

# Commands for switch configuration



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The switch can operate in one of the following modes: "isolate" or "transparent".

In "isolate" mode, packet switching is based on the port isolation rules. External ports are isolated from each other and traffic from each of them is redirected to the internal ports according to the port isolation rules, so that any direct traffic between the external ports is impossible. This is the basic mode, used by default, including situations when there are no any VLAN settings or 802.1Q-support is disabled in "transparent" mode.

In "transparent" mode, direct traffic transmission between external ports (without involving the internal ones) is possible, packet switching is performed according to the VLAN-tags and internal "port - VLAN-tag" correspondence table, if it exists.

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## Default settings

- By default the switch operates in "isolate" mode, i.e. all the ports are isolated from each other, even if they are located in the same VLAN
- All the ports operate in "trunk" mode with "native VLAN 1" for untagged traffic
- radio interface is up and operates within the switch as a regular port
- DHCP-client is enabled on the management interface "mgmt".

## "port" command

Use this command for the built-in switch management.

### Syntax:

**#1> port [arguments]**

```
port [-scheme=SCHEME] [-mgmt=PORT_SET] [-radio=PORT_SET]
port -dlq[={disable|enable}]
port -vlan={RANGeLIST} [{-priority=PRIO|-nopriority}]
port -vlan={RANGeLIST} [-stp] [-nostp] [{-spriority=STPPRIO|-nospriority}] [-sforward[={enable|disable}]]
port -vlan={RANGeLIST} -remove={RANGeLIST}
port [PORT_SET] [-access=TAG] [-native=TAG] [-mode={access|trunk}]

port [PORT_SET] [-allow={RANGeLIST}] [-disallow={RANGeLIST}]
port [PORT_SET] [-limit={RATE_LIMIT}] [-nolimit] [-qosmode={wrr|st3|st23|strict}]
port [PORT_SET] stat|clear|vtt|stt [VID]|fdb-show|dump

RANGeLIST: RANGe[,RANGe...]
    RANGe: {TAG[-TAG]|all}
    PRIO: {0..7} - DOT1P frame priority
RATE_LIMIT: {0..1000} - port egress rate limit in Mbit/sec
STPPRIO: {0..15} | {0,4096,8192...61440}
Port set <PORT_SET>:
    enumeration of {[ge]0..[ge]1,s[fp],m,r}|*, for example 0,ge1,m
Adjacency scheme <SCHEME>:
    {isolate, transparent}
```

Command arguments description is given in the table below:

Command	Description
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<code>port [-scheme=SCHEME]</code>	<ul style="list-style-type: none"> <li>Select one of the switch modes: <ul style="list-style-type: none"> <li>isolate</li> <li>transparent</li> </ul> </li> </ul>
<code>port [-mgmt=PORT_SET] [-radio=PORT_SET]</code>	<ul style="list-style-type: none"> <li>Configure the port isolation rules for traffic redirection from external physical interfaces "ge0", "ge1" and/or "sfp" to the interfaces "radio" or "mgmt"</li> </ul>
<code>port -d1q=[disable enable]</code>	<ul style="list-style-type: none"> <li>Disable/enable the switching rules based on VLAN-tags of the 802.1Q standard</li> <li>In order to enable switching based on the port isolation rules even if the "<i>transparent</i>" mode is selected, disable the switching rules based on VLAN-tags of the 802.1Q standard</li> </ul>
<code>port -vlan={RAngeLIST}</code>	<ul style="list-style-type: none"> <li>Add VLANs to the system with numbers from 1 to 4094</li> </ul> <p>Example,</p> <pre>port -vlan=50,52,60-64</pre> <p>adds VLANs 50, 52, 60, 61, 62, 63, 64</p>
<code>port -remove={RAngeLIST}</code>	<ul style="list-style-type: none"> <li>Remove any previously created VLANs from the system</li> </ul>
<code>port -vlan={RAngeLIST} {-priority=PRIO}</code>	<ul style="list-style-type: none"> <li>Set for the selected VLANs the priority according to 802.1p ranging from 0 to 7, where 0 - the lowest priority level, 7 - the highest</li> </ul> <p>Example,</p> <pre>port -vlan=50 -priority 7</pre> <p>sets the priority 7 (Network control) to the VLAN 50</p>
<code>port -vlan={RAngeLIST} {-nopriority}</code>	<ul style="list-style-type: none"> <li>Remove the previously set priority for the selected VLAN</li> </ul>
<code>port -vlan={RAngeLIST} [-stp]</code>	<ul style="list-style-type: none"> <li>Enable STP support for the selected VLANs</li> <li>Enable on the switch the support of PVST+ (Per-VLAN Spanning Tree Plus) protocol – the special version of STP, which allows creating a separate spanning tree for each <u>VLAN</u></li> </ul>
<code>port -vlan={RAngeLIST} [-nostp]</code>	<ul style="list-style-type: none"> <li>Disable STP support for the selected VLANs</li> </ul>
<code>port -vlan={RAngeLIST} {-spriority=STPPRIO}</code>	<ul style="list-style-type: none"> <li>Set the bridge priority for STP in the selected VLAN ranging from 0 to 61440 in increments of 4096 (or from 0 to 16 in increments of 1)</li> </ul> <p>Example,</p> <pre>port -vlan=50 -spriority=4096</pre> <p>sets the bridge priority 4096 for VLAN 50</p>
<code>port -vlan={RAngeLIST} {-nospriority}</code>	<ul style="list-style-type: none"> <li>Remove the bridge priority for STP in the selected VLAN</li> </ul>

<code>port -vlan={RANgeLIST} [-sforward [=enable disable]]</code>	<ul style="list-style-type: none"> <li>• Enable/disable the forwarding of STP packets in the selected VLAN</li> </ul>
<code>port [PORT_SET] [-mode={access trunk}]</code>	<ul style="list-style-type: none"> <li>• Select operation mode for the port: <ul style="list-style-type: none"> <li>• "access" mode - allows untagged traffic only</li> <li>• "trunk" mode - allows tagged traffic only. If you need to allow both tagged and untagged traffic through the port, you can configure the "native VLAN" option that defines the only VLAN for receiving of all incoming untagged traffic in "trunk" mode ("VLAN 1" is configured as a "native VLAN" for all the ports of the switch by default)</li> </ul> </li> </ul>
<code>port [PORT_SET] [-access=TAG]</code>	<ul style="list-style-type: none"> <li>• Define VLANs for the port operation in "access" mode</li> </ul> <p>Example,</p> <pre>port 0 -access=50 -mode=access</pre> <p>sets the "access" mode for the port "ge0" and defines VLAN 50 for this port operation</p>
<code>port [PORT_SET] [-allow={RANgeLIST}]</code>	<ul style="list-style-type: none"> <li>• Define VLANs for the port operation in "trunk" mode</li> </ul> <p>Example,</p> <pre>port 1 -allow=50-55 -mode=trunk</pre> <p>sets the "trunk" mode for the port "ge1" and allows operations with VLAN 50, 51, 52, 53, 54, 55</p>
<code>port [PORT_SET] [-native=TAG]</code>	<ul style="list-style-type: none"> <li>• Set VLAN for operation as a "native VLAN" for the port in "trunk" mode</li> </ul>
<code>port [PORT_SET] [-disallow={RANgeLIST}]</code>	<ul style="list-style-type: none"> <li>• Remove the selected VLANs from the port</li> </ul>
<code>port [PORT_SET] [-limit={RATE_LIMIT}]</code>	<ul style="list-style-type: none"> <li>• Set on the selected port the limit for outgoing traffic (traffic shaper) in Mbps, ranging from 1 to 100 in increments of 1 or from 100 to 1000 in increments of 10</li> </ul> <p>Example,</p> <pre>port 0,1 -limit=120</pre> <p>sets the limit of 120 Mbps on the ports "ge0" and "ge1"</p>
<code>port [PORT_SET] [-nolimit]</code>	<ul style="list-style-type: none"> <li>• Remove the limits of throughput on the port</li> </ul>
<code>port [PORT_SET] [-qosmode={wrr st3 st23 strict}]</code>	<ul style="list-style-type: none"> <li>• Select the QoS policy for the port (WRR is used by default): <ul style="list-style-type: none"> <li>• wrr - use weighted round robin for all queues.</li> <li>• st3 - use strict priority for queue 3 and weighted round robin for queues 2, 1 and 0.</li> <li>• st23 - use strict priority for queue 3 and 2, and weighted round robin for queues 1 and 0.</li> <li>• strict - use strict priority for all queues.</li> </ul> </li> </ul>
<code>port [PORT_SET] stat</code>	<ul style="list-style-type: none"> <li>• Display statistics for the port</li> </ul>

<code>port [PORT_SET] clear</code>	<ul style="list-style-type: none"> <li>Reset statistics for the port</li> </ul>
<code>port vtt</code>	<ul style="list-style-type: none"> <li>View the VLAN-based switching matrix, STP status and VLAN priorities</li> </ul>
<code>port stt [VID]</code>	<ul style="list-style-type: none"> <li>View the information about operation of STP in the selected VLAN and on each of the associated ports</li> </ul> <p>Example,</p> <pre>#1&gt; port stt 30 STP state of VID 30: ID:      100000043507A2A5 Priority: 4096 ID ext:-1 ROOT:    100000043507A2A5 Priority: 4096 ID ext: 0 Ports:   Name  Prio  Cost      PVer  Role    State ===== gel    128      55 RSTP  DISABLED  DISCARDING sfp    128      55 RSTP  DISABLED  DISCARDING</pre>
<code>port [PORT_SET] fdb-show</code>	<ul style="list-style-type: none"> <li>View MAC-addresses in the switching matrix (<i>fdb</i>) of the selected port</li> </ul> <p>Example,</p> <pre>#1&gt; port 0 fdb-show FDB total entries: 10   VID  Destination      Port  Status  T-left ===== v30   0016c8822d60        0  dynamic   330 v30   001b21c5a964        0  dynamic   330 v30   00043507a434        0  dynamic   282 v30   00045f94b74a        0  dynamic   188 v30   002170f485a5        0  dynamic    94 v30   382c4ab2d932        0  dynamic    94</pre>
<code>port [PORT_SET] dump</code>	<ul style="list-style-type: none"> <li>View general information about the port operation (traffic shaper limits, QoS policy, port status, and data transfer rate)</li> </ul> <p>Example,</p> <pre>#1&gt; port dump Port R-limit QOS Mode Link  Speed ===== 0  ----- wrp      UP 1000 Mbps 1  ----- wrp      UP 1000 Mbps s  ----- wrp      UP 1000 Mbps r      420 strict    UP   21 Mbps m  ----- strict    ----</pre>

Table - "port" arguments description

## Configuration examples

Configure the switch for operation in "isolate" mode. It is the default mode. If you need to switch from "transparent" mode, use the command:

- `port -scheme= isolate`

Configure the port isolation rules for traffic redirection from external physical interfaces "ge0", "ge1" and/or "sfp" to the interfaces "radio" or "mgmt":

## Title

Assign access to the management interface through the "ge0" port:

- `port -mgmt=0`

Assign the port "ge1" for data transfer to the port "radio":

- `port -radio=1`

Configure the switch for operation in "transparent" mode.

See VLAN-based switching matrix with default settings below:

```
port vtt
  VID  0 1 2 r m STP Prio
  ==== = = = = = === =====
    1 N N N N N - ----
```

In order to switch to "transparent" mode, execute the command:

- `port -scheme=transparent`

Configuring of the switch starts with adding VLANs, which are necessary for data transfer and device management:

```
port -vlan=30,100
port vtt
  VID  0 1 2 r m STP Prio
  ==== = = = = = === =====
    1 N N N N N - ----
   30 t t t t t - ----
  100 t t t t t - ----
```

Set the parameters of processing of tagged or/and untagged traffic for each port.

Set access of untagged packets to VLAN 30 on the management interface "mgmt":

```
port m -access=30 -mode=access
port vtt
  VID  0 1 2 r m STP Prio
  ==== = = = = = === =====
    1 N N N N - - ----
   30 t t t t A - ----
  100 t t t t - - ----
```

Set access of untagged packets only to VLAN 30 on the port "ge0":

```
port 0 -access=30 -mode=access
port vtt
  VID  0 1 s r m STP Prio
  ==== = = = = = === =====
    1 - N N N - - ----
   30 A t t t A - ----
  100 - t t t - - ----
```

Set the "ge1" port for processing of tagged packets of the VLAN 30 only ("trunk" mode):

```
port 1 -allow=30 -mode=trunk
port vtt
    VID  0 1 s r m STP Prio
    ==== = = = = = == =====
    1 - - N N - - ----
    30 A t t t A - ----
    100 - - t t - - ----
```

Set the port "*sfp*" for processing of tagged packets of the VLAN 100 only ("*trunk*" mode):

```
port s -allow=100 -mode=trunk
port vtt
    VID  0 1 s r m STP Prio
    ==== = = = = = == =====
    1 - - - N - - ----
    30 A t - t A - ----
    100 - - t t - - ----
```

Set the port "*radio*" for processing of tagged packets of the VLAN 30 and VLAN 100 ("*trunk*" mode):

```
portr -allow=30,100 -mode=trunk
port vtt
    VID  0 1 s r m STP Prio
    ==== = = = = = == =====
    30 A t - t A - ----
    100 - - t t - - ----
```