

OSPF in Action: Network Build

Objectives

- **Basic Configuration:**
 - Change Hostname.
 - Create Password Encrypted for Privileged EXEC Mode.
 - Secure Console port.
 - Configure Domain Name, Username and Password for SSH.
 - Activate 16 virtual ports, secure them and enable SSH.
 - Encrypt all passwords.
 - Banner Message.
 - Disable DNS lookup for unrecognized commands.
 - Address IPv4, IPv6.
 - Activate Interfaces.
 - Configure DHCP, SLAAC.
- **Configure Dynamic Routing Protocol (OSPFv2).**
- **Configure Dynamic Routing Protocol (OSPFv3).**
- **Subnetting (172.16.10.0/24) For meet network requirements.**
- **Subnetting (2001:db8:1::/48)**
- **Configure Loopback as a Default route (IPv4 & IPv6).**
- **Publish your default route (IPv4 & IPv6).**
- **Configure passive interface (Security – Bandwidth).**
- **Configure OSPF authentication using Pre-Shared Key (MD5).**

Subnetting (172.16.10.0/24)

Network Number	Network Address	Broadcast IP	No. of Valid Hosts	First IP address	Last IP address
N1	172.16.10.0/27	172.16.10.31	30	172.16.10.1	172.16.10.30
N2	172.16.10.32/27	172.16.10.63	30	172.16.10.33	172.16.10.62
N3	172.16.10.64/27	172.16.10.95	30	172.16.10.65	172.16.10.94
N4	172.16.10.96/27	172.16.10.127	30	172.16.10.97	172.16.10.126
N5	172.16.10.128/27	172.16.10.159	30	172.16.10.129	172.16.10.158
N6	172.16.10.160/27	172.16.10.191	30	172.16.10.161	172.16.10.190
N7	172.16.10.192/27	172.16.10.223	30	172.16.10.193	172.16.10.222
N8	172.16.10.224/27	172.16.10.255	30	172.16.10.225	172.16.10.254
N1-WAN	172.16.10.0/30	172.16.10.3	2	172.16.10.1	172.16.10.2
N2-WAN	172.16.10.4/30	172.16.10.7	2	172.16.10.5	172.16.10.6

8 Networks for Scalability, one of them will divide based on /30 prefix to use them in WAN networks.

Address Table:

Device	Interface	IP Address	Subnet	Default Gateway
R1	G0/0/0	172.16.10.33	255.255.255.224	N/A
		2001:db8:1:10::1	/64	N/A
	S0/1/0	172.16.10.1	255.255.255.252	N/A
		2001:db8:1:40::1	/64	N/A
R2	S0/1/0	172.16.10.2	255.255.255.252	N/A
		2001:db8:1:40::2	/64	N/A
	G0/0/1	172.16.10.6	255.255.255.252	N/A
		2001:db8:1:50::2	/64	N/A
	Loopback0	172.16.10.65	255.255.255.224	N/A
		2001:db8:1:20::1	/64	N/A
R3	G0/0/0	172.16.10.5	255.255.255.252	N/A
		2001:db8:1:50::1	/64	N/A
	G0/0/1	172.16.10.97	255.255.255.224	N/A
		2001:db8:1:30::1	/64	N/A
S1	VLAN 1	172.16.10.34	255.255.255.224	172.16.10.33
S2	VLAN 1	172.16.10.98	255.255.255.224	172.16.10.97
PC1	NIC	DHCP (Assigned)	255.255.255.224	172.16.10.33
		SLAAC (Assigned)	/64	2001:db8:1:10::1
PC2	NIC	DHCP (Assigned)	255.255.255.224	172.16.10.97
		SLAAC (Assigned)	/64	2001:db8:1:30::1