

PacketController

Subscriber Mask Conversion

Version: 7.3.0 *Updated*: Dec. 2021

PacketController Network

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Overview

The policy efficiency is important for performance and Subscriber Mask Conversion feature is implemented for this purpose.

The subscriber mask conversion is to automatically convert the IP subnet (/26,27/,/28,/29 and /30) of subscriber to individual IP policies and it will dramatically improve the QoS policy matching efficiency. If you have most subscribers with /26,/27,/28,/29 or /30 IP subnets, you could see more than 254 times faster in QoS policy matching performance.

From version 7.3.0 the default rule space between subscribers is increased from 50 to 200, and the max. individual IP rules of each subscriber is 150.

Please note that in existing installation, if you want to enable Subscriber Mask Conversion, the subscriber rules must be regenerated. Only do this after consultation with PacketController Support.

Pre-condition

Before implementation of subscriber mask conversion, the external port of bridge should be configured correctly.

Please see the section below.

Subscriber Mask

OoS Global Options

- Click QoS ->Global Settings
 - In Subscriber Mask dropdown, select Enable Mask Conversion

QoS Buffer Size	65000	Engine Buffer Size	150000
Ethernet Header	No	Syn Packets Handling	0
URL Tracking	Yes 🗸	Application Tracking	Yes 🗸
Stats Months	6 Months 🗸	Stats Interval	15 Minutes 🗸
Application Stats	Yes 🗸	Subscriber Mask	Enable Mask Conversion

Click Save button

QoS RuleSet Mode

- Click Network ->Port
- Go to the external port of bridge, click *click* icon to edit

Port						
	Port	Туре	IP Address	MAC	Status	Action
	em0	External		b0:51:8e:02:92:87	Down	C 📰 🗞
	em1	Internal		b0:51:8e:02:92:88	Down	C 🖩 🗞
	em2	Internal		b0:51:8e:02:92:89	Down	C 🔡 🚳
	em3	Internal	192.168.0.169	b0:51:8e:02:92:8a	Up	C 🔡 🚷

×

• Select **Recommended** in QoS RuleSet Mode dropdown Edit Port Configuration

Name	em0		Туре	External		~
Log Throughput			Global Port			
TCP Optimization			TCP Window Size			
Bandwidth In	0		Bandwidth Out	0		
Burst In			Burst Out			
Congestion In			Congestion Out			
QoS RuleSet Mode	Recommended	~	FW RuleSet Mode	Recommended		~
		-				
					Close	Save

- Click Save button
- Reboot the unit

Please note that the change of QoS RuleSet Mode requires a reboot to make effective.

Add Subscriber

• Click Subscriber-> Subscriber, select the port and then click Add button

Port em0 v	Pefault View	🗄 Add					
Display 10	✓ records						Search:
Name 🔺	Туре	Plan	IP Address	MAC	Notes	Speed 🗘	Action
user3	Service Plan	40Mbps	172.16.0.0/24			0/0	🗷 🗙 🔍 🖴 🔒
user2	Service Plan	100Mbps	192.168.0.0/24 192.168.1.0/24 192.168.2.0/24 192.168.3.0/24			0/0	2 🗙 🔍 🔒 \\ 0
user1	Service Plan	512Kbps	192.168.0.225			0/0	🕑 🗙 🔍 🔒 🟮

• Please fill in the forms of this user as below, the IP address is /29

Name	demouser	Premium	TCP Optimiz
Notes			
Email		Password	password
Plan Type	Service Plan 🗸	Service Plan	10M-B-100M
Group Type	None ~		
MAC Address		VLAN	
IP Address	193.168.0.100/29		

Notes: You could add multiple subnets

- Click Save button
- Click QoS -> QoS Policy, policies for this subscriber have been automatically created, and automatically converted to individual IP policies.

40850	demouser			10M-B-100M	0	0/0	× 🗷 🔒
40851		193.168.0.97	demouser		0	0/0	× 🗷 🔒
40852		193.168.0.98	demouser		0	0/0	× 🗷 🔒
40853		193.168.0.99	demouser		0	0/0	× 🗷 🔒
40854		193.168.0.100	demouser		0	0/0	× 🗷 🔒
40855		193.168.0.101	demouser		0	0/0	× 🗷 🔒
40856		193.168.0.102	demouser		0	0/0	× 🗷 🔒
Showing 101 to 143 of 143 entries				Previou	JS 1 2		

Rule Efficiency Checker

From version 7.3.0, it is possible to see the QoS policy matching efficiency in real time.

• Click QoS-> QoS Policy, and from Manage dropdown list and then click **Rule Efficiency Checker** button

	🕼 Manage 🔻				
	Add QoS Policy				
	Add Group Header				
	Add Series Policy				
peed	Add Dynamic Policy				
40 / 0					
	Batch Operation				
1/0	Rule Efficiency Checker				

• In the popup window, the rule efficiency real-time analysis is available.

QoS Policy Efficiency Checker

Indexed QoS Policies	107
Non-Indexed QoS Policies	2
Worst Depth	1

Metrics	Description
Indexed QoS Policies	The quantity of QoS policies which have been indexed and it can be matched very fast and hence high performance.
Non-Indexed QoS Policies	The quantity of QoS policies which have NOT been indexed and <i>all the packets</i> will match.
	The less the better in terms of performance, if you see lots of Non-Indexed QoS policies, for instance, hundreds of them, the QoS policy tunning must be done.
	When Subscriber Mask Conversion enabled, any subnets other than /26,/27,/28,/29,/30 will not be indexed. And you should keep non-indexed subnets as less as possible to improve the system performance. For instance, /20 subnet is one non-indexed subnet, while you could convert /20 to twenty /24 subnets, and you should use one /20 subnet rather than twenty /24 subnets.
Worst Depth	This is the worst case, normally it is not a concern since it happens for some of packets.