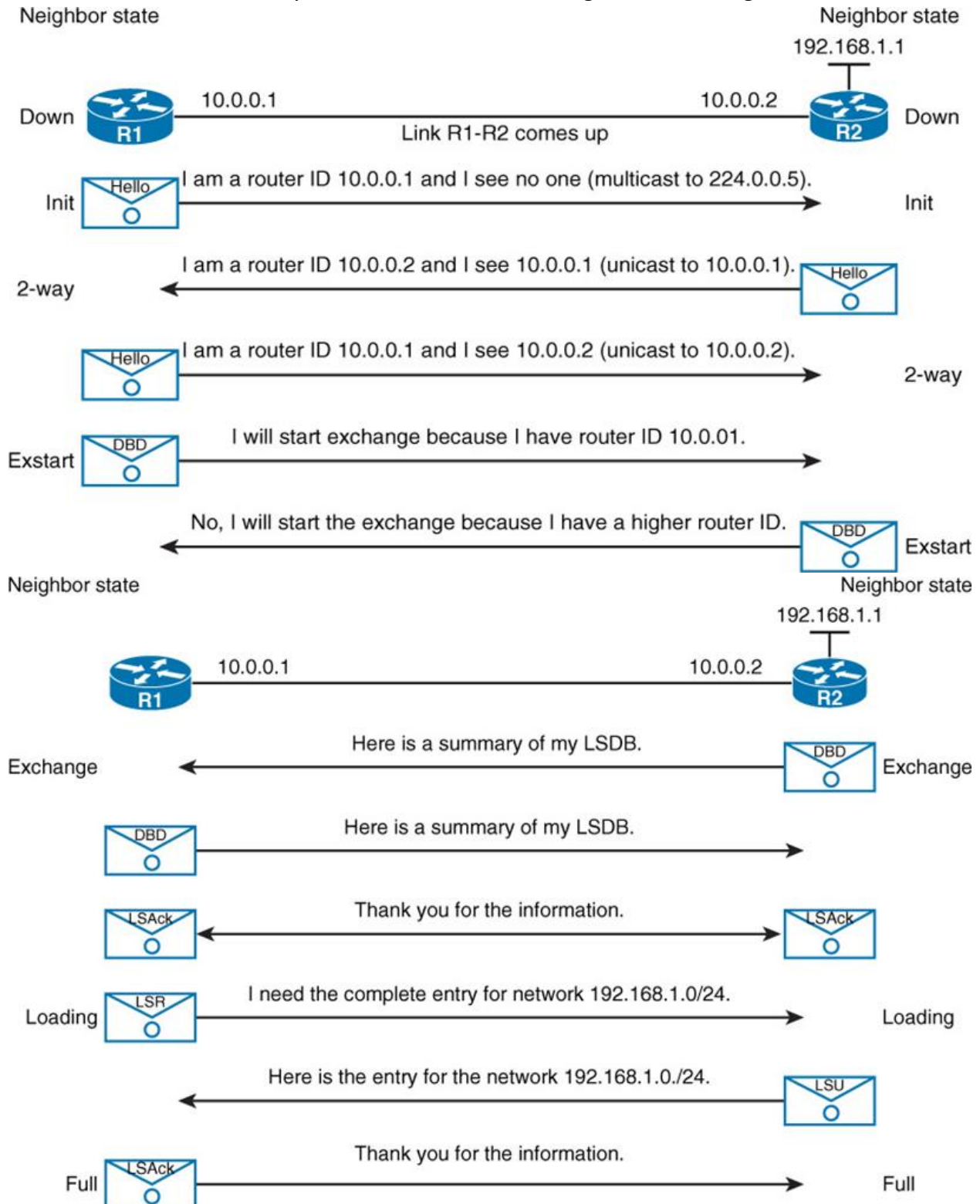


OSPF Neighbor Adjacencies:

Before establishing a neighbor relationship, OSPF routers go through several state changes.

Down State, Init State, 2-Way State, Exstart State, Exchange State, Loading State and Full State.



State	Description
Down State	No hello has been received. All OSPF routers begin in this state.
Init State	The interface has detected a Hello packet coming from a neighbor, but bi-directional communication has not yet been established.
2-Way State	When hello is exchanged between two OSPF routers that is called 2 way. Designated Router (DR) and BDR is elected in this stage.
Exstart State	Beginning of the LSDB exchange between both routers. Routers will start to exchange link state information. Master & slave is elected in this stage.
Exchange State	Routers will describe their entire link-state database by sending database description packets. At this state, packets could be flooded to other interfaces on the router.
Loading State	In this state actual database is exchanged means that LS-Request, LS-Update, LS Acknowledgement are also exchanged.
Full State	At this state, the adjacency is complete. The neighboring routers are fully adjacent. Adjacent routers will have a similar link-state database.

R1# debug ip ospf adj

R1# clear ip ospf process

Reset ALL OSPF processes? [no]: yes

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*Aug 30 07:53:04.294: OSPF-1 ADJ   Gi0/0: Remember old DR 2.2.2.2 (id)
*Aug 30 07:53:04.295: OSPF-1 ADJ   Gi0/0: 1.1.1.1 address 10.1.12.1 is dead, state DOWN
*Aug 30 07:53:04.295: OSPF-1 ADJ
R1#J   Gi0/0: Neighbor change event
*Aug 30 07:53:04.296: OSPF-1 ADJ   Gi0/0: DR/BDR election
*Aug 30 07:53:04.297: OSPF-1 ADJ   Gi0/0: Elect BDR 0.0.0.0
*Aug 30 07:53:04.297: OSPF-1 ADJ   Gi0/0: Elect DR 0.0.0.0
*Aug 30 07:53:04.298: OSPF-1 ADJ   Gi0/0: Elect BDR 0.0.0.0
*Aug 30 07:53:04.299: OSPF-1 ADJ   Gi0/0: Elect DR 0.0.0.0
*Aug 30 07:53:04.299: OSPF-1 ADJ   Gi0/0: DR: none
*Aug 30 07:53:04.300: OSPF-1 ADJ   Gi0/0: BDR: none
*Aug 30 07:53:04.301: OSPF-1 ADJ   Gi0/0: Flush network LSA immediately
*Aug 30 07:53:04.301: OSPF-1 ADJ   Gi0/0: Remember ol
R1#d DR 1.1.1.1 (id)
*Aug 30 07:53:04.368: OSPF-1 ADJ   Gi0/1: Interface going Up
*Aug 30 07:53:04.373: OSPF-1 ADJ   Gi0/0: Interface going Up
*Aug 30 07:53:04.433: OSPF-1 ADJ   Gi0/1: 2 Way Communication to 3.3.3.3, state 2WAY
*Aug 30 07:53:04.434: OSPF-1 ADJ   Gi0/1: Backup seen event before WAIT timer
*Aug 30 07:53:04.435: OSPF-1 ADJ   Gi0/1: DR/BDR election
*Aug 30 07:53:04.436: OSPF-1 ADJ   Gi0/1: Elect BDR 1.1.1.1
*Aug 30 07:53:04.437: OSPF-1 ADJ   Gi0/1: Elect DR 3.3.3.3
*Aug 30 07:53:04.438: OSPF-1 ADJ   Gi0/1: Elect BDR
R1# 1.1.1.1
*Aug 30 07:53:04.438: OSPF-1 ADJ   Gi0/1: Elect DR 3.3.3.3
*Aug 30 07:53:04.439: OSPF-1 ADJ   Gi0/1: DR: 3.3.3.3 (Id)
*Aug 30 07:53:04.440: OSPF-1 ADJ   Gi0/1: BDR: 1.1.1.1 (Id)
*Aug 30 07:53:04.441: OSPF-1 ADJ   Gi0/1: Nbr 3.3.3.3: Prepare dbase exchange
*Aug 30 07:53:04.442: OSPF-1 ADJ   Gi0/1: Send DBD to 3.3.3.3 seq 0x23D0 opt 0x52 flag 0x7 len 32
*Aug 30 07:53:04.449: OSPF-1 ADJ   Gi0/0: 2 Way Communication to 2.2.2.2, state 2WAY
*
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R1# OSPF-1 ADJ Gi0/0: Send DBD to 2.2.2.2 seq 0x3E9 opt 0x52 flag 0x7 len 32
*Aug 30 07:53:04.478: OSPF-1 ADJ Gi0/1: Rcv DBD from 3.3.3.3 seq 0x1B15 opt 0x52 flag 0x7 len 32 mtu 1500 state EXSTART
*Aug 30 07:53:04.479: OSPF-1 ADJ Gi0/1: NBR Negotiation Done. We are the SLAVE
*Aug 30 07:53:04.480: OSPF-1 ADJ Gi0/1: Nbr 3.3.3.3: Summary list built, size 0
*Aug 30 07:53:04.481: OSPF-1 ADJ Gi0/1: Send DBD to 3.3.3.3 seq 0x1B15 opt 0x52 flag 0x0 len 32
*Aug 30 07:53:04.487: OSPF-1 ADJ Gi0/0: Rcv DBD from 2.2.2.2 seq 0x1256 opt 0x52 flag 0x7 len 32 mtu 1500 state EXSTART
*Aug 30 07:53:
R1#04.487: OSPF-1 ADJ Gi0/0: NBR Negotiation Done. We are the SLAVE
*Aug 30 07:53:04.488: OSPF-1 ADJ Gi0/0: Nbr 2.2.2.2: Summary list built, size 0
*Aug 30 07:53:04.489: OSPF-1 ADJ Gi0/0: Send DBD to 2.2.2.2 seq 0x1256 opt 0x52 flag 0x0 len 32
*Aug 30 07:53:04.509: OSPF-1 ADJ Gi0/1: Rcv DBD from 3.3.3.3 seq 0x1B16 opt 0x52 flag 0x1 len 572 mtu 1500 state EXCHANGE
*Aug 30 07:53:04.516: OSPF-1 ADJ Gi0/1: Exchange Done with 3.3.3.3
*Aug 30 07:53:04.518: OSPF-1
R1#ADJ Gi0/1: Send LS REQ to 3.3.3.3 length 348
*Aug 30 07:53:04.519: OSPF-1 ADJ Gi0/1: Send DBD to 3.3.3.3 seq 0x1B16 opt 0x52 flag 0x0 len 32
*Aug 30 07:53:04.530: OSPF-1 ADJ Gi0/0: Rcv DBD from 2.2.2.2 seq 0x1257 opt 0x52 flag 0x1 len 572 mtu 1500 state EXCHANGE
*Aug 30 07:53:04.535: OSPF-1 ADJ Gi0/0: Exchange Done with 2.2.2.2
*Aug 30 07:53:04.537: OSPF-1 ADJ Gi0/0: Send LS REQ to 2.2.2.2 length 348
*Aug 30 07:53:04.538: OSPF-1 ADJ Gi0/0: Send DBD to 2.2.2.2 seq 0x1257 opt 0x52 flag 0x0 len 32
*Aug
R1# 30 07:53:04.553: OSPF-1 ADJ Gi0/1: Rcv LS UPD from Nbr ID 3.3.3.3 length 836 LSA count 27
*Aug 30 07:53:04.590: OSPF-1 ADJ Gi0/1: Synchronized with 3.3.3.3, state FULL
*Aug 30 07:53:04.590: %OSPF-5-ADJCHG: Process 1, Nbr 3.3.3.3 on GigabitEthernet0/1 from LOADING to FULL, Loading Done
*Aug 30 07:53:04.591: OSPF-1 ADJ Gi0/0: Synchronized with 2.2.2.2, state FULL
*Aug 30 07:53:04.592: %OSPF-5-ADJCHG: Process 1, Nbr 2.2.2.2 on GigabitEthernet0/0 from LOADING to FULL, Loading Done
*Aug 30 07:53:06.324: OSPF-1 ADJ Gi0/0: Nei
R1#ghbr change event
*Aug 30 07:53:06.325: OSPF-1 ADJ Gi0/0: DR/BDR election
*Aug 30 07:53:06.327: OSPF-1 ADJ Gi0/0: Elect BDR 1.1.1.1
*Aug 30 07:53:06.329: OSPF-1 ADJ Gi0/0: Elect DR 2.2.2.2
*Aug 30 07:53:06.330: OSPF-1 ADJ Gi0/0: DR: 2.2.2.2 (Id)
*Aug 30 07:53:06.332: OSPF-1 ADJ Gi0/0: BDR: 1.1.1.1 (Id)
*Aug 30 07:53:14.143: OSPF-1 ADJ Gi0/1: Neighbor change event
*Aug 30 07:53:14.145: OSPF-1 ADJ Gi0/1: DR/BDR election
*Aug 30 07:53:14.146: OSPF-1 ADJ Gi0/1: Elect BDR 1.1.1.1
*Aug 30 07:53:14.147: OSPF-1 ADJ Gi0/1: Elect DR 3.3.3.3

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