4 NTP time server

The automatic time adjustment is already preset for the NTP server **time.mdex.de**.

At **Services → NTP** in the tab General the settings can be adjusted / deactivated.

At **Services → NTP** in the tab Time Servers the default time server can be removed with Delete and another time server can be added with Add.

4.5 Backup & Restore configuration

The Configuration of the MX560 can be saved as backup and restored.

Backup Configuration

1. At **System → Administration** in the tab Backup under **Backup Configuration** click on the Download button.
2. Select a location to store the MX560 configuration file on your PC.
3. The MX560 configuration is saved as a '**backup-...tar.gz**' file.

Restore Configuration

1. At **System → Administration** in the tab Backup under **Restore Configuration** select the setting **Upgrade from file**.
2. Click on Browse... button and select the desired configuration file.
3. Click on Upload archive button.
4. The configuration file is now uploaded and the Router will be rebooted.
   All current Router configuration settings will be overwritten now!
5. After the reboot of MX560, the restored configuration is activated.
   (The Router is now accessible with the IP address and port of the restored configuration.)

4.6 Reboot

When the MX560 is rebooted, the configuration settings are retained. Only the mobile connection (and OpenVPN connection, if applicable) is re-established. The restart can be performed using the following methods.

RESET button

Press the RESET button briefly (1 - 3 seconds) with a pointed object to restart the MX560. The stored settings of MX560 are retained.

⚠ If you keep the reset button pressed for more than 5 seconds, all MX560 settings already made will be deleted and the MX560 will be reset to factory default!

WebUI

At **System → Reboot** the MX560 can be restarted by clicking the Reboot button.
The stored settings of MX560 are retained.

4.7 Reset to factory default

The MX560 can be reset to factory default by using any of the following methods.

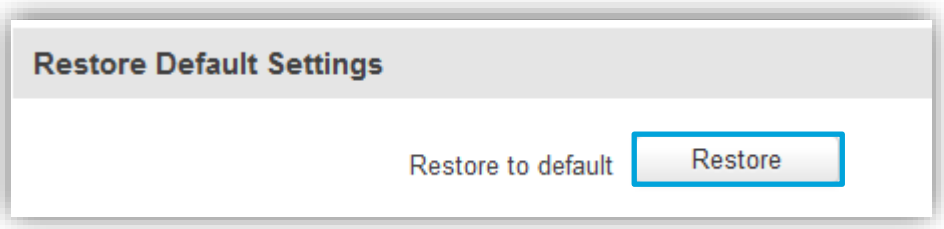
⚠ All MX560 settings already made are deleted. The MX560 is reset to the default setting as described in chapter **1.3 Presets (factory default)** (Page 6).

RESET button

The MX560 must be started. Once the start is complete, press the **RESET button** with a pointed object for more **than 5 seconds** (until all 5 Signal Strength LEDs light), then release. The signal strength LEDs will now start flashing and the MX560 will reset to factory default. The reset is complete as soon as you can connect to the URL **http://192.168.0.1:8080** again.

WebUI

Click on Restore button under **System → Administration** in the tab General.



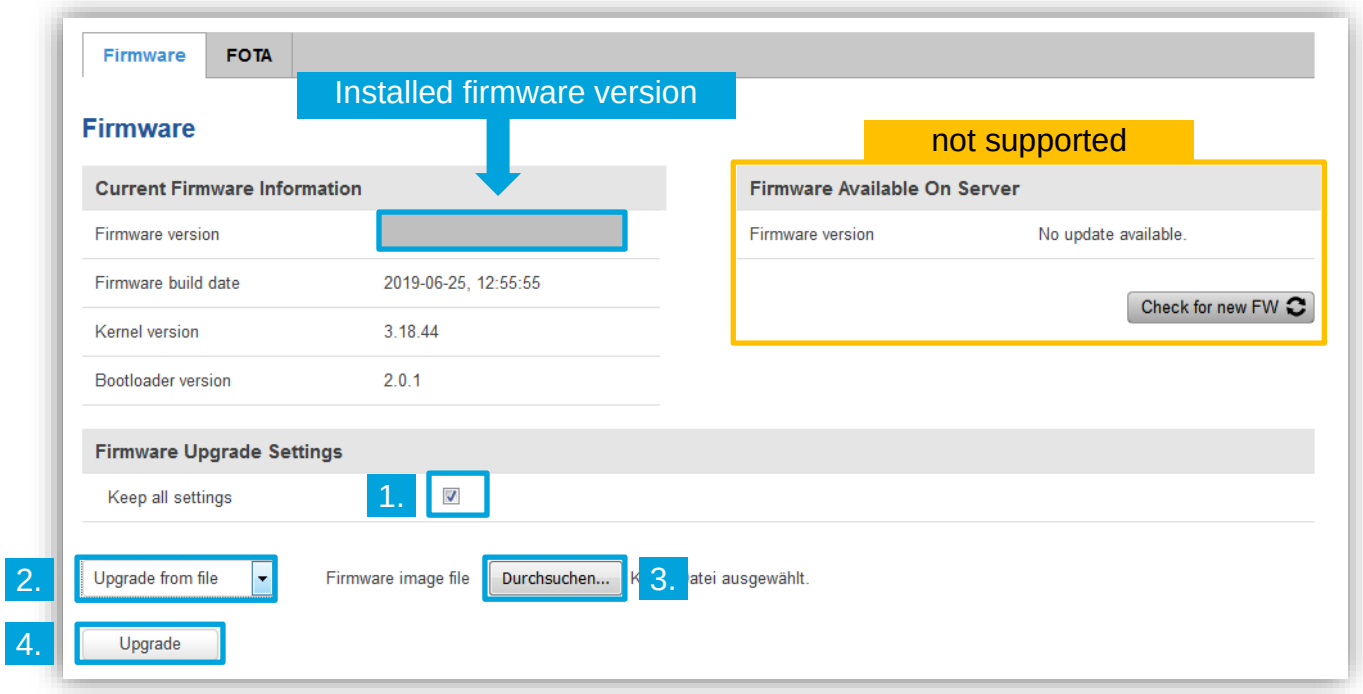
Confirm the message '*Really Restore all changes?* '. The Router is now restored to factory default.

4.8 Firmware update

If a new firmware of the MX560 is available, it can be updated.

New firmware can be found on the mdex support Page: **https://wiki.mdex.de** → **Downloads**

System Firmware:→



1. The setting '**Keep all settings**' should be **activated.**

   If the option **Keep all settings** is deactivated, the current configuration settings of the MX560 will be reset during the firmware update!

2. Set the **Upgrade from file option**.
3. Use `Browse...` to select the new firmware file (*.bin).
4. To execute the firmware update, click on `Upgrade` and confirm the following message by clicking `Proceed`.The update will now be executed.

   The power supply must not be interrupted during the update!

4.9 Expert Mode

In Expert Mode, experienced users have further setting options available for the use of additional functions of the MX560.

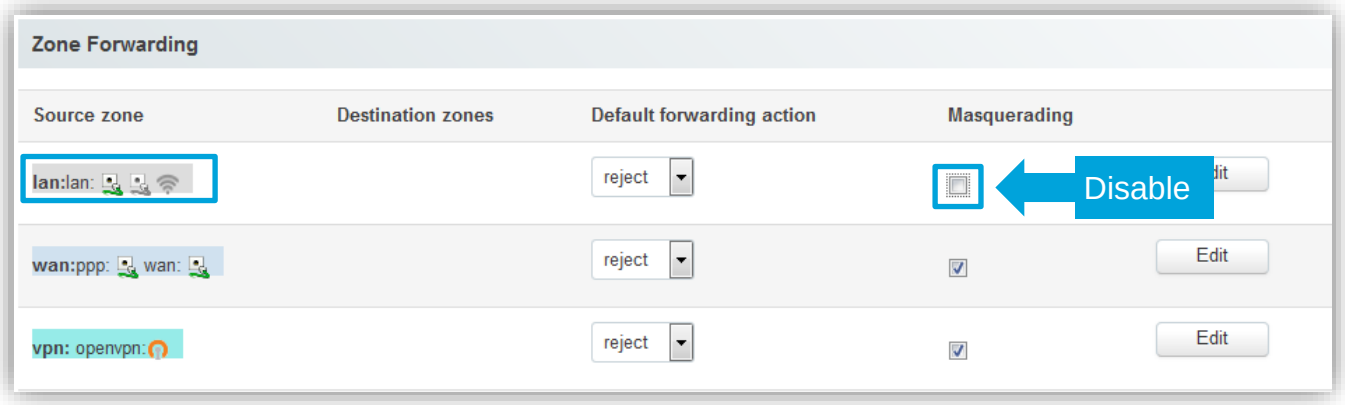
To activate Expert Mode, click on **Expert Mode: off** in the upper right corner.
The status then changes to **Expert Mode: on.**

Please note, that the mdex Customer Service cannot provide support for the additional features of the Expert Mode.

4.10 IPsec connection (to plugged VPN-Router)

To establish an IPsec connection to your own IPsec VPN Router connected to the MX560, please observe the following setup steps:

1. Connect your terminal device (IPsec/VPN-Router) to the LAN port and assign an IP address as described in chapter **2.6.1 Connection of one terminal device** (Page 14).
   Please note that the MX560 LAN IP address must be used as default gateway and DNS server.
2. Edit the forwarding to the connected terminal device (IPsec/VPN-Router) according to chapter **3.9.1 Host-Forwarding (DMZ Configuration)** (Page 27).
3. To ensure that the IP address of the external device is forwarded transparently to the connected terminal device (IPsec/VPN-Router), instead of the LAN IP address of the MX560 as reply IP address, disable at **Network → Firewall** in the tab General Settings under **Zone Forwarding** the option 'Masquerading' at the Source zone **LAN**:



4. Activate the option "**NAT Traversal**" (NAT-T) in the IPsec VPN settings of your IPSec/VPN Routers & clients. Otherwise an IPsec connection setup is usually not possible.
5. All further settings required for an IPsec-VPN connection can be found in the instructions for your “IPsec/VPN Router”.

⚠ The build-in IPsec client of MX560 is only available in **Expert Mode** and is not part of the mdex scope of services. The mdex Customer Service can`t assist you with the commissioning and configuration of this build-in IPsec client.

5 Important Information

Safety information

This chapter describes the safety instructions to be observed. These apply in the Federal Republic of Germany. When used in other countries, the relevant national regulations must be observed.

Disturbances of other devices

Using the Router may cause interference with other equipment. The use of the Router should be avoided in the following areas:

- Where there is a risk of disrupting the function of other electronic devices, such as in hospitals, airports, airplanes, etc.
- Where there is a risk of explosion, such as Gas stations, oil refineries, etc.

It is your responsibility to comply with all applicable legal and environmental regulations. Do not disassemble the Router. Any indication of tampering will void the warranty. Follow the instructions for correct wiring of the Router. All devices should be connected to a stable power supply. The wiring should comply with safety and fire protection requirements.

Use and operation

Always handle the Router with care. Avoid direct contact with terminals and pins, as electrostatic discharges can damage the Router.
The system integrator is responsible for the functioning of the product; therefore, please pay attention to the external components of the Router and any installation problems, as there is a risk of interfering with external devices or system security.

- Do not open or disassemble the Router while it is in operation.
- Do not drop the Router and prevent shocks to prevent damage to the internal electronics. The Router must not be installed in areas where it is exposed to strong shocks and vibrations.
- Do not use any hard chemicals, solvents or cleaning agents to clean the Router.
- Do not expose the Router to liquids (rain, drinks, etc.). The Router is not waterproof.
- Ensure that the Router is operated under the specified temperature and humidity conditions.
- The router may not be used on offshore platforms or in water, air or rail vehicles. When used in motor vehicles, the router must be securely stored, easily accessible and removable without tools.
- Persons must maintain a minimum distance of 20 cm to the antennas of the router during operation.
- Do not install or operate the Router in dusty, dirty places. Connectors, plugs and other mechanical parts may be damaged.
- Do not install the Router in the area of electrical interference fields, such as those generated by fluorescent lamps, machines and televisions. Such sources of interference can affect the operation of the Router.
- The Router's power cord also serves as the main disconnect device.
- When using the AC adapter, the power outlet must be in the immediate vicinity of the Router for safety and should be easily accessible during operation.
- In case of smoke, unusual odor or noticeable noise, unplug the power cord from the wall outlet.

- Do not touch the Router or AC adapter with wet hands. Failure to do so may result in interference, short circuits, or electric shock.
- The Router includes detachable small parts that can pose a suffocation hazard. Keep the Router and its accessories away from children!
- No PoE (Power over Ethernet) powered network cable may be connected to the LAN/WAN sockets! The PoE voltage would destroy the MX560!

Operating conditions (environment)

Operation of the Router is permitted in the following areas:

- Temperature range Router: -40° to +70° Celsius
- Temperature range plug-in power supply: 0° to +40° Celsius
- The humidity should be in the range of 10% to 90% (non-condensing).
  Only use the devices in dry environments.

Attention: Operation outside the permissible range can considerably shorten the service life of the Router.

Declaration of Conformity

The mdex MX560 Router complies with the basic requirements of Directive 2014/53 / EU. The complete EU Declaration of Conformity can be downloaded from **wiki.mdex.de/Support/DoC**.

Frequency bands and max. transmission powers

LTE-FDD:	B1/B3/B7/B8/B20/B28A, 23 dBm
UMTS:	900/2100 MHz, 24 dBm
GSM:	900/1800 MHz, 33/30 dBm
WIFI:	2400 MHz to 2483.5 MHz, 20 dBm

Manufacturer specifications

The mdex Router MX560 was produced by Teltonika:
Teltonika UAB, Saltoniskiu st. 9B-1, LT-08105, Vilnius, Lithuania

Export notes

This product is subject to European/German and/or US export regulations. Any export or re-export subject to authorisation therefore requires the approval of the competent authorities. According to current regulations, the following export classifications must be observed for this product: ECCN/AL: 5A002.a.1 and 5A991.c.10. The current version of the export list can be found on the website of the Federal Office of Economics and Export Control (BAFA).

Note: *The above export list item has been compiled for information purposes to the best of our knowledge and belief and should be used to classify the export together with the export provisions. Exporters are responsible for compliance with all trade regulations, including export regulations, and rely on this information at their own responsibility and risk.*

Customer Service

If the information in these safety instructions is insufficient or the Router does not work properly, please contact the mdex Customer Service:

Address: Wireless Logic mdex GmbH, Bäckerbarg 6, 22889 Tangstedt, Germany
Internet: www.mdex.de
E-mail: support@mdex.de
Phone: +49 (0)4109-555 444

Disposal

The Router and all electronic parts included in the scope of delivery must not be disposed of as household waste. You can recognize this by the marking with the symbol of the crossed-out trash can. At the end of its service life, please dispose of the Router and the electronic parts supplied with it for reuse or recycling in accordance with the disposal regulations applicable at the time of installation. They thus avoid harmful effects on the environment and human health.
You can also return the Router and the electronic parts included in the scope of delivery to mdex at your expense for proper disposal:
Wireless Logic mdex GmbH, Bäckerbarg 6, 22889 Tangstedt, Germany

Wireless Logic mdex GmbH
Bäckerbarg 6
22889 Tangstedt, Germany

Internet: http://www.mdex.de
E-mail: support@mdex.de
Phone: +49 (0)4109-555 444

Open-Source license notes

The MX Router product series also includes so-called open source software, which has been produced by third parties and published for free use by everyone. The open source software is subject to special open source software licenses and the copyright of third parties. The Customer's rights to use the Open Source Software shall be governed in detail by the relevant Open Source Software licenses.

The open source software licensed under the GNU General Public License (GPL) or GNU Lesser General Public License (LGPL) is provided and used without any warranty or liability on the part of the programmers who created it. For details please refer to the respective license agreement.

The open source software can be found by downloading the software in the Zip archive and purchasing the product on the supplied data carrier (USB stick or CD/DVD). In the directory "Licenses" the above mentioned licenses are directly available for you. In the "Source code" directory you will find the corresponding source codes for the open source software, with the applicable licenses for the various software parts.

You may edit software components for your own use and reengineer them to correct errors in such edits, provided that such software components are linked to program libraries under the LGPL. However, it is not permitted to pass on the information obtained during reengineering and the processed software.

If the software is subject to the GPL, LGPL or the Clarified Artistic License or if the license terms otherwise stipulate that the source code must be made available, we will send this at any time on request and make a binding offer in this respect. If the sending on a data carrier should be demanded, the transmission takes place against payment of a cost lump sum in the amount of EUR 10.00. If our costs for the production and the dispatch of the data carrier should be lower, we charge only this lower amount.

Our offer to ship the source code upon request is valid for a period of three years after we distribute the product or at least as long as we provide support and spare parts for the product. Inquiries should be sent to the following address (if possible, stating the serial number of the product purchased):

Wireless Logic mdex GmbH
Bäckerbarg 6
22889 Tangstedt, Germany

Fax: +49 4109 555 55
E-mail: opensource-support@mdex.de