

Cheat Sheet for comprehensive Cisco Certified Technician (CCT) - Routing & Switching

Basic Commands and Navigation

- Accessing the CLI:

- ``Ctrl+Shift+6`` (break sequence)
- ``telnet <device_ip>``
- ``ssh <username>@<device_ip>``

- Modes:

- **User EXEC Mode:** ``>``
- **Privileged EXEC Mode:** ``#`` (access with ``enable``)
- **Global Configuration Mode:** ``(config)#`` (access with ``configure terminal``)
- **Interface Configuration Mode:** ``(config-if)#`` (access with ``interface <type><number>``)

- Basic Navigation:

- ``exit`` or ``Ctrl+Z`` to exit current mode
- ``end`` to go directly to Privileged EXEC Mode
- ``Ctrl+Shift+6`` to break out of a process

Configuration and Management

- Saving Configuration:

- ``copy running-config startup-config`` or ``write memory``

- Resetting to Factory Defaults:

- ``erase startup-config``
- ``reload``

- Password Recovery:

- Enter ROMMON mode: ``Ctrl+Break`` during boot
- ``confreg 0x2142`` (ignore NVRAM contents)
- ``reset``
- ``enable``
- ``copy startup-config running-config``

- `configure terminal`
- `config-register 0x2102`
- `end`
- `write memory`

Interface Configuration

- Basic Interface Commands:

- `interface <type><number>` (e.g., `interface GigabitEthernet0/1`)
- `description <text>`
- `ip address <ip> <mask>`
- `no shutdown`

- Common Interface Types:

- `GigabitEthernet`
- `FastEthernet`
- `Serial`
- `VLAN`

- VLAN Configuration:

- `vlan <vlan_id>`
- `name <vlan_name>`
- `interface range <type><start>-<end>` (e.g., `interface range FastEthernet0/1-12`)
- `switchport mode access`
- `switchport access vlan <vlan_id>`

Routing Configuration

- Static Routing:

- `ip route <destination_network> <mask> <next_hop_ip>`
- `ip route <destination_network> <mask> <exit_interface>`

- Dynamic Routing Protocols:

- RIP:

- `router rip`
- `version 2`
- `network <network>`

- OSPF:

- `router ospf <process_id>`
- `network <network> <wildcard_mask> area <area_id>`

- **EIGRP:**

- `router eigrp <as_number>`
- `network <network>`
- `no auto-summary`

Troubleshooting and Monitoring

- **Show Commands:**

- `show running-config`
- `show startup-config`
- `show interfaces`
- `show ip interface brief`
- `show ip route`
- `show vlan`
- `show ip protocols`
- `show cdp neighbors`

- **Debugging:**

- `debug ip packet`
- `debug ip rip`
- `debug ip ospf events`
- `undebug all` or `no debug all`

- **Ping and Traceroute:**

- `ping <ip_address>`
- `traceroute <ip_address>`

Security and Access Control

- **Password Configuration:**

- **Console Password:**

- `line console 0`
- `password <password>`
- `login`

- **Enable Password:**

- `enable password <password>`

- **Enable Secret:**

- `enable secret <password>`

- **VTY Password:**

- `line vty 0 4`
- `password <password>`
- `login`

- **Access Lists (ACLs):**

- **Standard ACL:**

- `access-list <acl_number> permit|deny <source_ip> <wildcard_mask>`
- `ip access-group <acl_number> in|out`

- **Extended ACL:**

- `access-list <acl_number> permit|deny <protocol> <source_ip> <wildcard_mask> <destination_ip> <wildcard_mask> [operator port]`
- `ip access-group <acl_number> in|out`

Miscellaneous

- **Syslog Configuration:**

- `logging <ip_address>`
- `logging trap <level>`

- **NTP Configuration:**

- `ntp server <ip_address>`
- `ntp update-calendar`

- **SNMP Configuration:**

- `snmp-server community <community_string> ro|rw`
- `snmp-server host <ip_address> version 2c <community_string>`

Example Configurations

- **Basic Router Configuration:**

```
hostname R1
enable secret cisco
interface GigabitEthernet0/1
  ip address 192.168.1.1 255.255.255.0
  no shutdown
ip route 0.0.0.0 0.0.0.0 192.168.1.254
```

- **Basic Switch Configuration:**

```
hostname SW1
enable secret cisco
vlan 10
  name Sales
interface range FastEthernet0/1-12
  switchport mode access
  switchport access vlan 10
```

Tips and Tricks

- Use Tab Completion:

- Press `Tab` to auto-complete commands and interface names.

- Use Abbreviations:

- `int` for `interface`, `sh` for `show`, `conf t` for `configure terminal`.

- Check for Errors:

- Look for `%` symbols in the output, which indicate errors or warnings.

- Use Contextual Help:

- `?` at any point to get a list of available commands or options.

- Backup Configuration:

- Regularly backup configurations to a TFTP or FTP server.

- Use `no` Command:

- `no <command>` to undo or remove a configuration.

Common Issues and Solutions

- Interface Not Coming Up:

- Check physical connections.
- Ensure `no shutdown` is configured.
- Verify IP address and subnet mask.

- Routing Issues:

- Check routing tables with `show ip route`.
- Ensure correct static or dynamic routes are configured.

- VLAN Misconfiguration:

- Use `show vlan` to verify VLAN assignments.
- Ensure correct VLAN IDs are used on access ports.

- **ACL Misconfiguration:**

- Use `show access-lists` to verify ACL rules.
- Ensure ACLs are applied in the correct direction (in/out).

Conclusion

This cheat sheet provides a comprehensive overview of essential commands, configurations, and troubleshooting techniques for Cisco Certified Technician (CCT) - Routing & Switching. Use these commands and tips to efficiently manage and troubleshoot Cisco networking devices.

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