

# wan\_network file

## Background

- When central management for the device is enabled, the device will try to reach the controller using various means.
- OpenWrt uses config files located under the **/etc/config** directory to configure the device accordingly.
- The **network** file is used to define the network configuration of the device.
- Since we can include the MESHdesk package on basically any device that can run OpenWrt **we need to adopt the means to reach the controller so it will work on the specific device.**
- Some devices for instance might only have one ethernet port.
- Others might have more Ethernet ports where a certain amount is grouped together and used as the LAN side and typically a single one assigned to the WAN port.
- For this we create the **/etc/MESHdesk/configs/wan\_network** file.
- This file needs to be unique to the specific device on which the MESHdesk package is included on.
- This file will be used during startup to replace the **/etc/config/network** file in order to enable the device to reach the controller.
- This config will also be changed after the device receives its final configuration from the controller (or fallback to last known good configuration if the controller can't be reached)
- The unique part of the wan\_network file involves the Ethernet port configuration. Devices can be grouped into three types.
  1. Devices with standard eth0 and/or eth1 ports. *(This is typically Atheros based hardware)*
  2. Devices with a single eth0 port combined with swconfig to create VLANs to split the physical ports on the device up. *(This is typically older Mediatek based hardware)*
  3. New DSA style config using names like wan, lan1, lan2 lan3 etc for the ports. *(This is typically newer Mediatek devices)*

Next we will unpack samples of each of these types.



- When looking at these sample files keep in mind that our aim is to use the *device section* called **br-lan** as a bridge.
- Traditionally the LAN ports will be part of it.
- We however configure it now in such a way that the WAN port becomes part of it instead of the LAN ports.

## Devices with standard eth0 and or eth1 ports

- These include most Atheros as well as IPQ based devices.
- Lets look at the GL iNet AR300M's wan\_network file.

[wan\\_network](#)

```
config interface 'loopback'  
    option device 'lo'  
    option proto 'static'
```

```
option ipaddr '127.0.0.1'
option netmask '255.0.0.0'

config device
option name 'br-lan'
option type 'bridge'
list ports 'eth1'

config interface 'lan'
option device 'br-lan'
option proto 'dhcp'

config interface 'client_0'
option proto 'dhcp'

config interface 'client_1'
option proto 'dhcp'
```

- We swapped **eth0** and **eth1** as ports of **br-lan**. Plain and simple.
- There is no **wan** interface defined.
- Devices with a single port will not need any swapping since there are only one port available.
- Here's a snippet from the original **/etc/config/network** file you can compare with.

## network

```
....
config device
option name 'br-lan'
option type 'bridge'
list ports 'eth0'

config interface 'lan'
option device 'br-lan'
option proto 'static'
option ipaddr '192.168.1.1'
option netmask '255.255.255.0'
option ip6assign '60'

config interface 'wan'
option device 'eth1'
option proto 'dhcp'
....
```

## Devices which uses swconfig

- This is typically older Mediatek based devices (MT7620 / 7628 etc)
- Lets look and the files from a Xiaomi 4A 110M

- Refer to the default **/etc/config/network** file.

## network

```
config interface 'loopback'
    option device 'lo'
    option proto 'static'
    option ipaddr '127.0.0.1'
    option netmask '255.0.0.0'

config globals 'globals'
    option ula_prefix 'auto'

config device
    option name 'br-lan'
    option type 'bridge'
    list ports 'eth0.1'

config interface 'lan'
    option device 'br-lan'
    option proto 'static'
    option ipaddr '192.168.1.1'
    option netmask '255.255.255.0'
    option ip6assign '60'

config device
    option name 'eth0.2'
    option macaddr '9c:9d:7e:f6:22:1c'

config interface 'wan'
    option device 'eth0.2'
    option proto 'dhcp'

config interface 'wan6'
    option device 'eth0.2'
    option proto 'dhcpv6'

config switch
    option name 'switch0'
    option reset '1'
    option enable_vlan '1'

config switch_vlan
    option device 'switch0'
    option vlan '1'
    option ports '4 2 6t'

config switch_vlan
    option device 'switch0'
    option vlan '2'
```

```
option ports '0 6t'
```

- Next look at the `/etc/MESHdesk/configs/wan_network` file that is derived from it.

### wan\_network

```
config interface 'loopback'
    option device 'lo'
    option proto 'static'
    option ipaddr '127.0.0.1'
    option netmask '255.0.0.0'

config device
    option name 'br-lan'
    option type 'bridge'
    list ports 'eth0.1'

config interface 'lan'
    option device 'br-lan'
    option proto 'dhcp'

config interface 'client_0'
    option proto 'dhcp'

config interface 'client_1'
    option proto 'dhcp'

config switch
    option name 'switch0'
    option reset '1'
    option enable_vlan '1'

config switch_vlan
    option device 'switch0'
    option vlan '1'
    option ports '0 6t'

config switch_vlan
    option device 'switch0'
    option vlan '2'
    option ports '4 2 6t'
```

- We took the **switch** config sections from `/etc/config/network` and simply **swapped** vlan nr 1 and vlan nr 2 around.
- This means that eth0.1 is now on the **WAN** port.
- **client\_0** and **client\_1** interface sections can always be kept as is.
- Device **br-lan** section is in actuality now the **WAN** port. (This is so that we can support hardware with a single Ethernet port and to do complex bridge configurations should we need to)

## DSA enabled devices

- These include newer Mediatek based devices like those using the MT7621 chipset.
- This time the **Xiaomi 4A Gigabit Edition**. This board does not have any **switch** sections and is much simpler.

### wan\_network

```
config interface 'loopback'
    option device 'lo'
    option proto 'static'
    option ipaddr '127.0.0.1'
    option netmask '255.0.0.0'

config device
    option name 'br-lan'
    option type 'bridge'
    list ports 'wan'

config interface 'lan'
    option device 'br-lan'
    option proto 'dhcp'

config interface 'client_0'
    option proto 'dhcp'

config interface 'client_1'
    option proto 'dhcp'
```

- Here you can see there is no **switch** sections and we added the **wan** port to **br-lan** (While removing the various lan ports). Plain and simple.
- Here's a snippet from the original `/etc/config/network` file you can compare with.

### network

```
....
config device
    option name 'br-lan'
    option type 'bridge'
    list ports 'lan1'
    list ports 'lan2'
    list ports 'lan3'
    list ports 'lan4'

config interface 'lan'
    option device 'br-lan'
    option proto 'static'
    option ipaddr '192.168.1.1'
```

```
option netmask '255.255.255.0'  
option ip6assign '60'  
  
config interface 'wan'  
option device 'wan'  
option proto 'dhcp'  
....
```

- This brings us to the end of the detailed discussion of the **/etc/MESHdesk/configs/wan\_network** file.
- Be sure that this file is tweaked so it will work on your hardware.

## Some Hardware Info

### Xiaomi 4C

- wan\_network

#### [wan\\_network](#)

```
config interface 'loopback'  
option device 'lo'  
option proto 'static'  
option ipaddr '127.0.0.1'  
option netmask '255.0.0.0'  
  
config device  
option name 'br-lan'  
option type 'bridge'  
list ports 'eth0.1'  
  
config interface 'lan'  
option device 'br-lan'  
option proto 'dhcp'  
  
config interface 'client_0'  
option proto 'dhcp'  
  
config interface 'client_1'  
option proto 'dhcp'  
  
config switch  
option name 'switch0'  
option reset '1'  
option enable_vlan '1'  
  
config switch_vlan  
option device 'switch0'
```

```
option vlan '2'  
option ports '4 2 6t'  
  
config switch_vlan  
option device 'switch0'  
option vlan '1'  
option ports '1 6t'
```

- hardware section

### meshdesk

```
config hardware 'xiaomi_4c'  
option morse_led '/sys/class/leds/blue:power/brightness'  
option internet_led '/sys/class/leds/yellow:power/brightness'  
option wifi_led 'led0'
```

## Xiaomi 4A 100M

- wan\_network

### wan\_network

```
config interface 'loopback'  
option device 'lo'  
option proto 'static'  
option ipaddr '127.0.0.1'  
option netmask '255.0.0.0'  
  
config device  
option name 'br-lan'  
option type 'bridge'  
list ports 'eth0.1'  
  
config interface 'lan'  
option device 'br-lan'  
option proto 'dhcp'  
  
config interface 'client_0'  
option proto 'dhcp'  
  
config interface 'client_1'  
option proto 'dhcp'  
  
config switch  
option name 'switch0'  
option reset '1'  
option enable_vlan '1'
```

```
config switch_vlan
    option device 'switch0'
    option vlan '1'
    option ports '0 6t'

config switch_vlan
    option device 'switch0'
    option vlan '2'
    option ports '4 2 6t'
```

- hardware section

### [meshdesk](#)

```
config hardware 'xiaomi_4a_100'
    option morse_led '/sys/class/leds/blue:power/brightness'
    option internet_led '/sys/class/leds/yellow:power/brightness'
    option wifi_led 'led0'
```

## Totolink X500R (WiFi6)

- wan\_network

### [wan\\_network](#)

```
config interface 'loopback'
    option device 'lo'
    option proto 'static'
    option ipaddr '127.0.0.1'
    option netmask '255.0.0.0'

config device
    option name 'br-lan'
    option type 'bridge'
    list ports 'wan'

config interface 'lan'
    option device 'br-lan'
    option proto 'dhcp'

config interface 'client_0'
    option proto 'dhcp'

config interface 'client_1'
    option proto 'dhcp'
```



- hardware section

## meshdesk

```
config hardware 't_x5000r'  
  option morse_led '/sys/class/leds/blue:sys/brightness'  
  option internet_led '/dev/null'  
  option wifi_led 'dev:null'
```

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