

Type 1 (Router) : Lists neighboring routers IP and the cost to each. INTRA AREA
Type 2 (Network) : Generated by a DR; lists all routers IP and netmask on adjacent segments. INTRA AREA

Type 3 (Summary) : Generated by an ABR; describe networks and netmask in the AS but outside of the area. INTER AREA

Type 4 (ASBRSummary) : Generated by an ABR into Other areas to advertise the presence of an ASBR. INTER AREA

Type 5 (External) : Generated by an ASBR and flooded throughout the AS to advertise an external route. INTER AREA

Type 7 (NSSA) : Generated by an ASBR in a not-so-stubby area; converted into a type 5 LSA by the ABR when leaving the area. INTER AREA

```
Config on R1

ospf {
    area 0.0.0.0 {
        interface ...
    }
    area 0.0.0.1 {
        nssa {
            default-lsa {
                default-metric 10;
            }
        }
        interface ...
    }
}
}
```

```
Config on R5 & R7

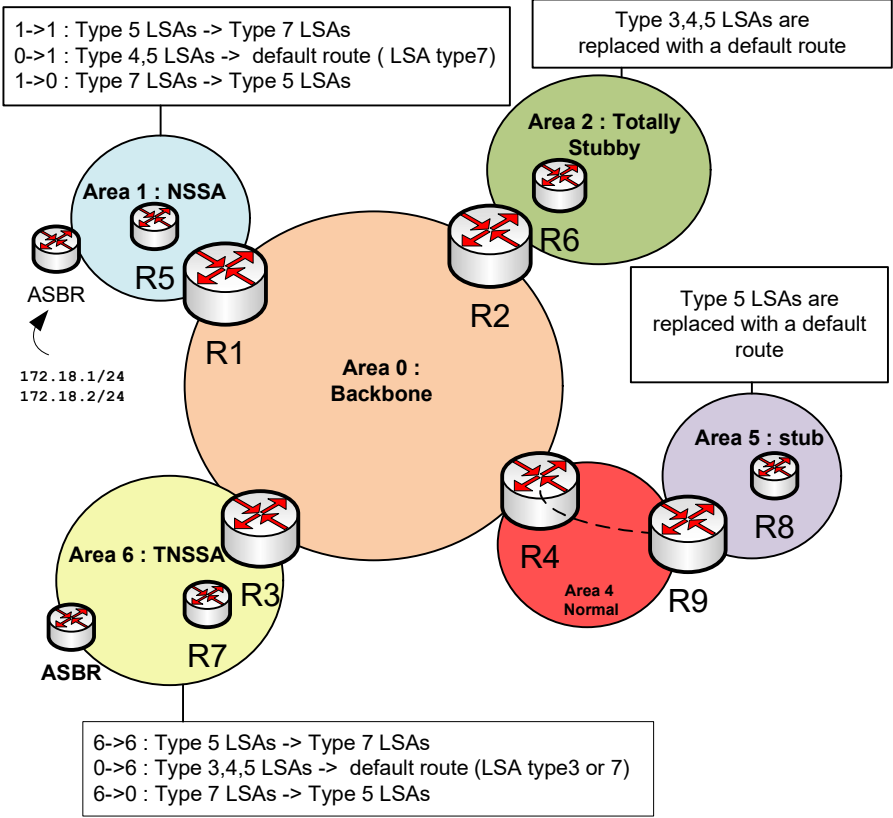
ospf {
    area 0.0.0.6 {
        nssa;
        interface ...
    }
}
```

```
Config on R3

ospf {
    area 0.0.0.0 {
        interface ...
    }
    area 0.0.0.6 {
        nssa {
            default-lsa {
                default-metric 10;
                metric-type 1(or 2)
                type-7;
            }
            no-summaries;
        }
        interface ...
    }
}
```

1->1 : Type 5 LSAs -> Type 7 LSAs
0->1 : Type 4,5 LSAs -> default route (LSA type7)
1->0 : Type 7 LSAs -> Type 5 LSAs

Type 3,4,5 LSAs are replaced with a default route



6->6 : Type 5 LSAs -> Type 7 LSAs
0->6 : Type 3,4,5 LSAs -> default route (LSA type3 or 7)
6->0 : Type 7 LSAs -> Type 5 LSAs

More OSPF

Change router interface priority (DR election / default 128 / highest is best)

```
R1#set protocol ospf area 0 interface ge-0/0/0 pritority 200
```

Change Interface metric (default 1 for ge interfaces)

```
R1#set protocol ospf area 0 interface ge-0/0/0 metric 100
```

Set router-id manually	
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```
R1#set routing-option router-id 192.168.1.1
```

Set interface in a passive state	
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```
R1#set protocol ospf area 0 interface lo0 passive
```

Aggregate Internal routes before redistribution

```
R1#set protocol ospf area 1 nssa area-range 172.18/24
```

Disable Active Backbone Detection

```
Default metric are not advertise in NSSA if ABR has 0 adjacency with area 0.0.0.0
#set protocols ospf no-active-backbone ( hidden command )
```

External Route Types

E1 : Cost of the advertising ASBR + cost of links.

E2 : Cost of the route as seen by the ASBR (default)

Config on R6 & R8

```
ospf {
  area 0.0.0.2 {
    stub;
    interface ...
  }
}
```

Config on R2

```
ospf {
  area 0.0.0.0 {
    interface ...
  }
}
area 0.0.0.2 {
  stub default-metric X no-summaries;
  interface ...
}
}
```

Config on R4

```
ospf {
  area 0.0.0.0 {
    virtual-link neighbor-id <RID R9> transit-area 4;
    interface ...
  }
  area 0.0.0.4 {
    interface ...
  }
}
```

Config on B0

```
ospf {
  area 0.0.0.0 {
    virtual-link neighbor-id <ABR RID> transit-area 4;
  }
  area 0.0.0.4 {
    interface ...
  }
  area 0.0.0.5 {
    stub default-metric 10
    interface ...
  }
}
```