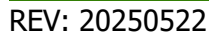


CLI in Metel Switches

Table of Contents

1. Introduction	4
1.1. About CLI	4
1.2. Commands	5
2. Enable<ent>	8
2.1. Boot	8
2.2. Clock	8
2.3. Configure<ent>	8
2.3.1. Accounting	8
2.3.1.1. All	9
2.3.1.1.1. Method1	9
2.3.1.1.2. Method2	9
2.3.1.1.3. Method3	9
2.3.2. Authorization	9
2.3.2.1. All	9
2.3.2.1.1. Method1	9
2.3.2.1.2. Method2	10
2.3.2.1.3. Method3	10
2.3.3. Description	10
2.3.4. Enable-password	10
2.3.5. Do	10
2.3.6. Dot1x	11
2.3.7. End	11
2.3.8. Exit	11
2.3.9. Port<ent>	11
2.3.9.1. X	11
2.3.9.1.1. Atu-egress-mode	14
2.3.9.1.2. Mdix	14
2.3.9.1.3. Vlan-default-pri	14
2.3.9.1.4. Vlan-mode	14
2.3.9.1.5. Mirror	15
2.3.9.1.6. dot1x-auth	15
2.3.9.1.7. dot1x-supp	15
2.3.10. Ring<ent>	15
2.3.10.1. R(X)	15
2.3.11. Line<ent>	16
2.3.11.1. Usb	16
2.3.11.1.1. Authentication	17
2.3.11.1.1.1. Method1	17
2.3.11.1.1.2. Method2	17
2.3.11.1.1.3. Method3	17
2.3.11.2. SSH	17
2.3.11.2.1. Authentication	18
2.3.11.2.1.1. Method1	18
2.3.11.2.1.2. Method2	18
2.3.11.2.1.3. Method3	18
2.3.12. SNMP	18
2.3.12.1. Version	18
2.3.13. Sntp	18
2.3.14. Input<ent>	19
2.3.14.1. IN1	19
2.3.14.2. IN2	19
2.3.15. IP	20
2.3.16. Mirror	20
2.3.17. Radius	20
2.3.17.1. Server1	20
2.3.17.2. Server2	20

2.3.18. Syslog	21
2.3.18.1. Server1.....	21
2.3.18.2. Server2.....	21
2.3.19. Tacacs.....	21
2.3.19.1. Server1.....	21
2.3.19.2. Server2.....	21
2.3.20. Topology	21
2.3.20.1. Mode.....	21
2.3.20.2. rstp-m.....	22
2.3.21. user-add.....	23
2.3.22. user-del.....	23
2.3.23. User-erase-all.....	23
2.3.24. VLAN<ent>.....	23
2.3.24.1. VLAN ID X	24
2.3.25. Vlan-init-all.....	25
2.3.26. Import.....	25
2.4. Copy.....	25
2.4.1. Nvm.....	26
2.4.2. Ram.....	26
2.4.3. Running-config.....	26
2.5. Dir.....	27
2.6. Disable.....	27
2.7. Exit.....	27
2.8. Export-help.....	27
2.9. Help	28
2.10. Reboot.....	28
2.11. Rmfile	28
2.12. View	28
2.12.1. Bootvar	28
2.12.2. Boot-config.....	29
2.12.3. Clock.....	30
2.12.4. Diff	30
2.12.5. Dot1x.....	30
2.12.5.1. Authenticator	30
2.12.5.1.1. Statistics	30
2.12.5.1.2. Diagnostics.....	30
2.12.5.1.3. Port	31
2.12.5.2. Supplicant.....	31
2.12.5.2.1. Statistics	31
2.12.5.2.2. Port	32
2.12.6. Ports.....	32
2.12.7. Input.....	33
2.12.8. IP	33
2.12.9. Log	33
2.12.9.1. Count.....	34
2.12.9.2. List	34
2.12.10. Mac.....	35
2.12.11. PoE.....	35
2.12.12. Power.....	36
2.12.13. Radius.....	36
2.12.14. RING.....	36
2.12.15. Running-config	36
2.12.16. Topology	38
2.12.17. System	38
2.12.18. Syslog	38
2.12.19. Tacacs.....	38
2.12.20. Version.....	38
2.12.21. VLAN.....	38
3. Help	40



is available for all switches G series.

You can start a CLI session through an SSH connection via network or locally via USB. These connections could be disabled in the [configuration](#). By default, local users are enabled. It is possible to use the tacacs server for user authentication and authorization. If there is 5 minutes of inactivity, the connection will be closed.

```
user: metel
```

Via **user-add** command is possible change password or **add** | **delete** new users. The local users are same for USB and ethernet.

Keyboard-interactive authentication prompts from server:

End of keyboard-interactive prompts from server



SECURITY & AUTOMATION

Default credential to CLI via USB

```
user: metel
```

Via **user-add** command is possible change password or **add** | **delete** new users. The local users are same for USB and ethernet.

```
metel login: metel
```

www.metel.eu

SECURITY & AUTOMATION

Default password for command *enable*

In the factory settings command **enable** is without password. The password is possible set-in menu **Enable-password**. If no password is set for enable, the command does not need to be entered and you will automatically log in to privileged mode.

Running and boot configuration

Switches G series has two configurations named boot and running. The running configuration is the currently running configuration in the switch. The boot configuration is the configuration of the switch that will be loaded after its restart. Every configuration change is automatically saved in the running configuration. When the switch is rebooted, the boot configuration is loaded. Simuland displays whether the boot and running configuration are the same and displays a warning in the event of a mismatch. If the running configuration is in order according to the customer's requirements, it is necessary to synchronize the configurations.

Device list

	IP	Product	Description	Serial	Firmware	SNMP	Loaded	Virtual	Running -> Boot	Pending Reboot	
	1	192.168.6.13	2G-2S.1.4.G-BOX-PoE-PP (HiPoE)	METEL s. r. o	20240614002	3.1851.15742.rc 	v3			 	 
	2	10.92.0.3	2G-2S.0.3.GC-BOX	METEL s. r. o.	20240612004	4.1870.15849.rc 	v3				 



Quick config

Copy config

Download

running -> boot

Tools

In the console, you can use the `"view diff"` command to see if the configurations are identical, and if synchronization is necessary, you can use the `"copy"` command.



Supported Commands



Commands are valid for version

SW version 5.1921.16090

Console control

The command is executed after pressing the <Enter> key. Use 'TAB' for autocomplete or '?' to display help in any time in console. The key 'CTRL+D' goes back for one level, exit command is used. The given list shows all supported commands, but the switch may not support all commands, it depends on the type of switch. Chapters marked with <ent> mean that you need to enter the menu and only then continue the configuration from it.

Help can be opened by entering a question mark '?'. If nothing matches (wrong command), the output will be empty.

The METEL devices provide two styles of help:

1. A complete help is available when you enter the entire command argument (for example, 'config ?').
2. When you enter an abbreviated argument, partial assistance is offered to display all arguments that match your input.

For example, typing 'config int ?' will list any possible completions that begin with 'int'.

For further help, we recommend visiting <https://www.metel.eu/solutions/cli>

If a list of commands copied from a notepad, for example, is inserted into the console, they will be executed one after the other. Commands must be written below each other.

Commands for "USER MODE"

Command	Description
<code>enable</code>	After password authentication enable privileged mode
<code>help</code>	Access to the help

Logout

Log out of the system

Main commands for "PRIVILIGED MODE"

Command	Description
<i>boot</i>	Set system boot parameters, upgrade FW
<i>clock</i>	Set current system time and date
<i>configure</i>	Switch to configuration commands
<i>copy</i>	Copy data from one file to another
<i>dir</i>	List files from local storage
<i>disable</i>	Disable privileged commands
<i>exit</i>	Return to the previous level
<i>export-help</i>	View help of all commands
<i>help</i>	Access to the help
<i>reboot</i>	It will perform a restart of the device
<i>rmfile</i>	Remove a file from NVM or RAM
<i>view</i>	View information about the running system

Main commands for "view"

Command	Description
<i>bootvar</i>	View boot information
<i>boot-config</i>	View boot configuration
<i>clock</i>	View current system time and date
<i>diff</i>	Compare boot configuration with running configuration
<i>dot1x</i>	View DOT1X settings
<i>ports</i>	View information about ports
<i>input</i>	View digital inputs
<i>ip</i>	View information about network settings
<i>log</i>	View log contents
<i>mac</i>	View MAC status
<i>poe</i>	View PoE power status
<i>power</i>	View power supply information
<i>radius</i>	View RADIUS configuration
<i>ring</i>	View LAN-RING protocol status
<i>running-config</i>	View current (running) configuration
<i>topology</i>	View topology configuration
<i>syslog</i>	View SYSLOG server configuration
<i>system</i>	View basic system information
<i>tacacs</i>	View TACACS configuration
<i>version</i>	View hardware and firmware details
<i>vlan</i>	View VLAN configuration and status

Main commands for "configure"

Command	Description
<i>accounting</i>	Accounting configurations parameters
<i>authorization</i>	Authorization configurations parameters
<i>description</i>	Set system description
<i>do</i>	Do command from privileged mode
<i>dot1x</i>	Configure IEEE 802.1X
<i>enable-password</i>	Set enable password
<i>end</i>	Return to the previous level
<i>exit</i>	Return to the previous level
<i>port</i>	Port configuration
<i>ring</i>	Set METEL LAN-RING protocol
<i>line</i>	Configure line (USB/SSH) settings
<i>snmp</i>	Configure SNMP settings
<i>sntp</i>	Configure SNTP
<i>input</i>	Configure input signal settings
<i>ip</i>	Configure IP protocol settings
<i>mirror</i>	Data src and dst port mirroring settings
<i>radius</i>	Configure RADIUS

<i>syslog</i>	Configure SYSLOG server
<i>tacacs</i>	Configure TACACS+ server
<i>topology</i>	Configure topology protocol
<i>user-add</i>	Add a user. Use: user-add USERNAME sha-512 PASSWORD
<i>user-del</i>	Delete/Remove the user by USERNAME
<i>user-erase-all</i>	(IMPORT) Remove all users including the metel user
<i>vlan</i>	VLAN-specific commands
<i>vlan-init-tab</i>	Initialize VLAN tables
<i>import</i>	Import configuration from file

ENABLE

After password authentication enable privileged mode

Note:

If no password is set for enable, the command does not need to be entered and you will automatically log in to privileged mode.

Example

```
metel@192.168.6.13> enable  
Password: *****
```

BOOT

Set system boot parameters

factory-reset	Do factory reset device
upgrade	Upgrade boot image

Example factory reset

```
metel@10.93.0.3(config)# boot factory-reset  
executing factory reset...
```

Example upgrade FW - firmware must be placed in ram

```
metel@10.93.0.3# boot upgrade 2.1815.15599_secure.tar  
Upgrade file /tmp/cif/ram/2.1815.15599_secure.tar  
.....  
Please run the 'reboot' command to complete the upgrade.
```

To apply the firmware, it is now necessary to reboot the device.

```
metel@10.93.0.3# reboot now  
restarting...
```

Note

Firmware downgrade must be consulted with the manufacturer and is not tested.

CLOCK

Set current system time and date

date	Set current system date (YYYY-MM-DD)
time	Set current system time (hh:mm:ss)

Example of set date

```
metel@10.92.0.3# clock date 2024-11-14  
Thu Nov 14 22:06:54 UTC 2024
```

Example of set time

```
metel@10.92.0.3# clock time 05:36:00  
Thu Nov 14 05:36:00 UTC 2024
```

CONFIGURE

Switch to configuration commands

```
metel@10.92.0.3# configure  
metel@10.92.0.3(config)#
```

ACCOUNTING

Accounting configurations parameters

Logging settings for logged-in users to the console.

The system works from the first method and if the first method is not available it continues

to the next method.

Example

Method 1 is selected as TACACS+, method 2 is permit. Every user logged into the console will be logged on the tacacs+ server. If the server is unavailable, login will be permit but without no logging logged users.

WARNING:

If a method is set to Deny and none or the previous method is unavailable, it will not be possible to login to the console.

ALL

all All commands

METHOD1

First accounting method

<i>deny</i>	no accounting
<i>permit</i>	permit accounting
<i>tacacs</i>	TACACS+ accounting

Example set method1 for permit

```
metel@10.93.0.3(config)# accounting all method1 permit
```

METHOD2

Second accounting method

<i>deny</i>	no accounting
<i>permit</i>	permit accounting
<i>tacacs</i>	TACACS+ accounting

METHOD3

Third accounting method

<i>deny</i>	no accounting
<i>permit</i>	permit accounting
<i>tacacs</i>	TACACS+ accounting

Authorization

Authorization configurations parameters

The system works from the first method and if the first method is not available it continues to the next method.

User authorization to execute commands. Designed especially for the Tacacs+ server, where it is possible to define which user will be able to run which commands.

WARNING:

If a method is set to Deny and none or the previous method is unavailable, it will not be possible to execute any command.

ALL

all All commands

METHOD1

First authorization method

<i>deny</i>	no authorization
<i>permit</i>	permit authorization
<i>tacacs</i>	TACACS+ authorization

Example set method1 for tacacs authorization
metel@10.93.0.3(config)# **authorization all method1 tacacs**

METHOD2

Second authorization method
deny no authorization
permit permit authorization
tacacs TACACS+ authorization

METHOD3

Third authorization method
deny no authorization
permit permit authorization
tacacs TACACS+ authorization

DESCRIPTION

Device description facilitating its identification in larger systems.
description Set system description

Example of set switch description to "ROOM_2":
metel@10.92.0.3(config)# **description ROOM_2**

ENABLE-PASSWORD

Set password for command **enable**
hash Set enable password as HASH
sha-512 Set enable password and hash it with SHA-512
none Remove enable password

System use **shadow password**, also known is a system file in Linux that stores encrypted user passwords, preventing unauthorized users or malicious actors from breaking into the system. In case you already have an existing password from the system in hash, you can insert it with using the **hash** command.

Supproted hashes starting with \$ sign

\$1\$ = MD5
\$5\$ = SHA-256
\$6\$ = SHA-512

Example entering a hashed password
metel@10.93.0.3(config)# **enable-password hash**
\$5\$UFHMEeGjYWG5K7HN\$uqL7N8v0x86j5DjhBAWngr/cvMf.76qjWXnLBkHy7y0

If the SHA-512 command is used, a "raw" password is entered and the system hashes it using SHA-512.

Example set password "test" with SHA-512 algorithm
metel@10.93.0.3(config)# **enable-password sha-512 test**

Example remove password for command **enable**
metel@10.93.0.3(config)# **enable-password none**

DO

Do command from privileged mode. If you want to run a command from a privileged menu and do not want to leave the current menu.

DOT1X

Configure IEEE 802.1X

disable Disable NAS service

enable Enable NAS service

Other settings for ports are available in menu [port configuration](#).

END

end Return to the previous level

EXIT

exit Return to the previous level

PORT

Selecting the port for configuration. It automatically depends on the type of switch used.

```
metel@10.93.0.3(config)# port?
```

Exec commands:

P1	P1
P2	P2
P3	P3
P4	P4
P5	P5
G1	G1
G2	G2

Example selecting Port 1 for next configuration

```
metel@10.92.0.3(config)# port P1
```

```
metel@10.92.0.3(config-port-P1)#
```

config-port-X

X is replaced by the selected port

adv-10-full-enable	Enable	AN 10Mbps full-duplex
adv-10-full-disable	Disable	AN 10Mbps full-duplex
adv-10-half-enable	Enable	AN 10Mbps half-duplex
adv-10-half-disable	Disable	AN 10Mbps half-duplex
adv-100-full-enable	Enable	AN 100Mbps full-duplex
adv-100-full-disable	Disable	AN 100Mbps full-duplex
adv-100-half-enable	Enable	AN 100Mbps half-duplex
adv-100-half-disable	Disable	AN 100Mbps half-duplex
adv-1000-full-enable	Enable	AN 1000Mbps full-duplex
adv-1000-full-disable	Disable	AN 1000Mbps full-duplex
an-enable	Enable	AN
an-disable	Disable	AN
atu-disable-learning	Disable	address table learning
atu-disable-using-da	Disable	usage of destination address in ATU
atu-egress-mode	Set ATU egress filtering mode	
all	All	
no-unknown-unicast	No unknown unicast	
no-unknown-multicast	No unknown multicast	
no-unknown-DA	No unknown destination address	
atu-enable-learning	Enable	learning
atu-enable-using-da	Enable	using destination address
alias	Set	port description
do	Do	command from privileged mode
end	Return	to the previous level
exit	Return	to the previous level
force-10-full	Force	ethernet speed 10Mbps full-duplex

force-10-half	Force ethernet speed 10Mbps half-duplex
force-100-full	Force ethernet speed 100Mbps full-duplex
force-100-half	Force ethernet speed 100Mbps half-duplex
force-1000-full	Force ethernet speed 1000Mbps full-duplex
jumbo	Set jumbo packet size
mdix	Set Media Dependent Interface Crossover
force-mdi	Force MDI mode
force-mdix	Force MDIX mode
auto	Auto mode for MDI/MDIX
mirror	Setting source ports for mirroring
ingress-src	Selects port ingress data as mirroring source
egress-src	Selects port egress data as mirroring source
no-ingress-src	Disables port ingress data as a mirroring source
no-egress-src	Disables port egress data as a mirroring source
dot1x-auth	Authenticator
force-auth	Port control: force authorized
force-auto	Port control: auto
force-unauth	Port control: force unauthorized
reauth-enable	Enable re-auth
reauth-disable	Disable re-auth
keytx-enable	Enable KeyTx
keytx-disable	Disable KeyTx
quiet-period	Set Quiet period
tx-period	Set Tx period
reauth-period	Set Re-auth period
supp-timeout	Set Supp timeout
server-timeout	Set Server timeout
max-request	Set max. request
dot1x-supp	Supplicant
force-auth	Port control: force authorized
force-auto	Port control: auto
force-unauth	Port control: force unauthorized
admin-valid	Set admin port valid
admin-invalid	Set admin port invalid
identity	Set identity name
password	Set password value
held-period	Set Held period
auth-period	Set Auth period
start-period	Set Start period
max-start	Set Max start
pae-mode-auth	Set authenticator mode
pae-mode-none	Set none PAE mode
pae-mode-supp	Set supplicant mode
poe-disable	Disable PoE
poe-donot-ignore-discovery	Do not ignore discovery
poe-enable	Enable Power over Ethernet
poe-ignore-discovery	Ignore PoE discovery
poe-no-swap-pairs	Do not swap PSE pri/sec pairs
poe-no-power-limit	No power limit
poe-swap-pairs	Swap PoE PSE pairs
poe-power-limit	Set PoE power limit (mW)
port-vlan-member	Configure port-based VLAN membership
port-vlan-no-member	Remove Port-based VLAN
power-down	Power down (shutdown) the port
power-up	Power up (negate the shutdown) the port
rate-in-speed	Set input speed rate in kbps
rate-in-limit	Limit input speed rate
rate-in-nolimit	Disable rate in speed limit
rate-out-speed	Set output speed rate in kbps
rate-out-limit	Limit output speed rate
rate-out-nolimit	Disable rate out speed limit
rstp-disable	Disable RSTP-M on port
rstp-enable	Enable RSTP-M on port
rstp-prio	Set RSTP-M port priority
rstp-edge	Enable RSTP-M admin edge

<i>rstp-edge-none</i>	No admin edge
<i>rstp-cost</i>	Set RSTP-M admin cost
<i>vlan-none</i>	Disable VLAN MODE
<i>vlan-keep-tag</i>	Do not discard Tag
<i>vlan-keep-untag</i>	Do not discard Untag
<i>vlan-keep-vid</i>	Do not force VLAN VID
<i>vlan-default-pri</i>	Set default VLAN priority
<i>end</i>	Return to the previous level
<i>default</i>	Default priority
<i>tag-only</i>	Tag-only mode
<i>ip-only</i>	IP-only mode
<i>iptag-comb</i>	Combined IP and tag mode
<i>iptag-tag</i>	IP-tag mode
<i>vlan-pri-value</i>	Set VLAN initial priority value
<i>vlan-force-vid</i>	Force VLAN ID
<i>vlan-default-id</i>	Set default VLAN ID
<i>vlan-mode</i>	Set VLAN mode
<i>fallback</i>	Enable fallback mode
<i>check</i>	Enable check mode
<i>secure</i>	Enable secure mode
<i>vlan-discard-tag</i>	Discard tagged VLAN frames
<i>vlan-discard-untag</i>	Discard untagged VLAN frames

ATU-DISABLE-LEARNING

MAC address learning is disabled on the selected port.

ATU-ENABLE-LEARNING

MAC address learning is enabled on the selected port.

ATU-DISABLE-USING-DA

Map according to the destination address. Learnt MAC addresses are not used for sending frames.

ATU-ENABLE-USING-DA

Map according to the destination address. Learnt MAC addresses are used for sending frames.

RSTP-ENABLE

RSTP is enabled for this port.

RSTP-DISABLE

RSTP is disabled for this port.

RSTP-PRIO

Port Priority, an unsigned value used to represent the priority component of a Port Identifier. A lower numerical value means that the port has a higher priority. Valid Port Priorities are in the range 0 through 240, in steps of 16.

RSTP-EDGE

The port is set to edge port. However, if the port receives a BPDU, the Oper Edge Port setting changes to non-edge-port. (To receive a BPDU, the port must be connected to a bridge and thus is not an edge port.)

RSTP-EDGE-NONE

The port must be connected to a bridge. Otherwise, the port can't rapidly transition to forwarding state

RSTP-COST

The administratively assigned value for the contribution of this port to the path cost of paths toward the spanning tree root. Writing a value of '0' assigns the automatically calculated default Path Cost value to the port.

VLAN-DEFAULT-ID

The 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 (VLAN-Force-VID).

VLAN-PRI-VALUE

Allows to set the importance of frames and prioritize them before others with lower priority. You must enter values 0-7 in the field, where the value 7 is the highest priority. This value is only assigned to frames that they do not contain more information about the priority.

VLAN-FORCE-VID

Enables overriding of the VID input frames if this packet already contains an VLAN ID. This option is never used at "Trunk" ports is to avoid overwriting identifiers to the one VLAN.

ATU-EGRESS-MODE

<i>all</i>	All
<i>no-unknown-unicast</i>	No unknown unicast
<i>no-unknown-multicast</i>	No unknown multicast
<i>no-unknown-DA</i>	No unknown destination address

Description

all - all frames are sent, no blocking.
no-unknown-DA - frames with not learnt destination address are not sent to this port.
no-unknown-multicast - multicast packets are not sent to this port.
no-unknown-unicast - unicast packets are not sent to this port.

MDIX

<i>force-mdi</i>	Force MDI mode
<i>force-mdix</i>	Force MDIX mode
<i>auto</i>	Auto mode for MDI/MDIX

VLAN-DEFAULT-PRI

<i>end</i>	Return to the previous level
<i>default</i>	Default priority
<i>tag-only</i>	Tag-only mode
<i>ip-only</i>	IP-only mode
<i>iptag-comb</i>	Combined IP and tag mode
<i>iptag-tag</i>	IP-tag mode

VLAN-MODE

<i>fallback</i>	Enable fallback mode
<i>check</i>	Enable check mode
<i>secure</i>	Enable secure mode

Fallback

Incoming frames are not discarded if their VLAN VID is not defined in the VLAN table. Outgoing 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 port members 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.

MIRROR

Setting source ports for mirroring

<i>ingress-src</i>	Selects port ingress data as mirroring source
<i>egress-src</i>	Selects port egress data as mirroring source
<i>no-ingress-src</i>	Disables port ingress data as a mirroring source
<i>no-egress-src</i>	Disables port egress data as a mirroring source

Example enable mirroring ingress data from P1. Destination port is selected in menu [mirror](#).
metel@10.93.0.3(config-port-P1)# ***mirror ingress-src***

DOT1X-AUTH

Settings for port as Authenticator

<i>force-auth</i>	Port control: force authorized
<i>force-auto</i>	Port control: auto
<i>force-unauth</i>	Port control: force unauthorized
<i>reauth-enable</i>	Enable re-auth
<i>reauth-disable</i>	Disable re-auth
<i>keytx-enable</i>	Enable KeyTx
<i>keytx-disable</i>	Disable KeyTx
<i>quiet-period</i>	Set Quiet period
<i>tx-period</i>	Set Tx period
<i>reauth-period</i>	Set Re-auth period
<i>supp-timeout</i>	Set Supp timeout
<i>server-timeout</i>	Set Server timeout
<i>max-request</i>	Set max. request

DOT1X-SUPP

Settings for port as Supplicant

<i>force-auth</i>	Port control: force authorized
<i>force-auto</i>	Port control: auto
<i>force-unauth</i>	Port control: force unauthorized
<i>admin-valid</i>	Set admin port valid
<i>admin-invalid</i>	Set admin port invalid
<i>identity</i>	Set identity name
<i>password</i>	Set password value
<i>held-period</i>	Set Held period
<i>auth-period</i>	Set Auth period
<i>start-period</i>	Set Start period
<i>max-start</i>	Set Max start

RING

Set METEL LAN-RING protocol, in this menu is selecting which ring you will configure. Small switches support just 1 RING, but unit switches support up to 5 RING connection.

Example selecting Ring 1

```
metel@10.92.0.3(config)# ring R1
metel@10.92.0.3(config-ring-R1)#
```

config-ring-RX

X is replaced by the selected the ring

<i>end</i>	Return to the previous level
<i>exit</i>	Return to the previous level
<i>do</i>	Do command from privileged mode
<i>enable</i>	Enable METEL LAN-RING
<i>disable</i>	Disable METEL LAN-RING

rid	Set METEL LAN-RING identificator
master	Set METEL LAN-RING Master (only v1)
slave	Set METEL LAN-RING Slave (only v1)
atu-clear-enable	Enable ATU clear (only v2)
atu-clear-disable	Disable ATU clear (only v2)
version	Set METEL LAN-RING version
v1	METEL LAN-RING version 1
v2	METEL LAN-RING version 2

RID

Ring identifier is a number used for identification of the devices that are expected to communicate with each other within the ring.

Example: If there is one ring with one master, having "Ring identifier" set to 6, all other switches in this ring must have "Ring identifier" set to 6, too.

```
metel@10.93.0.3(config-ring-R1)# rid 6
```

VERSION

Protocol version of LAN-RING.

LAN-RING v1:

Master switch must be set manually. In the case of failure or restore ring occurs a short disruption.

LAN-RING v2:

Master switch is set automatically and dynamically varies due to the fault. In the case of failure in the ring occurs a short disruption. Disruption does not occur when you restore ring. RECOMMENDED

Example set LAN-RING v2 protocol

```
metel@10.93.0.3(config-ring-R1)# version v2
```

MASTER

If is using LAN-RING version 1, than is switch set as Master.

If is using LAN-RING version 2, than in the case of failure of the ring, learnt addresses in ATU table will be flushed on appropriate ports of this device, recommended.

SLAVE

If is using LAN-RING version 1, than is switch set as Slave i.e. it is listening to the switch with the same Ring identifier and Master priority.

If is using LAN-RING version 2 than in case of failure of the ring, learnt addresses in ATU table will not be flushed. This option makes sense only in case if 'Learning disable' on the port is set. However, this option is NOT usually recommended.

LINE

System configuration and methods for logging into the console over the network/USB.

Example selecting USB interface for configuration

```
metel@10.92.0.3(config)# line usb
```

```
metel@10.92.0.3(config-line-USB)#
```

Example selecting SSH interface for configuration

```
metel@10.92.0.3(config)# line ssh
```

```
metel@10.92.0.3(config-line-SSH)#
```

USB

USB interface

authentication	Authentication configurations parameters
method1	First authentication method
method2	Second authentication method
method3	Third authentication method
banner	Specify terminal

disable	Disable terminal
do	Do command from privileged mode
enable	Enable terminal
end	Return to the previous level
exit	Return to the previous level

AUTHENTICATION

User authentication to the console via USB.

The system works from the first method and if the first method is not available it continues to the next method.

method1	First authentication method
method2	Second authentication method
method3	Third authentication method

WARNING:

If a method is set to Deny and none or the previous method is unavailable, it will not be possible to login to console.

If a method is set to Permit so you log into the system with any username and password.

METHOD1

Select configuration for method1.

deny	no authentication
permit	permit authentication
local	local authentication
tacacs	TACACS+ authentication

Example set method 1 for tacacs user authentication

```
metel@10.93.0.3(config-line-USB)# authentication method1 tacacs
```

METHOD2

Select configuration for method1.

deny	no authentication
permit	permit authentication
local	local authentication
tacacs	TACACS+ authentication

Example set method 2 for local user authentication

```
metel@10.93.0.3(config-line-USB)# authentication method2 local
```

METHOD3

Select configuration for method1.

deny	no authentication
permit	permit authentication
local	local authentication
tacacs	TACACS+ authentication

SSH

SSH interface

authentication	Authentication configurations parameters
method1	First authentication method
method2	Second authentication method
method3	Third authentication method
banner	Specify terminal
disable	Disable terminal
do	Do command from privileged mode
enable	Enable terminal
end	Return to the previous level
exit	Return to the previous level

AUTHENTICATION

User authentication to the console via network.

The system works from the first method and if the first method is not available it continues to the next method.

method1	First authentication method
method2	Second authentication method
method3	Third authentication method

WARNING:

If a method is set to Deny and none or the previous method is unavailable, it will not be possible to login to console.

If a method is set to Permit so you log into the system with any username and password.

METHOD1

Select configuration for method1.

deny	no authentication
permit	permit authentication
local	local authentication
tacacs	TACACS+ authentication

Example set method 1 for tacacs user authentication

```
metel@10.93.0.3(config-line-SSH)# authentication method1 tacacs
```

METHOD2

Select configuration for method1.

deny	no authentication
permit	permit authentication
local	local authentication
tacacs	TACACS+ authentication

Example set method 2 for tacacs user authentication

```
metel@10.93.0.3(config-line-SSH)# authentication method2 local
```

METHOD3

Select configuration for method1.

deny	no authentication
permit	permit authentication
local	local authentication
tacacs	TACACS+ authentication

SNMP

Configure SNMP settings

VERSION

Select SNMP version

v2c	Set SNMP to version 2c
v3	Set SNMP to version 3

Example set SNMP to version 3

```
metel@10.93.0.3(config)# snmp version v3
```

SNTP

Configure SNTP

disable	Disable SNTP
enable	Enable SNTP
server1	Configure primary SNTP server IP address
server2	Configure secondary SNTP server IP address
server3	Configure tertiary SNTP server IP address
request-interval	Server request interval in seconds
timezone	Timezone offset in hours
auto-DST-disable	Disable automatic daylight saving time correction
auto-DST-enable	Enable automatic daylight saving time correction
synchronize	Try to synchronize with SNTP servers
set-time	Set time in format dd.mm.yyyy hh:mm:ss

Example enable SNTP protocol

```
metel@10.93.0.3(config)# sntp enable
```

Example set server1 to address 195.113.144.201

```
metel@10.93.0.3(config)# sntp server1 195.113.144.201
```

Note:

Only IP entry is allowed for server settings, hostname entry is currently not supported.

INPUT

Configure input signal settings

Example showing available input

```
metel@192.168.6.13(config)# input ?
```

Exec commands:

```
IN1          IN1
IN2          IN2
```

Example selecting Input 2 for next configuration

```
metel@192.168.6.13(config)# input IN2
```

```
metel@192.168.6.13(config-input-IN2)#
```

IN1

end	Return to the previous level
exit	Return to the previous level
do	Do command from privileged mode
label	Set digital input label
negation-enable	Enable negation of digital input
negation-disable	Disable negation of digital input
min-duration	Set Minimal pulse duration in milliseconds with step 10ms

IN2

end	Return to the previous level
exit	Return to the previous level
do	Do command from privileged mode
label	Set digital input label
negation-enable	Enable negation of digital input
negation-disable	Disable negation of digital input
min-duration	Set Minimal pulse duration in milliseconds with step 10ms

Example set minimum duration to 500ms

```
metel@192.168.6.13(config-input-IN2)# min-duration 500
```

Example set label to "tamper"

```
metel@192.168.6.13(config-input-IN2)# label tamper
```

IP

Configure IP protocol settings

addr-mask	Set IP address and mask in slash format <IP>/<MASKNUMBER>
addr	Set IP address
dns	Specify DNS
gate	Set gateway IP address
mask	Set mask
icmp-echo-disable	Disable ICMP echo
icmp-echo-enable	Enable ICMP echo
vlan-disable	Disable VLAN tagging for IP management of switch
vlan-enable	Enable VLAN tagging for IP management of switch
vlan-id	Specify VLAN ID (1-4094) for management of switch
vlan-pri	Specify VLAN priority (0-7) for management of switch

Example set IP to 10.93.0.4

```
metel@10.93.0.3(config)# ip addr 10.93.0.4
```

Example changes management VLAN ID to 99

```
metel@10.93.0.3(config)# ip vlan-id 99
```

Example set IP and MASK

```
metel@10.93.0.3(config)# ip addr-mask 192.168.6.27/24
```

MIRROR

Data src and dst port mirroring settings

ingress-dst	Set the destination port for ingress mirrored data
no-ingress-dst	Disables destination port for ingress mirrored data
egress-dst	Set the destination port for egress mirrored data
no-egress-dst	Disables destination port for egress mirrored data
cpu-ingress-src	Selects CPU port ingress data as mirroring source
no-cpu-ingress-src	Selects CPU port egress data as mirroring source
cpu-egress-src	Disables CPU port ingress data as mirroring source
no-cpu-egress-src	Disables CPU port egress data as mirroring source

Example mirroring ingress data from **port** x to port P5

```
metel@10.93.0.3(config)# mirror ingress-dst P5
```

RADIUS

Configure RADIUS

server1	RADIUS server 1 settings
server2	RADIUS server 2 settings

SERVER1

disable	Disable server
enable	Enable server
host	Set host for server
key	Set communication encryption key
timeout	Set communication timeout in seconds

SERVER2

disable	Disable server
enable	Enable server
host	Set host for server
key	Set communication encryption key
timeout	Set communication timeout in seconds

SYSLOG

Configuration syslog server, default UDP port 514, not possible change in the actual firmware.

server1 SYSLOG server 1 settings
server2 SYSLOG server 2 settings

SERVER1

Syslog server 1 (primary) settings

disable Disable server
enable Enable server
host Set host for server

Example set host IP

```
metel@192.168.6.13(config)# syslog server1 host 192.168.6.59
```

SERVER2

Syslog server 1 (secondary) settings

disable Disable server
enable Enable server
host Set host for server

Example enable secondary syslog server

```
metel@192.168.6.13(config)# syslog server2 enable
```

TACACS

Configure TACACS+

server1 TACACS+ server 1 settings
server2 TACACS+ server 2 settings

SERVER1

TACACS+ server 1 (primary) settings

disable Disable server
enable Enable server
host Set host for server
key Set authentication key
timeout Set communication timeout in seconds

SERVER2

TACACS+ server 2 (secondary) settings

disable Disable server
enable Enable server
host Set host for server
key Set authentication key
timeout Set communication timeout in seconds

TOPOLOGY

Configure topology protocol

MODE

Selecting the mode

<i>none</i>	No topology protocol
<i>lan-ring</i>	Select LAN-RING mode
<i>rstp-m</i>	Select RSTP-M mode

NONE

Any network protocol is not active. In the case of loops in the network congestion occurs.

LAN-RING

Proprietary protocol developed by METEL s.r.o. for pure ring topologies. It offers very fast reconfiguration of the network in the event of failure of one ring network segment.

RSTP-M

This protocol is compatible with the standard RSTP, IEEE 802.1D-2004. Protocol version M is optimized for faster reconfiguration versus standard RSTP.

Example selecting lan-ring protocol

```
metel@10.93.0.3(config)# topology mode lan-ring
```

RSTP-M

Configure RSTP-M protocol

<i>priority</i>	Set RSTP-M priority
<i>hello-time</i>	Set RSTP-M hello time
<i>max-age</i>	Set RSTP-M max age
<i>forward-delay</i>	Set RSTP-M forward delay

PRIORITY

Bridge Priority, an unsigned value is used to represent the priority component of a Bridge Identifier. A lower numerical value means that the bridge has a higher priority.

Valid Bridge Priorities are in the range 0 through 61 440, in steps of 4096.

HELLO TIME

The amount of time between the transmission of Configuration bridge PDUs by this node on any port when it is the root of the spanning tree, or trying to become so.

This value must satisfy the following relationship:

Hello Time $\leq$ (Max Age/2) - 1

Valid value is in the range 1 through 2 (second)

MAX AGE

The maximum age of Spanning Tree Protocol information learnt from the network on any port before it is discarded.

This value must satisfy the following relationships:

Max Age $\leq$ 2x(Forward Delay - 1)

Max Age $\geq$ 2x(Hello Time +1)

Valid value is in the range 6 through 40 (second).

FORWARD DELAY

This time value, measured in units of second, controls how fast a port changes its spanning state when moving towards the Forwarding state. The value determines how long the port stays in each of the Listening and Learning states, which precede the Forwarding state. This value is also used when a topology change has been detected and is underway, to age all dynamic entries in the Filtering Database. According to RSTP standard IEEE 802.1D-2004 this value is not use due to synchronization process. It is used only for backward compatible with 802.1D STP.

This value must satisfy the following relationships:

Forward Delay $\geq$ (Max Age/2) + 1

Valid value is in the range 4 through 30 (second).

Note: Other settings about RSTP are under the **port** menu.

Example change priority to 40960 value

```
metel@10.93.0.3(config)# topology rstp-m priority 40960
```

USER-ADD

Add new local user with access to CLI via ethernet or USB. Is possible create maximum 4 users with access to console. If you want change password for current user, just use same username with new password.

user-add Add a user

Possible using hash algorithm

user-add USERNAME sha-512 PASSWORD (recommended)

user-add USERNAME hash HASH

user-add USERNAME md5 PASSWORD

user-add USERNAME sha-256 PASSWORD

System use **shadow password**, also known is a system file in Linux that stores encrypted user passwords, preventing unauthorized users or malicious actors from breaking into the system. In case you already have an existing password from the system in hash, you can insert it with using the **hash** command.

Supproted hashes starting with \$ sign

\$1\$ = MD5

\$5\$ = SHA-256

\$6\$ = SHA-512

Example add a new user with username 'tester' and password 'test' which will be hashed by SHA-512

```
metel@10.93.0.3(config)# user-add tester sha-512 test  
creating a new user(slot 1)
```

Example add a new user with knowing hash

```
metel@10.93.0.3(config)# user-add tester3 hash  
$6$u33XmD69I8AAxrqB$RNYgau5/FKwJ5.UgI6Le9v/QDyXKVK5VwVtHkY01PxQuAEjViJ65WaRU7kWhk110CkQtms8Appa
```

USER-DEL

Delete the user for access to console via ethernet or USB.

user-del Delete/Remove the user by USERNAME

Example of removing user with username tester2

```
metel@10.93.0.3(config)# user-del tester2  
username found: 1  
username removed: 1
```

USER-ERASE-ALL

Remove all users including the metel user. Please do not use this command, is it used automatically only for import configurations.

user-erase-all (IMPORT) Remove all users including the metel user

VLAN

vlan VLAN-specific commands

In this section, write the VLAN ID for which you will create a new or edit existing rules. Switch supports 64 different VLAN ID. If there is an already entered VLAN ID, the system informs that the ID has been found. If such an ID does not exist, the system automatically searches for the first available row, where is not ENABLE the vlan in which to create a new VLAN ID.

Example selecting VLAN ID 100, which is in the system already

```
metel@10.93.0.3(config)# vlan 100  
VID was found at row: 1
```

Example selecting VLAN ID 50, which is not yet in the system.

```
metel@10.93.0.3(config)# vlan 50  
first empty row is: 2
```

NOTE

The changes are applied only after exiting the menu (command **end**, **exit** or CTRL+D).

NOTE

If a new VLAN ID is created, after exiting the menu (command **end**, **exit** or CTRL+D) is automatically set **enable command for this VLAN**.

VLAN ID X

do	Do command from privileged mode
end	Exit VLAN configuration
exit	Exit VLAN configuration
member-none	Remove VLAN membership
member-tagged	Tag VLAN membership
member-unmodified	Set VLAN membership to unmodified
member-untagged	Untag VLAN membership
priority-override	Override VLAN priority (0-7)
remove	Remove VLAN
disable	Disable VLAN
enable	Enable VLAN

MEMBER-UNMODIFIED

The ports are a member of this VLAN and packets will be leaving this port unmodified.

MEMBER-UNTAGGED

The ports are a member of this VLAN and packets will be leaving this port without IEEE tag (without VID).

MEMBER-TAGGED

The ports are a member of this VLAN and packets will be leaving this port with IEEE tag (with VID).

MEMBER-NONE

The ports are not a member of this VLAN.

PRIORITY-OVERRIDE

Frame priority will be overridden from field Priority, if this checkbox is checked. Priority of transmitted data via Ethernet is used for overriding. The default value is 0 (lowest priority). The highest priority is 7.

NOTE:

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

Example creating the rule for VLAN ID 50. P1, P2, P3 will be member untagged (end devices), P4, P5 not member, G1, G2 member tagged (TRUNK). CPU port not member.

```
metel@10.93.0.3(config-vlan-50)# member-tagged G1  
metel@10.93.0.3(config-vlan-50)# member-tagged G2  
metel@10.93.0.3(config-vlan-50)# member-none CPU  
metel@10.93.0.3(config-vlan-50)# member-none P4  
metel@10.93.0.3(config-vlan-50)# member-none P5  
metel@10.93.0.3(config-vlan-50)# member-untagged P1  
metel@10.93.0.3(config-vlan-50)# member-untagged P2  
metel@10.93.0.3(config-vlan-50)# member-untagged P3  
metel@10.93.0.3(config-vlan-50)# enable  
metel@10.93.0.3(config-vlan-50)# end
```

Example change the priority

```
metel@10.93.0.3(config-vlan-50)# priority-override 5
```

VLAN-INIT-TAB

vlan-init-tab Initialize VLAN tables

The vlan table will be set to default values.

WARNING:

This only applies to the VLAN table, it does not apply to VLAN settings on ports.

IMPORT

Import configuration from file

nvm Import configuration from NVM

ram Import configuration from RAM

Example import configuration from nvm

```
metel@192.168.6.13(config)# import nvm backup.txt
modifying an existing user (slot 0)
Disabled VID was found at row: 0
VID was found at row: 1
VID was found at row: 2
Import configuration successfull
```

NOTE

Export is via command ***copy running-config***

COPY

Copy data from one file to another

nvm Copy from NVM (non-volatile memory)

ram Copy from RAM (volatile memory)

running-config Copy running-config

sftp Copy from SFTP to ram, nvm

tftp Copy from TFTP to ram, nvm

NVM is a part of memory where are stored files after reboot. In this part is available 750KB memory for user, just only for configuration file for example.

RAM is a part of memory, which is after reboot deleted. In this part is available 50MB memory for user, for copying the new firmware for example.

SFTP syntax

arguments: IP address (remote), source filename, destination (nvm or ram), username (remote)

TFTP syntax

arguments: IP address (remote), source filename, destination (nvm or ram)

WARNING

If a file is copied to a destination where a file with the same name has already been created, it will be automatically overwritten.

Example copy backup file from sftp server to ram

```
metel@10.93.0.3# copy sftp 10.70.0.65 /tmp/backup.txt ram root
copying from sftp://root@10.70.0.65//tmp/backup.txt to RAM:backup.txt
Warning: Permanently added '10.70.0.65' (ED25519) to the list of known hosts.
```

Example copy firmware file from tftp server to ram

```
metel@10.93.0.3# copy tftp 10.15.15.25 2.1815.15599_secure.tar ram
copying from tftp://10.15.15.25/2.1815.15599_secure.tar to RAM
2.1815.15599_secure. 100%
|*****
44.0M 0:00:00 ETA
```

NVM

NVM is a part of memory where are stored files after reboot. In this part is available 750KB memory for user, just only for configuration file for example.

Copy from *nvm name_file* to:

running-config	Copy NVM file to running-config
ram	Copy NVM file to RAM (volatile memory)
sftp	Copy NVM file to SFTP server
tftp	Copy NVM file to TFTP server

SFTP syntax

arguments: IP address (remote), destination filename, username (remote)

TFTP syntax

arguments: IP address (remote), destination filename

If the destination path ends with '/', the command will automatically fill in the same filename as the source.

If the destination path does not end with '/', it is considered a file and if a directory with the same name exists in the destination, it will result in an error.

Example copy file from nvm to sftp server in path /tmp/

```
metel@10.93.0.3# copy nvm backup.txt sftp 10.70.0.65 /tmp/ root
```

RAM

RAM is a part of memory, which is after reboot deleted. In this part is available 50MB memory for user, for copying the new firmware for example.

Copy from *ram name_file* to:

running-config	Copy RAM file to running-config
ram	Copy RAM file to RAM (volatile memory)
sftp	Copy RAM file to SFTP server
tftp	Copy RAM file to TFTP server

SFTP syntax

arguments: IP address (remote), destination filename, username (remote)

TFTP syntax

arguments: IP address (remote), destination filename

If the destination path ends with '/', the command will automatically fill in the same filename as the source.

If the destination path does not end with '/', it is considered a file and if a directory with the same name exists in the destination, it will result in an error.

Example copy file from ram to sftp server in path /tmp/

```
metel@10.93.0.3# copy ram backup.txt sftp 10.70.0.65 /tmp/ root
```

Example copy from ram to nvm memory

```
metel@10.93.0.3# copy ram backup.txt nvm
```

RUNNING-CONFIG

Copy running-config to:

boot-config	Copy running-config to boot-config
nvm	Copy running-config to NVM (non-volatile memory)
ram	Copy running-config to RAM (volatile memory)
sftp	Copy running config to SFTP server
tftp	Copy running config to TFTP server

```
Example copy running config to boot config
metel@10.93.0.3# copy running-config boot-config
copying running to boot...
boot-config = running-config
```

SFTP syntax

arguments: IP address (remote), destination filename, username (remote)

TFTP syntax

arguments: IP address (remote), destination filename

If the destination path ends with '/', the command will automatically fill in the same filename as the source.

If the destination path does not end with '/', it is considered a file and if a directory with the same name exists in the destination, it will result in an error.

Example copy running config to sftp server

```
metel@10.93.0.3# copy running-config sftp 10.70.0.65 /home/metel/202411_config metel
copying to sftp://metel@10.70.0.65/home/metel/konfig2G2
Warning: Permanently added '10.70.0.65' (ED25519) to the list of known hosts.
metel@10.70.0.65's password:
running-config.txt
```

Example copy running config to ram

```
metel@10.93.0.3# copy running-config ram backup.txt
```

Example copy running config to tftp server

```
metel@192.168.6.13# copy running-config tftp 192.168.6.59 /2g2s14f/29_11_2024.txt
copying to tftp://192.168.6.59/2g2s14f/29_11_2024.txt
29_11_2024.txt          100%
|*****|
1298  0:00:00 ETA
```

DIR

List files from local storage

nvm	List files from NVM (non-volatile memory)
ram	List files from RAM (volatile memory)

NVM is a part of memory where are stored files after reboot. In this part is available 750KB memory for user, just only for configuration file for example.

RAM is a part of memory, which is after reboot deleted. In this part is available 50MB memory for user, for copying the new firmware for example.

Example list from ram

```
metel@192.168.6.13# dir nvm
```

Filename	Size
backup	1486

Usage 20%, 768000 bytes free, 962560 bytes total.

DISABLE

disable	Disable privileged commands
----------------	-----------------------------

EXIT

exit	Return to the previous level
-------------	------------------------------

EXPORT-HELP

HELP

help Access to the help

Example:

```
metel@10.92.0.3> help
```

Help can be opened by entering a question mark '?'.

If nothing matches (wrong command), the output will be empty.

The METEL devices provide two styles of help:

1. A complete help is available when you enter the entire command argument (for example, 'config ?').

In that case, help will provide descriptions for each available option.

2. When you enter an abbreviated argument, partial assistance is offered to display all argument that match your input.

For example, typing 'config int ?' will list any possible completions that begin with 'int'.

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For further help, we recommend visiting <https://www.metel.eu/solutions/cli>

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REBOOT

reboot now It will perform a restart of the device

Argument: 'now', or 'timeout 0-999' (seconds, 0 = stop)

Example reboot

```
metel@10.93.0.3# reboot now
```

restarting...

Example set reboot after 20s

```
metel@10.93.0.3# reboot timeout 20
```

Example stop rebooting if was before start in timeout and not start rebooting yet

```
metel@10.93.0.3# reboot timeout 0
```

RMFILE

Remove a file from nvram and ram

nvram Remove a file from NVM (non-volatile memory)

ram Remove a file from RAM (volatile memory)

Example remove file with name zaloha from ram

```
metel@10.93.0.3# rmfile ram zaloha
```

```
rm: remove '/tmp/cif/ram/zaloha'? y
```

VIEW

View information about the running system

BOOTVAR

bootvar View boot information

Active image is actual running image.

An inactive image is an image that will be loaded after a switch reboot, i.e. the firmware upgrade has been completed, but the switch has not yet been restarted.

Example using **bootvar**

```
metel@192.168.6.13# view bootvar
Active-image: --
  Version 3.1851.15742
Inactive-image: --
  Version 3.1852.15742
```

BOOT-CONFIG

boot-config View boot configuration

Example using **boot-config**

```
metel@10.92.0.3# view boot-config
#SW version 2.1802.15564
description "METEL s. r. o."
ip addr 10.92.0.3
ip mask 255.0.0.0
ip gate 10.1.0.1
ip vlan-pri 7
user-add metel hash metel
line usb
  banner "Default banner for metel CLI"
  authentication method1 local
  exit
line ssh
  banner "Default banner for metel CLI"
  authentication method1 local
  exit
authorization all method1 permit
port P1
  vlan-mode disabled
  exit
port P2
  vlan-mode disabled
  exit
port P3
  vlan-mode disabled
  exit
port G1
  vlan-mode disabled
  exit
port G2
  vlan-mode disabled
  exit
vlan 1
  member-tagged CPU
  member-untagged P1
  member-untagged P2
  member-untagged P3
  member-untagged G1
  member-untagged G2
  exit
topology mode lan-ring
ring R1
  ring-enable
  ring-master
  exit
snmp server2 195.113.144.201
end
```

CLOCK

clock View current system time and date

Example

```
metel@10.92.0.3# view clock  
*05:37:19 UTC Thu Nov 14 2024
```

DIFF

diff Compare boot configuration with running configuration

Example if boot and running configuration is different

```
metel@10.92.0.3# view diff  
boot config differs from current running config
```

Example if boot and running configuration is same

```
metel@10.93.0.3# view diff  
boot-config = running-config
```

DOT1X

View DOT1X settings

authenticator View Authenticator status
supplicant View Supplicant status

AUTHENTICATOR

View authenticator settings

state View authenticator state
statistics View authenticator statistics
diagnostics View authenticator diagnostics
session View authenticator session
port View authenticator port

STATISTICS

FramesRx View column Frames Rx
FramesTx View column Frames Tx
StartFramesRx View column Start Frames Rx
LogoffFramesRx View column Logoff Frames Rx
RespIdFramesRx View column Resp IdFrames Rx
RespFramesRx View column Resp Frames Rx
ReqIdFramesTx View column ReqId Frames Tx
ReqFramesTx View column Req Frames Tx
InvalidFramesRx View column Invalid Frames Rx
LengthErrorFramesRx View column Length Error Frames Rx
LastFrameVersion View column Last Frame Version
LastFrameSource View column Last Frame Source

DIAGNOSTICS

EntersConn View column Enters connecting
LogoffsWhileConn View column Logoffs while connecting
EntersAuth View column Enters authenticating
SuccessWhileAuth View column Success while authenticating
TimeoutsWhileAuth View column Timeouts while authenticating
FailWhileAuth View column Fail while authenticating
ReauthsWhileAuthing View column Reauths while authenticating
StartsWhileAuthing View column Starts while authenticating
LogoffWhileAuthing View column Logoff while authenticating
ReauthsWhileAuthenticated View column Reauths while authenticated
StartsWhileAuthenticated View column Starts while authenticated

LogoffWhileAuthenticated	View column Logoff while authenticated
BackendResponses	View column Backend responses
AccessChallenges	View column Access challenges
OtherRequests	View column Other Requests to supplicant
NonNakResponses	View column NonNak Responses from supplicant
AuthSuccesses	View column Auth Successes
AuthFails	View column Auth Fails

PORT

List of available ports in the switch.

Example

```
metel@192.168.6.13# view dot1x authenticator port P3
```

Authenticator port status: P3

```
Backend: Initialize
State: Initialize
Auth: Authorized
Frames Rx: 0
Frames Tx: 0
Start Frames Rx: 0
Logoff Frames Rx: 0
Resp IdFrames Rx: 0
Resp Frames Rx: 0
ReqId Frames Tx: 0
Req Frames Tx: 0
Invalid Frames Rx: 0
Length Error Frames Rx: 0
Last Frame Version: 0
Last Frame Source: 00:00:00:00:00:00
Enters connecting: 0
Logoffs while connecting: 0
Enters authenticating: 0
Success while authenticating: 0
Timeouts while authenticating: 0
Fail while authenticating: 0
Reauths while authenticating: 0
Starts while authenticating: 0
Logoff while authenticating: 0
Reauths while authenticated: 0
Starts while authenticated: 0
Logoff while authenticated: 0
Backend responses: 0
Access challenges: 0
Other Requests to supplicant: 0
NonNak Responses from supplicant: 0
Auth Successes: 0
Auth Fails: 0
Duration: 0:0:00:00.00
Termination: Not Terminated Yet
Username:
```

SUPPLICANT

View supplicant settings

state	View supplicant state
statistics	View supplicant statistics
port	View supplicant port

STATISTICS

FramesRx	View column Frames Rx
FramesTx	View column Frames Tx
StartFramesTx	View column Start Frames Tx

LogoffFramesTx	View column Logoff Frames Tx
RespIdFramesTx	View column Resp IdFrames Tx
RespFramesTx	View column Resp Frames Tx
ReqIdFramesRx	View column ReqId Frames Rx
ReqFramesRx	View column Req Frames Rx
InvalidFramesRx	View column Invalid Frames Rx
LengthErrorFramesRx	View column Length Error Frames Rx
LastFrameVersion	View column Last Frame Version
LastFrameSource	View column Last Frame Source

PORT

List of available ports in the switch.

Example

```
metel@192.168.6.13# view dot1x supplicant port P3
```

Supplicant port status: P3

```
Backend: Initialize
State: Disconnected
Auth: Unauthorized
Frames Rx: 0
Frames Tx: 0
Start Frames Tx: 0
Logoff Frames Tx: 0
Resp IdFrames Tx: 0
Resp Frames Tx: 0
ReqId Frames Rx: 0
Req Frames Rx: 0
Invalid Frames Rx: 0
Length Error Frames Rx: 0
Last Frame Version: 0
Last Frame Source: 00:00:00:00:00:00
```

PORTS

alias	View alias (description) of ports
errorCounters	View error counters for ports
summary	View summary of ports
stats	View statistics for ports
status	View status of all device ports

Example showing description(alias) on the ports

```
metel@10.92.0.3# view ports alias
```

Port	Description
----	-----
P1	Phone
P2	Camera
P3	Notebook
G1	Root
G2	Root

Example view counter of error packet

```
metel@10.92.0.3# view ports errorCounters
```

Port	Discard In	Discard Out	Error In	Error Out	Unknown Proto In
----	-----	-----	-----	-----	-----
P1	0	0	0	0	0
P2	0	0	0	0	0
P3	0	0	0	0	0
G1	0	0	0	0	0
G2	0	0	0	0	0

Example view statistic

```
metel@10.92.0.3# view ports stats
```

Port	Total In [Byte/s]	Total Out [Byte/s]	Brdcst In [Pkts/s]	Brdcst Out [Pkts/s]	Multi In [Pkts/s]	Multi Out [Pkts/s]	Uni In [Pkts/s]	Uni Out [Pkts/s]
----	-----	-----	-----	-----	-----	-----	-----	-----
P1	0	0	0	0	0	0	0	0
P2	0	0	0	0	0	0	0	0
P3	192	0	2	0	1	0	0	0
G1	0	0	0	0	0	0	0	0
G2	0	0	0	0	0	0	0	0

Example view ports status

```
metel@10.92.0.3# view ports status
```

Port	Name	Status	Vlan	Duplex	Speed	Mdix	AN done
----	-----	-----	----	-----	-----	----	-----
P1	Phone	notconnect	1	--	--	--	--
P2	Camera	notconnect	1	--	--	--	--
P3	Notebook	connected	1	Full	100	MDIX	completed
G1	Root	notconnect	1	--	--	--	--
G2	Root	--	1	--	--	--	--

INPUT

input View digital inputs

Example view status

```
metel@192.168.6.13# view input
```

Index	State	Label	Negation	Min. Pulse Duration
-----	-----	-----	-----	-----
IN1	LOW	Input 1	disable	0
IN2	HIGH	tamper	disable	500

IP

View information about network settings

ip View information about network settings

Example

```
metel@10.92.0.3# view ip
```

IP: 10.92.0.3
Mask: 255.0.0.0
Gateway: 10.1.0.1
DHCP client: disable
ICMP echo: enable
MGMT: enable
MGMT VLAN: disable
MGMT VLAN ID: 1
MGMT VLAN Priority: 7

LOG

Log View log contents

count Count all events

list List all events

The table with all logs divided to priority will be available at www.metel.eu.

Total 20MB in memory, which is deleted after reboot the switch.

0-7: 1MB reserved for each level.

8: mix of all levels, 1MB.

Supported logs

Port link state
PoE state
FW state
System - Booting
System - Booted up
User - authentication and accounting

Note:

All log(s) are sent to **SYSLOG** server, if it is configured and are divided to priority.

Priority of logs

0 = Emergency
1 = Alert
2 = Critical
3 = Error
4 = Warning
5 = Notice
6 = Informational
7 = Debug

COUNT

count Count all events

Example

```
metel@192.168.6.13# view log count
Total emergency event(s): 0
Total alert event(s): 0
Total critical event(s): 0
Total error event(s): 0
Total warning event(s): 0
Total notice event(s): 2
Total info event(s): 24
Total debug event(s): 0
Total summary event(s): 26
```

LIST

emergency	List only emergency severity
alert	List only alert severity
critical	List only critical severity
error	List only error severity
warning	List only warning severity
notice	List only notice severity
info	List only info severity
debug	List only debug severity

Example list all events

```
metel@192.168.6.13#view log list
2024-12-11T14:13:16.292511 5-SYST: FW ver. 3.1846.15742.rc starting
2024-12-11T14:13:23.521613 6-PORT: Port P1 link down
2024-12-11T14:13:23.692418 6-PORT: Port P2 link down
2024-12-11T14:13:23.822205 6-PORT: Port P3 link down
2024-12-11T14:13:23.953214 6-PORT: Port P4 link down
2024-12-11T14:13:24.157589 6-PORT: Port P5 link down
2024-12-11T14:13:24.317518 6-PORT: Port G1 link down
2024-12-11T14:13:24.394288 6-PORT: Port G2 link unsupported
2024-12-11T14:13:24.955713 5-SYST: FW ver. 3.1846.15742.rc started
2024-12-11T14:13:26.109526 6-PORT: Port P2 link up
2024-12-11T14:13:26.180577 6-PORT: Port G1 link up
2024-12-11T14:13:26.669491 6-PORT: Port P5 link up
2024-12-11T14:13:30.134086 6-LINE: Terminal started
2024-12-11T14:13:30.808524 6-LINE: Executing 'view running-config'
2024-12-11T14:13:44.122500 6-PORT: PoE on port P1 inactive
2024-12-11T14:13:45.662262 6-PORT: PoE on port P2 inactive
2024-12-11T14:13:47.205056 6-PORT: PoE on port P3 inactive
2024-12-11T14:13:48.715265 6-PORT: PoE on port P4 inactive
2024-12-11T14:37:38.702068 6-LINE: User 'metel' succesfully verified
2024-12-11T14:37:39.173014 6-LINE: User 'metel' connected (ssh / 192.168.6.29)
2024-12-11T14:37:39.822805 6-LINE: Terminal started
2024-12-11T14:37:45.724588 6-LINE: Executing 'configure'
2024-12-11T14:38:34.875215 6-LINE: Executing 'syslog server1 host'
```

Example list all notice event(s)

```
metel@192.168.6.13# view log list notice
2024-12-11T14:13:16.292511 5-SYST: FW ver. 3.1846.15742.rc starting
2024-12-11T14:13:24.955713 5-SYST: FW ver. 3.1846.15742.rc started
```

MAC

address-table View MAC status

Example

```
metel@10.92.0.3# view mac address-table
Aging time is 15 sec
```

Vlan	Mac Address	Port	Type
1	00:23:36:5C:00:03	CPU	self
1	00:23:36:37:00:6c	P3	dynamic
1	00:23:36:46:00:42	P3	dynamic
1	b8:69:f4:67:90:24	P3	dynamic
1	b8:69:f4:67:90:25	P3	dynamic
1	e4:e7:49:42:84:03	P3	dynamic

PoE

View PoE power status

consumption View PoE power consumption
status View PoE power status
version View PoE running SW version

Example view poer consumption

```
metel@10.93.0.3# view poe consumption
```

```
Total Consumed Power[W]: 5
```

Port	Power[W]	Power Limit[W]	Current[A]	Voltage[V]
-----	-----	-----	-----	-----
P1	0.0	30.0	0.0	0.0
P2	0.0	30.0	0.0	0.0
P3	0.0	30.0	0.0	0.0
P4	4.8	30.0	0.1	49.5

Example view PoE status

```
metel@10.93.0.3# view poe status
```

```
Unit Consumed Power[W]
```

```
-----
```

```
1 2
```

Port	State	Status	Status Value	Admin Limit[W]	Temp (C)
-----	-----	-----	-----	-----	-----
P1	Never	Off	26	30	42.0
P2	Never	Off	26	30	42.0
P3	Never	Off	26	30	42.0
P4	Auto	On	2	30	42.0

Example view PoE version

```
metel@10.93.0.3# view poe version
```

```
SW version: 27.2.2.3
```

```
IEEE Standard: 802.3af/at/PoH
```

POWER

supply View supply power status

Example

```
metel@10.93.0.3# view power supply
```

```
Voltage[V]
```

```
-----
```

```
Primary 49.6
```

```
Secondary 0.0
```

RADIUS

View RADIUS configuration

server1 View RADIUS server 1 settings

server2 View RADIUS server 2 settings

RING

View LAN-RING protocol status

status View LAN-RING protocol status

Example

```
metel@10.93.0.3# view ring status
```

Name	ID	Enable	Role	Status	Version
-----	-----	-----	-----	-----	-----
R1	0	1	master	masterFail	2

RUNNING-CONFIG

running-config View current (running) configuration

Example

```
metel@10.93.0.3# view running-config
#SW version 2.1802.15564
description "METEL s. r. o."
ip addr 10.93.0.3
ip mask 255.0.0.0
ip gate 10.1.0.1
ip vlan-enable
ip vlan-id 100
ip vlan-pri 7
user-add metel hash metel
line usb
    banner "Default banner for metel CLI"
    authentication method1 local
    exit
line ssh
    banner "Default banner for metel CLI"
    authentication method1 local
    exit
authorization all method1 permit
port P1
    poe-power-limit 30000
    vlan-default-id 100
    exit
port P2
    poe-power-limit 30000
    vlan-default-id 100
    exit
port P3
    poe-power-limit 30000
    vlan-default-id 100
    exit
port P4
    poe-enable
    poe-power-limit 30000
    vlan-default-id 100
    exit
port P5
    vlan-default-id 100
    exit
port G1
    vlan-default-id 100
    exit
port G2
    vlan-default-id 100
    exit
vlan 100
    member-tagged CPU
    member-untagged P1
    member-untagged P2
    member-untagged P3
    member-untagged P4
    member-untagged P5
    member-untagged G1
    member-untagged G2
    exit
topology mode lan-ring
ring R1
    ring-enable
    ring-master
    exit
snmp server2 195.113.144.201
end
```

TOPOLOGY

topology

View selected topology protocol

Example

```
metel@10.93.0.3# view topology
```

```
Active topology protocol: lanRing2
```

SYSTEM

system

View basic system information

Example

```
metel@10.93.0.3# view system
```

```
Product: 2G-2S.1.4.G-BOX-PoE-PP (HiPoE)
```

```
Serial number: 20240614002
```

```
Firmware: 2.1802.-15564
```

```
MAC: 00:23:36:5d:00:03
```

```
Description: METEL s. r. o.
```

```
Uptime: 0d 0h 35m 50s
```

SYSLOG

syslog

View SYSLOG configuration

Example

```
metel@192.168.6.13# view syslog
```

Server	Enable	Ip/Host
--------	--------	---------

server1	enable	192.168.6.11
---------	--------	--------------

server2	enable	192.168.6.29
---------	--------	--------------

TACACS

tacacs

View TACACS configuration

Example

```
metel@10.93.0.3# view tacacs
```

Server	Enable	Ip/Host	Key	Timeout
--------	--------	---------	-----	---------

server1	disable			10
---------	---------	--	--	----

server2	disable			10
---------	---------	--	--	----

VERSION

version

View hardware and firmware details

Example

```
metel@10.93.0.3# view version
```

```
SW version 2.1802.15564
```

```
HW version 2G-2S.1.4.G-BOX-PoE-PP (HiPoE)
```

VLAN

vlan

View VLAN configuration and status

Example

```
metel@10.93.0.3# view vlan
```

VLAN Name	Status	Ports
-----	-----	-----
100 VLAN0100	active	CPU(T), P1(U), P2(U), P3(U) P4(U), P5(U), G1(U), G2(U)

Note

(T) - Member tagged

(U) - Member untagged

(M) - Member unmodified

If the port is not in list is NOT MEMBER

HELP

Access to the help

Example:

```
metel@10.92.0.3> help
```

Help can be opened by entering a question mark '?'.

If nothing matches (wrong command), the output will be empty.

The METEL devices provide two styles of help:

1. A complete help is available when you enter the entire command argument (for example, 'config ?').

In that case, help will provide descriptions for each available option.

2. When you enter an abbreviated argument, partial assistance is offered to display all argument that match your input.

For example, typing 'config int ?' will list any possible completions that begin with 'int'.

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For further help, we recommend visiting <https://www.metel.eu/solutions/cli>

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LOGOUT

Close the terminal
