# OSPF version 2

Make sure the type of config.

— OSPF neighbour Adjencies

# show ip ospf int brief
# show ip ospf neighbour

— Scenario - Interface is down

# ospf router ! ⟶ PID

# network {ip} {wild} area 0

② Interface not running OSPF process

# show ip ospf int fa0/0

# You should enable ospf on interface ip not on the network ip

③ Mismatch in Hello timers
by default it is set at 10 sec

① Point-to-Point – Hello – 10 sec
Dead – 40 sec

② Nonbroadcast – Hello – 30
Dead – 120s

③ pointto multipoint – H – 30
D – 120

④ Broadcast – H – 10
D – 40

```
# ip ospf hello-interval 10
        dead-interval 40
```

```
# debug ip ospf hello
```

↳ Make sure to disable it afterwards

```
# undebug all
```

④ Area mismatch numbers

LSA's are transmitted in one area.

```
# debug ip ospf adj
```

## ⑤ Different area types

Normal – normal

stub – stub

To configure point-to-point

# ip ospf network point-to-point

↳ When we have a ethernet link betn two routers it is recommended to use point-to-point.

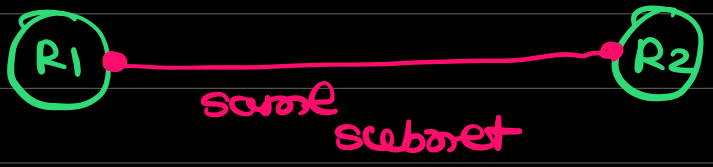
↳ Also used for faster neighbourship

To change area type

router ospf 1

area 0 stub

## ⑥ Different subnets



⑦ Passive interface —

- Where we do not send hello packets
- We set these to end nodes which are connected to pc.

```
# show ip protocols
```

To set pasive

```
#   int s1/0
#   router ospf 1
#   passive interface s1/0
```

To disable `# no pasive int s1/0`

⑧ Mismatch authentication info

# OSPF v2 tb

- We need to enable ospf on loopbacks too

## Config for ospf on loopback

```
#       int loopback1
#     ip add   1.1.1.1   255.255.255.255
```

method #1

```
#    router ospf 1
#    network  1.1.1.1        0.0.0.0      area 0
```

```
# sh ip ospf database
# sh ip route
# sh ip route ospf
# sh ip ospf int {int_name} or {brief}
# sh ip protocols
```

Method #2

```
      interface loopback 1
ip add  1.1.1.1   255.255.255.255
 ip ospf 1 area 0
```

* floating static routes

- When we set them as alternative route by setting higher Administrative distance.

To set a floating routes

global # ip route {Destination IP} {Mask} {next hop} {AD}

- OSPF Works on protocol number 89

→ protocol numbers work on L4
port numbers work on L7

- RIP uses 520

- We use ospf because of path manipulation (traffic engg.)
To set any path primary we just have to have the higher cost.

- if OSPF Stuck in Exchange or Exstart it is mostly due to MTU mismatch

→ DR & BDR will be full state

→ DROTHER will be 2-way

- if you are not able to do ospf neighbourship the reasons might be
  1. wrong area ID
  2. Wrong MTU config
  3. OSPF Hello & dead timer mismatch
  4. OSPF authentication
  5. OSPF stub flag
  6. Interface subnet mask value must match

BMA

- in one area How many DR can be possible it dependents of Broadcast Multiple Access

Learn the LSA in depth

- OSPF stub area.

To cut of the size of routing table but it will also decrease the size of OSPF database table

- if we don't want LSA 5 & LSA 4 in our area we can use stub area to filter thoes out

stub area

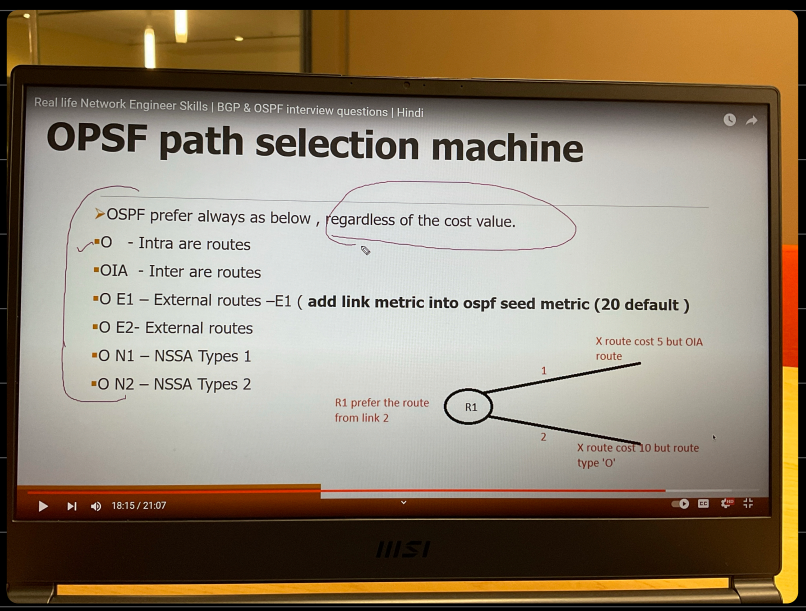
Normal - 1 to 5

① Totally stub area - filter LSA Type 3,4 & 5
Cisco specific

② Not so stubby area - LSA 4 & 5 filter but allows local distribution

③ Totally not so stubby area - filter LSA 3,4,5

OSPF preference over path selection




O
OIA
Inter area
O E1 - Exter

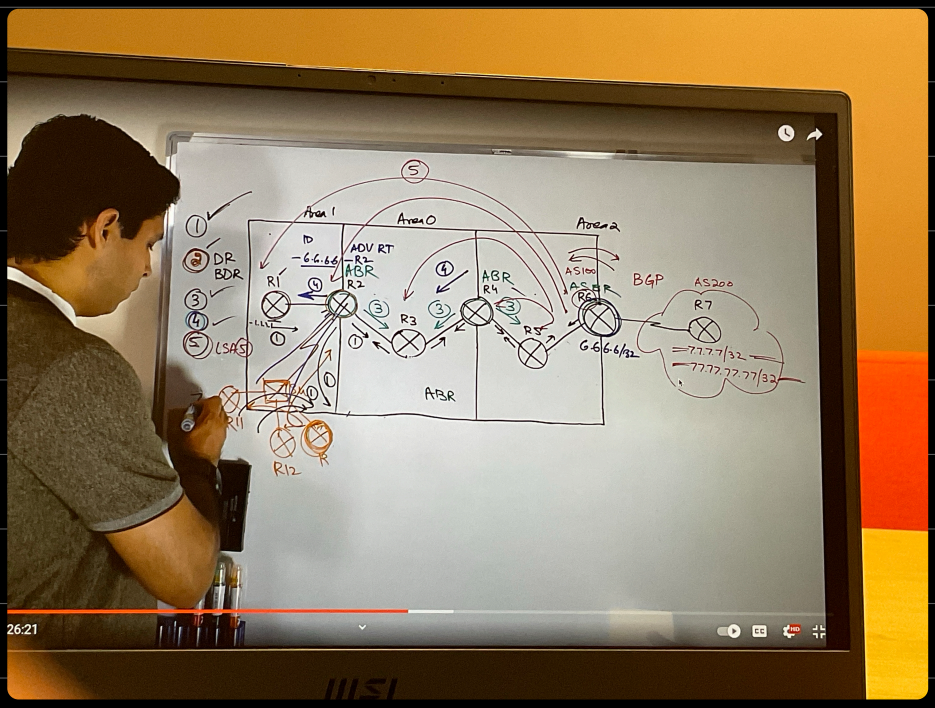
# show ip ospf route shows us LSA Type 1 & 2
O

LSA 1 } O — Normally send by every router on OSPF
2 } — DR/BDR information of MBA (where multiple DR can exist)

3 } OIA — ABR information
4 } —— ABR information is send ← ← this way

5 } OE → ASBR directly give infor^n about the outside nlw.
6

7 } O N




- VTP messages are sent over trunk
- OSPF diff area types

① Broadcast — H-10 — D-40
② Point-to-point Nlw — H-10 - D-40
③ Non-broadcast multi-Access }
④ Point-to-Multipoint }

H - 30 D - 120

* OSPF TTL is 1 by default

- LSA Type 1: Router LSA
- LSA Type 2: Network LSA
- LSA Type 3: Summary LSA
- LSA Type 4: Summary ASBR LSA
- LSA Type 5: Autonomous system external LSA
- LSA Type 6: Multicast OSPF LSA
- LSA Type 7: Not-so-stubby area LSA
- LSA Type 8: External attribute LSA for BGP

Protocol ID for OSPF is 89

OSPF different Packet types

① Hello ⑤ LSACK

② LSR

③ LSU

④ DBD

** DR & BDR elections are done based on segments not based on area that means single area can have multiple DR / BDR.

## DROTHER routers are in 2-way state with other DROTHER router but in FULL state with DR & BDR.

# OSPF passive interfaces default will make all the interfaces

as passive and will not send the Hello packets
to allow the interfaces then we can use

# passive-interfaces default
# no passive-interface fa0/0

OSPF multicast 224.0.0.5

→ # show access-list
# debug ip ospf hello

OSPF area types
① stub area

② Totally stub area

③ NSSA

④ Totally NSSA