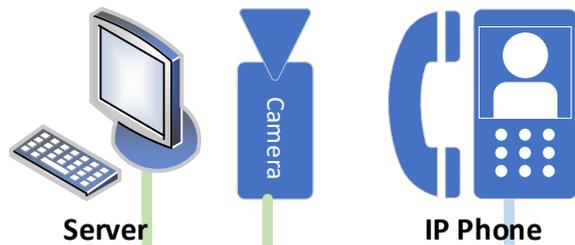
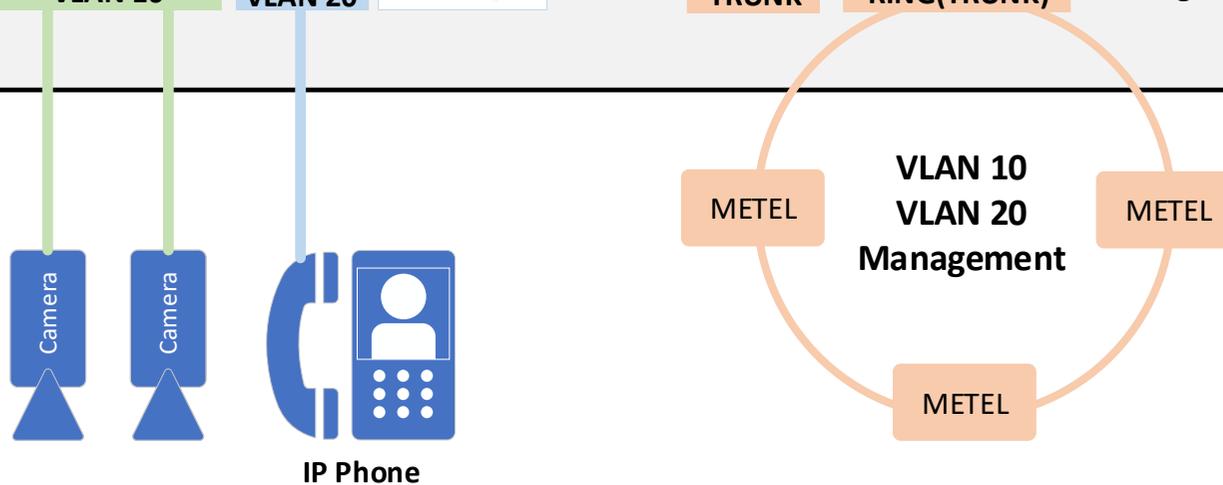
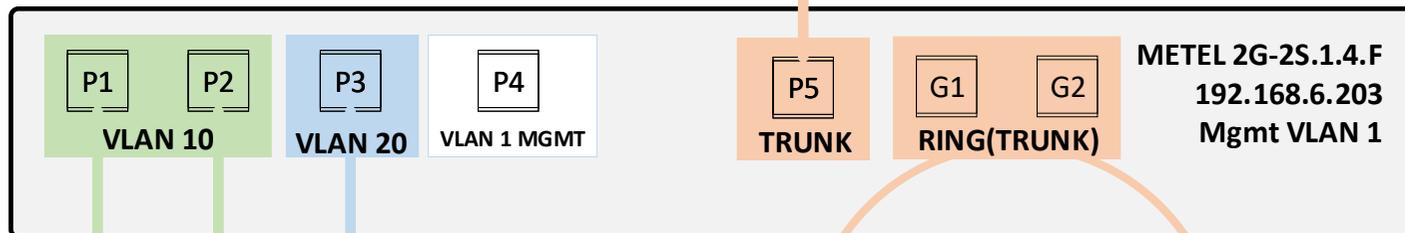
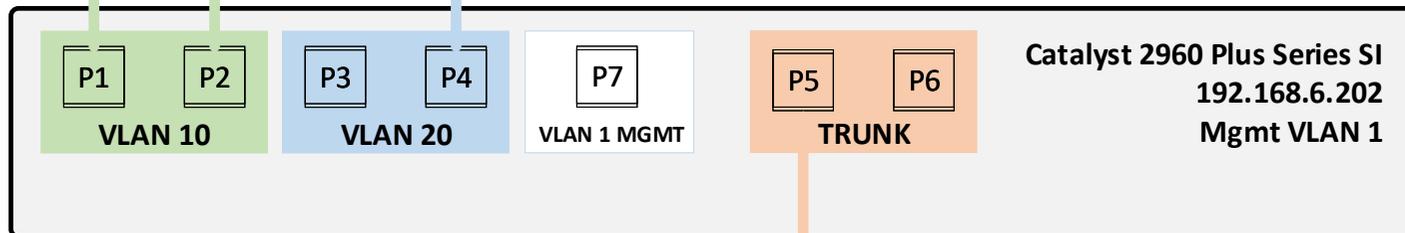


Topology



By setting of VLAN you can create virtual local area networks (VLAN). Ports assigned to one VLAN can intercommunicate and be separated from ports assigned to other VLANs. Switches also support so-called VLAN trunks. Typical use for a VLAN trunk is permission of all VLAN on optical ports. This way it is possible to interconnect ports on remote switches and at the same time separate them from other ports.



CISCO configuration

VLAN configuration

Switch#show vlan

VLAN Name	Status	Ports
1 default	active	Fa0/5, Fa0/7, Fa0/8, Fa0/9 Fa0/10, Fa0/11, Fa0/12, Fa0/13 Fa0/14, Fa0/15, Fa0/16, Fa0/17 Fa0/18, Fa0/19, Fa0/20, Fa0/21 Fa0/22, Fa0/23, Fa0/24, Gi0/1 Gi0/2
10 VLAN0010	active	Fa0/1, Fa0/2
20 VLAN0020	active	Fa0/3, Fa0/4
100 VLAN0100	active	
1002 fddi-default	act/unsup	
1003 token-ring-default	act/unsup	
1004 fddinet-default	act/unsup	
1005 trnet-default	act/unsup	

Port configuration

Switch#show running configuration

```
interface FastEthernet0/1
switchport access vlan 10
switchport mode access
```

```
interface FastEthernet0/2
switchport access vlan 10
switchport mode access
```

```
interface FastEthernet0/3
switchport access vlan 20
switchport mode access
```

```
interface FastEthernet0/4
switchport access vlan 20
switchport mode access
```

```
interface FastEthernet0/5
switchport trunk native vlan 100
switchport mode trunk
```

```
interface FastEthernet0/6
switchport trunk native vlan 100
switchport mode trunk
```

```
interface FastEthernet0/7
```

How to configure CISCO VLAN

Adding VLAN and port mode configuration

From default all ports are set to VLAN 1 ("Default" VLAN)

```
Switch#conf t // switch to configuration mode
Switch(config)#vlan 10 // create VLAN 10 and switch to that configuration
Switch(config)#exit // end a VLAN 10 configuration
Switch(config)#interface f0/1 // switch to port P1 configuration
Switch(config-if)#switchport mode access // set the port to the access mode
Switch(config-if)#switchport access vlan 10 // put P1 into VLAN 10
Switch(config-if)#exit // end a P1 configuration
```

- The same configuration for P2

- P3 and P4 are set to VLAN 20, to create VLAN 20 and set P3/P4 to that VLAN

TRUNK port

A trunk port is a member of all VLANs by default, including extended-range VLANs, but membership can be limited by configuring the allowed-VLAN list.

```
Switch(config)#interface f0/5 // switch to port P1 configuration
Switch(config-if)#shutdown // switch off the port P5
Switch(config-if)#switchport mode trunk // set the port to the TRUNK mode
Switch(config-if)#switchport trunk native vlan 100 // add to native VLAN 100
Switch(config-if)#no shutdown // switch on the port P5
Switch(config-if)#exit // end a P5 configuration
```

- The same configuration for P6

- Native VLAN 100 separates the untagged traffic on TRUNK ports from traffic on default VLAN 1

```
Switch(config)#vlan 100 // create VLAN 100 (native VLAN)
Switch(config)#end // end of configuration
```

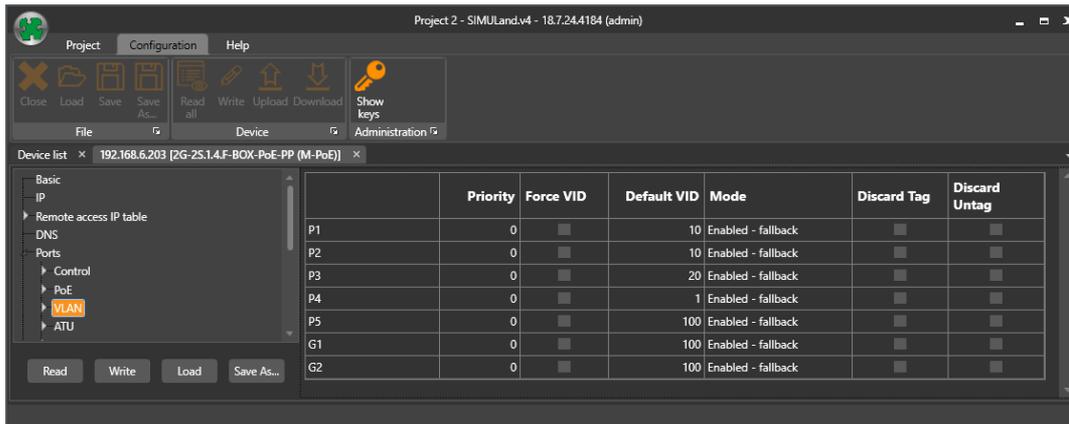
```
Switch#copy running-config startup-config //copy running configuration to startup
```

METEL Configuration

METEL devices are configured via SIMULand.v4 configuration software which is possible download from our website www.metel.eu. It is free without login policies.

Assign ports to VLAN

From default all ports are set to VLAN 1 including management VLAN. By the **Default VID** the port is assigned to the specific VLAN.



Extended configuration

For the basic configuration, it is not necessary to change the next configuration in the section Ports->VLAN.

Priority- allows to set the importance of frames and prioritize them before others with lower priority. We enter values 0-7 in the field, where the value 7 is the highest priority. This value is only assigned to frames that they don't contains more information about the priority.

Force VID - allows to override the VID of the input frame if this packet already contains VLAN ID. This option is never used at "Trunk" ports is to avoid overwriting identifiers to the one VLAN.

Default VID

Initial VLAN identifier is used as a packet VLAN identifier, if mode 802.1Q is on and the packet has no IEEE VID (VLAN identifier) tag or if it has a priority in the tag. The tag is also used as packet VID, if its original VID is 0x000 or if a forced override of the VID packet is set (checkbox Forced VID setting).

Mode

Disabled - 802.1Q is disabled on this port.

Fallback - Incoming frames are not discarded if their VLAN VID is not defined in the VLAN table. Outcoming frames can then be left, if the port is a member of a VLAN defined in the VLAN table or if the VLAN VID frame is not defined in the VLAN table.

Check - The VLAN VID of the incoming frame must be defined in the VLAN table otherwise it is discarded. The frame will not be discarded if the input port is not a member of this VLAN. At this port, only the frames whose VLANs are a port member can exit.

Secure - The incoming frame's VLAN VID must be defined in the VLAN table and the input port must be a member of this VLAN. Only frames can be left whose VLAN is a port member.

Discard Tag

TRUE: The Incoming frames with VLAN tag according to 802.1Q are removed.

FALSE: Disabled

Discard Untag

TRUE: The Incoming frames with not set VLAN tag according to 802.1Q are removed.

FALSE: Disabled

VLAN table setting

The packets forwarding rules are specified in the vlan table.

Enabled

TRUE: VLAN is active.

FALSE: VLAN is inactive.

VID

VID (VLAN Identifier) of this VLAN. It is used for VLAN identification for each incoming packet.

Ports

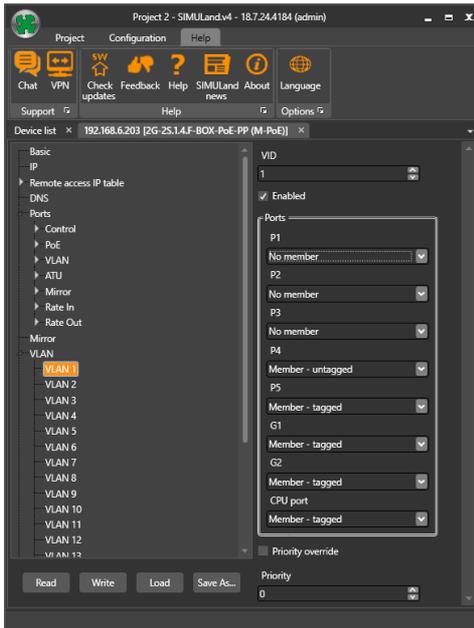
- Member – unmodified** - This port is a member of this VLAN and packets will be leaving this port unmodified.
- Member – untagged** - This port is a member of this VLAN and packets will be leaving this port without IEEE tag (without VID).
- Member – tagged** - This port is a member of this VLAN and packets will be leaving this port with IEEE tag (with VID).
- Not member** - This port is not a member of this VLAN.

Priority override - Frame priority will be overridden from field Priority, if this checkbox is checked.

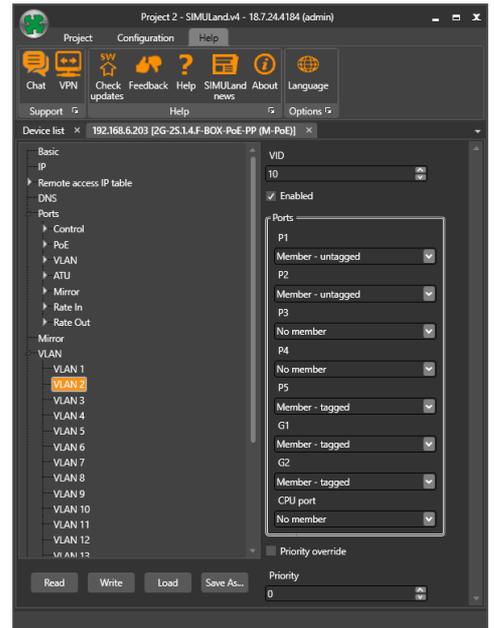
Priority - Priority of transmitted data via Ethernet is used for overriding. The default value is 0 (lowest priority). The highest priority is 7.

CPU Port – for data that is intended for the cpu as management, RS485, IO. Data can be tagged and untagged as well.

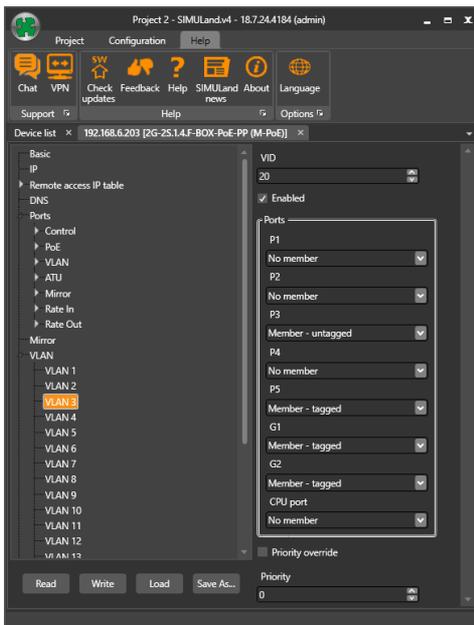
Configuration for VLAN 1 (Management)



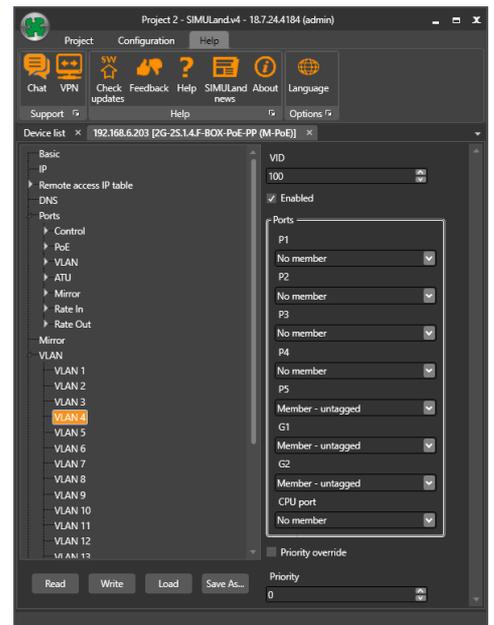
Configuration for VLAN 10



Configuration for VLAN 20



Configuration for VLAN 100 (TRUNK)



Internal Connection

