How to Configure OSPF Routers and Areas

https://campus.barracuda.com/doc/96026050/

After enabling OSPF, set up your OSPF router and areas. This article provides instructions on configuring global settings and network definitions that are used by OSPF to build relationships with neighbors and advertise routes.

Configure OSPF Routers

1. Go to **CONFIGURATION > Configuration Tree > Box > Assigned Services > OSPF-RIP-BGP-Service > OSPF/RIP/BGP Settings**.
2. Click **Lock**.
3. In the left menu, click **OSPF Router Setup**.
4. Edit the following settings:

Setting	Description
ABR Type	Specifies the area border router (ABR) behavior of the OSPF routing daemon. You can select: ◦ **Not an ABR** ◦ **Cisco Type** ◦ **Standard RFC 2328 Type** ◦ **IBM Type**
Terminal Password	The password to connect via telnet. The OSPF router is reachable on TCP port 2604 (loopback only). The password can consist of small and capital characters, numbers, and non-alpha-numeric symbols, except the hash sign (#).
Privileged Terminal Password	The password to enable configuration via Telnet. The password can consist of small and capital characters, numbers, and non-alpha-numeric symbols, except the hash sign (#).
RFC1583 Compatibility	Specifies if the router is compatible with RFC 1583 standards.
Auto-Cost Ref Bwidth [MBit/s]	The OSPF metric. This metric is calculated as reference bandwidth divided by bandwidth. The default setting is *10000*. This value is overwritten by explicit cost statements. This setting should be used equally with all OSPF routers in an autonomous system. Otherwise, the metric calculation will be incorrect.

Advanced Settings	To specify the following advanced settings, click **Set** or **Edit**: ◦ **Support Opaque LSA** – To enable Opaque LSA, select **yes**. ◦ **SPF Delay Timer** – The length of time in seconds to wait before running an SPF after receiving a database change. ◦ **SPF Hold Timer** – The length of time in seconds to wait between consecutive SPF runs. ◦ **Refresh Timer** – You can enter values from 10 to 1800. ◦ **Default Metric** – Defines the default metric for the OSPF protocol. Use if other protocols are also used for metric-translation. ◦ **Admin Distance** – To determine which routing protocol to use if two protocols provide routing information for the same destination, the administrative distance is used as the first criterion. Higher distance values imply lower trust ratings. The admin distance setting is used to increase the metric of routes that are introduced to the system. For instance, an externally learned RIP route with metric 2 and administrative distance of 100 is introduced with metric 102. As a result, the OSPF route is favored over the RIP route. Remember that administrative distance is not advertised and therefore has only local impact.
Default Route Distribution	The default route distribution settings. To edit the following settings, click **Edit**: ◦ **OSPF Metric** – Set the metric in the router's link state advertisement. The SPF algorithm uses this value to calculate the cost for each route. Routes with lower costs are preferred over routes with higher costs. ◦ **OSPF External Metric** – Select an external metric type: ■ **Type1** – Type 1 external routes have a cost that is the sum of the cost of this external route plus the cost to reach the ASBR. ■ **Type2** – The cost of Type 2 external routes is defined similarly to the cost of Type 1 routes but without the cost to reach the ASBR. ◦ **Route Maps** - Filter definitions. Reference the **Route Map Filters** settings on the **Filter Setup** page. For more information, see How to Configure the Filter Setup for OSPF and RIP.

Route Redistribution	In this table, add route redistribution settings. For each entry, you can edit the following settings: ◦ **Route Types** – The route type. You can select *connected*, *RIP*, or *BGP*. ◦ **OSPF Metric** – Set the metric in the router's link state advertisement. The SPF algorithm uses this value to calculate the cost for each route. Routes with lower costs are preferred over routes with higher costs. ◦ **OSPF External Metric** – If required, select an external metric type: ■ **Type1** – Type 1 external routes have a cost that is the sum of the cost of this external route plus the cost to reach the ASBR. ■ **Type2** - The cost of Type 2 external routes is defined similarly to the cost of Type 1 routes but without the cost to reach the ASBR. Otherwise, select *NOT-SET* if an external metric setting is not required. ◦ **Route Maps** – Filter definitions. Reference the **Route Map Filters** settings on the **Filter Setup** page. For more information, see How to Configure the Filter Setup for OSPF and RIP.

5. Click **Send Changes** and **Activate**.

Configure OSPF Areas

1. Go to **CONFIGURATION > Configuration Tree > Box > Assigned Services > OSPF-RIP-BGP-Service > OSPF/RIP/BGP Settings**.
2. Click **Lock**.
3. In the left menu, select **OSPF Area Setup**.
4. In the **Areas** table, add your OSPF areas. For each entry, you can edit the following settings:

Setting	Description
Enable Configuration	Enables or disables the area: ◦ To enable the area, select *yes*. ◦ To disable the area, select *no*.
Area ID Format	Specifies which format is used to enter the area ID. You can select: ◦ **Integer (default)** – Enter your area ID as an integer in the **Area ID [Int]** field. ◦ **Quad-IP** – Enter your area ID as a Quad IP address in the **Area ID [IP]** field.
Area ID [IP]	The area ID in Quad IP address format. For example, *0.0.0.1*.
Area ID [Int]	The area ID as a number. For example, *0*. The ID for the first area must be *0*.
Authentication Type	The authentication method for the area. This must match the authentication type selected in the **Parameter Template** for the **Interface**.

Special Type	Specifies if the area is a Stub or Not-So-Stubby Area. You can select: ◦ **NONE** – Default setting. The area is not a special type. ◦ **stub** – Stub areas do not import or originate external LSAs. ◦ **nssa** – The OSPF Not-So-Stubby Area where an ASBR can be located in a stub area (see RFC 3101).
NSSA-ABR Translate Election	This setting option is defined by RFC 3101.
Disable Summary	Disables summary LSAs.
Virtual Link ID (ABR) (Advanced View)	The virtual link ID for this area. This setting is only available in **Advanced View** mode.
Virtual Link Params (Advanced View)	To edit the settings for the virtual link, click **Edit**. For more information on these settings, see the "Template Configuration" section of How to Configure Network Interfaces for OSPF and RIP. This setting is only available in **Advanced View** mode.
Area Default Cost	The cost for the default route injected in an attached stub area.
Network Prefix	Enter the networks propagated by OSPF. E.g., 192.168.0.0/24
Interfaces (for OSPF IPv6)	Defines the interfaces, which are used for OSPF IPv6 propagation. Click **+** to add interfaces to the list.
Summary Range IP/Mask	In this table, configure special actions for a summary range. For each entry, you can edit the following settings: ◦ **Summary Range IP/Mask** – The IP address/mask of the summary range. ◦ **Range Action** – The special action for the range. You can select: ▪ **advertise (default)** ▪ **non-advertise** ▪ **substitute** ◦ **Range Cost** – Cost for a range. ◦ **Advertised Range** – Advertise configured range to.
Area Export Filters	In this table, create an export ACL.
Area Import Filters	In this table, create an import ACL.
Area in Filters	In this table, create an import prefix list.
Area out Filters	In this table, create an export prefix list.

5. Click **OK**.
6. Click **Send Changes** and **Activate**.