CCNA Cheats Sheets:

Those cheat sheets have been incredibly helpful for my CCNA (Cisco Certified Network Associate) exam preparation. They provide a concise and organized summary of key concepts that I need to understand and memorize. The cheat sheets act as a valuable quick reference guide, allowing me to review important information quickly and efficiently. In addition, I highly recommend that you create your own cheats sheets and include the IOS commands.

Timers

- MAC table cleared after 5 minutes of inactivity (dynamic entry only)
- STP-enabled switches send/recieve hello BPDU every 2 sec
- Forward delay timer: 15 sec] STP
- Max age = 10 BPDUs = 20 sec] STP
- From non-designated to designated = 50 sec
- RSTP max age = 6 sec
- LSA aging timer is 30 mins
- OSPF hello timer is 10 sec] Broadcast Network
- OSPF dead timer is 40 sec = 4 hellos] Broadcast Network
- RIP-enabled routers share their routing table every 30 sec
- ~~OSPF hello timer is 30 sec~~] ~~P2P~~
- ~~OSPF dead timer is 120 sec~~] ~~P2P~~
- HSRP Hello timer is 3 sec
- HSRP Hold timer is 10 sec
- CDP messages are sent every 60 sec, CDP holdtime is 180 sec
- LLDP messages are sent every 30 sec, LLDP holdtime is 120 sec
- LLDP reinitialization timer is 2 sec
- Dynamic NAT entries will clear out after 24 h of inactivity
- err-disabled interfaces will be automatically re-enabled after 5 mins
- Secure static MAC-Addresses have aging timer of zero mins (no timer)
- OSPF hello timer for non-broadcast networks is 30 sec
- OSPF dead timer for non-broadcast networks is 120 sec

IPv6 Addresses

- Global Unicast → 2000::/3
- Unique Local → FC00::/7 , FD00::/7
- Link Local → FE80::/10 (not routable)

Multicast Addresses

- FF02::1 → All nodes
- FF02::2 → All routers
- FF02::5 → All OSPF routers
- FF02::6 → All OSPF DR/BDR routers
- FF02::9 → All RIP routers
- FF02::A → All EIGRP routers

Multicast Scopes

- FF01 → Interface-local
- FF02 → link-local
- FF05 → Site-local
- FF08 → Organization-local
- FF0E → Global

- Unspeified → ::/0
- Loopback → ::1
- Solicited-node Address → FF02::1:FF + last 6 hex of global Unicast
- Neighbor Solicitation (NS) → Type 135
- Neighbor Advertisement (NA) → Type 136
- Router Solicitation (RS) → Type 133, sent to FF02::2
- Router Advertisement (RA) → Type 134, sent to FF02::1

Important Numbers, default values, and numerical Data :

WLC Deployment in Split-MAC design :

- Unified ⟶ Supports up to 6000 APs
- Cloud based ⟶ Supports up to 3000 APs
- Embedded ⟶ Supports up to 200 APs
- Mobility Express ⟶ Supports up to 100 APs

QoS Management Using WLC :

- Silver ⟶ Best Effort
- Bronze ⟶ Background
- Gold ⟶ video
- Platinum ⟶ voice

HTTP Classes and Responses Classifications :

- 1XX = Informational, 102 ⟶ Processing
- 2XX = Successful, 200 ⟶ OK, 201 ⟶ Created (POST)
- 3XX = Redirection, 301 ⟶ Moved Permanently
- 4XX = Client Error, 403 ⟶ Unauthenticated, 404 ⟶ Not found
- 5XX = Server Error, 500 ⟶ Server error

- Appropriate wireless coverage overlap ⟶ 10% to 15%
- Late collisions occur because of an interruption that occurs after the ⟶ 64th byte has been transmitted, of the frame

IPv4 Addresses

- RIPv1 messages are broadcast to → 255.255.255.255
- RIPv2 messages are multicast to → 224.0.0.9
- EIGRP messages are multicast to → 224.0.0.10
- OSPF Hello messages are multicast to → 224.0.0.5
- OSPF messages to DR/BDR are multicast to → 224.0.0.6
- HSRP messages are multicast to (version 1) → 224.0.0.2
- HSRP messages are multicast to (version 2) → 224.0.0.102
- VRRP messages are multicast to → 224.0.0.18
- GLBP messages are multicast to → 224.0.0.102
- Default Multicast Address to all hosts → 224.0.0.1
- Default Multicast Address to all routers → 224.0.0.2

Private IPv4 Ranges:

* 10.0.0.0/8 (10.0.0.0 to 10.255.255.255)
* 172.16.0.0/12 (172.16.0.0 to 172.31.255.255)
* 192.168.0.0/16 (192.168.0.0 to 192.168.255.255)

Important numbers, default values, and numerical Data

- Standard Numbered ACLs usable range → [1-99] and [1300-1999]
- Extended Numbered ACLs usable range → [100-199] and [2000, 2699]
- Master NTP default Stratum → 8
- Every Awesome Cisco Engineer Will Need Ice cream Daily
- Telnet default # of users that can access device at onece → 16
- SSHv2 key length → 768 bits
- Acceptable one-way delay → 150ms or less
- Acceptable Jitter → 30ms or less
- Acceptable Loss → 1% or less

QoS Classifications

- Default or Best effort traffic → 0
- Critical Application → 3
- Video → 4
- Voice → 5
- Expedited Forwarding (EF) → $(46)_{10} = (101110)_2$

RFC 4954 QoS Recommendations

- Best Effort → DF
- Voice Traffic → EF
- High Priority Data → AF2X

Streaming Video → AF3X

Interactive Video → AF4X

- DHCP Information Option → Option 82
- DAI rate limiting by default → 15 Packet Per Second
- Use 3-tier LAN design when the # of distribution layers is greater than → 2
- RF range → [30Hz, 300GHz]
- Wi-Fi bands → 2.4GHz and 5GHz
- Recommended 2.4GHz non-overlapping AP channels → 1, 6, and 11
- 2.4GHz Channel range → 22MHz
- WLC IP is advertised to APs via → Option 43

Important numbers, default values, and numerical Data

- IPv4 value in frame → 0X0800
- IPv6 value in frame → 0X86DD
- Value in frame $\geq (1536)_{10}$ → Indicates type
- Value in frame $\leq (1500)_{10}$ → Indicates Length
- Min frame size (header "18B" + Packet + Trailer) = 64Byte
- ICMP Echo Req/Reply → 100B
- ARP value (Encapsulated) → 0x0806
- Min L3 header size → 20Byte
- Max L3 header size → 60Byte
- Max frame size (header + Packet + Trailer) → 1518Byte

=> Protocol values of the Encapsulated L4PDU-:

ICMP → 1
TCP → 6
UDP → 17
OSPF → 89
EIGRP → 88

- 802.1q tag value → 0X8100
- VTP default version/Mode → 1/Server
- Default Bridge priority → 32769
- STP BPDU Type/Protocol Version ID → 0X00
- RSTP BPDU Type/Protocol Version ID → 0X02

=> AD (Administrative Distance)

EIGRP → 90
OSPF → 110
IS-IS → 115
RIP → 120
Internal BGP → 200

- RIP's max hop count → 15
- OSPF's default reference bandwidth → 100Mbps
- Min IPv6 Fixed Size → 40Byte

Port Numbers

- Well-known ports Range → [0 - 1023]
- Registered ports Range → [1024 - 49151]
- Ephemeral ports Range → [49152 - 65535]

TCP :

- FTP Data → 20
- FTP Control → 21
- SSH → 22
- Telnet → 23
- SMTP → 25
- TACACS+ → 49
- HTTP → 80
- POP3 → 110
- HTTPS → 443
- DNS → 53
- Puppet Server → 8140
- Chef Server → 10002

UDP :

- DHCP Server → 67
- DHCP Client → 68
- TFTP → 69
- SNMP Agent → 161
- SNMP Manager → 162
- RADIUS → 1812 and 1813
- CAPWAP Control Tunnel → 5246
- CAPWAP Data Tunnel → 5247
- Syslog → 514
- DNS → 53
- NTP → 123

IEEE Standards

- 802.3i → Ethernet, Cat 3
- 802.3u → Fast Ethernet, Cat 5
- 802.3ab → Gigabit Ethernet, Cat 5e
- 802.3an → 10Gig Ethernet, Cat 6
- 802.3z → 1000BASE-LX
- 802.3ae → 10GBASE-SR/LR/ER
- 802.1q → dot1q trunking protocol
- 802.1D → classic STP
- 802.1w → RSTP
- 802.1s → MST
- 802.3ad → LACP
- 802.1AB → LLDP

Ethernet standards (802.3) and Layer 2 protocol standards

PoE (Power Over Ethernet)

- 802.3af → PoE Type 1
- 802.3at → PoE+ Type 2
- 802.3bt → uPoE Type 3
- 802.3bt → uPoE+ Type 4

Wi-Fi Standards (802.11)

- 802.11 → 2.4 GHz, 2 Mbps
- 802.11b → 2.4 GHz, 11 Mbps
- 802.11a → 5 GHz, 54 Mbps
- 802.11g → 2.4 GHz, 54 Mbps
- 802.11n → 2.5/5 GHz, 600 Mbps (Wi-Fi 4)
- 802.11ac → 5 GHz, 6.93 Gbps (Wi-Fi 5)
- 802.11ax → 6 GHz, 4*802.11ac (Wi-Fi 6)

- X.509 → Standard digital Certificates
- 802.1X → Standard for Network Access Control

Leased Line Standards

North America:

- T1 → 1.5 Mbps
- T2 → 6 Mbps
- T3 → 44 Mbps

Europe:

- E1 → 2 Mbps
- E2 → 8 Mbps
- E3 → 34 Mbps