

1. Directly connected/Common Subnet (except Virtual links, Sham link)
2. Area ID 32 Decimal, dotted.decimal
3. Area type Normal, Stub, NSSA
4. OSPF Network types :
 - Broadcast -Ethernet
 - Point-to-Point - Serial hdlc/ppp/gre
 - Point-to-multipoint
 - Non Broadcast multiaccess Frame-relay
 - Non-configurable
 - Loopback /32 host
 - Virtual link P2p
 - Sham link (Mpls)
5. Unique RID
6. Mtu same Exchange/Exstart
7. Hello/Dead 10/40 -Broadcast, P2p NBMA/P2MP 30/120
8. Authentication
 - Type 0 Null (Default)
 - Type 1 Simple password (clear/plain text)
 - Type 2 Cryptographic md5 128, SHA-hmac 512 -key chain
9. Passive interface & up/up
10. ACL not blocking protocol 89

```

interface level ipv4/ipv6
Network command
ip address
e.g 1.1.1.1 0.0.0.0 area 0
Subnet mask
e.g 1.0.0.0 255.0.0.0 area 0
Wild card mask - (GM-SNM) ( 255.255.255.255 -255.255.255.128 =0.0.0.127)
e.g 192.168.1.0 0.0.0.255 area 0
All networks
0.0.0.0 255.255.255.255 area 0
0.0.0.0 0.0.0.0 area 0

```

```

10.1.1.0
10.1.2.0
10.2.2.0
10.3.3.0

```

```

router ospf 1
net 10.0.0.0 0.255.255.255 area 0 /8
net 10.1.1.0 0.0.0.255 area 1 /24

```

```

router ospf 1
net 10.1.1.0 0.0.0.255 area 1 /24
net 10.0.0.0 0.255.255.255 area 0 /8
exit

```

```

router ospf 1
net 10.1.0.0 0.0.255.255 area 0 /16
net 10.1.1.0 0.0.0.255 area 1 /24
exit

```

```

int range e0/0-2
ip ospf 1 area 1
exit

```

=====

1. Directly connected/Common Subnet

```
R1
conf t
int e0/0
ip add 1.1.1.1 255.255.255.0
no sh
ip ospf 1 area 0
exit
```

```
R1# Debug ip ospf adj
R1# Debug ip ospf hello
```

```
  Mismatched hello parameters from 1.1.1.2
  Dead R 40 C 40, Hello R 10 C 10 Mask R 255.255.255.254 C 255.255.255.0
```

```
R2
conf t
ip add 1.1.1.2 255.255.255.254
no sh
ip ospf 1 area 0
exit
```

2. Area ID

Decimal
Dotted decimal (ipv4 format)

```
R1
conf t
int e0/0
ip add 1.1.1.1 255.255.255.0
no sh
ip ospf 1 area 0
exit
```

```
R2
conf t
int e0/0
ip add 1.1.1.2 255.255.255.0
no sh
ip ospf 1 area 1
exit
```

```
%OSPF-4-ERRRCV: Received invalid packet: mismatched area ID from backbone area from
1.1.1.1, Ethernet0/0
Rcv pkt from 1.1.1.2, area 0.0.0.0, mismatched area 0.0.0.1 in the header
```

3. Area Type

Normal
Stub
NSSA

```
R1
conf t
int e0/0
ip add 1.1.1.1 255.255.255.0
no sh
ip ospf 1 area 1
exit
```

```
R2
conf t
int e0/0
ip add 1.1.1.2 255.255.255.0
no sh
exit
```

```
router ospf 1
net 1.1.1.2 0.0.0.0 area 1
area 1 stub
exit
```

```
In hello packet
R1 E bit external routing is enabled      1 normal 0 stub 0 nssa
R2 E bit is disabled ,                    0 normal 1 stub 0 nssa
Hello from 1.1.1.2 with mismatched Stub/Transit area option bit
```

```
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-
4.OSPF Network types :
```

Broadcast -Ethernet		10/40	Supports
any packet unicast,Broadcast,Multicast			
LSA 1-5,7			
Point-to-Point - Serial hdhc/ppp/gre	10/40		Supports only
multicast No LSA type 2			
Point-to-multipoint		30/120	Supports
only multicast			
Non Broadcast multiaccess Frame-relay	30/120		Supports unicast ,Full
meshed			

Neig..

%OSPF-4-NET_TYPE_MISMATCH

```
R1:
OSPF network type : Broadcast
```

```
R1(config-if)#do sh ip ospf nei
```

Neighbor ID	Pri	State	Dead Time	Address	Interface
1.1.1.2	1	FULL/DR	00:00:38	1.1.1.2	Ethernet0/0

```
R2:
int e0/0
ip ospf network point-to-point
exit
```

```
R2(config-if)#do sh ip ospf neig
```

Neighbor ID	Pri	State	Dead Time	Address	Interface
1.1.1.1	0	FULL/ -	00:00:30	1.1.1.1	Ethernet0/0

```
R2(config-if)#! Broadcast 1,2,3,4,5,7  
R2(config-if)#! P2p 1,3,4,5,7
```

LSDB cannot be exchanged.

Point -to-point point-to-multipoint

```
*Jan 10 15:36:36.787: OSPF-1 HELLO Se3/0: Mismatched hello parameters from 3.3.3.2  
*Jan 10 15:36:36.787: OSPF-1 HELLO Se3/0: Dead R 120 C 40, Hello R 30 C 10
```

```
R2  
int s3/0  
ip ospf hell-interval 10  
ip ospf dead-interval 40  
exit
```

5.Unique RID

```
R1:  
Router ospf 1  
router-id 1.1.1.1  
net 0.0.0.0 255.255.255.255 a 1  
exit
```

```
R2:  
Router ospf 1  
router-id 1.1.1.1  
net 0.0.0.0 255.255.255.255 a 1  
exit
```

```
%OSPF-4-DUP_RTRID_NBR: OSPF detected duplicate router-id 1.1.1.1 from 3.3.3.2
```

1. Same RID for connected neig
2. Same RID with 2 connected /Diff ospf routers in same area ,updates will be accepted from one with higher seq number.
3. Same RID in 2 diff areas -No problem updates will be accepted because ABR is injecting Inter area routes
4. Same RID in 2 diff areas one of them is ASBR then external routes are not accepted.