



Configuring Quality of Service on KlasRouter

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The information in this article applies to:

- KlasRouter v2.0

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1.0 Introduction

This document describes how to configure Quality of Service (QoS) settings with KlasRouter. Using QoS can ensure the delivery prioritization of certain types of traffic above others. For instance, time-sensitive traffic, such as voice packets, should receive priority over traffic where latency is not as noticeable, such as with a file transfer. Configuring the QoS parameters to prioritize different types of traffic according to their specific needs allows for a number of applications to function together efficiently, especially across low-bandwidth WAN links. KlasRouter uses the Priority Queuing method in order to classify traffic as having either a High or Medium priority. KlasRouter has a default QoS configuration that automatically gives the protocols associated with the Voice over IP (VoIP) ports on KlasRouter priority over other traffic. There is also an option to manually configure QoS according to the traffic your specific network will be using. The following sections outline the steps needed to configure QoS with KlasRouter.

2.0 Configuration of KlasRouter

2.1 Cable Connections

Prior to beginning, ensure the following cable connections have been properly secured:

1. Power cord is plugged in and KlasRouter is on.
2. Control Port Cable is connected to the PC's serial port.
3. Control Port Cable is connected to the 'Control' port on the front of the KlasRouter.

2.2 Establishing a HyperTerminal Session

To configure KlasRouter, you must establish a HyperTerminal Session between a PC and KlasRouter. Follow the instructions in KlasRouter Application Note Q10601 to successfully establish a HyperTerminal Session and open the KlasRouter Main Configuration Menu.

2.3 Configuring QoS

The following sections outline how to use QoS with KlasRouter. Follow the steps below to successfully configure the necessary QoS features.

2.3.1 Starting QoS

1. Enter '7' on the KlasRouter Main Configuration Menu to enter the Advanced Configuration Menu.
2. Enter '3' on the Advanced Configuration Menu to enter the QoS Configuration Menu, shown below in Figure 1.

```

QoS Configurati on
-----
1) QoS Status
2) Start QoS
3) Stop QoS
4) Show Default QoS Filters
5) Activate Default QoS Filters
6) Deactivate Default QoS Filters
7) Show Configured QoS Filters
8) Add QoS Filters
9) Delete a QoS Filter
Press 'x' to Return

Enter Option>

```

Figure 1. Quality of Service Configuration Menu

3. Enter '1' on the QoS Configuration Menu. KlasRouter will notify you that all activated filters have been started.
4. Press 'Enter' to return to the QoS Configuration Menu.

2.3.2 Stopping QoS

1. Enter '3' on the QoS Configuration Menu to Stop QoS. KlasRouter will notify you that QoS is stopped.
2. Press 'Enter' to return to the QoS Configuration Menu.

2.3.3 Show Default QoS Filters

1. Enter '4' on the QoS Configuration Menu to show the default QoS filters, as shown below in Figure 2. The default filters use the Priority Queuing method to assign the Real Time Protocol (RTP) and Real Time Control Protocol (RTCP) a High Priority. RTP ports are the even ports from 49160 to 49166. RTCP ports are the odd ports. Port 5060 is port used for SIP signaling and call control traffic and is given a Medium Priority.

```

Default QoS Filters:
-----

```

No.	IF	Pri o	Source	Destinati on	Sport	Dport	Protocol
	all	1			49160		
	all	1			49161		
	all	1			49162		
	all	1			49163		
	all	1			49164		
	all	1			49165		
	all	1			49166		
	all	1			49167		
	all	2			5060		

```

Press Enter to return to QoS Configurati on Menu

```

Figure 2. Default QoS Filters

2. Press 'Enter' to return to the QoS Configuration Menu.

2.3.4 Activate Default QoS Filters

1. Enter '5' on the QoS Configuration Menu to activate the default QoS filters, as shown below in Figure 3.

```

QoS Configuration
-----
1) QoS Status
2) Start QoS
3) Stop QoS
4) Show Default QoS Filters
5) Activate Default QoS Filters
6) Deactivate Default QoS Filters
7) Show Configured QoS Filters
8) Add QoS Filters
9) Delete a QoS Filter
Press 'x' to Return

Enter Option>5

Activating default filters...
Default filter activated.
Press Enter to return to QoS Configuration Menu

```

Figure 3. Activate Default QoS Filters

2. Press 'Enter' to return to the QoS Configuration Menu.

2.3.5 Deactivate Default QoS Filters

1. Enter '6' on the QoS Configuration Menu to deactivate the default QoS filters.
2. Press 'Enter' to return to the QoS Configuration Menu.

2.3.6 Add QoS Filters

1. Enter '8' on the QoS Configuration Menu to manually add a QoS filter.
2. Enter the interface you would like to apply the filter on. If you are unsure of the codes for the available interfaces, press '?' for a list of options.
3. Enter the source IP address to filter packets based on the original source of the traffic. (*Note: Steps 3-8 are optional parameters that you may or may not wish to configure. You must configure at least one parameter as the basis for the filter.*)
4. Enter the destination IP address to filter packets based on the ultimate destination of the traffic.
5. Enter a TCP port number to filter packets based on the port number of the source application.
6. Enter a TCP port number to filter packets based on the port number of the destination application.
7. Enter an IP Protocol value to filter packets based on the value in the Protocol field of the IP header.

8. Enter a TOS or DiffServ value to filter packets based on the value in the TOS field in the IP header. The example from Figure 4 shows a filter based on a TOS value of 184, which is the TOS value for VoIP packets with KlasRouter.
9. Enter a QoS priority to use for the filter you just configured. A value of '1' classifies applicable packets with a High priority. A value of '2' classifies applicable packets with a Medium priority. All other traffic will be classified as Low.

```

Add QoS Filter
-----

Enter Interface Name ('q' to quit)>ixp1
Enter Source IP Address ('', a.b.c.d | 'q' to quit)>
Enter Destination IP Address ('', a.b.c.d | 'q' to quit)>
Enter Source Port ('', 0-65535 | 'q' to quit)>
Enter Destination Port ('', 0-65535 | 'q' to quit)>
Enter IP Protocol value ('', 0-127 | 'q' to quit)>
Enter TOS/DiffServ value ('', 0-255 | 'q' to quit)>184
Enter Filter Priority( 1, 2 | default: 1 | 'q' to quit)>1

Filter added.

Press Enter to return to QoS Configuration Menu

```

Figure 4. Adding a QoS Filter

10. Press 'Enter' to return to the QoS Configuration Menu.

2.3.7 Show QoS Filters

1. Enter '7' on the QoS Configuration Menu to show the configured QoS filters, as shown below in Figure 5.

```

Configured QoS Filters:
-----
No.  IF      Prio  Source          Destination      Sport    Dport    Proto  TOS
-----
1    ixp1    1
-----
Press Enter to return to QoS Configuration Menu

```

Figure 5. Show QoS Filters

2. Press 'Enter' to return to the QoS Configuration Menu.

2.3.8 Delete a QoS Filter

1. Enter '9' on the QoS Configuration Menu to delete a configured QoS filter.
2. The configured filters will be displayed. Enter the number corresponding to the filter you would like to delete, as shown below in Figure 6.

```

Delete QoS Filter
-----
Configured QoS Filters:
-----
No.  IF      Prio  Source          Destination      Sport    Dport    Proto  TOS
-----
1    i xp1    1
-----
Enter number of filter to delete ('q' to quit)>1
Deleting filter 1...
Filter 1 deleted.
Press Enter to return to QoS Configuration Menu

```

Figure 6. Delete a QoS Filter

3. Press 'Enter' to return to the QoS Configuration Menu.

MORE INFORMATION

For more information about KlasRouter and other Klas products, visit the following Klas website:

<www.klasonline.com>

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