

1 Basic Device Configuration

1.1 Configure a Switch with Initial Settings

- Switch Boot Sequence
 1. POST from ROM: check CPU, DRAM, flash
 2. boot loader from ROM
 3. CPU initialization
 4. flash initialization
 5. load IOS
- S(config)# boot system flash:/c2960-lanbasek9-mz.150-2.SE/c2960-lanbasek9-mz.150-2.SE.bin
- Switch LED Indicators
 - SYST: System (Power)
 - RPS: Redundant Power System
 - STAT: Port Status (green = link, amber = blocked)
 - DUPLEX (green = full duplex)
 - SPEED (green = 100 Mbps, green blinking = 1000 Mbps)
 - PoE
- Recovering from a System Crash: Mode-Button drücken
- Switch Management Access (SVI)
 - sdm prefer dual-ipv4-and-ipv6 default
 - no ip domain-lookup
 - hostname
 - service password-encryption
 - enable secret
 - banner motd
 - vlan 99: ip address, ipv6 address, ip default-gateway
 - line con 0 logging synchronous
 - line vty 0 15 password, login
 - copy running-config startup-config
 - show ip interface ...
 - show ip interface brief
 - show ipv6 interface brief
 - show mac address-table
 - show mac-address-table
 - clear mac address-table dynamic
 - mac address-table static ...
 - show sdm prefer
 - show interface f0/6
 - show interface vlan 99
 - show flash:
 - dir flash:
 - show vlan brief

- show run
- delete vlan.dat
- erase startup-config
- reload

1.2 Configure Switch Ports

- duplex full
- speed 100
- show controllers ethernet-controller ...
- show history
- show controllers ethernet-controller ...
- show interfaces
- Interface Input Errors
 - Runt Frames (kleiner 64 Byte)
 - Giants
 - CRC errors
- Interface Output Errors
 - Collisions
 - Late collisions (größer als 64 Byte = 512 bit) (lange Kabel, Duplex-Fehler)

1.3 Secure Remote Access

```
SWITCH(config)# ip domain-name cisco.com
SWITCH(config)# crypto key generate rsa
SWITCH(config)# username admin secret ccna
SWITCH(config)# line vty 0 15
SWITCH(config-line)# transport input ssh
SWITCH(config-line)# login local
SWITCH(config)# ip ssh version 2
```

```
SWITCH# show ip ssh
```

1.4 Basic Router Configuration

Configure Basic Router Settings

```
Router(config)# hostname R1
R1(config)# enable secret class
R1(config)# line console 0
R1(config-line)# password cisco
R1(config-line)# login
R1(config-line)# exit
R1(config)# line vty 0 4
R1(config-line)# password cisco
R1(config-line)# login
R1(config-line)# exit
R1(config)# service password-encryption
R1(config)# banner motd #Authorized Access Only!#
R1# copy running-config startup-config
```

Dual Stack Topology

Configure Router Interfaces

```
R1(config)# interface gigabitethernet 0/0/0
R1(config-if)# ip address 192.168.10.1 255.255.255.0
R1(config-if)# ipv6 address 2001:db8:acad:1::1/64
R1(config-if)# description Link to LAN 1
R1(config-if)# no shutdown
```

IPv4 Loopback Interfaces

```
R(config)# interface loopback 0
R(config-if)# ip address 10.0.0.1 255.255.255.0
```

1.5 Verify Directly Connected Networks

```
R# show ip interface brief
R# show ipv6 interface brief
R# show ipv6 interface gigabitethernet 0/0/0
R# show running-config interface gigabitethernet 0/0/0
R# show ip route
R# show ipv6 route
R# ping 2001:db8:acad:1::10
```

Filter Show Command Output

```
R# show running-config | section line vty
R# show ip interface brief | include up
R# show ip interface brief | exclude unassigned
R# show ip route | begin Gateway
```

Command History

```
R# terminal history size 200
R# show history
```