

Spanning Tree Port States:

- o Ports on a switch with enabled STP are in one of these five port states.
- o Blocking state, listening state, learning state, Forwarding and Disabled.
- o Switch does not enter any of these port states immediately except blocking state.
- o When the STP is enabled, every switch in the network starts in the blocking state.
- o Spanning Tree Protocol later changes to the listening state and learning states.

Blocking State:

- o When we power on a Switch, the switch puts all of its ports in this state.
- o The Switch Ports will go into a blocking state at the time of election process.
- o In Blocking state, the switch only listens and processes the BPDUs only.
- o Switch port in blocking state does not participate in frame forwarding.
- o Port in blocking state discards frames received from attached network segment.
- o During blocking state, port only listening & processing BPDUs on its interfaces.
- o After **20 seconds**, Switch port changes from the blocking state to listening state.

Listening State:

- o After blocking state, Root Port or Designated Port will move to listening state.
- o All other ports besides root and designated ports will remain in a blocked state.
- o During listening state, port discards frames received from attached network segment.
- o During listening state port discards frames switched from another port for forwarding.
- o After **15 seconds**, the switch port moves from the listening state to the learning state.

Learning State:

- o Only root port & designated ports enter into learning state from listening.
- o A Cisco Switch port change to learning state after the listening state.
- o During the learning state, the port is listening for and processing BPDUs.
- o In the learning state, the port begins to process the user frames.
- o In the learning state, the port start updating the MAC address table.
- o Data or user frames are not forwarded to the destination port of switch.
- o After **15 seconds**, switch port moves from learning state to forwarding state.

Forwarding State:

- o In this state, the switch listens and processes both BPDUs and user frames.
- o Port in forwarding state forwards frames across attached network segment.
- o In forwarding state, port will process BPDUs & update its MAC Address table.
- o Data frames are forwarded to destination, Forwarding State is normal state.
- o The Data and configuration messages are passed through the port or link.

Disabled State:

- o A port in the disabled state does not participate in frame forwarding.
- o A port in the disabled state does not participate in operation of STP.
- o A port in the disabled state is considered non-operational.
- o This state applies to all ports which are either manually shut down.
- o All unplugged ports or interface also remain in Disabled state.

Interface	Role	Sts	Cost	Prio.Nbr	Type
Et0/0	Desg	FWD	100	128.1	P2p
Et0/1	Root	LIS	100	128.2	P2p
Et0/2	Altn	BLK	100	128.3	P2p

