RADIO DATA NETWORKS

Application notes

RipEX2/M!DGE3 Link management

fw 2.1.6.0
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version 1.0

RACOM s.r.o. | Mirova 1283 | 592 31 Nove Mesto na Morave | Czech Republic
Tel.: +420 722 937 522 | E-mail: racom@racom.eu

www.racom.eu

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Link management

Link manager is a mechanism providing switching of several pre-configured alternative links (alternative static routes). Link switch is triggered in case of the active link failure. Link failure can be detected passively – by checking link interface physical status (see Watched interface parameter) and actively by ICMP ping (see Link testing parameter).

Link testing is active on currently active link and all higher priority links (to detect when they are available again). Lower priority links can also be tested (see Test backup link parameter). When the current link fails, link manager switches to the next functional lower priority link. If the link is not being checked (Test backup link parameter is disabled), it is assumed to be functional. Routing rules are updated automatically on link switchover.

IPsec tunnels can be bound to particular links via Peer ID parameter. In such a case the individual IPsec tunnel is activated/deactivated together with the respective link. It is automatically switched back to the higher priority link once it is restored.

See more details and all parameters explained in the User manual.

The application note will show you several examples using the Link management features.

- *Dual “Internet” access*
- *Simple IPsec tunnel configuration*
- *P2P connection utilizing IPsec tunnel controlled by Link management*
- *M!DGE3 units as remotes in P2MP connection*

All the examples can be applied both to RipEX2 and M!DGE3 with just slight differences, such as a cellular interface is the “MAIN” in M!DGE3, whereas in RipEX2 it is “EXT”. In RipEX2 you can also utilize a “Radio” interface which cannot be set in M!DGE3.

All examples utilize M!DGE3 cellular routers, because using Link management is more frequent in cellular devices than in radio modems.

1. Dual "Internet" access

The 1st example is not really used frequently, but can demonstrate nicely the main purpose of link priorities local management . You can also imagine private APN instead of public "internet" APN if it suits you better.

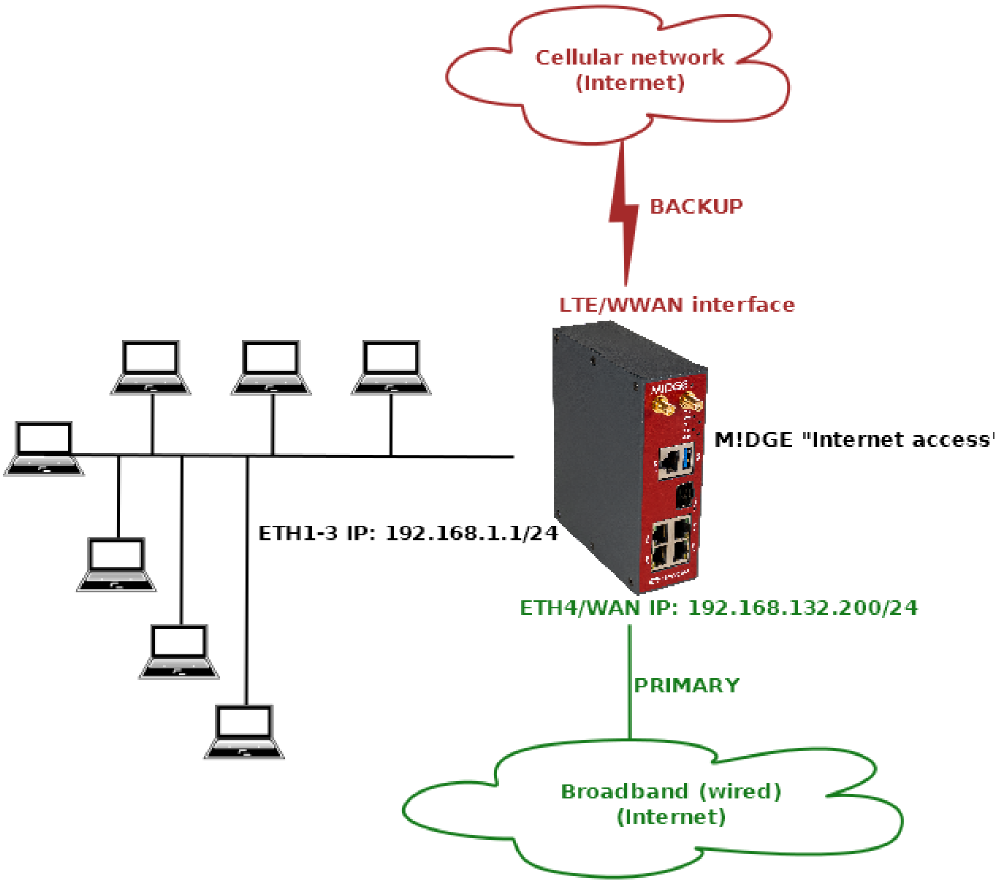
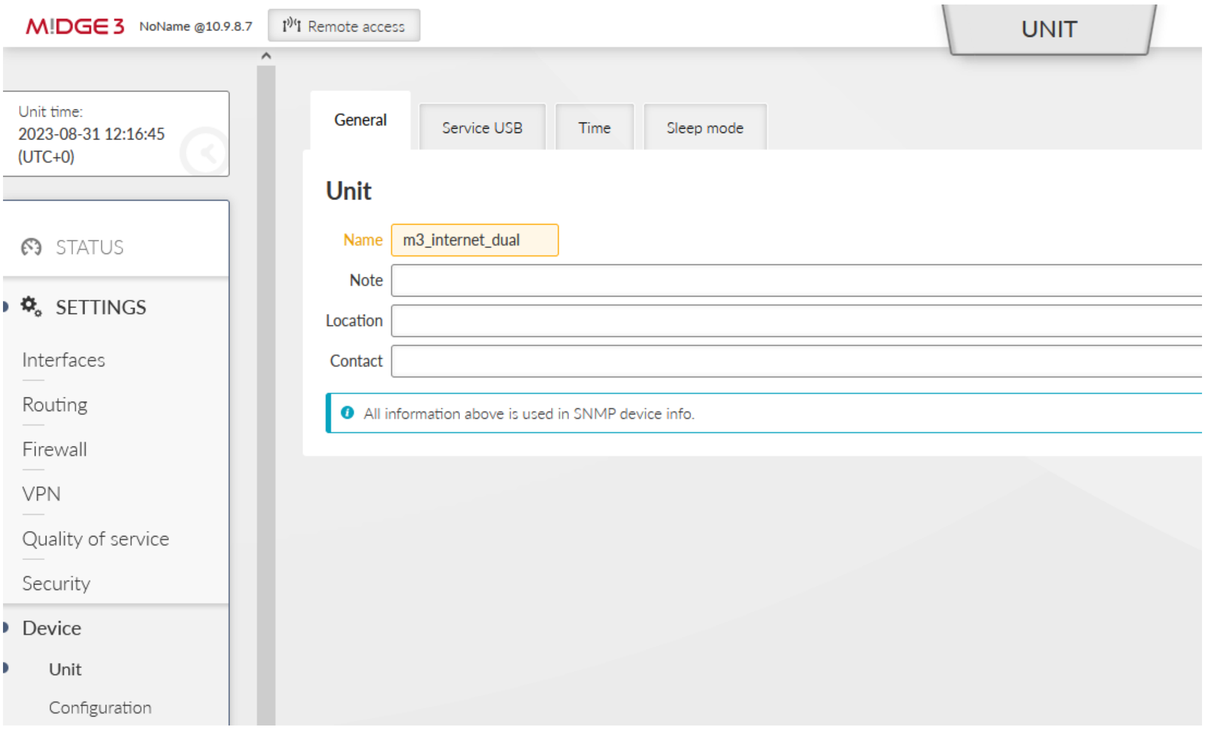


Fig. 1: Dual Internet connection

The scenario explains using the ETH4 port as a primary WAN link and having LTE (WWAN) only as a backup in case of primary WAN failure. This situation can be beneficial if WAN speed is in hundreds of Mbit/s, but the speed of 2G/3G/4G is lower, shared among other users within the BTS coverage etc.

This scenario starts with a unit in factory setup. Login to the unit and go to the SETTINGS > Device > Unit menu and choose appropriate Unit name – in our example, it is "m3_internet_dual".



Unit time:
2023-08-31 12:16:45
(UTC+0)

Unit

Name: m3_internet_dual

Note:

Location:

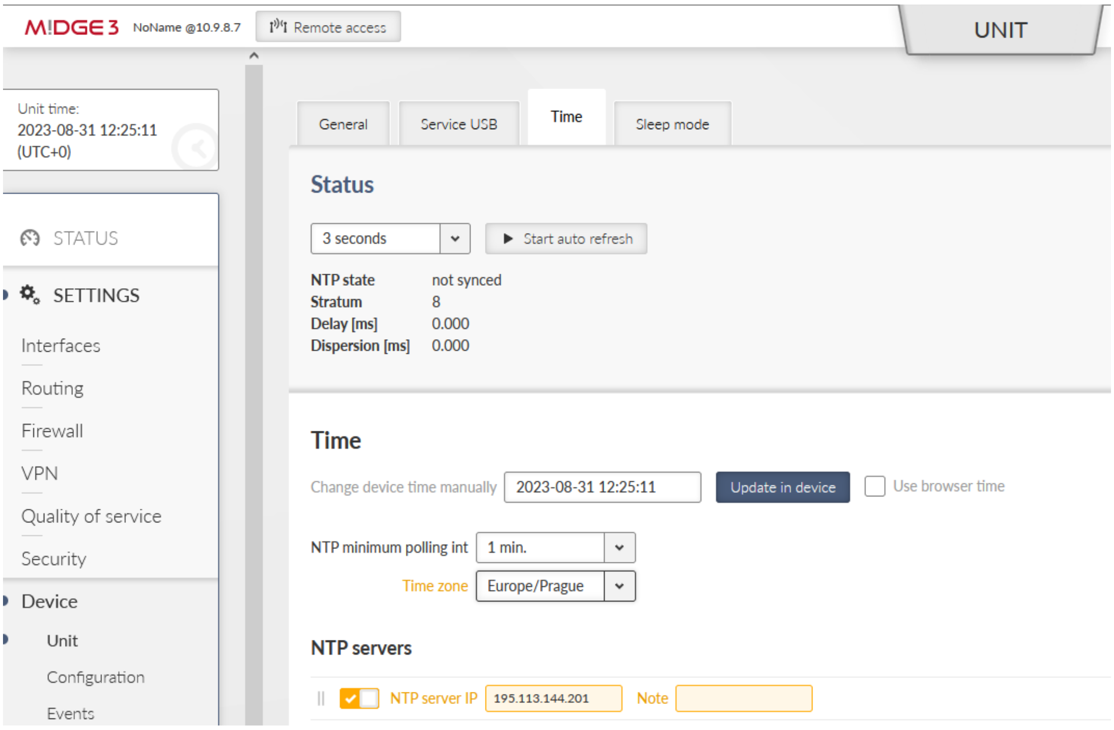
Contact:

All information above is used in SNMP device info.

Fig. 2: Unit name

Configuring the NTP time synchronization is recommended. The unit has a correct time and eventual debugging is always easier, go to the SETTINGS > Device > Unit > Time menu.

Set a correct Time zone and add at least one NTP server IP address which is accessible within your APN.



Unit time:
2023-08-31 12:25:11
(UTC+0)

Status

3 seconds

NTP state	not synced
Stratum	8
Delay [ms]	0.000
Dispersion [ms]	0.000

Time

Change device time manually: 2023-08-31 12:25:11

□ Use browser time

NTP minimum polling int: 1 min.

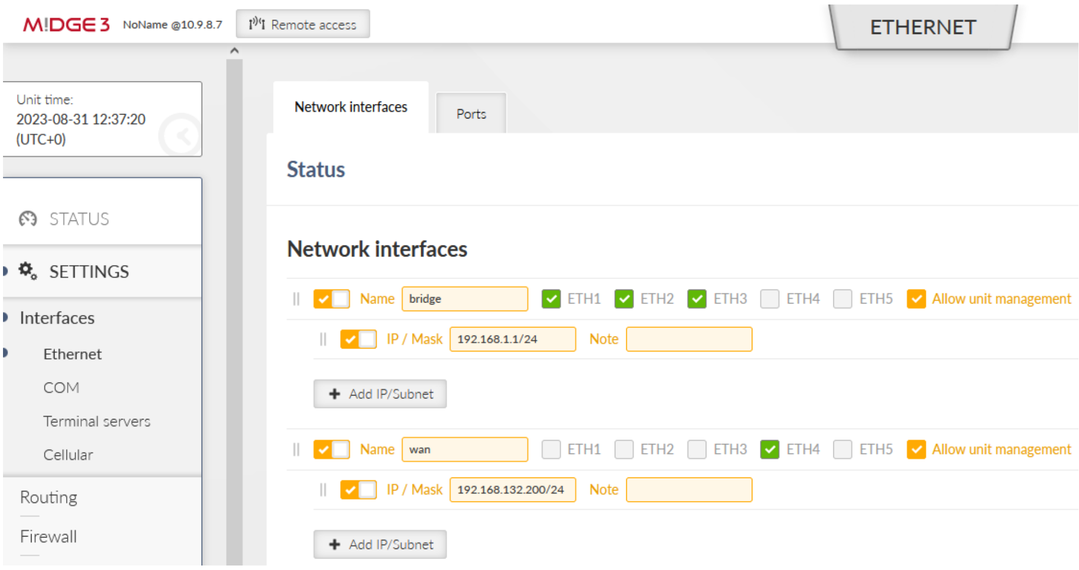
Time zone: Europe/Prague

NTP servers

☑ NTP server IP: 195.113.144.201 Note:

Fig. 3: NTP settings

Go to the SETTINGS > Interfaces > Ethernet menu and configure correct IP addresses.



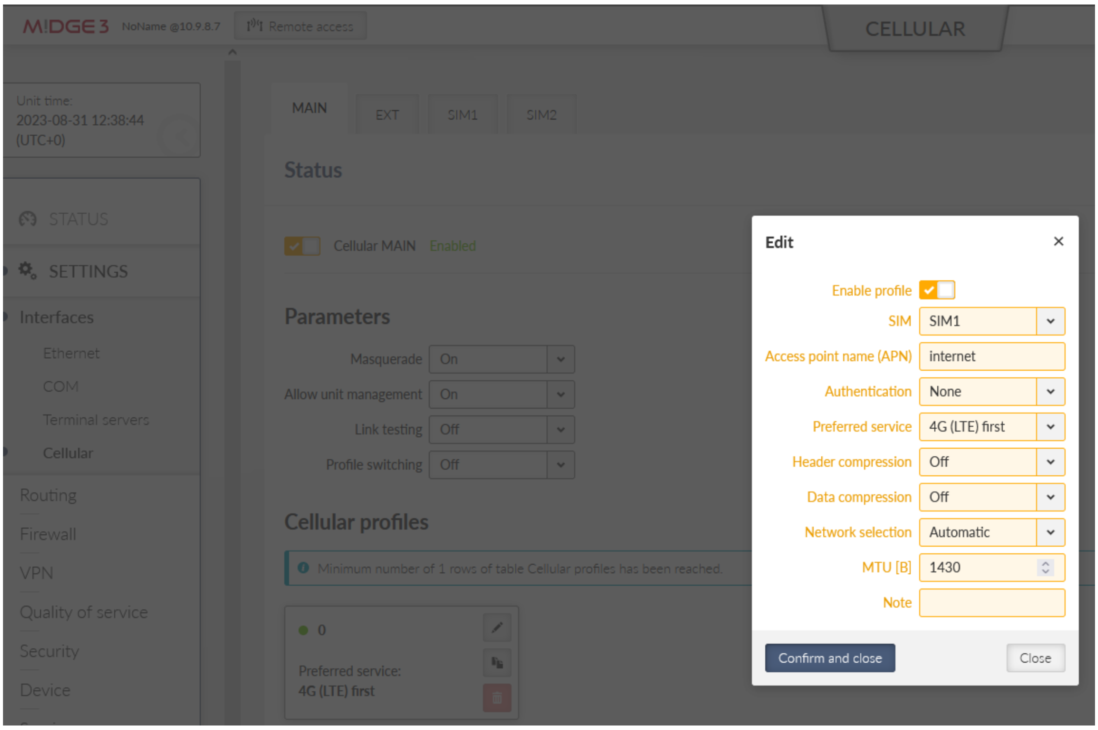
Network interfaces

☑	Name: bridge	☑ ETH1	☑ ETH2	☑ ETH3	□ ETH4	□ ETH5	☑ Allow unit management	
☑	IP / Mask: 192.168.1.1/24	Note:						
☑	Name: wan	□ ETH1	□ ETH2	□ ETH3	☑ ETH4	□ ETH5	☑ Allow unit management	
☑	IP / Mask: 192.168.132.200/24	Note:						

Fig. 4: Ethernet settings

Set ETH1-3 Network interface IP to 192.168.1.1/24. The ETH4 is our WAN with 192.168.132.200/24 and we name it “wan”.

Go to the SETTINGS > Interfaces > Cellular menu and configure your cellular profile to suit your SIM card and provider’s setup. In our case, we just set ‘internet’ as our APN. There is no need to configure “Link testing” now (we do it later in the Link management itself).



☑ Cellular MAIN Enabled

Parameters

Masquerade	On
Allow unit management	On
Link testing	Off
Profile switching	Off

Cellular profiles

Minimum number of 1 rows of table Cellular profiles has been reached.

● 0
Preferred service:
4G (LTE) first

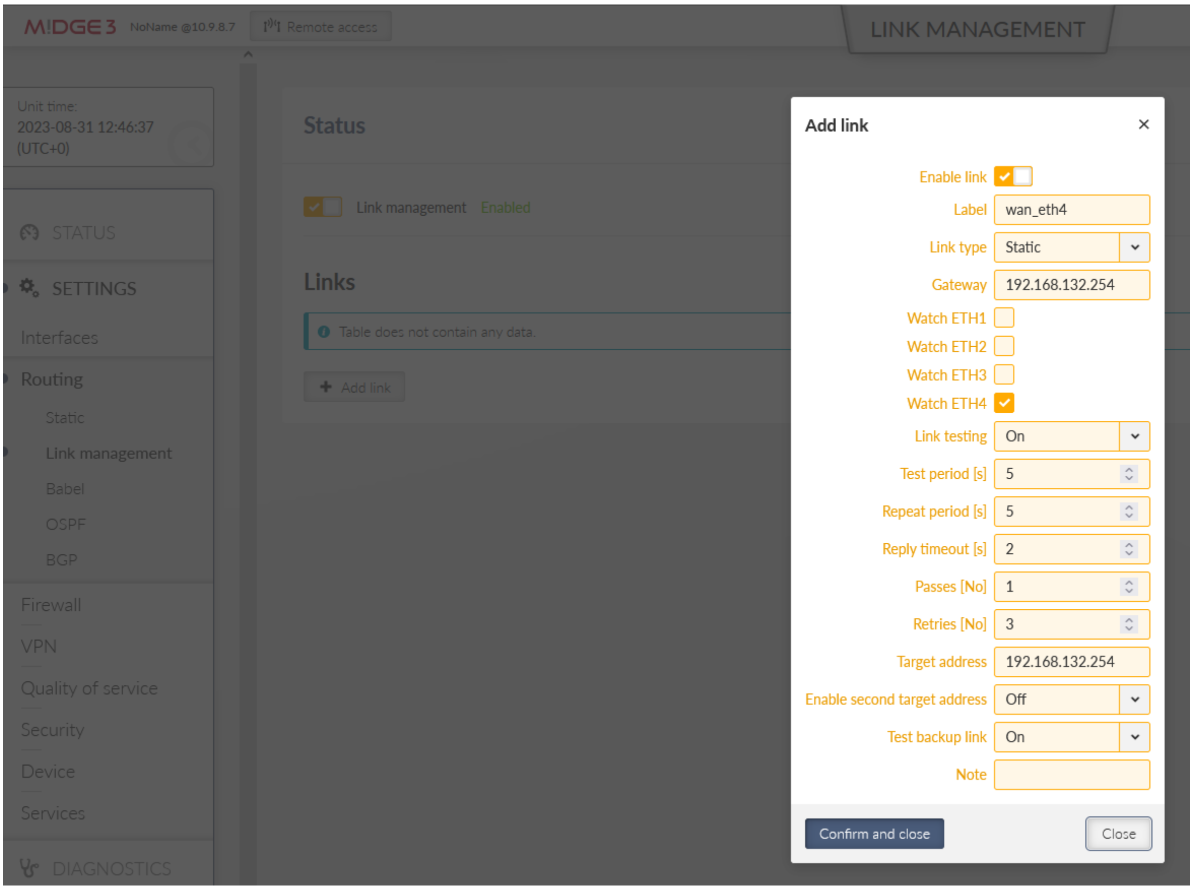
Edit

Enable profile	☑
SIM	SIM1
Access point name (APN)	internet
Authentication	None
Preferred service	4G (LTE) first
Header compression	Off
Data compression	Off
Network selection	Automatic
MTU [B]	1430
Note	

Fig. 5: Cellular WWAN (MAIN) interface

Go to the SETTINGS > Routing > Link management menu and enable this feature. Click on the “Add link” button and configure the WAN/ETH4 link.

- Label: “wan_eth4”
- Link type: “static”
- Gateway: 192.168.132.254
  - This “broadband” connection can be simulated by any other device with 192.168.132.254 IP, or set it to match your actual LAN Internet setup.
- Watch ETH4 – so that the link goes up/down based on ETH4 physical status (cable connected/disconnected).
- Enable Link testing
  - Target address – we will ping 192.168.132.254 Gateway IP – if the IP is not accessible three times in a row, the link is considered down. Once the ping succeeds, the link becomes up again.
  - Choose required timing – we set short intervals due to high Ethernet speed and requirement for fast reaction on link changes



Link management Enabled

Add link

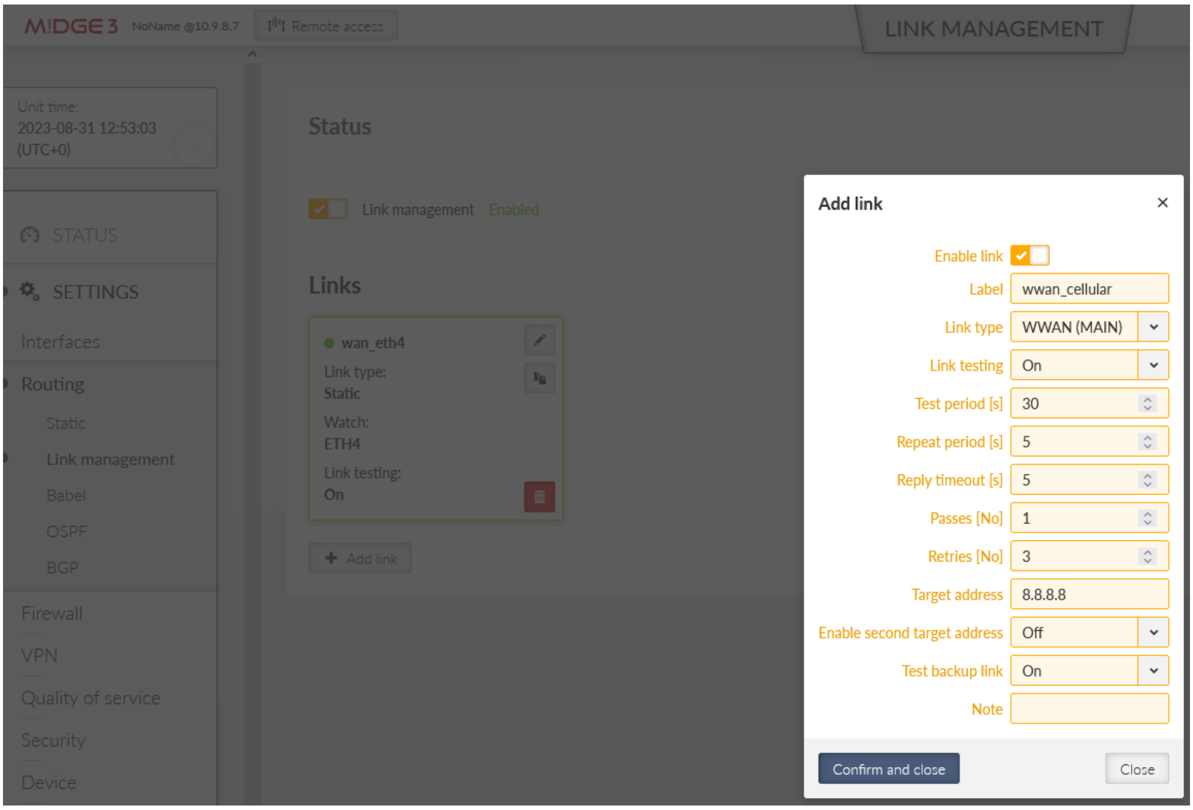
Enable link	☑
Label	wan_eth4
Link type	Static
Gateway	192.168.132.254
Watch ETH1	□
Watch ETH2	□
Watch ETH3	□
Watch ETH4	☑
Link testing	On
Test period [s]	5
Repeat period [s]	5
Reply timeout [s]	2
Passes [No]	1
Retries [No]	3
Target address	192.168.132.254
Enable second target address	Off
Test backup link	On
Note	

Fig. 6: WAN/ETH4 Link management

Configure 2nd link via the cellular WWAN (MAIN) interface:

- Label: “wwan_cellular”

- Link type: “WWAN (MAIN)”
- Link testing: On
    - ○ We ping the Google server IP 8.8.8.8 in longer intervals



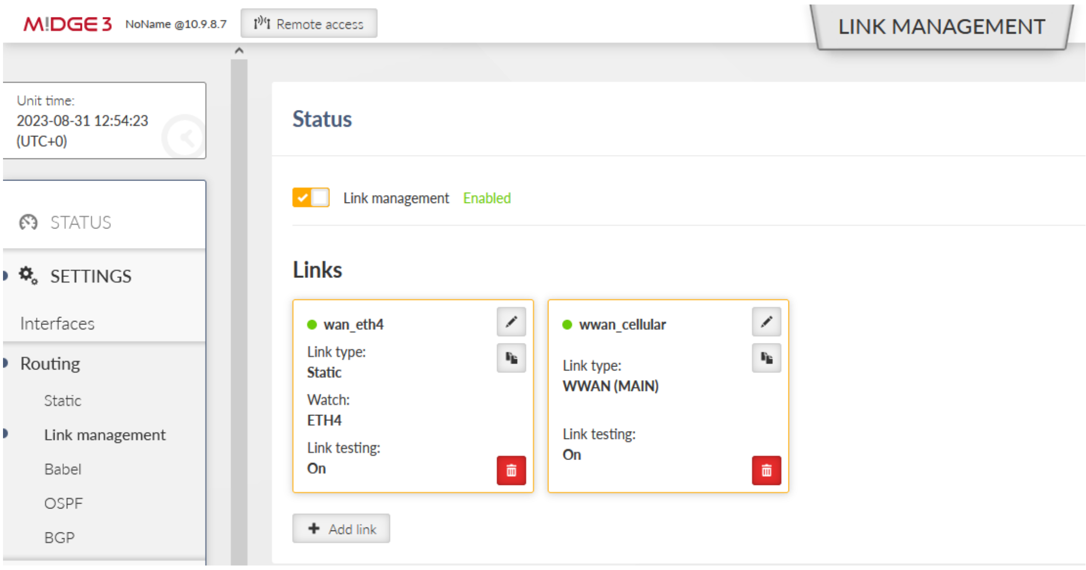
Link management Enabled

wan_eth4
Link type:
Static
Watch:
ETH4
Link testing:
On

Add link

Enable link	☑
Label	wwan_cellular
Link type	WWAN (MAIN)
Link testing	On
Test period [s]	30
Repeat period [s]	5
Reply timeout [s]	5
Passes [No]	1
Retries [No]	3
Target address	8.8.8.8
Enable second target address	Off
Test backup link	On
Note	

Fig. 7: WWAN/cellular Link management



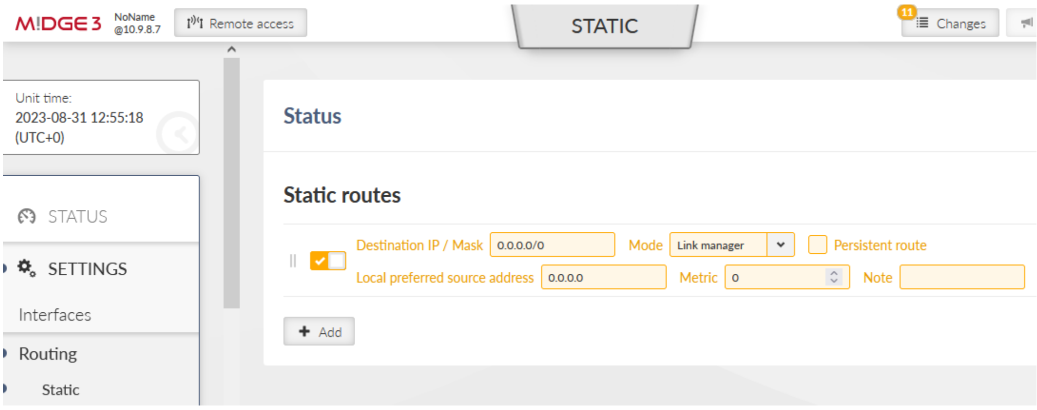
Link management Enabled

wan_eth4
Link type:
Static
Watch:
ETH4
Link testing:
On

wwan_cellular
Link type:
WWAN (MAIN)
Link testing:
On

Fig. 8: Link management summary

Go to the SETTINGS > Routing > Static menu and add 0.0.0.0/0 default gateway via “link manager”.



Unit time: 2023-08-31 12:55:18 (UTC+0)

Status

Static routes

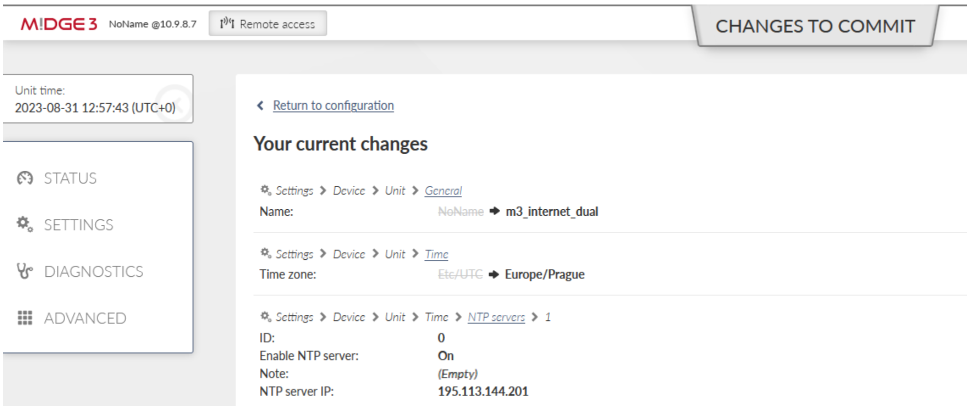
☑ Destination IP / Mask 0.0.0.0/0 Mode Link manager □ Persistent route

Local preferred source address 0.0.0.0 Metric 0 Note

+ Add

Fig. 9: Default route controlled by Link manager

Go to the “Changes” basket, verify the changes and if all is OK, click on the “Send configuration” button to store the configuration in the unit.



Unit time: 2023-08-31 12:57:43 (UTC+0)

< Return to configuration

Your current changes

Settings > Device > Unit > General

Name: ~~NoName~~ → m3_internet_dual

Settings > Device > Unit > Time

Time zone: ~~Etc/UTC~~ → Europe/Prague

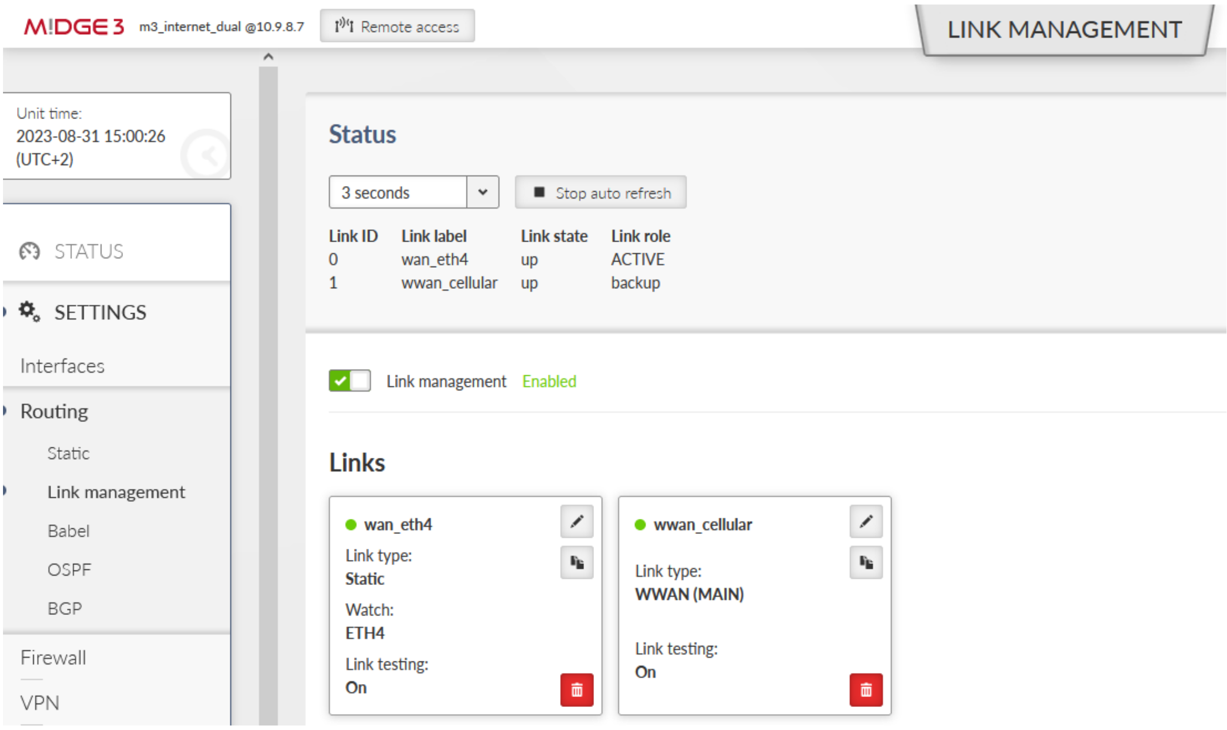
Settings > Device > Unit > Time > NTP servers > 1

ID: 0
Enable NTP server: On
Note: (Empty)
NTP server IP: 195.113.144.201

Fig. 10: Changes to commit

Test description

Go to the SETTINGS > Routing > Link management and open the Status menu. Click on the “Start auto refresh” button and see the states of configured links.



Unit time:
2023-08-31 15:00:26
(UTC+2)

Status

3 seconds

Link ID	Link label	Link state	Link role
0	wan_eth4	up	ACTIVE
1	wwan_cellular	up	backup

☑ Link management Enabled

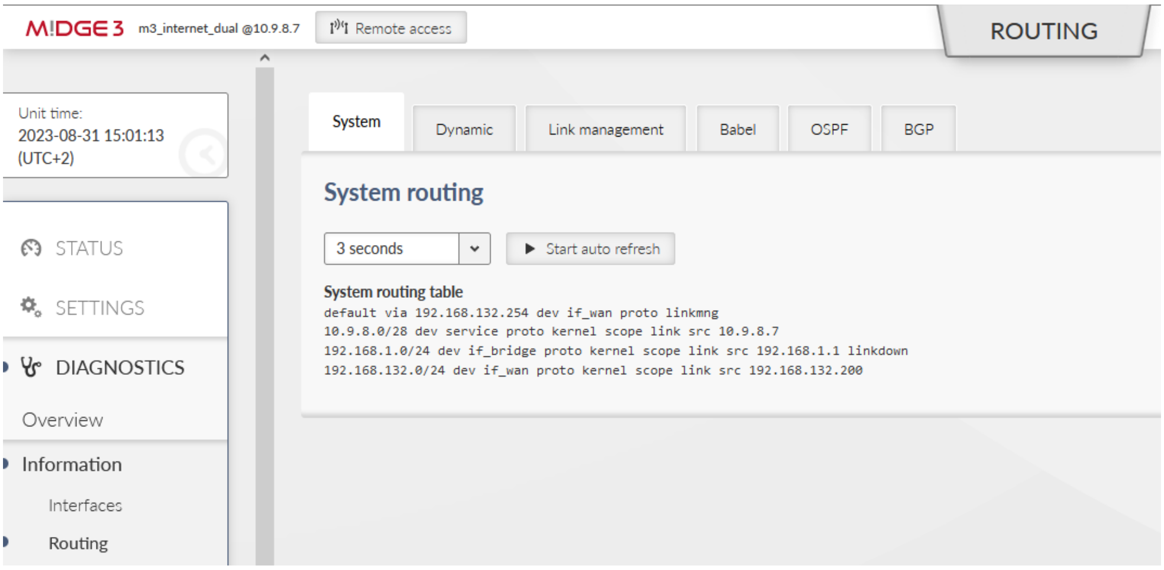
Links

● wan_eth4
Link type:
Static
Watch:
ETH4
Link testing:
On

● wwan_cellular
Link type:
WWAN (MAIN)
Link testing:
On

Fig. 11: Link management status

If you go to the DIAGNOSTICS – Information – Routing menu, you can check the System routing, i.e., the default 0.0.0.0/0 route is via 192.168.132.254 (or via cellular if a backup link is used).



Unit time:
2023-08-31 15:01:13
(UTC+2)

System routing

3 seconds

System routing table

```
default via 192.168.132.254 dev if_wan proto linkmng
10.9.8.0/28 dev service proto kernel scope link src 10.9.8.7
192.168.1.0/24 dev if_bridge proto kernel scope link src 192.168.1.1 linkdown
192.168.132.0/24 dev if_wan proto kernel scope link src 192.168.132.200
```

Fig. 12: System routing

The Link management tab has the same output as from its Settings menu.

You can also check the Monitoring menu – check the ETH4 and WWAN (MAIN) interfaces to see data being sent/received.

To simulate issues:

- Disconnect and connect ETH cable from ETH4 port
- Disconnect and connect the Gateway device (192.168.132.254) so that M!DGE3 ETH4 port is “up”, but the Link testing fails.
- You can detach the cellular antenna(s) to simulate cellular issues as well.

2. Simple IPsec tunnel configuration

Very often, encrypted communication is a must, or regular LANtoLAN traffic is just simply discarded in operator’s network, or even in your broadband connection.

IPsec VPN tunnel is suitable to solve the security/encryption and also LANtoLAN communication.

Note: Due to routing purposes, GRE L2/L3 are frequently used together with IPsec.

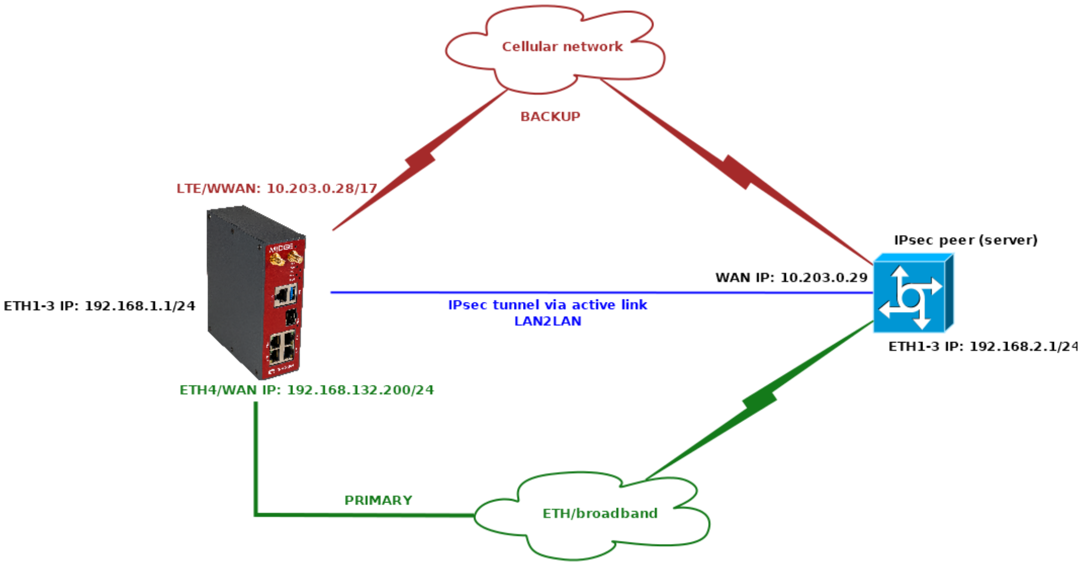


Fig. 13: Simple IPsec tunnel – diagram

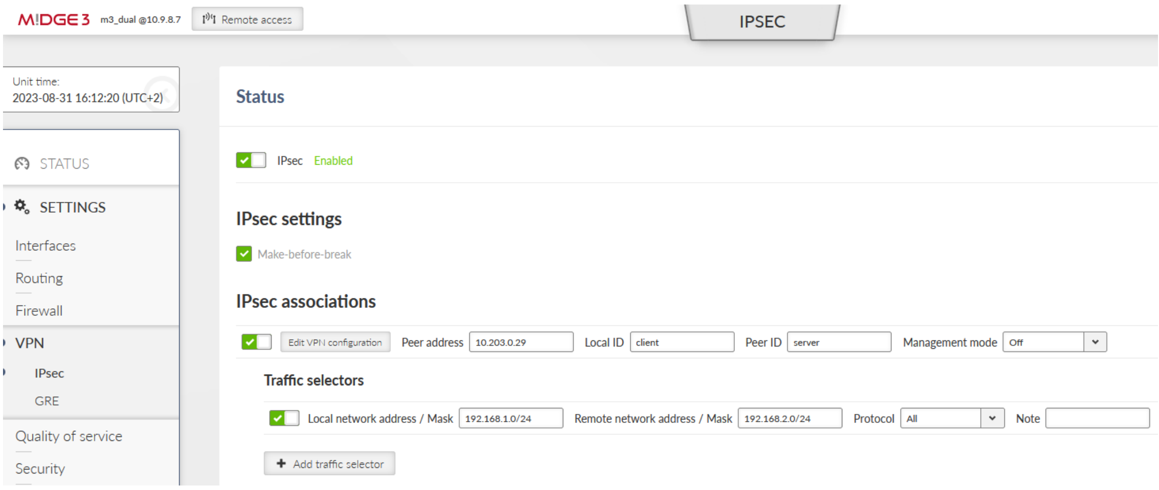
Configuration steps start after the Example 1.1 is completed.

Go to the SETTINGS > VPN > IPsec menu and enable it. Add a new VPN configuration. Configure it to suit the opposite site. We suggest multiple parameters

- Enable both Make-before-break and MOBIKE for faster and more reliable tunnel switching
- Enable DPD detection to detect IPsec tunnel failures
- Set the Start state to “Start” – so this M!DGE3 initiates the IPsec connection – keep in mind the opposite site (Peer) should be set to “Passive” state (waiting for incoming connections).

Keep the “Management mode” to “Off” – this is a special parameter for our Link management, but not yet configured for this example.

Possible IPsec setup overview:



Unit time: 2023-08-31 16:12:20 (UTC+2)

Status

☑ IPsec Enabled

IPsec settings

☑ Make-before-break

IPsec associations

☑ Peer address 10.203.0.29 Local ID client Peer ID server Management mode Off

Traffic selectors

☑ Local network address / Mask 192.168.1.0/24 Remote network address / Mask 192.168.2.0/24 Protocol All Note

Fig. 14: IPsec configuration

Note: The Unit name is changed to “m3_dual”.

Test description

If you have both Links functional and you can reach the IPsec Peer IP, you can do the same tests as in the previous example, but now including the IPsec status check within the SETTINGS > VPN > IPsec menu and its Status.

You can also try to ping between laptops connected to both ends of IPsec tunnel during changing the active link.

3. P2P connection utilizing IPsec tunnel controlled by Link management

Sometimes, we can see that the server also has two WAN IP addresses, each accessible via different Link. If we kept the same setup as above, we would not be able to connect to one of the IP addresses, because IPsec provides only one Peer IP address.

To solve this situation, we can use Link management to control what Peer IP (and even other IPsec parameters) to use via various links.

We cannot define two same IPsec tunnels differing only in Peer IP. Once there are some overlaps in traffic selectors, it cannot be saved, because that would cause networking issues.

In the following example, we

- Define two IPsec tunnels with different Peer IPs
  - One will be set as “Master” and will be configured with proper Traffic selectors
  - One will be set as “Slave” and will become active only if the primary Link fails and will use the same Traffic selectors as the Master tunnel
- The IPsec server will have two different IPs for its WAN
  - We utilize another M!DGE3 to demonstrate this example – i.e., we’ll configure two M!DGE3 units in point-to-point scenario. One connection will be via Ethernet; one connection via private APN (WWAN).

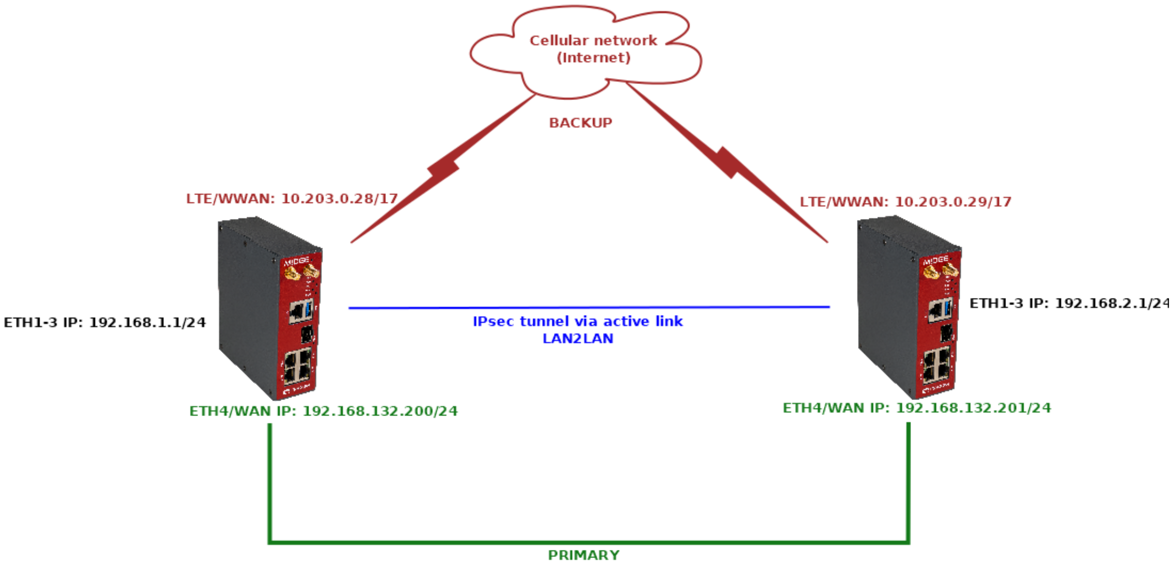
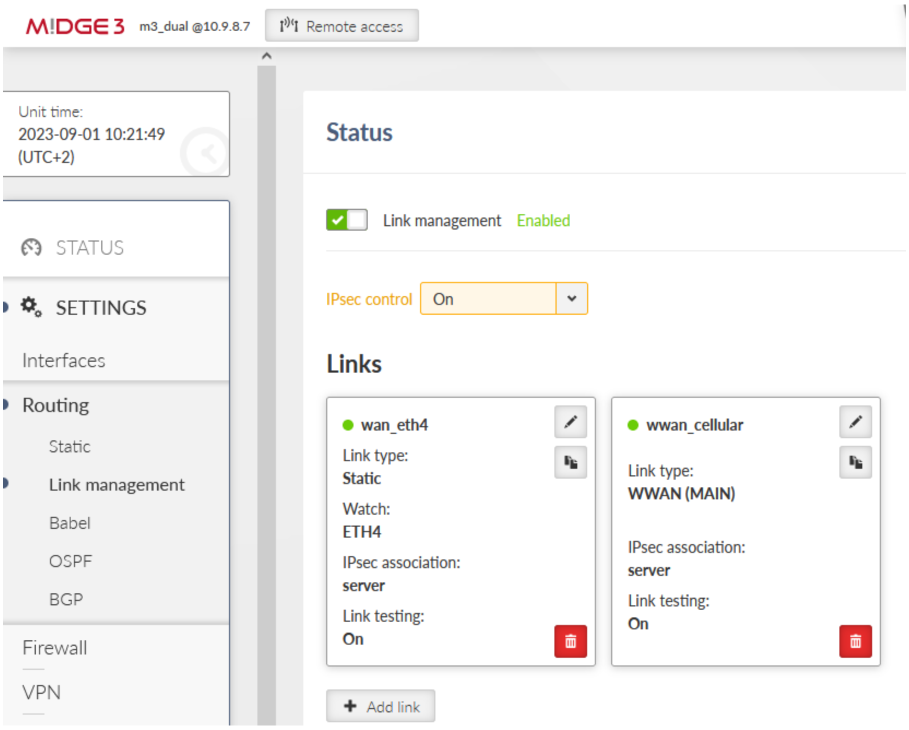

Cellular network
(Internet)
BACKUP
LTE/WWAN: 10.203.0.28/17
LTE/WWAN: 10.203.0.29/17
ETH1-3 IP: 192.168.1.1/24
IPsec tunnel via active link
LAN2LAN
ETH1-3 IP: 192.168.2.1/24
ETH4/WAN IP: 192.168.132.200/24
ETH4/WAN IP: 192.168.132.201/24
PRIMARY

Fig. 15: Link management, p2p – IPsec control

Most of the configuration is already done within the previous chapters (1.1 and 1.2) so we just edit the configuration of the unit on the left side of the diagram, the one with 10.203.0.28 IP on its WWAN and 192.168.132.200 on its ETH4/WAN. Afterwards, we need to do the complete setup of the 2nd unit.

Go to the SETTINGS > Routing > Link management and enable “IPsec control” option.



Unit time:
2023-09-01 10:21:49
(UTC+2)

Status

☑ Link management Enabled

IPsec control: On

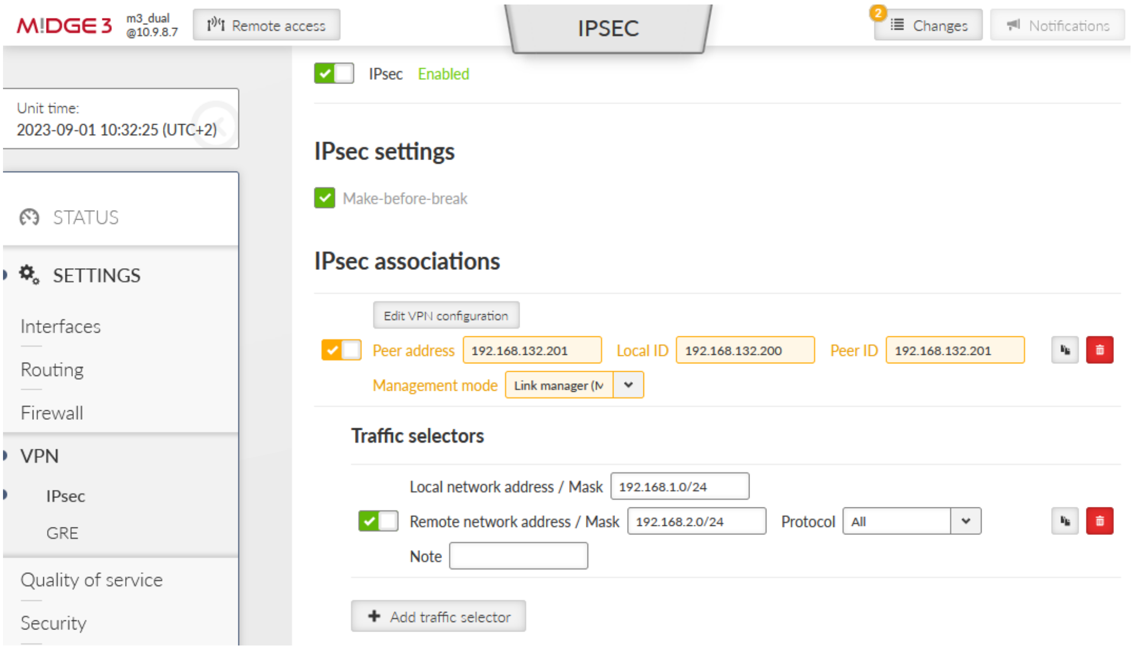
Links

● wan_eth4
Link type: Static
Watch: ETH4
IPsec association: server
Link testing: On

● wwan_cellular
Link type: WWAN (MAIN)
IPsec association: server
Link testing: On

Fig. 16: Enabling IPsec control

Go to the SETTINGS > VPN > IPsec menu and edit the tunnel created in the previous example – set the “Management mode” to “Link manager (Master)”. Set the “Peer address” to primary 192.168.132.201, “Local ID” to 192.168.132.200 and “Peer ID” to 192.168.132.201.



Unit time:
2023-09-01 10:32:25 (UTC+2)

☑ IPsec Enabled

IPsec settings

☑ Make-before-break

IPsec associations

☑ Peer address 192.168.132.201 Local ID 192.168.132.200 Peer ID 192.168.132.201

Management mode Link manager (M

Traffic selectors

Local network address / Mask 192.168.1.0/24

☑ Remote network address / Mask 192.168.2.0/24 Protocol All

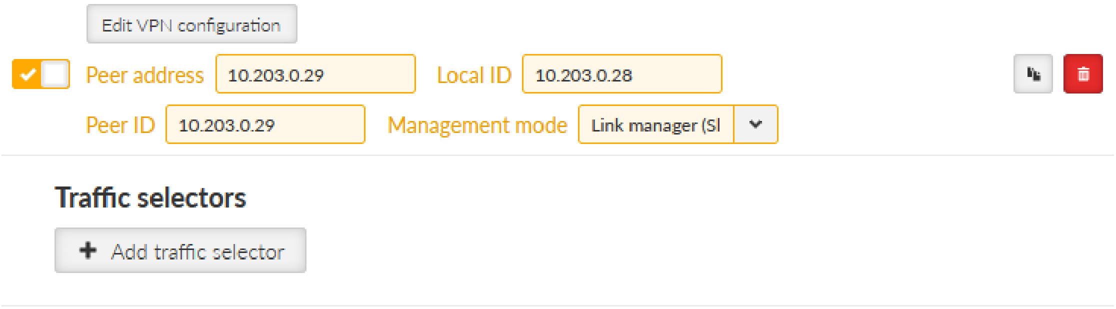
Note

Fig. 17: Management mode “Link manager" (Master)

Copy the current tunnel using the “Copy” button and edit it.

- Change the “Peer address” to 10.203.0.29

- Change the “Management mode” to “Link manager (Slave)”
- Set the Local ID to 10.203.0.28
- Set the Peer ID to 10.203.0.29
- Delete its Traffic selectors



Edit VPN configuration

☑ Peer address 10.203.0.29 Local ID 10.203.0.28

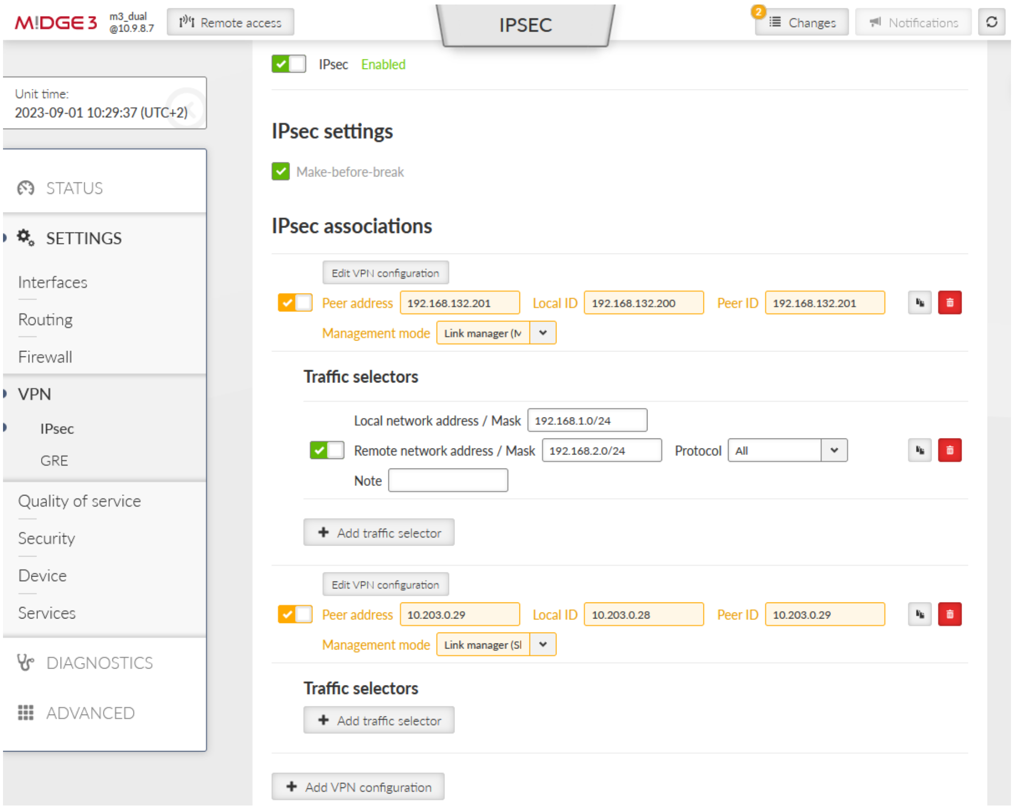
Peer ID 10.203.0.29 Management mode Link manager (Sl

Traffic selectors

+ Add traffic selector

Fig. 18: Link manager (Slave) IPsec association

Complete IPsec configuration:



☑ IPsec Enabled

IPsec settings

☑ Make-before-break

IPsec associations

Edit VPN configuration

☑ Peer address 192.168.132.201 Local ID 192.168.132.200 Peer ID 192.168.132.201

Management mode Link manager (M

Traffic selectors

Local network address / Mask 192.168.1.0/24

☑ Remote network address / Mask 192.168.2.0/24 Protocol All

Note

+ Add traffic selector

Edit VPN configuration

☑ Peer address 10.203.0.29 Local ID 10.203.0.28 Peer ID 10.203.0.29

Management mode Link manager (Sl

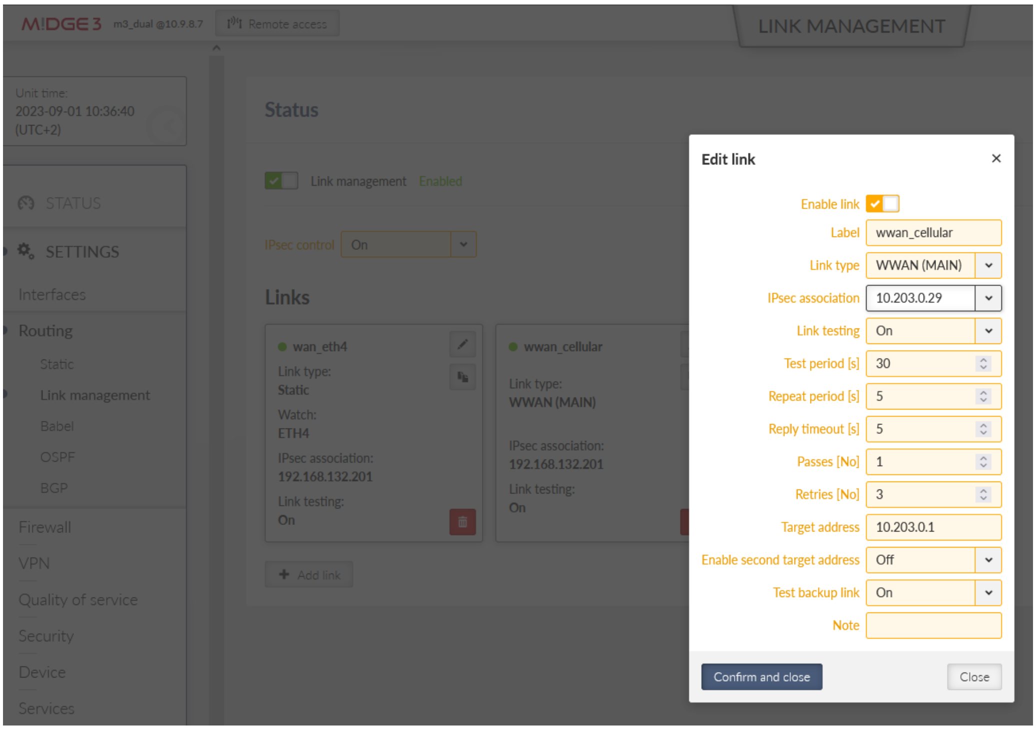
Traffic selectors

+ Add traffic selector

+ Add VPN configuration

Fig. 19: IPsec configuration

Go back to the SETTINGS > Routing > Link management menu and edit the “wwan_cellular” link’s IPsec association to “10.203.0.29” so it uses the backup IPsec tunnel.



Unit time:
2023-09-01 10:36:40
(UTC+2)

Status

Link management Enabled

IPsec control On

Links

wan_eth4
Link type:
Static
Watch:
ETH4
IPsec association:
192.168.132.201
Link testing:
On

wwan_cellular
Link type:
WWAN (MAIN)
IPsec association:
192.168.132.201
Link testing:
On

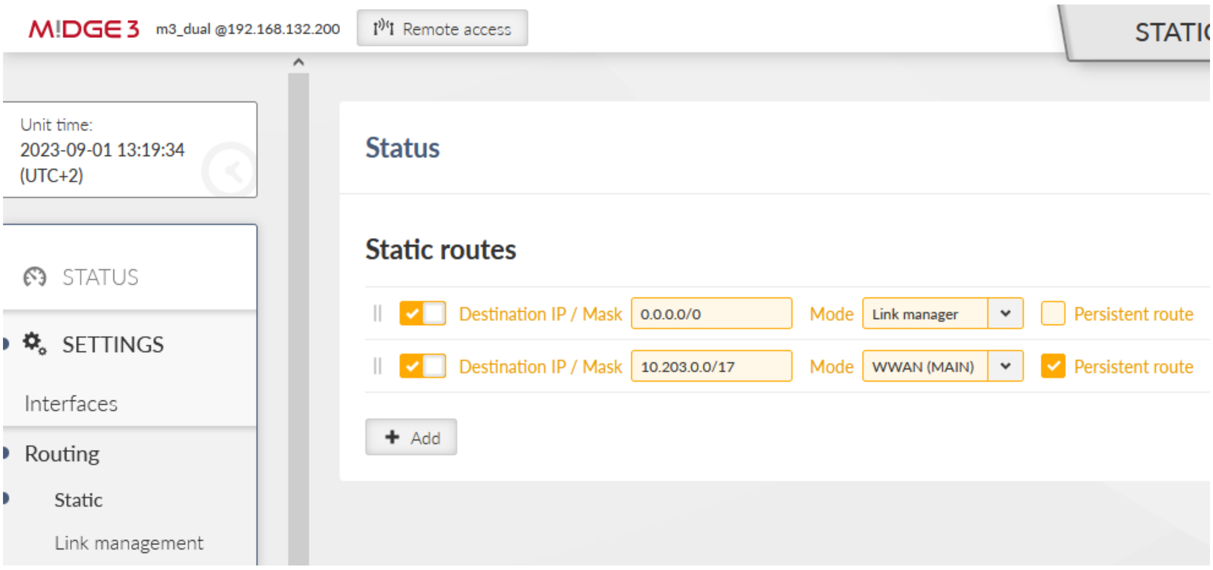
Edit link

Enable link	☑
Label	wwan_cellular
Link type	WWAN (MAIN)
IPsec association	10.203.0.29
Link testing	On
Test period [s]	30
Repeat period [s]	5
Reply timeout [s]	5
Passes [No]	1
Retries [No]	3
Target address	10.203.0.1
Enable second target address	Off
Test backup link	On
Note	

Fig. 20: IPsec association of the backup link (WWAN MAIN)

Once within this page, edit the Gateway and Target address of the primary “wan_eth4” link to 192.168.132.201 (opposite unit’s IP address).

The last required change must be done in the SETTINGS > Routing > Static menu. We need to define additional route so that at least the opposite M!DGE3’s WWAN IP is always routed via WWAN (MAIN), or we can add the whole APN subnet (in our case, we have a private APN subnet 10.203.0.0/17).



Unit time:
2023-09-01 13:19:34
(UTC+2)

Status

Static routes

	Destination IP / Mask	Mode	Persistent route
☑	0.0.0.0/0	Link manager	□
☑	10.203.0.0/17	WWAN (MAIN)	☑

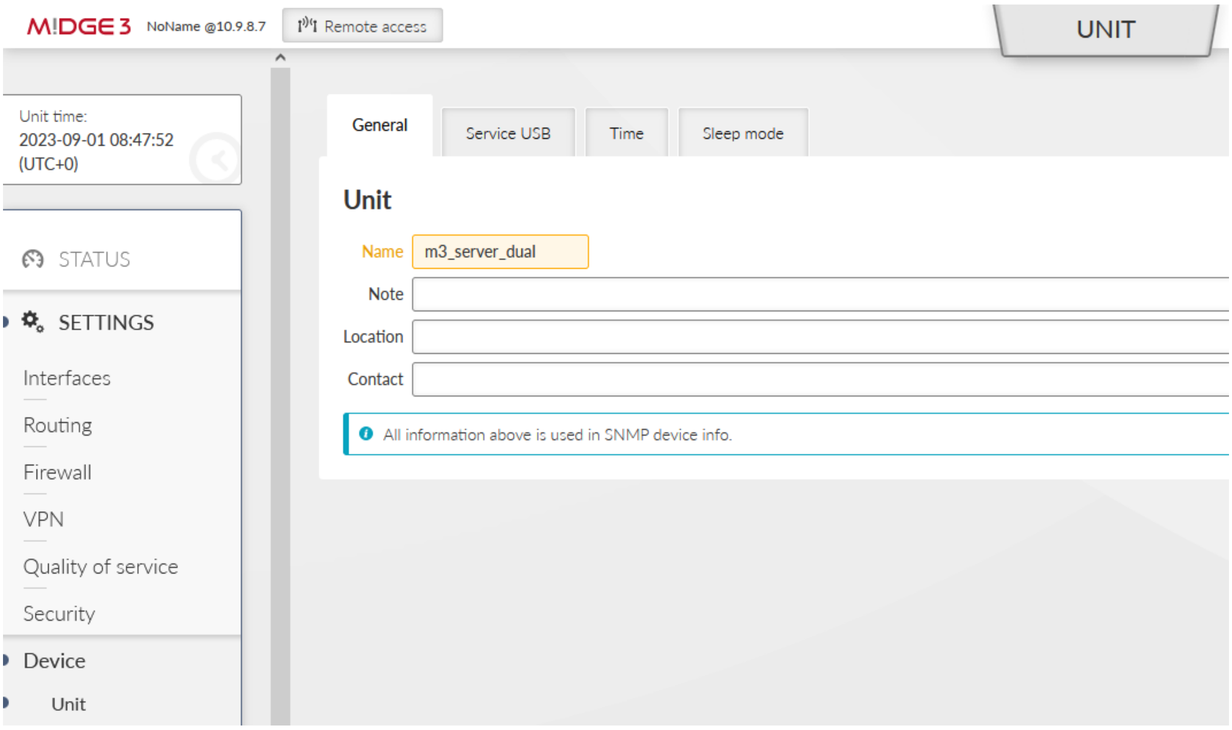
Fig. 21: Static routing for private APN subnet

Without such a rule, Link test via WWAN (MAIN) while operating over primary WAN/ETH4 would always fail.

Apply the changes.

We need to configure the 2nd M!DGE3 unit. You can either download the configuration file of the 1st M!DGE3 unit and upload the file into this one. Once uploaded, edit all the required parameters. But we do it step-by-step from the factory settings.

Change the Unit's name in the SETTINGS > Device > Unit menu to "m3_server_dual". Configure the NTP time synchronization as well, if applicable.



Unit

Name: m3_server_dual

Note:

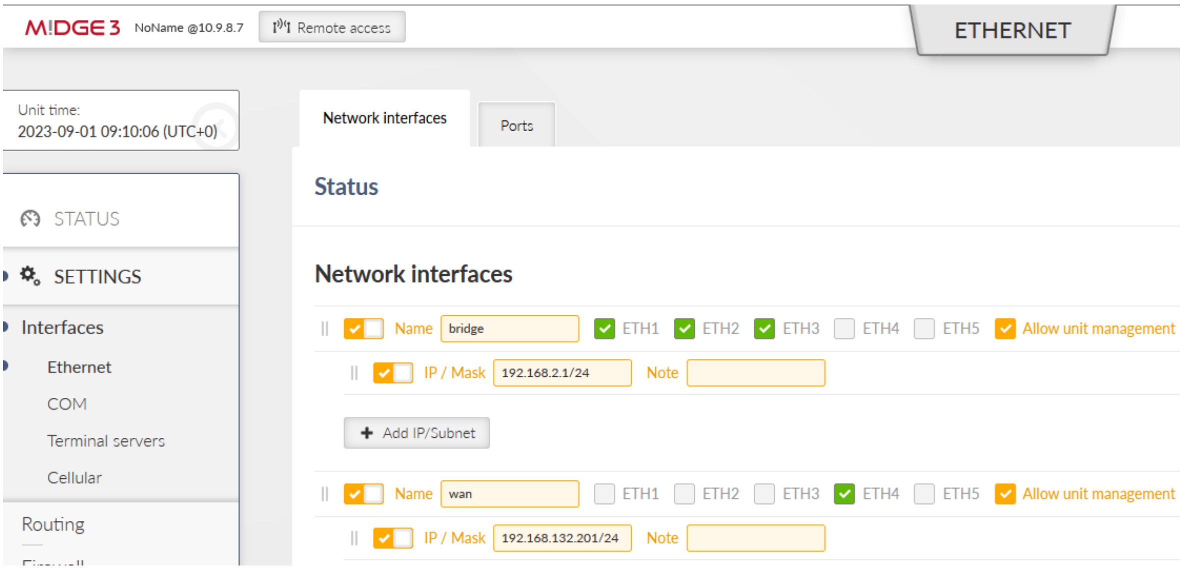
Location:

Contact:

All information above is used in SNMP device info.

Fig. 22: Unit name

Go to the SETTINGS > Interfaces > Ethernet menu. Set the correct 192.168.2.1/24 IP address for the “bridge” interface and create “wan” interface with 192.168.132.201/24 IP address and mask, set on ETH4.



Unit time: 2023-09-01 09:10:06 (UTC+0)

Status

Network interfaces

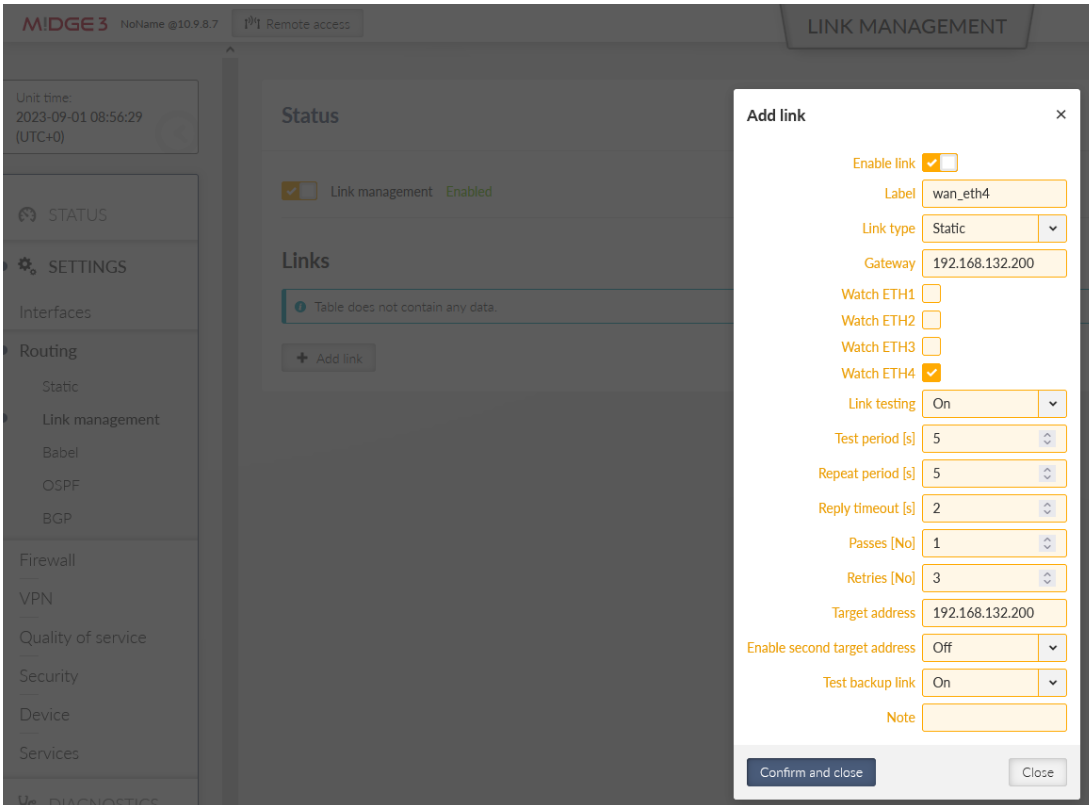
☑ Name: bridge ☑ ETH1 ☑ ETH2 ☑ ETH3 □ ETH4 □ ETH5 ☑ Allow unit management
☑ IP / Mask: 192.168.2.1/24 Note:

☑ Name: wan □ ETH1 □ ETH2 □ ETH3 ☑ ETH4 □ ETH5 ☑ Allow unit management
☑ IP / Mask: 192.168.132.201/24 Note:

Fig. 23: Ethernet settings

Go to the SETTINGS > Interfaces > Cellular menu and enable the interface. Configure the APN to suit your operator’s network.

Go to the SETTINGS > Routing > Link management menu. Enable it and configure two links. We configure and name them similarly to the “client” M!DGE3 unit.



Unit time:
2023-09-01 08:56:29
(UTC+0)

Status

Link management Enabled

Links

Table does not contain any data.

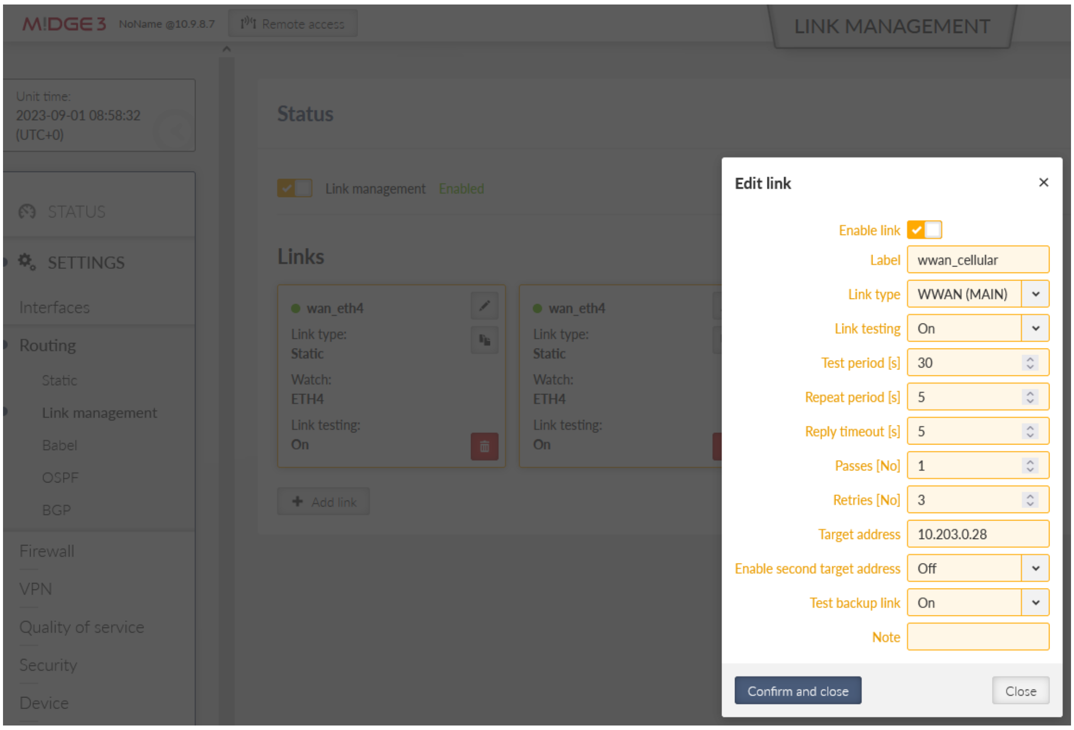
Add link ×

Enable link	☑
Label	wan_eth4
Link type	Static
Gateway	192.168.132.200
Watch ETH1	□
Watch ETH2	□
Watch ETH3	□
Watch ETH4	☑
Link testing	On
Test period [s]	5
Repeat period [s]	5
Reply timeout [s]	2
Passes [No]	1
Retries [No]	3
Target address	192.168.132.200
Enable second target address	Off
Test backup link	On
Note	

Fig. 24: Primary “wan_eth4” link

Set values other than default for the primary link:

- Label to “wan_eth4”
- Gateway “192.168.132.200”
- Watch ETH4
- Enable Link testing and decrease timing
- Target address “192.168.132.200”



Link management Enabled

wan_eth4
Link type: Static
Watch: ETH4
Link testing: On

wan_eth4
Link type: Static
Watch: ETH4
Link testing: On

Edit link

Enable link	☑
Label	wwan_cellular
Link type	WWAN (MAIN)
Link testing	On
Test period [s]	30
Repeat period [s]	5
Reply timeout [s]	5
Passes [No]	1
Retries [No]	3
Target address	10.203.0.28
Enable second target address	Off
Test backup link	On
Note	

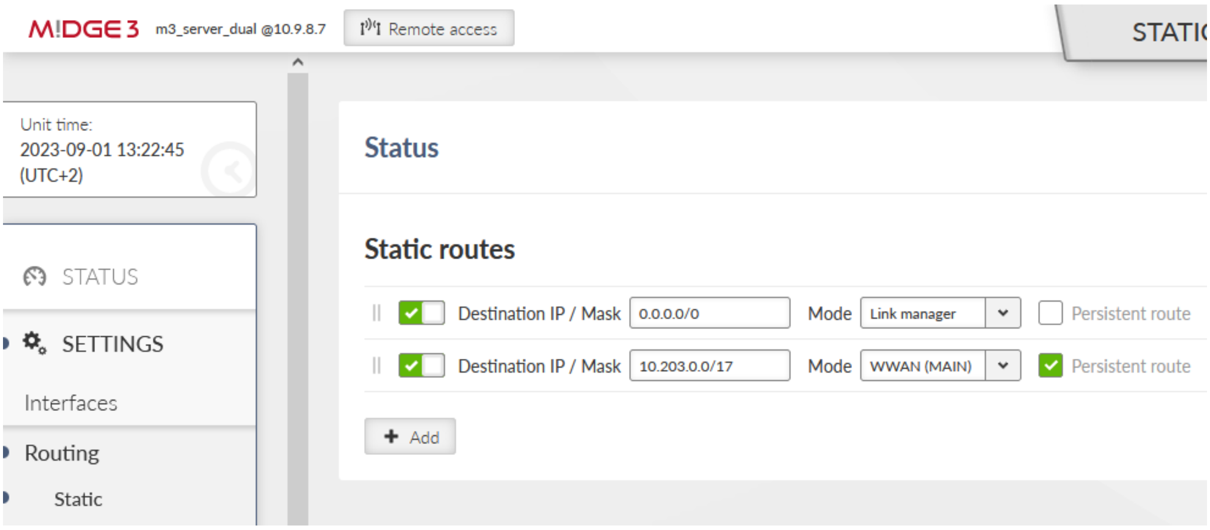
Confirm and close | Close

Fig. 25: Backup “wwan_cellular” link

Create the backup link and set

- Label to “wwan_cellular”
- Link type to “WWAN (MAIN)”
- Enable Link testing and edit the timing
- Target address to 10.203.0.28

Go to the SETTINGS > Routing > Static menu. Set the default route via Link manager and add the private APN subnet routing via WWAN (MAIN).



☑	Destination IP / Mask	0.0.0.0/0	Mode	Link manager	□ Persistent route
☑	Destination IP / Mask	10.203.0.0/17	Mode	WWAN (MAIN)	☑ Persistent route

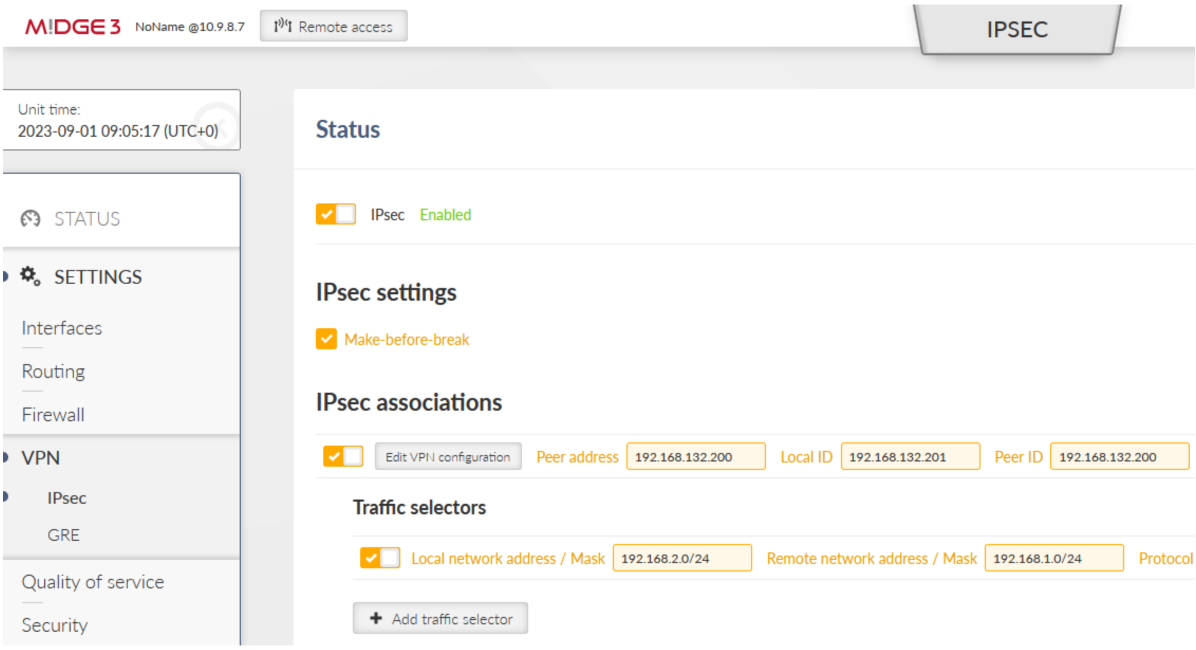
Fig. 26: Static routing via Link manager

Go to the SETTINGS > VPN > IPsec menu and enable it. Enable “Make-before-break” and add a VPN configuration.

The tunnel setup, other than factory settings, or important:

- Start state: passive
- MOBIKE: On
- DPD: On (action: Hold)
- Passphrase: racom
- Peer address: 192.168.132.200
- Local ID: 192.168.132.201
- Peer ID: 192.168.132.200

Add the Traffic selectors for local 192.168.2.0/24 and remote 192.168.1.0/24 subnets.



Unit time: 2023-09-01 09:05:17 (UTC+0)

Status

IPsec Enabled

IPsec settings

☑ Make-before-break

IPsec associations

Peer address 192.168.132.200 Local ID 192.168.132.201 Peer ID 192.168.132.200

Traffic selectors

Local network address / Mask 192.168.2.0/24 Remote network address / Mask 192.168.1.0/24 Protocol

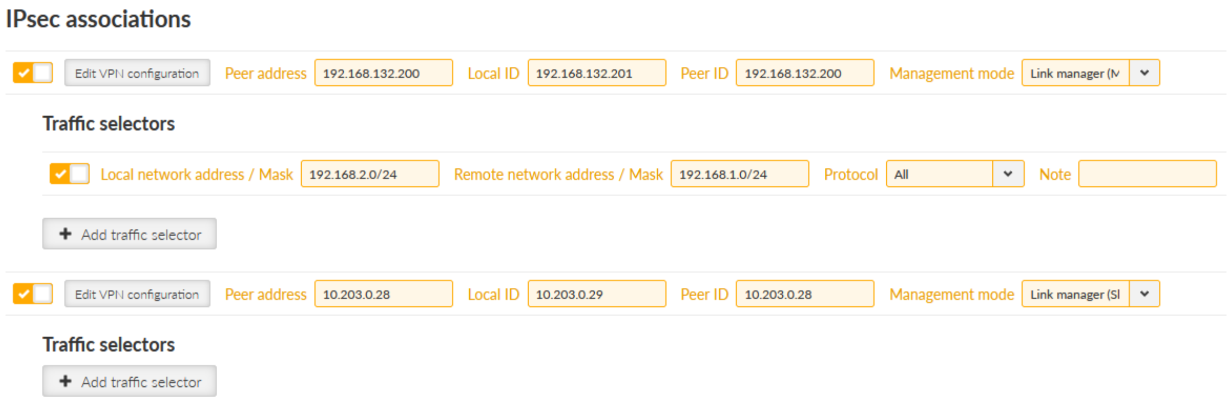
Fig. 27: Initial IPsec setup

Go to the SETTINGS > Routing > Link management menu and enable IPsec control option. Go back to IPsec configuration page and set the 1st IPsec association mode to “Master”.

Copy the current tunnel using the “Copy” button and edit it.

- Change the “Peer address” to 10.203.0.28
- Change the “Management mode” to “Link manager (Slave)”
- Set the Local ID to 10.203.0.29
- Set the Peer ID to 10.203.0.28

- Delete its Traffic selectors



IPsec associations

☑ Edit VPN configuration Peer address 192.168.132.200 Local ID 192.168.132.201 Peer ID 192.168.132.200 Management mode Link manager (M

Traffic selectors

☑ Local network address / Mask 192.168.2.0/24 Remote network address / Mask 192.168.1.0/24 Protocol All Note

✚ Add traffic selector

☑ Edit VPN configuration Peer address 10.203.0.28 Local ID 10.203.0.29 Peer ID 10.203.0.28 Management mode Link manager (Sl

Traffic selectors

✚ Add traffic selector

Fig. 28: Final IPsec configuration

Go back to the Link management configuration and set the IPsec association of “wwan_cellular” link to “10.203.0.28”.

Apply all the changes.

Test description

Do the similar tests like in previous examples

- Disconnect ETH cable(s)
- Disconnect LTE antenna(s)
- Change Link manager’s timings
- Run LAN2LAN ICMP tests while switching links

4. M!DGE3 units as remotes in P2MP connection

By combining previous examples, you can achieve multiple goals/topologies. One of possible and typical solutions is that you have a dedicated IPsec server with a static and public IP address (e.g. CISCO router). This device has its own redundancy options regardless of M!DGE3 remote units.

Each our M!DGE3 unit has two WAN interfaces, as described

- Primary WAN via ETH4
- Backup WAN via cellular WWAN (MAIN)

This priority is being controlled by Link manager in each M!DGE3 regardless anything else.

Due to the fact the server has one public IP address, IPsec tunnels do not need to be controlled by the Link manager. The Link manager ensures only routing via correct WAN link.

You can achieve similar topology:

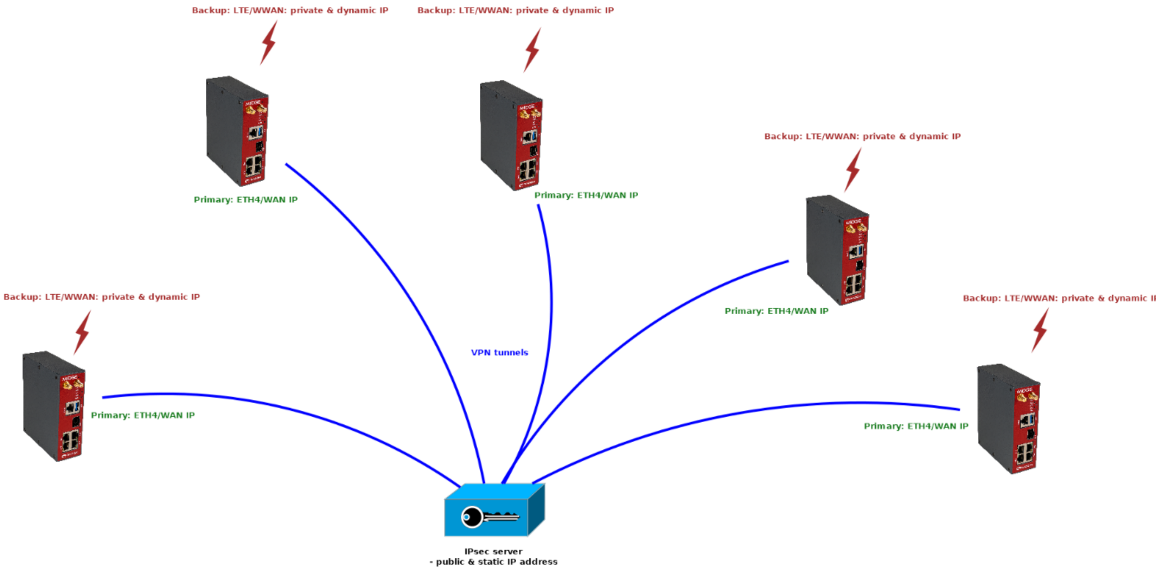

Backup: LTE/WWAN: private & dynamic IP
Backup: LTE/WWAN: private & dynamic IP
Primary: ETH4/WAN IP
Primary: ETH4/WAN IP
Backup: LTE/WWAN: private & dynamic IP
Primary: ETH4/WAN IP
Backup: LTE/WWAN: private & dynamic IP
Backup: LTE/WWAN: private & dynamic II
VPN tunnels
Primary: ETH4/WAN IP
Primary: ETH4/WAN IP
IPsec server
- public & static IP address

Fig. 29: P2MP topology

If configured correctly, you can also achieve LAN2LAN communication among M!DGE3 units, but through the central IPsec server. You just need to set the Traffic selectors correctly. Number of such lines can be high with increasing number of remote units and possible subnets.

OpenVPN is going to be implemented in M!DGE3/RipEX2 units as a better solution for P2MP scenarios.

Revision History

Revision 1.0	2024-06-27

First issue