How to Configure the Filter Setup for OSPF and RIP

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A filter in OSPF / RIP is required when redistributing routes from one protocol to another. To modify routing information, you can use route maps. When doing so, the filter is applied to match the routes. Certain actions can be applied to the matching routes. For example, the RIP-learned route 10.0.0.0 /24 with metric 4 hops should have metric 6 instead. The match condition in the route map must be a filter matching 10.0.0.0/24 and the set condition must be metric 6. When applying route filters in the RIP or OSPF section, only ACLs or prefix lists are needed. Route maps are not required.

This configuration is restricted to basic ACLs. Extended ACLs must be configured in the **Text Based Configuration** settings.

Configure Filter Setup

Define filters to be referenced within the **OSPF Area Setup** and/or the **RIP Route Update Filtering** section. For more information, see How to Configure OSPF Routers and Areas and How to Configure RIP Router Setup.

You can filter OSPF and RIP traffic by access lists, route maps, or IP prefixes.

> Note that making changes to filters will go into effect immediately after activating the new configuration!

Define an Access List

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 **Filter Setup IPv4** (when using IPv6 addresses, select **Filter Setup IPv6** and configure the following settings for IPv6).
4. Click **+** in the **Access List IPv4 Filters** section. The **Name** is the ACL name / ID.
5. Click **OK**. The **Access List IPv4 Filters** window opens.
6. Enter a short **Description** of the ACL.
7. Click **+** in the **Type** section. The type specifies if the traffic is allowed (default) or blocked.
8. Select either to **permit** (default) traffic or **deny**.
9. Enter the **Network Prefix**.
10. Click **OK**.
11. Click **OK** to confirm your settings.
12. Click **Send Changes** and **Activate**.

Configure a Route Map

Route maps are used to control and modify routing information that is exchanged between routing domains.

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 **Filter Setup IPv4** (when using IPv6 addresses, select **Filter Setup IPv6** and configure the following settings for IPv6).
4. In the **Route Maps IPv4** section, click **+** to add an entry. The **Name** is the route map name.
5. Click **OK**. The **Route Maps IPv4** window opens.
6. Enter a short **Description** of the route map.
7. To configure route maps for OSPF:
    1. Click **+** in the **OSPF Specific Conditions > Route Map Entry** section.
    2. In the **Sequence Number** field, enter the unique identifier for the route-map entry.
    3. From the **Type** drop-down list, select either to **permit** (default) traffic or **deny**.
    4. From the **Match Condition** drop-down list, select how the route map entry matches when the route matches the configured criteria or filter:
        - **ACL (default)** – If selected, enter the name of ACL defined in the Access List steps above in the **ACL Name** field.
        - **PREFIXLIST** – If selected, add the name of the IP prefix list defined in **OSPF/RIP Settings > Filter Setup > IPv4 Prefix List Filters** in the **IP Prefix List** field.
        - **Gateway-IP** – If selected, enter the IP address of the next hop in the route in the **Gateway IP (Access List)** field.
        - **Interface-Name** – If selected, enter the interface in the **Out Interface Name** field. See the **Network Interfaces** section to gain available interface names.
    5. From the **Set Action** drop-down list, define the action to set:
        - **Metric** – If selected, set the metric for the route map in the **Set OSPF Metric** field.
        - **Metric-Type** – If selected, set the external metric type for the route map.
    6. Click **OK**.
8. Click **OK**.

   To configure route maps for RIP:
    1. Click **+** in the **RIP Specific Conditions > Route Map Entry** section.
    2. In the **Sequence Number** field, enter the unique identifier for the route-map entry.
    3. From the **Type** drop-down list, select either to **permit** (default) traffic or **deny**.
    4. From the **Match Condition** drop-down list, select how the route map entry matches when the route matches the configured criteria or filter:
        - **ACL (default)** – If selected, enter the name of ACL defined in the Access List steps above in the **ACL Name** field.
        - **PREFIXLIST** – If selected, add the name of the IP prefix list defined in **OSPF/RIP Settings > Filter Setup > IPv4 Prefix List Filters** in the **IP Prefix List** field.
        - **Gateway-IP** – If selected, enter the IP address of the next hop in the route in the **Gateway IP (Access List)** field.
        - **Interface-Name** – If selected, enter the interface in the **Out Interface Name** field. See the **Network Interfaces** section to gain available interface names.

- **Metric** – If selected, set the metric for the route map in the **Match Metric** field.

5. From the **Set Action** drop-down list, define the action to set:
   - **Next-hop** – If selected, enter the next-hop IP address in the **Set RIP Next-Hop IP** field.
   - **Metric** – If selected, set the metric for the route map in the **Set RIP Metric** field.
6. Click **OK**.

9. Click **OK** to confirm your settings.
10. Click **Send Changes** and **Activate**.

Define an IPv4 Prefix List

Prefix lists are easier to understand for route filters than ACLs. Example of IP prefix list filter usage:

	Network Prefix	Type	Extent Type
Deny default route *0.0.0.0/32*	*0.0.0.0/32*	deny	none
permit prefix *10.0.0.0/24*	*10.0.0.0/24*	permit	none

To configure IP prefix list filters:

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 **Filter Setup IPv4** (when using IPv6 addresses, select **Filter Setup IPv6** and configure the following settings for IPv6).
4. In the **IPv4 Prefix Lists** section, click **+** to add an entry. The **Name** is the name of the IP prefix list.
5. Click **OK**. The **IPv4 Prefix Lists** window opens.
6. Enter a short **Description** of the IP prefix list.
7. Click **+** in the **Sequence Number** section.
8. In the **Sequence Number** field, enter the unique identifier for a prefix-list item.
9. Enter the **Network Prefix**.
10. From the **Type** drop-down list, select an action for the prefix term. You can select **permit** (default) or **deny**.
11. From the **Extent Type** drop-down list, select the matching condition:
    - **none** (default)
    - **greater-or-equal** – Enter the minimum **Prefix Length** to be matched in the **Prefix Length greater-or-equal** field.
    - **less-or-equal** – Enter the maximum **Prefix Length** to be matched in the **Prefix Length less-or-equal** field.
    - **both** – Enter the minimum and maximum **Prefix Length** to be matched.
12. Click **OK**.
13. Click **OK** to confirm your settings.
14. Click **Send Changes** and **Activate**.

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