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| **OSPF**[](https://docs.vyos.io/en/latest/configuration/protocols/ospf.html#ospf) |

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| OSPF is a routing protocol for Internet Protocol (IP) networks. It uses a link state routing |

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| (LSR) algorithm and falls into the group of interior gateway protocols (IGPs), operating |

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| within a single autonomous system (AS). It is defined as OSPF Version 2 in **RFC** |

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| **2328** (1998) for IPv4. Updates for IPv6 are specified as OSPF Version 3 in **RFC** |

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| **5340** (2008). OSPF supports the CIDR addressing model. |

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| OSPF is a widely used IGP in large enterprise networks. |

**OSPFv2 (IPv4)**[](https://docs.vyos.io/en/latest/configuration/protocols/ospf.html#ospfv2-ipv4)

**Configuration**[](https://docs.vyos.io/en/latest/configuration/protocols/ospf.html#configuration)

**General**[](https://docs.vyos.io/en/latest/configuration/protocols/ospf.html#general)

VyOS does not have a special command to start the OSPF process. The OSPF process starts when the first ospf enabled interface is configured.

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| **set protocols ospf area <number> network <A.B.C.D/M>** |

This command specifies the OSPF enabled interface(s). If the interface has an address from defined range then the command enables OSPF on this interface so router can provide network information to the other ospf routers via this interface.

This command is also used to enable the OSPF process. The area number can be specified in decimal notation in the range from 0 to 4294967295. Or it can be specified in dotted decimal notation similar to ip address.

Prefix length in interface must be equal or bigger (i.e. smaller network) than prefix length in network statement. For example statement above doesn’t enable ospf on interface with address 192.168.1.1/23, but it does on interface with address 192.168.1.129/25.

In some cases it may be more convenient to enable OSPF on a per interface/subnet

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| basis set protocols ospf interface <interface> area <x.x.x.x | x>   |  | | --- | |  | |

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| **set protocols ospf auto-cost reference-bandwidth <number>** |

This command sets the reference bandwidth for cost calculations, where bandwidth can be in range from 1 to 4294967, specified in Mbits/s. The default is 100Mbit/s (i.e. a link of bandwidth 100Mbit/s or higher will have a cost of 1. Cost of lower bandwidth links will be scaled with reference to this cost).

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| **set protocols ospf parameters router-id <rid>** |

This command sets the router-ID of the OSPF process. The router-ID may be an IP address of the router, but need not be – it can be any arbitrary 32bit number. However it MUST be unique within the entire OSPF domain to the OSPF speaker – bad things will happen if multiple OSPF speakers are configured with the same router-ID!

**Optional**[](https://docs.vyos.io/en/latest/configuration/protocols/ospf.html#optional)

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| **set protocols ospf default-information originate [always] [metric <number>] [metric-type <1|2>] [route-map <name>]** |

Originate an AS-External (type-5) LSA describing a default route into all external-routing

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| capable areas, of the specified metric and metric type. If the always keyword is given then the   |  | | --- | |  | |

default is always advertised, even when there is no default present in the routing table. The

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| argument route-map specifies to advertise the default route if the route map is satisfied.   |  | | --- | |  | |

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| **set protocols ospf distance global <distance>** |

This command change distance value of OSPF globally. The distance range is 1 to 255.

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| **set protocols ospf distance ospf <external|inter-area|intra-area> <distance>** |

This command change distance value of OSPF. The arguments are the distance values for external routes, inter-area routes and intra-area routes respectively. The distance range is 1 to 255.

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| **Note** |

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| Routes with a distance of 255 are effectively disabled and not installed into the kernel. |
| **set protocols ospf log-adjacency-changes [detail]** |
| This command allows to log changes in adjacency. With the optional detail argument, all   |  | | --- | |  |   changes in adjacency status are shown. Without detail , only changes to full or regressions are   |  | | --- | |  | |

shown.

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| **set protocols ospf max-metric router-lsa <administrative|on-shutdown <seconds>|on-startup <seconds>>** |

This enables **[RFC 3137](https://datatracker.ietf.org/doc/html/rfc3137.html)** support, where the OSPF process describes its transit links in its router-LSA as having infinite distance so that other routers will avoid calculating transit paths through the router while still being able to reach networks through the router.

This support may be enabled administratively (and indefinitely) with

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| the administrative command. It may also be enabled conditionally. Conditional enabling of max-   |  | | --- | |  |   metric router-lsas can be for a period of seconds after startup with the on-   |  | | --- | |  |  |  | | --- | |  |   startup <seconds> command and/or for a period of seconds prior to shutdown with the on-   |  | | --- | |  |  |  | | --- | |  |   shutdown <seconds> command. The time range is 5 to 86400. |

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| **set protocols ospf parameters abr-type <cisco|ibm|shortcut|standard>** |

This command selects ABR model. OSPF router supports four ABR models:

**cisco** – a router will be considered as ABR if it has several configured links to the networks in different areas one of which is a backbone area. Moreover, the link to the backbone area should be active (working). **ibm** – identical to “cisco” model but in this case a backbone area link may not be active. **standard** – router has several active links to different areas. **shortcut** – identical to“standard” but in this model a router is allowed to use a connected areas topology without involving a backbone area for inter-area connections.

Detailed information about “cisco” and “ibm” models differences can be found in **[RFC 3509](https://datatracker.ietf.org/doc/html/rfc3509.html)**. A “shortcut” model allows ABR to create routes between areas based on the topology of the areas connected to this router but not using a backbone area in case if non-backbone route will be cheaper. For more information about “shortcut” model, see *ospf-shortcut-abr-02.txt*

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| **set protocols ospf parameters rfc1583-compatibility** |

**[RFC 2328](https://datatracker.ietf.org/doc/html/rfc2328.html)**, the successor to **[RFC 1583](https://datatracker.ietf.org/doc/html/rfc1583.html)**, suggests according to section G.2 (changes) in section 16.4.1 a change to the path preference algorithm that prevents possible routing loops that were possible in the old version of OSPFv2. More specifically it demands that inter-area paths and intra-area backbone path are now of equal preference but still both preferred to external paths.

This command should NOT be set normally.

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| **set protocols ospf interface <interface> passive [disable]** |

This command specifies interface as passive. Passive interface advertises its address, but does not run the OSPF protocol (adjacencies are not formed and hello packets are not generated).

The optional *disable* option allows to exclude interface from passive state. This command is used

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| if the command passive-interface default was configured.   |  | | --- | |  | |

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| **set protocols ospf passive-interface default** |

This command specifies all interfaces as passive by default. Because this command changes the configuration logic to a default passive; therefore, interfaces where router adjacencies are

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| expected need to be configured with the passive-interface-exclude command.   |  | | --- | |  | |

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| **set protocols ospf maximum-paths <1-64>** |

Use this command to control the maximum number of equal cost paths to reach a specific destination. The upper limit may differ if you change the value of MULTIPATH\_NUM during compilation. The default is MULTIPATH\_NUM (64).

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| **set protocols ospf refresh timers <seconds>** |

The router automatically updates link-state information with its neighbors. Only an obsolete information is updated which age has exceeded a specific threshold. This parameter changes a threshold value, which by default is 1800 seconds (half an hour). The value is applied to the whole OSPF router. The timer range is 10 to 1800.

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| **set protocols ospf timers throttle spf <delay|initial-holdtime|max-holdtime> <seconds>** |

This command sets the initial delay, the initial-holdtime and the maximum-holdtime between when SPF is calculated and the event which triggered the calculation. The times are specified in

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| milliseconds and must be in the range of 0 to 600000 milliseconds. delay sets the initial SPF   |  | | --- | |  |   schedule delay in milliseconds. The default value is 200 ms. initial-holdtime sets the minimum   |  | | --- | |  |   hold time between two consecutive SPF calculations. The default value is 1000 ms. max-   |  | | --- | |  |  |  | | --- | |  |   holdtime sets the maximum wait time between two consecutive SPF calculations. The default |

value is 10000 ms.

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| **set protocols ospf ldp-sync** |

This command will enable IGP-LDP synchronization globally for OSPF. This requires for LDP to be functional. This is described in **[RFC 5443](https://datatracker.ietf.org/doc/html/rfc5443.html)**. By default all interfaces operational in OSPF are enabled for synchronization. Loopbacks are exempt.

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| **set protocols ospf ldp-sync holddown <seconds>** |

This command will change the hold down value globally for IGP-LDP synchronization during convergence/interface flap events.

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| **set protocols ospf capability opaque** |

ospfd supports Opaque LSA **[RFC 2370](https://datatracker.ietf.org/doc/html/rfc2370.html)** as partial support for MPLS Traffic Engineering LSAs. The opaque-lsa capability must be enabled in the configuration.

An alternate command could be “mpls-te on” (Traffic Engineering)

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| **Note** |

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| FRR offers only partial support for some of the routing protocol extensions that are used with |

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| MPLS-TE; it does not support a complete RSVP-TE solution. |

**Area Configuration**[](https://docs.vyos.io/en/latest/configuration/protocols/ospf.html#area-configuration)

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| **set protocols ospf area <number> area-type stub** |

This command specifies the area to be a Stub Area. That is, an area where no router originates routes external to OSPF and hence an area where all external routes are via the ABR(s). Hence, ABRs for such an area do not need to pass AS-External LSAs (type-5) or ASBR-Summary LSAs (type-4) into the area. They need only pass Network-Summary (type-3) LSAs into such an area, along with a default-route summary.

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| **set protocols ospf area <number> area-type stub no-summary** |

This command specifies the area to be a Totally Stub Area. In addition to stub area limitations this area type prevents an ABR from injecting Network-Summary (type-3) LSAs into the specified stub area. Only default summary route is allowed.

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| **set protocols ospf area <number> area-type stub default-cost <number>** |

This command sets the cost of default-summary LSAs announced to stubby areas. The cost range is 0 to 16777215.

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| **set protocols ospf area <number> area-type nssa** |

This command specifies the area to be a Not So Stubby Area. External routing information is imported into an NSSA in Type-7 LSAs. Type-7 LSAs are similar to Type-5 AS-external LSAs, except that they can only be flooded into the NSSA. In order to further propagate the NSSA external information, the Type-7 LSA must be translated to a Type-5 AS-external-LSA by the NSSA ABR.

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| **set protocols ospf area <number> area-type nssa no-summary** |

This command specifies the area to be a NSSA Totally Stub Area. ABRs for such an area do not need to pass Network-Summary (type-3) LSAs (except the default summary route), ASBR-

Summary LSAs (type-4) and AS-External LSAs (type-5) into the area. But Type-7 LSAs that convert to Type-5 at the NSSA ABR are allowed.

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| **set protocols ospf area <number> area-type nssa default-cost <number>** |

This command sets the default cost of LSAs announced to NSSA areas. The cost range is 0 to 16777215.

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| **set protocols ospf area <number> area-type nssa translate <always| candidate|never>** |

Specifies whether this NSSA border router will unconditionally translate Type-7 LSAs into Type-5 LSAs. When role is Always, Type-7 LSAs are translated into Type-5 LSAs regardless of the translator state of other NSSA border routers. When role is Candidate, this router participates in the translator election to determine if it will perform the translations duties. When role is Never, this router will never translate Type-7 LSAs into Type-5 LSAs.

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| **set protocols ospf area <number> authentication plaintext-password** |

This command specifies that simple password authentication should be used for the given area. The password must also be configured on a per-interface basis.

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| **set protocols ospf area <number> authentication md5** |

This command specify that OSPF packets must be authenticated with MD5 HMACs within the given area. Keying material must also be configured on a per-interface basis.

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| **set protocols ospf area <number> range <A.B.C.D/M> [cost <number>]** |

This command summarizes intra area paths from specified area into one summary-LSA (Type-3) announced to other areas. This command can be used only in ABR and ONLY router-LSAs (Type-1) and network-LSAs (Type-2) (i.e. LSAs with scope area) can be summarized. AS-external-LSAs (Type-5) can’t be summarized - their scope is AS. The optional

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| argument cost specifies the aggregated link metric. The metric range is 0 to 16777215.   |  | | --- | |  | |

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| **set protocols ospf area <number> range <A.B.C.D/M> not-advertise** |

This command instead of summarizing intra area paths filter them - i.e. intra area paths from this range are not advertised into other areas. This command makes sense in ABR only.

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| **set protocols ospf area <number> export-list <acl\_number>** |

Filter Type-3 summary-LSAs announced to other areas originated from intra- area paths from specified area. This command makes sense in ABR only.

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| **set protocols ospf area <number> import-list <acl\_number>** |

Same as export-list, but it applies to paths announced into specified area as Type-3 summary-LSAs. This command makes sense in ABR only.

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| **set protocols ospf area <number> range <A.B.C.D/M> substitute <E.F.G.H/M>** |

One Type-3 summary-LSA with routing info <E.F.G.H/M> is announced into backbone area if defined area contains at least one intra-area network (i.e. described with router-LSA or network-LSA) from range <A.B.C.D/M>. This command makes sense in ABR only.

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| **set protocols ospf area <number> shortcut <default|disable|enable>** |

This parameter allows to “shortcut” routes (non-backbone) for inter-area routes. There are three modes available for routes shortcutting:

**default** – this area will be used for shortcutting only if ABR does not have a link to the backbone area or this link was lost. **enable** – the area will be used for shortcutting every time the route that goes through it is cheaper. **disable** – this area is never used by ABR for routes shortcutting.

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| **set protocols ospf area <number> virtual-link <A.B.C.D>** |

Provides a backbone area coherence by virtual link establishment.

In general, OSPF protocol requires a backbone area (area 0) to be coherent and fully connected. I.e. any backbone area router must have a route to any other backbone area router. Moreover, every ABR must have a link to backbone area. However, it is not always possible to have a physical link to a backbone area. In this case between two ABR (one of them has a link to the backbone area) in the area (not stub area) a virtual link is organized.

<number> – area identifier through which a virtual link goes. <A.B.C.D> – ABR router-id with which a virtual link is established. Virtual link must be configured on both routers.

Formally, a virtual link looks like a point-to-point network connecting two ABR from one area one of which physically connected to a backbone area. This pseudo-network is considered to belong to a backbone area.

**Interface Configuration**[](https://docs.vyos.io/en/latest/configuration/protocols/ospf.html#interface-configuration)

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| **set protocols ospf interface <interface> area <x.x.x.x | x>** |

Enable ospf on an interface and set associated area.

If you have a lot of interfaces, and/or a lot of subnets, then enabling OSPF via this command may result in a slight performance improvement.

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| **set protocols ospf interface <interface> authentication plaintext-password <text>** |

This command sets OSPF authentication key to a simple password. After setting, all OSPF packets are authenticated. Key has length up to 8 chars.

Simple text password authentication is insecure and deprecated in favour of MD5 HMAC authentication.

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| **set protocols ospf interface <interface> authentication md5 key-id <id> md5-key <text>** |

This command specifys that MD5 HMAC authentication must be used on this interface. It sets OSPF authentication key to a cryptographic password. Key-id identifies secret key used to create the message digest. This ID is part of the protocol and must be consistent across routers on a link. The key can be long up to 16 chars (larger strings will be truncated), and is associated with the given key-id.

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| **set protocols ospf interface <interface> bandwidth <number>** |

This command sets the interface bandwidth for cost calculations, where bandwidth can be in range from 1 to 100000, specified in Mbits/s.

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| **set protocols ospf interface <interface> cost <number>** |

This command sets link cost for the specified interface. The cost value is set to router-LSA’s metric field and used for SPF calculation. The cost range is 1 to 65535.

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| **set protocols ospf interface <interface> dead-interval <number>** |

Set number of seconds for router Dead Interval timer value used for Wait Timer and Inactivity Timer. This value must be the same for all routers attached to a common network. The default value is 40 seconds. The interval range is 1 to 65535.

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| **set protocols ospf interface <interface> hello-multiplier <number>** |

The hello-multiplier specifies how many Hellos to send per second, from 1 (every second) to 10 (every 100ms). Thus one can have 1s convergence time for OSPF. If this form is specified, then the hello-interval advertised in Hello packets is set to 0 and the hello-interval on received Hello

packets is not checked, thus the hello-multiplier need NOT be the same across multiple routers on a common link.

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| **set protocols ospf interface <interface> hello-interval <number>** |

Set number of seconds for Hello Interval timer value. Setting this value, Hello packet will be sent every timer value seconds on the specified interface. This value must be the same for all routers attached to a common network. The default value is 10 seconds. The interval range is 1 to 65535.

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| **set protocols ospf interface <interface> bfd** |

This command enables BFD on this OSPF link interface.

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| **set protocols ospf interface <interface> mtu-ignore** |

This command disables check of the MTU value in the OSPF DBD packets. Thus, use of this command allows the OSPF adjacency to reach the FULL state even though there is an interface MTU mismatch between two OSPF routers.

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| **set protocols ospf interface <interface> network <type>** |

This command allows to specify the distribution type for the network connected to this interface:

**broadcast** – broadcast IP addresses distribution. **non-broadcast** – address distribution in NBMA networks topology. **point-to-multipoint** – address distribution in point-to-multipoint   
networks. **point-to-point** – address distribution in point-to-point networks.

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| **set protocols ospf interface <interface> priority <number>** |

This command sets Router Priority integer value. The router with the highest priority will be more eligible to become Designated Router. Setting the value to 0, makes the router ineligible to become Designated Router. The default value is 1. The interval range is 0 to 255.

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| **set protocols ospf interface <interface> retransmit-interval <number>** |

This command sets number of seconds for RxmtInterval timer value. This value is used when retransmitting Database Description and Link State Request packets if acknowledge was not received. The default value is 5 seconds. The interval range is 3 to 65535.

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| **set protocols ospf interface <interface> transmit-delay <number>** |

This command sets number of seconds for InfTransDelay value. It allows to set and adjust for each interface the delay interval before starting the synchronizing process of the router’s database with all neighbors. The default value is 1 seconds. The interval range is 3 to 65535.

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| **set protocols ospf interface <interface> ldp-sync disable** |

This command disables IGP-LDP sync for this specific interface.

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| **set protocols ospf interface <interface> ldp-sync holddown <seconds>** |

This command will change the hold down value for IGP-LDP synchronization during convergence/interface flap events, but for this interface only.

**External Route Summarisation**[](https://docs.vyos.io/en/latest/configuration/protocols/ospf.html#external-route-summarisation)

This feature summarises originated external LSAs (Type-5 and Type-7). Summary Route will be originated on-behalf of all matched external LSAs.

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| **set protocols ospf aggregation timer <seconds>** |

Configure aggregation delay timer interval.

Summarisation starts only after this delay timer expiry.

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| **set protocols ospf summary-address x.x.x.x/y [tag (1-4294967295)]** |

This command enable/disables summarisation for the configured address range.

Tag is the optional parameter. If tag configured Summary route will be originated with the configured tag.

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| **set protocols ospf summary-address x.x.x.x/y no-advertise** |

This command to ensure not advertise the summary lsa for the matched external LSAs.

**Graceful Restart**[](https://docs.vyos.io/en/latest/configuration/protocols/ospf.html#graceful-restart)

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| **set protocols ospf graceful-restart [grace-period (1-1800)]** |

Configure Graceful Restart **[RFC 3623](https://datatracker.ietf.org/doc/html/rfc3623.html)** restarting support. When enabled, the default grace period is 120 seconds.

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| To perform a graceful shutdown, the FRR graceful-restart prepare ip ospf EXEC-level command   |  | | --- | |  | |

needs to be issued before restarting the ospfd daemon.

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| **set protocols ospf graceful-restart helper enable [router-id A.B.C.D]** |

Configure Graceful Restart **[RFC 3623](https://datatracker.ietf.org/doc/html/rfc3623.html)** helper support. By default, helper support is disabled for all neighbours. This config enables/disables helper support on this router for all neighbours.

To enable/disable helper support for a specific neighbour, the router-id (A.B.C.D) has to be specified.

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| **set protocols ospf graceful-restart helper no-strict-lsa-checking** |

By default *strict-lsa-checking* is configured then the helper will abort the Graceful Restart when a LSA change occurs which affects the restarting router.

This command disables it.

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| **set protocols ospf graceful-restart helper supported-grace-time** |

Supports as HELPER for configured grace period.

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| **set protocols ospf graceful-restart helper planned-only** |

It helps to support as HELPER only for planned restarts.

By default, it supports both planned and unplanned outages.

**Manual Neighbor Configuration**[](https://docs.vyos.io/en/latest/configuration/protocols/ospf.html#manual-neighbor-configuration)

OSPF routing devices normally discover their neighbors dynamically by listening to the broadcast or multicast hello packets on the network. Because an NBMA network does not support broadcast (or multicast), the device cannot discover its neighbors dynamically, so you must configure all the neighbors statically.

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| **set protocols ospf neighbor <A.B.C.D>** |

This command specifies the IP address of the neighboring device.

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| **set protocols ospf neighbor <A.B.C.D> poll-interval <seconds>** |

This command specifies the length of time, in seconds, before the routing device sends hello packets out of the interface before it establishes adjacency with a neighbor. The range is 1 to 65535 seconds. The default value is 60 seconds.

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| **set protocols ospf neighbor <A.B.C.D> priority <number>** |

This command specifies the router priority value of the nonbroadcast neighbor associated with the IP address specified. The default is 0. This keyword does not apply to point-to-multipoint interfaces.

**Redistribution Configuration**[](https://docs.vyos.io/en/latest/configuration/protocols/ospf.html#redistribution-configuration)

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| **set protocols ospf redistribute <route source>** |

This command redistributes routing information from the given route source to the OSPF process. There are five modes available for route source: bgp, connected, kernel, rip, static.

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| **set protocols ospf default-metric <number>** |

This command specifies the default metric value of redistributed routes. The metric range is 0 to 16777214.

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| **set protocols ospf redistribute <route source> metric <number>** |

This command specifies metric for redistributed routes from the given route source. There are five modes available for route source: bgp, connected, kernel, rip, static. The metric range is 1 to 16777214.

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| **set protocols ospf redistribute <route source> metric-type <1|2>** |

This command specifies metric type for redistributed routes. Difference between two metric types that metric type 1 is a metric which is “commensurable” with inner OSPF links. When calculating a metric to the external destination, the full path metric is calculated as a metric sum path of a router which had advertised this link plus the link metric. Thus, a route with the least summary metric will be selected. If external link is advertised with metric type 2 the path is selected which lies through the router which advertised this link with the least metric despite of the fact that internal path to this router is longer (with more cost). However, if two routers advertised an external link and with metric type 2 the preference is given to the path which lies through the router with a shorter internal path. If two different routers advertised two links to the same external destimation but with different metric type, metric type 1 is preferred. If type of a metric left undefined the router will consider these external links to have a default metric type 2.

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| **set protocols ospf redistribute <route source> route-map <name>** |

This command allows to use route map to filter redistributed routes from the given route source. There are five modes available for route source: bgp, connected, kernel, rip, static.

**Operational Mode Commands**[](https://docs.vyos.io/en/latest/configuration/protocols/ospf.html#operational-mode-commands)

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| **show ip ospf neighbor** |

This command displays the neighbors status.

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| Neighbor ID Pri State Dead Time Address Interface RXmtL RqstL DBsmL |

|  |
| --- |
| 10.0.13.1 1 Full/DR 38.365s 10.0.13.1 eth0:10.0.13.3 0 0 0 10.0.23.2 1 Full/Backup 39.175s 10.0.23.2 eth1:10.0.23.3 0 0 0 |
| **show ip ospf neighbor detail** |

This command displays the neighbors information in a detailed form, not just a summary table.

|  |
| --- |
| Neighbor 10.0.13.1, interface address 10.0.13.1 In the area 0.0.0.0 via interface eth0  Neighbor priority is 1, State is Full, 5 state changes Most recent state change statistics:  Progressive change 11m55s ago  DR is 10.0.13.1, BDR is 10.0.13.3  Options 2 \*|-|-|-|-|-|E|-  Dead timer due in 34.854s  Database Summary List 0  Link State Request List 0  Link State Retransmission List 0  Thread Inactivity Timer on  Thread Database Description Retransmision off Thread Link State Request Retransmission on  Thread Link State Update Retransmission on |

|  |
| --- |
| Neighbor 10.0.23.2, interface address 10.0.23.2 In the area 0.0.0.1 via interface eth1  Neighbor priority is 1, State is Full, 4 state changes Most recent state change statistics:  Progressive change 41.193s ago  DR is 10.0.23.3, BDR is 10.0.23.2  Options 2 \*|-|-|-|-|-|E|-  Dead timer due in 35.661s  Database Summary List 0  Link State Request List 0  Link State Retransmission List 0  Thread Inactivity Timer on  Thread Database Description Retransmision off Thread Link State Request Retransmission on  Thread Link State Update Retransmission on |
| **show ip ospf neighbor <A.B.C.D>** |

This command displays the neighbors information in a detailed form for a neighbor whose IP address is specified.

|  |
| --- |
| **show ip ospf neighbor <interface>** |

This command displays the neighbors status for a neighbor on the specified interface.

|  |
| --- |
| **show ip ospf interface [<interface>]** |

This command displays state and configuration of OSPF the specified interface, or all interfaces if no interface is given.

|  |
| --- |
| eth0 is up  ifindex 2, MTU 1500 bytes, BW 4294967295 Mbit <UP,BROADCAST,RUNNING,MULTICAST> Internet Address 10.0.13.3/24, Broadcast 10.0.13.255, Area 0.0.0.0  MTU mismatch detection: enabled  Router ID 10.0.23.3, Network Type BROADCAST, Cost: 1  Transmit Delay is 1 sec, State Backup, Priority 1 |

|  |
| --- |
| Backup Designated Router (ID) 10.0.23.3, Interface Address 10.0.13.3  Multicast group memberships: OSPFAllRouters OSPFDesignatedRouters  Timer intervals configured, Hello 10s, Dead 40s, Wait 40s, Retransmit 5  Hello due in 4.470s  Neighbor Count is 1, Adjacent neighbor count is 1  eth1 is up  ifindex 3, MTU 1500 bytes, BW 4294967295 Mbit <UP,BROADCAST,RUNNING,MULTICAST> Internet Address 10.0.23.3/24, Broadcast 10.0.23.255, Area 0.0.0.1  MTU mismatch detection: enabled  Router ID 10.0.23.3, Network Type BROADCAST, Cost: 1  Transmit Delay is 1 sec, State DR, Priority 1  Backup Designated Router (ID) 10.0.23.2, Interface Address 10.0.23.2  Saved Network-LSA sequence number 0x80000002  Multicast group memberships: OSPFAllRouters OSPFDesignatedRouters  Timer intervals configured, Hello 10s, Dead 40s, Wait 40s, Retransmit 5  Hello due in 4.563s  Neighbor Count is 1, Adjacent neighbor count is 1 |
| **show ip ospf route [detail]** |

This command displays the OSPF routing table, as determined by the most recent SPF

|  |  |
| --- | --- |
| calculation. With the optional detail argument, each route item’s advertiser router and network   |  | | --- | |  | |

attribute will be shown.

|  |
| --- |
| ============ OSPF network routing table ============ N IA 10.0.12.0/24 [3] area: 0.0.0.0  via 10.0.13.3, eth0  N 10.0.13.0/24 [1] area: 0.0.0.0  directly attached to eth0  N IA 10.0.23.0/24 [2] area: 0.0.0.0  via 10.0.13.3, eth0  N 10.0.34.0/24 [2] area: 0.0.0.0  via 10.0.13.3, eth0 |

|  |
| --- |
| ============ OSPF router routing table ============= R 10.0.23.3 [1] area: 0.0.0.0, ABR  via 10.0.13.3, eth0  R 10.0.34.4 [2] area: 0.0.0.0, ASBR  via 10.0.13.3, eth0 |

|  |
| --- |
| ============ OSPF external routing table =========== N E2 172.16.0.0/24 [2/20] tag: 0  via 10.0.13.3, eth0 |

The table consists of following data:

**OSPF network routing table** – includes a list of acquired routes for all accessible networks (or aggregated area ranges) of OSPF system. “IA” flag means that route destination is in the area to which the router is not connected, i.e. it’s an inter-area path. In square brackets a summary metric for all links through which a path lies to this network is specified. “via” prefix defines a router-gateway, i.e. the first router on the way to the destination (next hop). **OSPF router routing table** – includes a list of acquired routes to all accessible ABRs and ASBRs. **OSPF external routing table** – includes a list of acquired routes that are external to the OSPF process. “E” flag points to the external link metric type (E1 – metric type 1, E2 – metric type 2). External

link metric is printed in the “<metric of the router which advertised the link>/<link metric>” format.

|  |
| --- |
| **show ip ospf border-routers** |

This command displays a table of paths to area boundary and autonomous system boundary routers.

|  |
| --- |
| **show ip ospf database** |

This command displays a summary table with a database contents (LSA).

OSPF Router with ID (10.0.13.1)

|  |
| --- |
| Router Link States (Area 0.0.0.0) |

|  |
| --- |
| Link ID ADV Router Age Seq# CkSum Link count 10.0.13.1 10.0.13.1 984 0x80000005 0xd915 1 10.0.23.3 10.0.23.3 1186 0x80000008 0xfe62 2 10.0.34.4 10.0.34.4 1063 0x80000004 0x4e3f 1 |

|  |
| --- |
| Net Link States (Area 0.0.0.0) |

|  |
| --- |
| Link ID ADV Router Age Seq# CkSum 10.0.13.1 10.0.13.1 994 0x80000003 0x30bb 10.0.34.4 10.0.34.4 1188 0x80000001 0x9411 |

|  |
| --- |
| Summary Link States (Area 0.0.0.0) |

|  |
| --- |
| Link ID ADV Router Age Seq# CkSum Route  10.0.12.0 10.0.23.3 1608 0x80000001 0x6ab6 10.0.12.0/24 10.0.23.0 10.0.23.3 981 0x80000003 0xe232 10.0.23.0/24 |

|  |
| --- |
| AS External Link States |

|  |
| --- |
| Link ID ADV Router Age Seq# CkSum Route  172.16.0.0 10.0.34.4 1063 0x80000001 0xc40d E2 172.16.0.0/24 [0x0] |
| **show ip ospf database <type> [A.B.C.D] [adv-router <A.B.C.D>|self-originate]** |

This command displays a database contents for a specific link advertisement type.

The type can be the following: asbr-summary, external, network, nssa-external, opaque-area, opaque-as, opaque-link, router, summary.

[A.B.C.D] – link-state-id. With this specified the command displays portion of the network environment that is being described by the advertisement. The value entered depends on the advertisement’s LS type. It must be entered in the form of an IP address.

|  |  |
| --- | --- |
| |  | | --- | |  |   adv-router <A.B.C.D> – router id, which link advertisements need to be reviewed. |

|  |  |
| --- | --- |
| |  | | --- | |  |   self-originate displays only self-originated LSAs from the local router. |

|  |
| --- |
| OSPF Router with ID (10.0.13.1) |

|  |
| --- |
| Router Link States (Area 0.0.0.0) |

|  |
| --- |
| LS age: 1213  Options: 0x2 : \*|-|-|-|-|-|E|- LS Flags: 0x3  Flags: 0x0  LS Type: router-LSA  Link State ID: 10.0.13.1  Advertising Router: 10.0.13.1  LS Seq Number: 80000009  Checksum: 0xd119  Length: 36 |

|  |
| --- |
| Number of Links: 1 |

|  |
| --- |
| Link connected to: a Transit Network  (Link ID) Designated Router address: 10.0.13.1  (Link Data) Router Interface address: 10.0.13.1  Number of TOS metrics: 0  TOS 0 Metric: 1 |
| **show ip ospf database max-age** |

This command displays LSAs in MaxAge list.

**Examples**[](https://docs.vyos.io/en/latest/configuration/protocols/ospf.html#examples)

Enable OSPF[](https://docs.vyos.io/en/latest/configuration/protocols/ospf.html#enable-ospf)

**Node 1**

|  |
| --- |
| set interfaces loopback lo address 10.1.1.1/32  set interfaces ethernet eth0 address 192.168.0.1/24 set protocols ospf area 0 network 192.168.0.0/24 set protocols ospf area 0 network 10.1.1.1/32  set protocols ospf parameters router-id 10.1.1.1 |

**Node 2**

|  |
| --- |
| set interfaces loopback lo address 10.1.1.2/32  set interfaces ethernet eth0 address 192.168.0.2/24 set protocols ospf area 0 network 192.168.0.0/24 set protocols ospf area 0 network 10.1.1.2/32  set protocols ospf parameters router-id 10.1.1.2 |

Here’s the neighbors up:

|  |
| --- |
| Node-1@vyos:~$ show ip ospf neighbor |

|  |
| --- |
| Neighbor ID Pri State Up Time Dead Time Address Interface RXmtL RqstL DBsmL |

|  |
| --- |
| 10.1.1.2 1 Full/DR 3m43s 36.094s 192.168.0.2 eth0:192.168.0.1 0 0 0 |

|  |
| --- |
| Node-2@vyos:~$ show ip ospf neighbor |

|  |
| --- |
| Neighbor ID Pri State Up Time Dead Time Address Interface RXmtL RqstL DBsmL  10.1.1.1 1 Full/Backup 3m47s 31.736s 192.168.0.1 eth0:192.168.0.2 0 0 0 |

Here’s the routes:

|  |
| --- |
| Node-1@vyos:~$ show ip route ospf  Codes: K - kernel route, C - connected, S - static, R - RIP,  O - OSPF, I - IS-IS, B - BGP, E - EIGRP, N - NHRP,  T - Table, v - VNC, V - VNC-Direct, A - Babel, F - PBR,  f - OpenFabric,  > - selected route, \* - FIB route, q - queued, r - rejected, b - backup t - trapped, o - offload failure |

|  |
| --- |
| O 10.1.1.1/32 [110/0] is directly connected, lo, weight 1, 00:00:14 O>\* 10.1.1.2/32 [110/1] via 192.168.0.2, eth0, weight 1, 00:00:07  O 192.168.0.0/24 [110/1] is directly connected, eth0, weight 1, 00:03:32 |

|  |
| --- |
| Node-2@vyos:~$ show ip route ospf  Codes: K - kernel route, C - connected, S - static, R - RIP,  O - OSPF, I - IS-IS, B - BGP, E - EIGRP, N - NHRP,  T - Table, v - VNC, V - VNC-Direct, A - Babel, F - PBR,  f - OpenFabric,  > - selected route, \* - FIB route, q - queued, r - rejected, b - backup t - trapped, o - offload failure |

|  |
| --- |
| O>\* 10.1.1.1/32 [110/1] via 192.168.0.1, eth0, weight 1, 00:00:11  O 10.1.1.2/32 [110/0] is directly connected, lo, weight 1, 00:00:04 O 192.168.0.0/24 [110/1] is directly connected, eth0, weight 1, 00:03:18 |

Enable O[S](https://docs.vyos.io/en/latest/configuration/protocols/ospf.html#enable-ospf-with-route-redistribution-of-the-loopback-and-default-originate)PF with route redistribution of the loopback and default originate:[](https://docs.vyos.io/en/latest/configuration/protocols/ospf.html#enable-ospf-with-route-redistribution-of-the-loopback-and-default-originate)

**Node 1**

|  |
| --- |
| set interfaces loopback lo address 10.1.1.1/32  set protocols ospf area 0 network 192.168.0.0/24  set protocols ospf default-information originate always  set protocols ospf default-information originate metric 10 set protocols ospf default-information originate metric-type 2 set protocols ospf log-adjacency-changes  set protocols ospf parameters router-id 10.1.1.1  set protocols ospf redistribute connected metric-type 2  set protocols ospf redistribute connected route-map CONNECT |

|  |
| --- |
| set policy route-map CONNECT rule 10 action permit set policy route-map CONNECT rule 10 match interface lo |

**Node 2**

|  |
| --- |
| set interfaces loopback lo address 10.2.2.2/32  set protocols ospf area 0 network 192.168.0.0/24  set protocols ospf log-adjacency-changes  set protocols ospf parameters router-id 10.2.2.2  set protocols ospf redistribute connected metric-type 2  set protocols ospf redistribute connected route-map CONNECT |

|  |
| --- |
| set policy route-map CONNECT rule 10 action permit set policy route-map CONNECT rule 10 match interface lo |

Enable OSPF and IGP-LDP synchronization:[](https://docs.vyos.io/en/latest/configuration/protocols/ospf.html#enable-ospf-and-igp-ldp-synchronization)

**Node 1:**

|  |
| --- |
| set interfaces loopback lo address 10.1.1.1/32  set interfaces ethernet eth0 address 192.168.0.1/24 |

|  |
| --- |
| set protocols ospf area 0 network '192.168.0.0/24' set protocols ospf area 0 network '10.1.1.1/32' set protocols ospf parameters router-id '10.1.1.1' set protocols ospf ldp-sync |

|  |
| --- |
| set protocols mpls interface eth0  set protocols mpls ldp discovery transport-ipv4-address 10.1.1.1 set protocols mpls ldp interface lo  set protocols mpls ldp interface eth0  set protocols mpls ldp parameters transport-prefer-ipv4  set protocols mpls ldp router-id 10.1.1.1 |

This gives us IGP-LDP synchronization for all non-loopback interfaces with a holddown timer of zero seconds:

|  |
| --- |
| Node-1@vyos:~$ show ip ospf mpls ldp-sync  eth0  LDP-IGP Synchronization enabled: yes  Holddown timer in seconds: 0  State: Sync achieved |

Enable OSPF with Segment Routing (Experimental):[](https://docs.vyos.io/en/latest/configuration/protocols/ospf.html#enable-ospf-with-segment-routing-experimental)

**Node 1**

|  |
| --- |
| set interfaces loopback lo address 10.1.1.1/32  set interfaces ethernet eth0 address 192.168.0.1/24 |

|  |
| --- |
| set protocols ospf area 0 network '192.168.0.0/24'  set protocols ospf area 0 network '10.1.1.1/32'  set protocols ospf parameters opaque-lsa  set protocols ospf parameters router-id '10.1.1.1'  set protocols ospf segment-routing global-block high-label-value '1100' set protocols ospf segment-routing global-block low-label-value '1000' set protocols ospf segment-routing prefix 10.1.1.1/32 index explicit-null set protocols ospf segment-routing prefix 10.1.1.1/32 index value '1' |

**Node 2**

|  |
| --- |
| set interfaces loopback lo address 10.1.1.2/32  set interfaces ethernet eth0 address 192.168.0.2/24 |

|  |
| --- |
| set protocols ospf area 0 network '192.168.0.0/24'  set protocols ospf area 0 network '10.1.1.2/32'  set protocols ospf parameters opaque-lsa  set protocols ospf parameters router-id '10.1.1.2'  set protocols ospf segment-routing global-block high-label-value '1100' set protocols ospf segment-routing global-block low-label-value '1000' set protocols ospf segment-routing prefix 10.1.1.2/32 index explicit-null set protocols ospf segment-routing prefix 10.1.1.2/32 index value '2' |

This gives us MPLS segment routing enabled and labels for far end loopbacks:

|  |
| --- |
| Node-1@vyos:~$ show mpls table  Inbound Label Type Nexthop Outbound Label  -----------------------------------------------------------  1002 SR (OSPF) 192.168.0.2 IPv4 Explicit Null <-- Node-2 loopback learned on Node-1 15000 SR (OSPF) 192.168.0.2 implicit-null  15001 SR (OSPF) 192.168.0.2 implicit-null |

|  |
| --- |
| Node-2@vyos:~$ show mpls table  Inbound Label Type Nexthop Outbound Label  -----------------------------------------------------------  1001 SR (OSPF) 192.168.0.1 IPv4 Explicit Null <-- Node-1 loopback learned on Node-2 15000 SR (OSPF) 192.168.0.1 implicit-null  15001 SR (OSPF) 192.168.0.1 implicit-null |

Here is the routing tables showing the MPLS segment routing label operations:

|  |
| --- |
| Node-1@vyos:~$ show ip route ospf  Codes: K - kernel route, C - connected, S - static, R - RIP,  O - OSPF, I - IS-IS, B - BGP, E - EIGRP, N - NHRP,  T - Table, v - VNC, V - VNC-Direct, A - Babel, F - PBR,  f - OpenFabric,  > - selected route, \* - FIB route, q - queued, r - rejected, b - backup t - trapped, o - offload failure |

|  |
| --- |
| O 10.1.1.1/32 [110/0] is directly connected, lo, weight 1, 00:03:43  O>\* 10.1.1.2/32 [110/1] via 192.168.0.2, eth0, label IPv4 Explicit Null, weight 1, 00:03:32 O 192.168.0.0/24 [110/1] is directly connected, eth0, weight 1, 00:03:43 |

|  |
| --- |
| Node-2@vyos:~$ show ip route ospf  Codes: K - kernel route, C - connected, S - static, R - RIP,  O - OSPF, I - IS-IS, B - BGP, E - EIGRP, N - NHRP,  T - Table, v - VNC, V - VNC-Direct, A - Babel, F - PBR,  f - OpenFabric,  > - selected route, \* - FIB route, q - queued, r - rejected, b - backup t - trapped, o - offload failure |

|  |
| --- |
| O>\* 10.1.1.1/32 [110/1] via 192.168.0.1, eth0, label IPv4 Explicit Null, weight 1, 00:03:36 O 10.1.1.2/32 [110/0] is directly connected, lo, weight 1, 00:03:51  O 192.168.0.0/24 [110/1] is directly connected, eth0, weight 1, 00:03:51 |

**OSPFv3 (IPv6)**[](https://docs.vyos.io/en/latest/configuration/protocols/ospf.html#ospfv3-ipv6)

**Configuration**[](https://docs.vyos.io/en/latest/configuration/protocols/ospf.html#ospf-v3-configuration)

**General**[](https://docs.vyos.io/en/latest/configuration/protocols/ospf.html#ospf-v3-general)

VyOS does not have a special command to start the OSPFv3 process. The OSPFv3 process starts when the first ospf enabled interface is configured.

|  |
| --- |
| **set protocols ospfv3 interface <interface> area <number>** |

This command specifies the OSPFv3 enabled interface. This command is also used to enable the OSPF process. The area number can be specified in decimal notation in the range from 0 to 4294967295. Or it can be specified in dotted decimal notation similar to ip address.

|  |
| --- |
| **set protocols ospfv3 parameters router-id <rid>** |

This command sets the router-ID of the OSPFv3 process. The router-ID may be an IP address of the router, but need not be – it can be any arbitrary 32bit number. However it MUST be unique within the entire OSPFv3 domain to the OSPFv3 speaker – bad things will happen if multiple OSPFv3 speakers are configured with the same router-ID!

**Optional**[](https://docs.vyos.io/en/latest/configuration/protocols/ospf.html#ospf-v3-optional)

|  |
| --- |
| **set protocols ospfv3 distance global <distance>** |

This command change distance value of OSPFv3 globally. The distance range is 1 to 255.

|  |
| --- |
| **set protocols ospfv3 distance ospfv3 <external|inter-area|intra-area> <distance>** |

This command change distance value of OSPFv3. The arguments are the distance values for external routes, inter-area routes and intra-area routes respectively. The distance range is 1 to 255.

**Area Configuration**[](https://docs.vyos.io/en/latest/configuration/protocols/ospf.html#ospf-v3-area-configuration)

|  |
| --- |
| **set protocols ospfv3 area <number> range <prefix>** |

This command summarizes intra area paths from specified area into one Type-3 Inter-Area Prefix LSA announced to other areas. This command can be used only in ABR.

|  |
| --- |
| **set protocols ospfv3 area <number> range <prefix> not-advertise** |

This command instead of summarizing intra area paths filter them - i.e. intra area paths from this range are not advertised into other areas. This command makes sense in ABR only.

**Interface Configuration**[](https://docs.vyos.io/en/latest/configuration/protocols/ospf.html#ospf-v3-interface-config)

|  |
| --- |
| **set protocols ospfv3 interface <interface> ipv6 cost <number>** |

This command sets link cost for the specified interface. The cost value is set to router-LSA’s metric field and used for SPF calculation. The cost range is 1 to 65535.

|  |
| --- |
| **set protocols ospfv3 interface <interface> dead-interval <number>** |

Set number of seconds for router Dead Interval timer value used for Wait Timer and Inactivity Timer. This value must be the same for all routers attached to a common network. The default value is 40 seconds. The interval range is 1 to 65535.

|  |
| --- |
| **set protocols ospfv3 interface <interface> hello-interval <number>** |

Set number of seconds for Hello Interval timer value. Setting this value, Hello packet will be sent every timer value seconds on the specified interface. This value must be the same for all routers attached to a common network. The default value is 10 seconds. The interval range is 1 to 65535.

|  |
| --- |
| **set protocols ospfv3 interface <interface> mtu-ignore** |

This command disables check of the MTU value in the OSPF DBD packets. Thus, use of this command allows the OSPF adjacency to reach the FULL state even though there is an interface MTU mismatch between two OSPF routers.

|  |
| --- |
| **set protocols ospfv3 interface <interface> network <type>** |

This command allows to specify the distribution type for the network connected to this interface:

**broadcast** – broadcast IP addresses distribution. **point-to-point** – address distribution in point-to-point networks.

|  |
| --- |
| **set protocols ospfv3 interface <interface> priority <number>** |

This command sets Router Priority integer value. The router with the highest priority will be more eligible to become Designated Router. Setting the value to 0, makes the router ineligible to become Designated Router. The default value is 1. The interval range is 0 to 255.

|  |
| --- |
| **set protocols ospfv3 interface <interface> passive** |

This command specifies interface as passive. Passive interface advertises its address, but does not run the OSPF protocol (adjacencies are not formed and hello packets are not generated).

|  |
| --- |
| **set protocols ospfv3 interface <interface> retransmit-interval <number>** |

This command sets number of seconds for RxmtInterval timer value. This value is used when retransmitting Database Description and Link State Request packets if acknowledge was not received. The default value is 5 seconds. The interval range is 3 to 65535.

|  |
| --- |
| **set protocols ospfv3 interface <interface> transmit-delay <number>** |

This command sets number of seconds for InfTransDelay value. It allows to set and adjust for each interface the delay interval before starting the synchronizing process of the router’s database with all neighbors. The default value is 1 seconds. The interval range is 3 to 65535.

**Graceful Restart**[](https://docs.vyos.io/en/latest/configuration/protocols/ospf.html#ospf-v3-redistribution-config)

|  |
| --- |
| **set protocols ospfv3 graceful-restart [grace-period (1-1800)]** |

Configure Graceful Restart **[RFC 3623](https://datatracker.ietf.org/doc/html/rfc3623.html)** restarting support. When enabled, the default grace period is 120 seconds.

|  |  |
| --- | --- |
| To perform a graceful shutdown, the FRR graceful-restart prepare ip ospf EXEC-level command   |  | | --- | |  | |

needs to be issued before restarting the ospfd daemon.

|  |
| --- |
| **set protocols ospfv3 graceful-restart helper enable [router-id A.B.C.D]** |

Configure Graceful Restart **[RFC 3623](https://datatracker.ietf.org/doc/html/rfc3623.html)** helper support. By default, helper support is disabled for all neighbours. This config enables/disables helper support on this router for all neighbours.

To enable/disable helper support for a specific neighbour, the router-id (A.B.C.D) has to be specified.

|  |
| --- |
| **set protocols ospfv3 graceful-restart helper lsa-check-disable** |

By default *strict-lsa-checking* is configured then the helper will abort the Graceful Restart when a LSA change occurs which affects the restarting router.

This command disables it.

|  |
| --- |
| **set protocols ospfv3 graceful-restart helper supported-grace-time** |

Supports as HELPER for configured grace period.

|  |
| --- |
| **set protocols ospfv3 graceful-restart helper planned-only** |

It helps to support as HELPER only for planned restarts.

By default, it supports both planned and unplanned outages.

**Redistribution Configuration**[](https://docs.vyos.io/en/latest/configuration/protocols/ospf.html#id7)

|  |
| --- |
| **set protocols ospfv3 redistribute <route source>** |

This command redistributes routing information from the given route source to the OSPFv3 process. There are five modes available for route source: bgp, connected, kernel, ripng, static.

|  |
| --- |
| **set protocols ospf redistribute <route source> route-map <name>** |

This command allows to use route map to filter redistributed routes from given route source. There are five modes available for route source: bgp, connected, kernel, ripng, static.

**Operational Mode Commands**[](https://docs.vyos.io/en/latest/configuration/protocols/ospf.html#ospf-v3-op-cmd)

|  |
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| **show ipv6 ospfv3 neighbor** |

This command displays the neighbors status.

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| **show ipv6 ospfv3 neighbor detail** |

This command displays the neighbors information in a detailed form, not just a summary table.

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| **show ipv6 ospfv3 neighbor drchoice** |

This command displays the neighbor DR choice information.

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| **show ipv6 ospfv3 interface [prefix]|[<interface> [prefix]]** |

This command displays state and configuration of OSPF the specified interface, or all interfaces

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| if no interface is given. Whith the argument prefix this command shows connected prefixes to   |  | | --- | |  | |

advertise.

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| **show ipv6 ospfv3 route** |

This command displays the OSPF routing table, as determined by the most recent SPF calculation.

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| **show ipv6 ospfv3 border-routers** |

This command displays a table of paths to area boundary and autonomous system boundary routers.

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| **show ipv6 ospfv3 database** |

This command displays a summary table with a database contents (LSA).

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| **show ipv6 ospfv3 database <type> [A.B.C.D] [adv-router <A.B.C.D>|self-originate]** |

This command displays a database contents for a specific link advertisement type.

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| **show ipv6 ospfv3 redistribute** |

This command displays external information redistributed into OSPFv3 **Configuration Example**[](https://docs.vyos.io/en/latest/configuration/protocols/ospf.html#configuration-example)

A typical configuration using 2 nodes.

**Node 1:**

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| --- |
| set protocols ospfv3 interface eth1 area 0.0.0.0  set protocols ospfv3 area 0.0.0.0 range 2001:db8:1::/64 set protocols ospfv3 parameters router-id 192.168.1.1 set protocols ospfv3 redistribute connected |

**Node 2:**

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| set protocols ospfv3 interface eth1 area 0.0.0.0  set protocols ospfv3 area 0.0.0.0 range 2001:db8:2::/64 set protocols ospfv3 parameters router-id 192.168.2.1 set protocols ospfv3 redistribute connected |

**To see the redistributed routes:**

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| show ipv6 ospfv3 redistribute |

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| **Note** |

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| You cannot easily redistribute IPv6 routes via OSPFv3 on a WireGuard interface link. This |

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| requires you to configure link-local addresses manually on the WireGuard interfaces, see T1483. |

Example configuration for WireGuard interfaces:

**Node 1**

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| set interfaces wireguard wg01 address 'fe80::216:3eff:fe51:fd8c/64' set interfaces wireguard wg01 address '192.168.0.1/24'  set interfaces wireguard wg01 peer ospf02 allowed-ips '::/0'  set interfaces wireguard wg01 peer ospf02 allowed-ips '0.0.0.0/0' set interfaces wireguard wg01 peer ospf02 endpoint '10.1.1.101:12345' set interfaces wireguard wg01 peer ospf02 pubkey 'ie3...='  set interfaces wireguard wg01 port '12345'  set protocols ospfv3 parameters router-id 192.168.1.1  set protocols ospfv3 interface 'wg01' area 0.0.0.0  set protocols ospfv3 interface 'lo' area 0.0.0.0 |

**Node 2**

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| --- |
| set interfaces wireguard wg01 address 'fe80::216:3eff:fe0a:7ada/64' set interfaces wireguard wg01 address '192.168.0.2/24'  set interfaces wireguard wg01 peer ospf01 allowed-ips '::/0'  set interfaces wireguard wg01 peer ospf01 allowed-ips '0.0.0.0/0' set interfaces wireguard wg01 peer ospf01 endpoint '10.1.1.100:12345' set interfaces wireguard wg01 peer ospf01 pubkey 'NHI...=' |

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| --- |
| set interfaces wireguard wg01 port '12345'  set protocols ospfv3 parameters router-id 192.168.1.2 set protocols ospfv3 interface 'wg01' area 0.0.0.0 set protocols ospfv3 interface 'lo' area 0.0.0.0 |

**Status**

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| vyos@ospf01:~$ sh ipv6 ospfv3 neighbor  Neighbor ID Pri DeadTime State/IfState Duration I/F[State]  192.168.0.2 1 00:00:37 Full/PointToPoint 00:18:03 wg01[PointToPoint] |

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| --- |
| vyos@ospf02# run sh ipv6 ospfv3 neighbor  Neighbor ID Pri DeadTime State/IfState Duration I/F[State]  192.168.0.1 1 00:00:39 Full/PointToPoint 00:19:44 wg01[PointToPoint] |