



# Configuring RIP and OSPF with KlasRouter

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- KlasRouter v2.0

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## **1.0 Introduction**

This document describes how to configure the Routing Information Protocol (RIP) and Open Shortest Path First (OSPF) routing protocols using KlasRouter. Routing protocols are used in order to distribute network topology information to all routers throughout the network. This information is then used by the routers to make decisions regarding the best possible interface to forward packets along. RIPv1 and RIPv2 are distance-vector routing protocols that base their routing decisions on the total number of hops between end-points. OSPF is a link-state routing protocol that bases its routing decision on number of hops as well as the aggregate bandwidth between end-points. Although both RIP and OSPF take different approaches to distributing network information, KlasRouter implements the routing protocols using a similar format. Users are able to choose the networks they would like to advertise from the list of configured interfaces. The following sections outline the steps needed to configure the RIP and OSPF 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 PCs 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 the KlasRouter, you must establish a HyperTerminal Session between a PC and the 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 the Network Interface***

KlasRouter has a Serial Wide Area Network (WAN) interface, an Ethernet WAN interface and a Local Area Network (LAN) interface. The networks assigned to these interfaces determine the available networks from which a user can choose to advertise. Once chosen, KlasRouter will advertise an available path to that network to the rest of the routers in the network infrastructure using either RIP or OSPF. For additional information on how to configure these network interfaces, refer to the following KlasRouter Application Notes:

- Configuring the KlasRouter Serial WAN Port: App Note Q10603
- Configuring the KlasRouter Ethernet WAN Port: App Note Q10604
- Configuring the KlasRouter Ethernet LAN: App Note Q10605

## 2.4 Configuring RIP

The following sections outline how to check the status of RIP and how to add and delete networks that KlasRouter will advertise using the RIP routing protocol. Follow the steps below to successfully configure KlasRouter for RIP operations.

### 2.4.1 Starting RIP

1. Press '5' on the KlasRouter Main Configuration Menu to enter the Routing Configuration Menu.
2. Press '3' on Routing Configuration Menu to enter the RIP Configuration Menu, shown below in Figure 1. This menu is the source for all RIP-related functions.

```
RIP Configurati on
-----
1) View RIP Networks
2) Add RIP Network
3) Delete RIP Network
4) Start RIP
5) Stop RIP
6) View RIP Status
7) View RIP Log (Ctrl -c to quit log)
Press 'x' to Return

Enter Option>4
```

**Figure 1. RIP Configuration Menu**

3. Press '4' on the RIP Configuration Menu to start advertising RIP networks.
4. KlasRouter will then prompt you to choose which version of RIP you would like to use. RIPv2 is a more modern version that allows for variable length subnet masks and is almost always used in today's networks. Enter '2' to start RIPv2.
5. Press 'Enter' to return to the RIP Configuration Menu.

### 2.4.2 Viewing RIP Networks

1. Press '1' on the RIP Configuration Menu to view all of the currently available RIP networks.
2. Press 'Enter' to return to the RIP Configuration Menu.

### 2.4.3 Adding a RIP Network

1. Press '2' from the RIP Configuration Menu to add a network to the list of RIP-advertised networks.
2. KlasRouter will list all current RIP networks. Below that is a list of all configured networks and their associated interfaces. KlasRouter will prompt you to choose a network by entering the list number corresponding to the network you would like to add. In the example shown below in Figure 2, there are two possible networks to choose from, the Ethernet LAN and the Ethernet WAN. The example shows the user adding the network 192.168.2.0/24 which is associated with the Ethernet WAN interface.

```

Add RIP Network
-----

Current RIP Networks:
  - No RIP Networks Configured.

Select one of the following networks:
  1 - 192.168.2.0/24, i xp1 ( Ethernet WAN )
  2 - 192.168.1.0/24, i xp0 ( Ethernet LAN )

Enter Network Number('q' to quit)>1
Network added to RIP configuration file

```

**Figure 2. Adding a RIP Network**

3. Continue to add networks, as needed. Enter 'q' when finished to return to the RIP Configuration Menu.

#### 2.4.4 Deleting a RIP Network

1. Press '3' on the RIP Configuration Menu to delete a network from the list of RIP-advertised networks.
2. KlasRouter will list all current RIP networks. Below that, you will be prompted to choose a network to delete by entering the list number corresponding to the network. In the example shown below in Figure 3, there are two possible networks to choose from. The example shows the user deleting the network 192.168.2.0/24 from the list of RIP Networks.

```

Delete RIP Network
-----

Current RIP Networks:
  1 - 192.168.1.0/24
  2 - 192.168.2.0/24

Enter Network Number('q' to quit)>2
Network 192.168.2.0/24 deleted from RIP configuration file!

```

**Figure 3. Deleting a RIP Network**

3. Continue to delete networks, as needed. Enter 'q' when you finished to return to the RIP Configuration Menu.

## 2.5 Configuring OSPF

The following sections outline how to check the status of OSPF and how to add and delete networks that KlasRouter will advertise using the OSPF routing protocol. Follow the steps below to successfully configure KlasRouter for OSPF operations.

### 2.5.1 Starting OSPF

1. Press '5' on the KlasRouter Main Configuration Menu to enter the Routing Configuration Menu.
2. Press '4' on Routing Configuration Menu to enter the OSPF Configuration Menu, shown below in Figure 4. This menu is the source for all OSPF-related functions.

```

OSPF Configurati on
-----
1) View OSPF Networks
2) Add OSPF Network
3) Delete OSPF Network
4) Start OSPF
5) Stop OSPF
6) View OSPF Status
7) View OSPF Log (Ctrl -c to quit log)
Press 'x' to Return

Enter Opti on>4

```

**Figure 4. OSPF Configuration Menu**

3. Press '4' on the OSPF Configuration Menu to start advertising OSPF networks.
4. Press 'Enter' to return to the OSPF Configuration Menu.

### 2.5.2 Viewing OSPF Networks

1. Press '1' on the OSPF Configuration Menu to view all of the currently available OSPF networks.
2. Press 'Enter' to return to the OSPF Configuration Menu.

### 2.5.3 Adding an OSPF Network

1. Press '2' from the OSPF Configuration Menu to add a network to the list of OSPF-advertised networks.
2. KlasRouter will list all current OSPF networks. Below that is a list of all available networks and their associated interfaces. KlasRouter will prompt you to choose a network by entering the list number corresponding to the network you would like to add. In the example shown below in Figure 5, there are two possible networks to choose from, the Ethernet LAN and the Ethernet WAN. The example shows the user adding the network 192.168.2.0/24 which is associated with the Ethernet WAN interface.

```

Add OSPF Network
-----

Current OSPF Networks:
  - No OSPF Networks Configured.

Select one of the following networks:
  1 - 192.168.2.0/24, i xp1 ( Ethernet WAN )
  2 - 192.168.1.0/24, i xp0 ( Ethernet LAN )

Enter Network Number(' q' to quit)>1

Enter Area Number(' q' to quit)>1

Network added to OSPF configuration file.

```

**Figure 5. Adding an OSPF Network**

3. Enter the OSPF area number. All interfaces on OSPF routers must belong to an OSPF area. These areas are used to control routing advertisements and establish a hierarchy of routers for organizational purposes. In Figure 5, KlasRouter is being added to Area 1.
4. Repeat Steps 2 and 3 in order to continue to add OSPF networks, as needed.
5. Enter 'q' when finished to return to the OSPF Configuration Menu.

#### 2.5.4 Deleting an OSPF Network

1. Press '3' on the OSPF Configuration Menu to delete a network from the list of OSPF-advertised networks.
2. KlasRouter will list all current OSPF networks. Below that, you will be prompted to choose a network to delete by entering the list number corresponding to the network. In the example shown below in Figure 6, there are two possible networks to choose from. The example shows the user deleting the network 192.168.1.0/24 from the list of OSPF Networks.

```

Delete OSPF Network
-----

Current OSPF Networks:
  1 - 192.168.2.0/24 area 1
  2 - 192.168.1.0/24 area 1

Enter Network Number(' q' to quit)>2

Network 192.168.1.0/24 deleted from OSPF configuration file!

```

**Figure 6. Deleting an OSPF Network**

3. Continue to delete networks, as needed. Enter 'q' when you are finished to return to the OSPF 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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