

4. Queue Sets

Prior to software release 4.0, the Ethernet Routing Switch 5500 supported a single queue set with eight queues, one absolute queue and seven WRR queues.

With the introduction of software release 4.0, eight different queue sets were made available. Each queue set has different characteristics in regards to number of queues and service weights allowing the user to select a queue set based on the user's particular needs. With eight queue settings and three resource sharing options, the Ethernet Routing Switch 5500 supports a total of 24 different queues and buffer setting combinations. Prior to making any changes to the egress queue, the buffer resource sharing feature must be enabled.

Resource Sharing

The three (3) possible resource sharing settings in version 4.0 or greater software release are regular, large, and maximum. These settings allow the user to change the amount of buffer which can be allocated or shared to any port. Note that the switch must be rebooted if any changes are made.

Table 4: Ethernet Routing Switch 5500 Resource Sharing

Setting	Description
Regular	1 port may use up to 16% of the buffers for a group of 12 ports.
Large	1 port may use up to 33% of the buffers for a group of 12 ports.
Maximum	1 port may use 100% of the buffers for a group of 12 ports.

Resource Sharing Commands

- 5520-24T-PWR(config)# **qos agent buffer <large | maximum | regular>**

The qos agent buffer <regular | large | maximum > command allows the user to specify the level of resource sharing on the switch. This parameter is global and requires a reset to activate a change. This command is in the CLI priv-exec mode.

- 5520-24T-PWR(config)# **default qos agent buffer**

The default qos agent buffer command sets the switches agent buffer back to a default setting of regular. In order for this command to take effect, a reset of the switch must occur. This command is in the CLI priv-exec mode.

Resource Sharing Recommendations



Avaya recommends you use the default resource-sharing setting of regular. If you change the setting, the resulting performance may increase for some ports, and at times, decrease for other ports.

Generally speaking, smaller buffers achieve lower latency (RTT) but reduce the throughput ability which is better for VoIP etc. and sensible jitter application.

You should use the Maximum resource sharing setting:

- If you are using your 5520 for big file transfers (like backup of servers)
- If you are using (the AppleTalk Filing Protocol) AFP, use large or maximum resource sharing (AFP use a fix windows size set to 65,535K). You should use the large resource sharing setting:
- If you are using your 5520 for high bandwidth application such as video.
- If you are using large TCP windows for your traffic, use large resource sharing (you can also reduce the TCP windows size on windows operating system - see Microsoft TechNet article 224829).
- If you have 4 or fewer ports connected per group of 12 ports.

You should use the Regular resource sharing setting:

- If you are using your 5520 in a VOIP environment.
- If you have 5 or more ports connected per group of 12 ports.

Egress CoS Queuing

The following charts describe each possible egress CoS queuing setting. The mapping of 802.1p priority to egress CoS queue, dequeuing algorithm, and queue weight is given. Additionally, the memory and maximum number of packets which can be buffered per egress CoS queue and resource sharing settings is shown.

Table 5: Ethernet Routing Switch 5500 Egress CoS Queuing

Setting	Internal Priority	Egress CoS Queue	Dequeuing Algorithm	Weight	Regular Memory/ # of 1518 Byte Packets	Large Memory/ # of 1518 Byte Packets	Max Memory/ # of 1518 Byte Packets
8 CoS	7	1	Strict	100%	36864B 24	49152B 32	131072B 86
	6	2	Weighted Round Robin	41%	36864B 24	47104B 31	123392B 81
	5	3		19%	27648B 18	45056B 29	115712B 76
	4	4		13%	18432B 12	43008B 28	108032B 71
	3	5		11%	18432B 12	39936B 26	97792B 64
	2	6		8%	18432B 12	36864B 24	85504B 56
	1	7		5%	18432B 12	33792B 22	70656B 46
	0	8		3%	18432B 12	30720B 20	54272B 35
7 CoS	7	1	Strict	100%	36864B 24	49152B 32	144640B 95
	6	2	Weighted Round Robin	45%	32768B 21	46080B 30	131840B 86
	5	3		21%	26624B	39936B	120064B

					17	26	79
	4	4		15%	19968B	33280B	109824B
	3	5		10%	18432B	31232B	100864B
	2	6		6%	18432B	31232B	92800B
	1	7		3%	18432B	31232B	86400B
	0				12	20	56

6 CoS	7	1	Strict	100%	36864B	51200B	163840B	
					24	33	107	
	6	2	Weighted Round Robin	52%	33792B	49152B	151040B	
						22	32	99
	5	3		24%	31744B	47104B	137472B	
						20	31	90
	4	4		14%	26624B	43008B	124160B	
						17	28	81
3	5	7%	21504B	37376B	111360B			
2						14	24	73
1	6	3%	18432B	34304B	98560B			
0						12	22	64

5 CoS	7	1	Strict	100%	46080B	64000B	199680B	
					30	42	131	
	6	2	Weighted Round Robin	58%	41984B	59904B	181760B	
						27	39	119
	5	3		27%	35840B	53760B	158720B	
	4							23
	3	4		11%	28160B	46080B	133120B	
	2							18
1	5	4%	19968B	38400B	113152B			
0						13	25	74

4 CoS	7	1	Strict	100%	57344B	81920B	262912B
	6				37	53	173
	5	2	Weighted Round Robin	65%	51200B	74240B	209920B
	4				33	48	138
	3	3		26%	38912B	61440B	176640B
	2				25	40	116
	1	4	9%	24576B	44544B	136960B	
	0			16	29	90	

3 CoS	7	1	Strict	100%	65536B	109568B	393316B
	6				43	72	259
	5	2	Weighted Round Robin	75%	57344B	87040B	262144B
	4				37	57	172
	3	3		25%	49152B	65536B	131072B
	2				32	43	86
	1						

2 CoS	7	1	Strict	100%	106496B	180224B	524288B
	6				70	118	345
	5						
	4	2	Weighted Round Robin	100%	61440B	81920B	262144B
	3				40	53	172
	2						
1							

1 CoS	7	1	Strict	100%	131072B	262144B	786432B
	6						
	5						
	4						
	3				86	172	518

Egress CoS Queuing CLI Commands

- 5520-24T-PWR(config)# **show qos queue-set-assignment**

The show qos queue-set-assignment command displays in the CLI the 802.1p priority to egress CoS and QoS queue mapping for CoS setting 1-8. This command is in the CLI priv-exec mode.
- 5520-24T-PWR(config)# **show qos queue-set**

The show qos queue-set command displays the queue set configuration. The display includes the general discipline of the queue, the percent bandwidth (Kbps), and the queues size in bytes. This command is in the CLI priv-exec mode.
- 5520-24T-PWR(config)# **qos agent queue set <1-8>**

The qos agent queue set <1-8> command sets the egress CoS and QoS queue mode (1-8) in which the switch will operate. This parameter is global and requires a reset to activate a change. This command is in the CLI priv-exec mode.
- 5520-24T-PWR(config)# **qos queue-set-assignment queue-set <1-8> 1p <0-7> queue <1-8>**

The qos queue-set-assignment queue-set <1-8> 1p <0-7> queue <1-8> command gives the user the ability to specify the queue to associate an 802.1p priority. This command is in the CLI priv-exec mode.

- 5520-24T-PWR(config)# **default qos agent queue-set**

The default qos agent queue-set command will default the egress CoS and QoS queue set. The default CoS/QoS queue mode is 8. This command is in the CLI priv-exec mode.

- 5520-24T-PWR(config)# **show qos agent**

The show qos agent command displays the current attributes for egress CoS and QoS queue mode, resource sharing mode and QoS NVRAM commit delay. This command is in the CLI priv-exec mode.

- 5520-24T-PWR(config)# **qos agent nvram delay**

The qos agent nvram delay command will modify the maximum time in seconds to write config data to non-volatile storage. This command is in the CLI priv-exec mode.

- 5520-24T-PWR(config)# **qos agent reset-default**

The qos agent reset-default command resets QoS to its configuration default. This command is in the CLI priv-exec mode.

Egress Queue Recommendations

If you are running all untagged traffic and do not change default port priority settings, use setting 1 CoS.