

QinQ SAPs

A QinQ SAP has the following format:

qinq <port-id | lag-id>:qtag1.qtag2

Where:

- *qtag1* is the outer qtag value - [* | 0..4094]
- *qtag2* is the inner qtag value - [* | null | 0..4094]

Regular QinQ SAPs have qtag1 and qtag2 values between 1 and 4094. In addition, QinQ Ethernet and LAG ports support the following “default” SAPs that can be enabled by the **new-qinq-untagged-sap** command:

- ‘*.null’ is defined as a 'default sap' for single-tagged frames in a QinQ port. This SAP accepts single tags in the range <0..4095> as well as untagged traffic.
- ‘*.*’ is defined as a 'default sap' for double-tagged frames in a QinQ port. This SAP accepts untagged, singly tagged, and doubly tagged frames with tags in the range <0..4095>.
- In addition to the above-mentioned SAPs, qtag2 can also be '0' or '*' when qtag1 is an explicit value in the 1..4094 range, for instance: 1/1/1:10.0 or 1/1/1:10.*. Assuming qtag1 is the same value, qtag1.* and qtag1.0 are supported in the same QinQ port

A SAP lookup is performed when a new frame arrives to a QinQ port. This 'lookup' is based on the <outer-tag, inner-tag> values of the frame.

[Table 2](#) shows the SAP lookup precedence order for incoming frames with <qtag1.qtag2> qtag values.

Table 2: SAP lookup precedence order for incoming frames

Incoming Frame qtag1.qtag2	System/Port settings [new-qinq-untagged-sap=YES]					
	SAP Lookup Precedence Order					
	:X.Y	:X.0	:X.*	:0.*	:.null	:.*
x.y	1st		2nd			3rd
x.0		1st	2nd			3rd
0.y				1st		2nd
0.0				1st		2nd

Table 2: SAP lookup precedence order for incoming frames (Continued)

Incoming Frame <i>qtag1.qtag2</i>	System/Port settings [new-qinq-untagged-sap=YES]					
	SAP Lookup Precedence Order					
	:X.Y	:X.0	:X.*	:0.*	:*.null	:*.*
x		1st	2nd		3rd	4th
0				1st	2nd	3rd
<untagged>				1st	2nd	3rd

The following considerations apply to the information described in [Table 2](#):

- All six SAP types (:X.Y, :X.0, :X.*, :0.*, :*.null and :*.*) are supported in the same QinQ port and, in the table, they are ordered from the most specific (left-hand side) to the least specific with the following VID matching ranges:
 - X or Y means <1..4094>
 - * means <0..4095> or untagged
 - null means 'no tag'
- The user can decide the SAP types that are configured in a specific port. Not all SAP types must be configured in a port.
- The table shows the lookup behavior for ingress frames and priority across SAPs in case more than one can match a given ingress frame. Note that the SAP lookup result for a given frame does not depend on the operational status of the SAP. For instance:
 - In a port with SAPs 1/1/1:0.* and 1/1/1:*.* defined, the SAP lookup for a given frame with VIDs (0, 300) will yield SAP 1/1/1:0.* regardless of its operational status.
 - The frame will only match SAP 1/1/1:*.* when the 0.* SAP is removed from the configuration.
- The following apply to VLAN tag handling:
 - The system will not strip-off any tags for frames entering the default SAPs (:0.*, :*.null or :*.*).
 - No extra tags are added when the system transmits frames on the default SAPs (:0.*, :*.null or :*.*).