

ZebOS®  
Network Platform

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## OSPFv2 Module

### Overview

IP Infusion's ZebOS® Network Platform OSPFv2 (Open Shortest Path First) Protocol Module is portable software that implements the OSPF routing protocol for IPv4. Built on the ZebOS Network Services Module (NSM), the OSPFv2 module is IETF compliant. It supports an extensive set of features, including OSPF Maxage/Refresh Walker for improved processing efficiency, NSSA/AS Summary and incremental changes to reduce CPU load, SPF Exponential Backoff to support faster convergence and better scalability for frequent topology changes, and Multiple Instances.

ZebOS OSPFv2 employs methods that improve the scalability and stability of large networks by processing OSPF Hellos and LSA Acknowledgements at a higher priority than other OSPF packets, and uses other congestion avoidance procedures. Scalability enhancements to OSPFv2 enable more rapid build up and teardown of connections, and supports 1000 neighbors, 100,000 routers and 500 nodes in an area.

### Traffic Engineering and GMPLS

Traffic engineering (TE) extensions to OSPF provide a way of describing a TE topology and distributing the information within an OSPF area. The addition of Generalized Multi-Protocol Switching (GMPLS) to the ZebOS suite allows complete separation between the control and data planes of various networking layers, and presents a more general view of TE links. A TE link between a pair of LSRs does not imply the existence of an IGP adjacency between the LSRs, so OSPF maintains control links over which OSPF adjacencies form and in which TE links are used to carry LSPs.

### Features

- Routing and Protocol Extensions for GMPLS
- Provider Edge-Customer Edge (PE-CE) Support
- Scalable to 1000 neighbors, 100,000 routers and 500 nodes
- OSPF Area Support
- Route Redistribution with Type
- Multiple Instances Support
- Opaque LSA Support
- Traffic Engineering Extensions
- Database Overflow Support
- Simple Password Authentication
- MD5 authentication
- OSPF Hello Parameter Configuration
- OSPF Interface Configuration
- OSPF Management Information Base (MIB)
- OSPF Not So Stubby Area (NSSA)
- OSPF Hitless Restart

- OSPF Unnumbered Interface
- OSPF Point-to-Multipoint
- Equal-Cost Multi-Path Routing Support
- Type 1 and Type 2 External Routing Support
- Virtual Links Support
- Optional Virtual Routing Support
- IP-IP Tunnel Support
- DiffServ-TE Support
- MPLS Fast Reroute Aware

## Requirements

- ZebOS Network Services Module
- ZebOS OSPF-CSPF Module (Optional; for TE and GMPLS support)

## Standards Support

- RFC 1370 — Applicability Statement for OSPF
- RFC 1765 — OSPF Database Overflow
- RFC 1850 — Open Shortest Path First version 2 (OSPFv2) MIB
- RFC 2328 — Open Shortest Path First version 2 (OSPFv2)
- RFC 2370 — OSPF Opaque LSA Option
- RFC 3101 — The OSPF Not-So-Stubby-Area (NSSA) Option
- RFC 3509 — Alternative Implementation of OSPF Area Border Routers (ABR)
- RFC 3623 — Graceful OSPF Restart
- RFC 3630 — OSPF-TE: Traffic Engineering Extensions to OSPF
- RFC 4202 — Routing Extensions in Support of Generalized Multi-Protocol Label Switching
- RFC 4203 — OSPF Extensions in Support of Generalized Multi-Protocol Label Switching
- RFC 4222 — Prioritized Treatment of Specific OSPF Version 2 Packets and Congestion Avoidance (Except Recommendation 1)
- RFC 4576 — OSPF as the Provider/Customer Edge Protocol for BGP/MPLS IP Virtual Private Networks (VPN)
- RFC 4577 — OSPF Database Exchange Summary List Options (OSPFv3 and OSPFv3)
- draft-ietf-ospf-abr-alt-04 — Alternative ABR Implementation
- draft-nguyen-ospf-restart-05 — OSPF Restart Signaling
- draft-ietf-ospf-lls-01 — OSPF Link-local Signaling

## Standard Deliverables

- Source Code (written in ANSI-compliant C)
- Installation Guide
- Configuration Guide
- Command Reference Guide
- Developer Guide