



WL-R220 Gateway LAN-WAN

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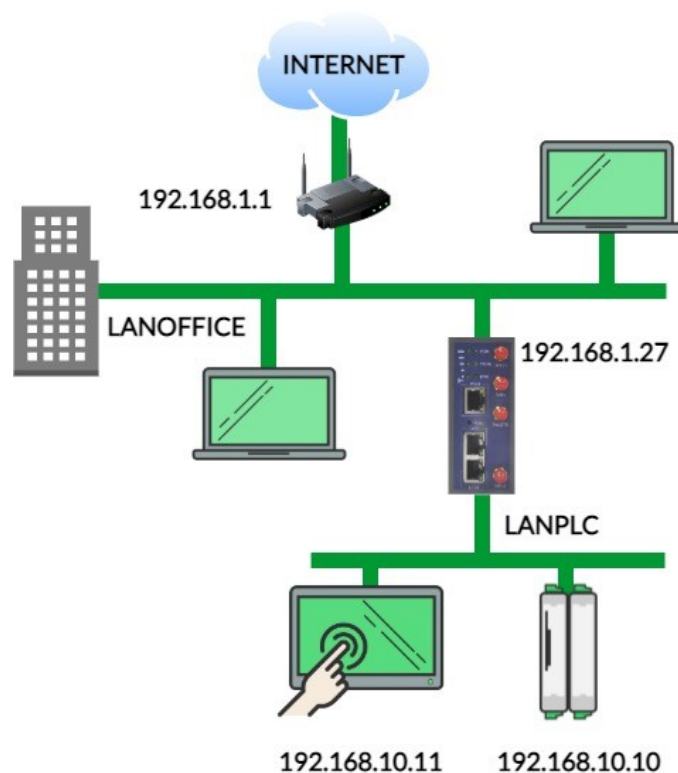
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1 Scopo

Lo scopo di questa guida nasce dall'esigenza di avere un bridge tra una rete aziendale (lanoffice) e una rete macchina (lanplc).



1.1 La rete lanplc

I dispositivi di questa rete non potranno raggiungere quelli della rete **lanoffice**, salvo singole eccezioni. Sfrutta la connettività internet di **lanoffice**.

1.2 La rete lanoffice

I dispositivi della rete possono raggiungere quelli della rete **lanplc**, ma prima dovranno avere una regola per ogni dispositivo nella route map.



2 Configurazione VLAN

Per configurare le porte singolarmente WAN e LAN occorre taggarle per poterle poi usare come interfacce virtuali nella parte di configurazione interfacce.

Es: se taggo **porta 5** come **VLAN ID 2**, la mia interfaccia virtuale sarà **eth0.2**, quindi il VLAN ID è lo stesso numero che viene usato con eth0.x per riferirsi e configurare la singola interfaccia.

Switch

The network ports on this device can be combined to several VLANs in which computers can communicate directly with each other. VLANs are often used to separate different network segments. Often there is by default one Uplink port for a connection to the next greater network like the internet and other ports for a local network.

Switch "switch0" (AR934X built-in switch)

Enable VLAN functionality

VLANs on "switch0" (AR934X built-in switch)

VLAN ID	CPU	Port 1	Port 2	Port 3	Port 4	Port 5	
Port status:							
	1000baseT full-duplex	no link	100baseT full-duplex	no link	no link	100baseT full-duplex	
<input type="text" value="1"/>	tagged ▾	untagged ▾	untagged ▾	untagged ▾	untagged ▾	off ▾	Delete
<input type="text" value="2"/>	tagged ▾	off ▾	off ▾	off ▾	off ▾	untagged ▾	Delete
Add							

Switch "switch1"

VLANs on "switch1"

VLAN ID	Port 0	Port 1	Port 2	Port 3	Port 4	CPU	
<input type="text" value="1"/>	untagged ▾	untagged ▾	untagged ▾	untagged ▾	untagged ▾	untagged ▾	Delete
Add							

3 Configurazione Interfacce

Sono state configurate 2 interfacce. **LANOFFICE** e **LANPLC**.

La prima **LANOFFICE** dovrà essere configurata con IP fisso che dovrà essere nella stessa classe della rete aziendale.

La seconda **LANPLC** potrà invece essere configurata con un indirizzo IP fisso di un'altra sottorete separata a cui saranno connessi tutti i dispositivi della gestione macchina (PLCs, HMIs, ecc..).

Interfaces

Interface Overview

Network	Status	Actions
LANOFFICE br-lanoffice	Uptime: 0h 7m 2s MAC-Address: 34:0A:82:09:22:E3 RX: 980.02 KB (3152 Pkts.) TX: 295.64 KB (1397 Pkts.) IPv4: 192.168.1.27/23	Connect Stop Edit Delete
LANPLC br-lanplc	Uptime: 5h 55m 35s MAC-Address: 34:0A:82:09:22:E3 RX: 5.33 MB (53444 Pkts.) TX: 74.23 MB (77471 Pkts.) IPv4: 192.168.10.183/24 IPv6: fd61:dd:13fd::1/60	Connect Stop Edit Delete

Add new interface...

3.1 Configurazione LANOFFICE

Interfaces - LANOFFICE

On this page you can configure the network interfaces. You can bridge several interfaces by ticking the "bridge interfaces" field and enter the names of several network interfaces separated by spaces. You can also use VLAN notation INTERFACE.VLANNR (e.g.: eth0.1).

Common Configuration

General Setup | **Advanced Settings** | Physical Settings | Firewall Settings

Status **br-lanoffice** **Uptime:** 0h 8m 36s
MAC-Address: 34-0A-82-09-22-E3
RX: 1.03 MB (3655 Pkts.)
TX: 381.24 KB (1638 Pkts.)
IPv4: 192.168.1.27/23

Protocol: Static address

IPv4 address: 192.168.1.27

IPv4 netmask: 255.255.254.0

IPv4 gateway: 192.168.0.1

IPv4 broadcast:

Use custom DNS servers:

IPv6 assignment length: disabled
 Assign a part of given length of every public IPv6-prefix to this interface

IPv6 address:

IPv6 gateway:

IPv6 routed prefix:
 Public prefix routed to this device for distribution to clients.

DHCP Server

No DHCP Server configured for this interface [Setup DHCP Server](#)

LANOFFICE | **LANPLC**

Interfaces - LANOFFICE

On this page you can configure the network interfaces. You can bridge several interfaces by ticking the "bridge interfaces" field and enter the names of several network interfaces separated by spaces. You can also use VLAN notation INTERFACE.VLANNR (e.g.: eth0.1).

Common Configuration

General Setup | **Advanced Settings** | Physical Settings | Firewall Settings

Bridge interfaces creates a bridge over specified interface(s)

Enable STP Enables the Spanning Tree Protocol on this bridge

Interface

- Ethernet Switch: "eth0"
- VLAN Interface: "eth0.1" (lanplc)
- VLAN Interface: "eth0.2" (lanoffice)
- Ethernet Adapter: "eth1" (lanplc)
- Ethernet Adapter: "teq10"
- Wireless Network: Client "OpenWrt"
- Custom Interface:

[Back to Overview](#) [Save & Apply](#) [Save](#) [Reset](#)



3.2 Configurazione LANAPLC

LANOFFICE LANPLC

Interfaces - LANPLC

In this page you can configure the network interfaces. You can bridge several interfaces by ticking the "bridge interfaces" field and enter the names of several network interfaces separated by spaces. You can also use VLAN notation INTERFACE.VLANNR (e.g.: eth0.1).

Common Configuration

General Setup **Advanced Settings** Physical Settings Firewall Settings

Status **br-lanplc**
Uptime: 7h 42m 31s
MAC-Address: 34:0A:82:09:22:E3
RX: 8.40 MB (65679 Pkts.)
TX: 44.60 MB (56832 Pkts.)
IPv4: 192.168.10.183/24
IPv6: fd61:dd:13fd::1/60

Protocol Static address

IPv4 address 192.168.10.183

IPv4 netmask 255.255.255.0

IPv4 gateway

IPv4 broadcast

Use custom DNS servers

IPv6 assignment length 60

Assign a part of given length of every public IPv6-prefix to this interface

IPv6 assignment hint

Assign prefix parts using this hexadecimal subprefix ID for this interface.

LANOFFICE

LANOFFICE LANPLC

Interfaces - LANPLC

On this page you can configure the network interfaces. You can bridge several interfaces by ticking the "bridge interfaces" field and enter the names of several network interfaces separated by spaces. You can also use VLAN notation INTERFACE.VLANNR (e.g.: eth0.1).

Common Configuration

General Setup **Advanced Settings** Physical Settings Firewall Settings

Bridge interfaces creates a bridge over specified interface(s)

Enable STP Enables the Spanning Tree Protocol on this bridge

Interface Ethernet Switch: "eth0"

VLAN Interface: "eth0.1" (lanplc)

VLAN Interface: "eth0.2" (lanoffice)

Ethernet Adapter: "eth1" (lanplc)

Ethernet Adapter: "teq10"

Wireless Network: Client "OpenWrt"

Custom Interface:

4 Configurazione firewall

Sono state create 2 zone, **lanplc** e **lanoffice**. Sulla rete **lanoffice** è stata attivata l'opzione **Masquerading** che permette la connessione a internet.

I device connessi alla **lanplc** non potranno raggiungere i device connessi alla rete **lanoffice**.

Per raggiungere invece un device della rete **lanplc** dalla rete **lanoffice** sarà necessario aggiungere una regola alla tabella di routing come segue:

```
route add IP_DEVICE_DARAGGIUNGERE mask 255.255.255.255 IP_INTERFACCIA_LANPLC
```

Nel caso si volesse permettere a uno specifico di essere raggiungibile dai device connessi alla rete LANPLC occorrerà creare un specifica regola come quella riportata sotto chiamata **allowHOST**, nella quale viene permesso al dispositivo con IP 192,168,0,2 di essere raggiungibile.



Zones

Zone → Forwardings	Input	Output	Forward	Masquerading	MSS clamping	
lanoffice: lanoffice: → lanplc	accept	accept	accept	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Edit Delete
lanplc: lanplc: → lanoffice	accept	accept	accept	<input type="checkbox"/>	<input type="checkbox"/>	Edit Delete

[Add](#)

Zone "lanoffice"

This section defines common properties of "lanoffice". The *input* and *output* options set the default policies for traffic entering and leaving this zone while the *forward* option describes the policy for forwarded traffic between different networks within the zone. *Covered networks* specifies which available networks are members of this zone.

General Settings **Advanced Settings**

Name:

Input:

Output:

Forward:

Masquerading:

MSS clamping:

Covered networks: lanoffice:
 lanplc:
 create:

Inter-Zone Forwarding

The options below control the forwarding policies between this zone (lanoffice) and other zones. *Destination zones* cover forwarded traffic originating from "lanoffice". *Source zones* match forwarded traffic from other zones targeted at "lanoffice". The forwarding rule is *unidirectional*, e.g. a forward from lan to wan does not imply a permission to forward from wan to lan as well.

Allow forward to destination zones: lanplc: lanplc:

Allow forward from source zones: lanplc: lanplc:

Zone "lanplc"

This section defines common properties of "lanplc". The *input* and *output* options set the default policies for traffic entering and leaving this zone while the *forward* option describes the policy for forwarded traffic between different networks within the zone. *Covered networks* specifies which available networks are members of this zone.

General Settings **Advanced Settings**

Name:

Input:

Output:

Forward:

Masquerading:

MSS clamping:

Covered networks: lanoffice:
 lanplc:
 create:

Inter-Zone Forwarding

The options below control the forwarding policies between this zone (lanplc) and other zones. *Destination zones* cover forwarded traffic originating from "lanplc". *Source zones* match forwarded traffic from other zones targeted at "lanplc". The forwarding rule is *unidirectional*, e.g. a forward from lan to wan does not imply a permission to forward from wan to lan as well.

Allow forward to destination zones: lanoffice: lanoffice:

Allow forward from source zones: lanoffice: lanoffice:

Firewall - Traffic Rules - noPLCtoOFFICE

This page allows you to change advanced properties of the traffic rule entry, such as matched source and destination hosts.

Rule is enabled Disable

Name

Restrict to address family

Protocol

Match ICMP type

Source zone
 Any zone
 lanoffice: lanoffice:

lanplc: lanplc:

Source MAC address

Source address

Source port

Destination zone
 Device (input)
 Any zone (forward)
 lanoffice: lanoffice:

lanplc: lanplc:

Destination address

Destination port

Action

Extra arguments
Passes additional arguments to iptables. Use with care!

Week Days Sunday Monday Tuesday Wednesday Thursday Friday Saturday

Month Days 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
 21 22 23 24 25 26 27 28 29 30 31

Start Time (hh:mm:ss)

Stop Time (hh:mm:ss)

Start Date (yyyy-mm-dd)

Stop Date (yyyy-mm-dd)

Time in UTC

Firewall - Traffic Rules - allowHOST

This page allows you to change advanced properties of the traffic rule entry, such as matched source and destination hosts.

Rule is enabled Disable

Name

Restrict to address family

Protocol

Match ICMP type

Source zone
 Any zone
 lanoffice: lanoffice:

lanplc: lanplc:

Source MAC address

Source address

Source port

Destination zone
 Device (input)
 Any zone (forward)
 lanoffice: lanoffice:

lanplc: lanplc:

Destination address

Destination port

Action

Extra arguments
Passes additional arguments to iptables. Use with care!

Week Days Sunday Monday Tuesday Wednesday Thursday Friday Saturday

Month Days 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
 21 22 23 24 25 26 27 28 29 30 31

Start Time (hh:mm:ss)

Stop Time (hh:mm:ss)

Start Date (yyyy-mm-dd)

Stop Date (yyyy-mm-dd)

Time in UTC