



# Operating and Configuring a Cisco Catalyst Switch



# Objectives

**On completion of this chapter, you will be able to perform the following tasks:**

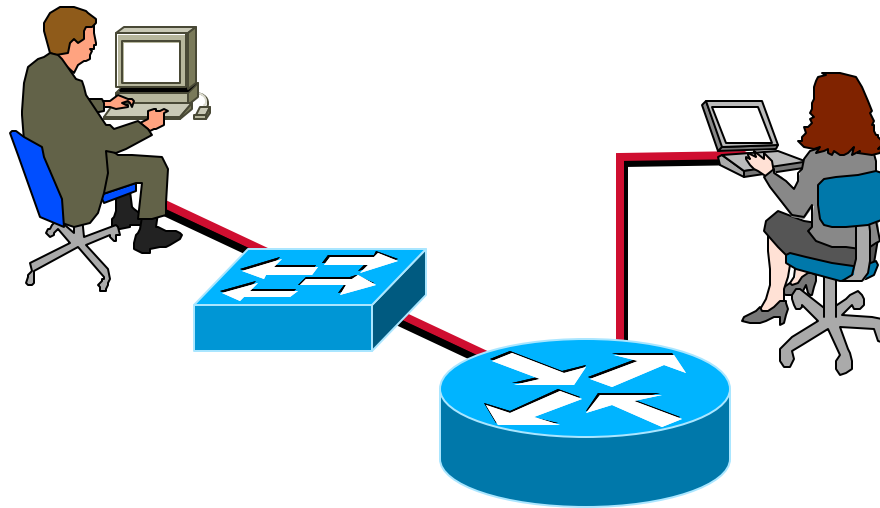
- **Start up the Catalyst switch and Cisco router and observe the boot up processes**
- **Provide an initial configuration for the switch and perform the router's initial setup configuration**
- **Enable and identify the command modes in each network device**



# Objectives (cont.)

- **Use the various help and command line-editing features of each device's user interface**
- **Show and recognize fundamental technical details about each network device**

# Cisco Internetwork Operating System (IOS) Software



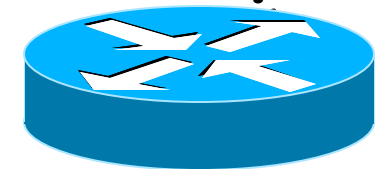
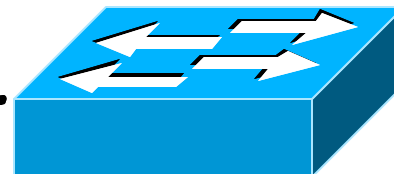
**Cisco's IOS software delivers network services and enables networked applications.**

# Network Device Configuration

- **Configuration sets up the device with:**
  - Network policy of the functions required
  - Protocol addressing and parameter settings
  - Options for administration and management
- **Catalyst switch memory has initial configuration with default settings**
- **Cisco router will prompt for initial configuration if there is no configuration in memory**

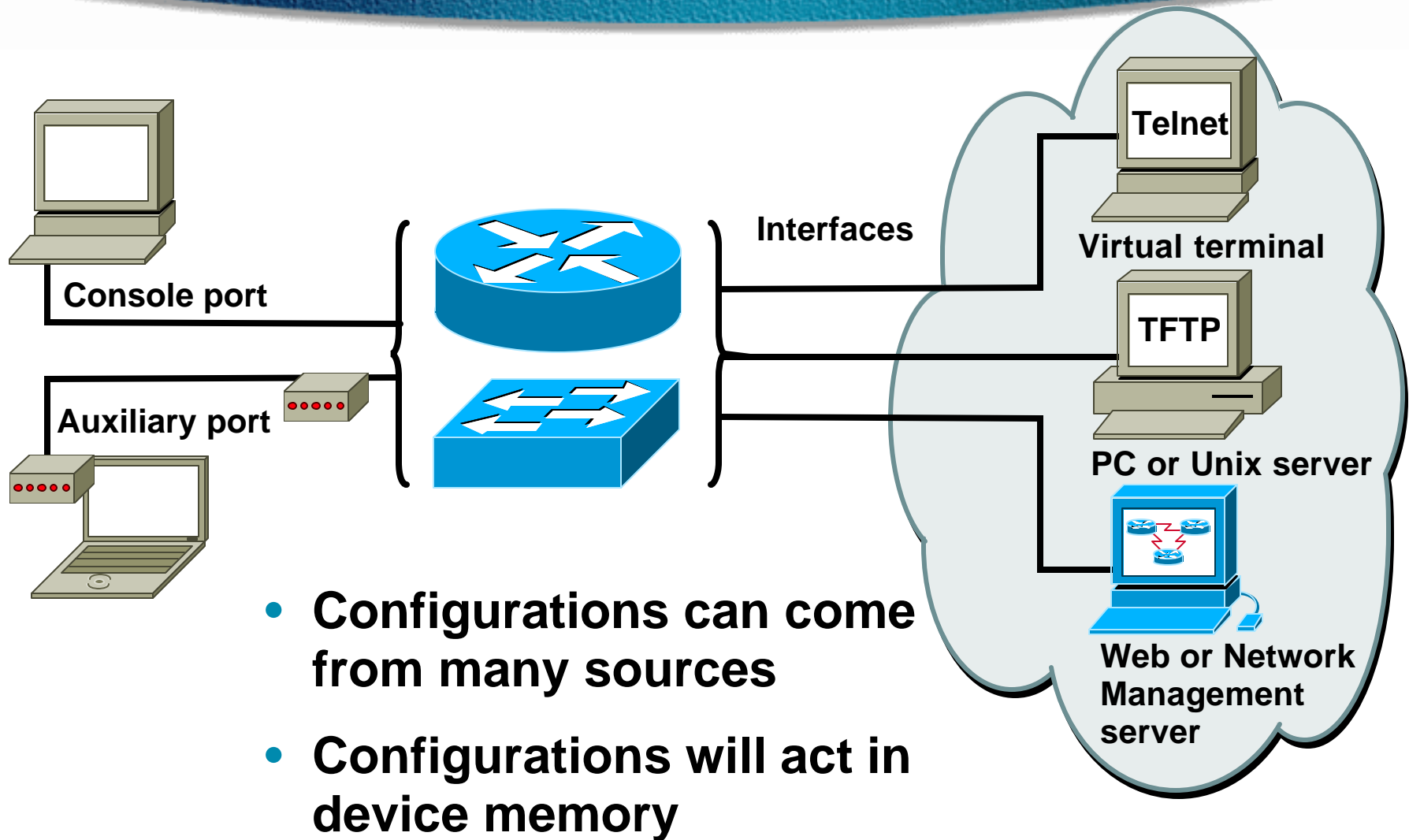
# An Overview of Cisco Device Startup

- Find and check device hardware
- Find and load Cisco IOS software image
- Find and apply device configurations





# External Configuration Sources



# Cisco IOS User Interface Fundamentals

- Uses a command line interface
- Operations vary on different internetworking devices
- Type or paste entries in the console command modes
- Enter key instructs device to parse and execute the command
- Two primary EXEC modes are user mode and privileged mode
- Command modes have distinctive prompts





# Cisco IOS Software EXEC

There are two main EXEC modes for entering commands.

First mode:



## User Mode

- Limited examination of switch or router
- Command Prompt is `hostname>`

# Cisco IOS Software EXEC (cont.)

**Second mode (and most commonly used):**

## **Privileged (or enabled) Mode**

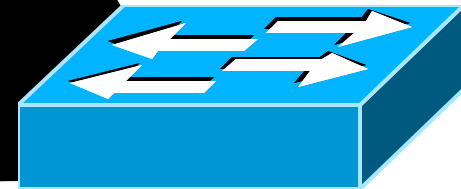
- Detailed examination of switch or router
- Enables configuration and debugging
- Prerequisite for other configuration modes
- Command prompts on the device  
`hostname#`



# Initial Start up of the Catalyst Switch

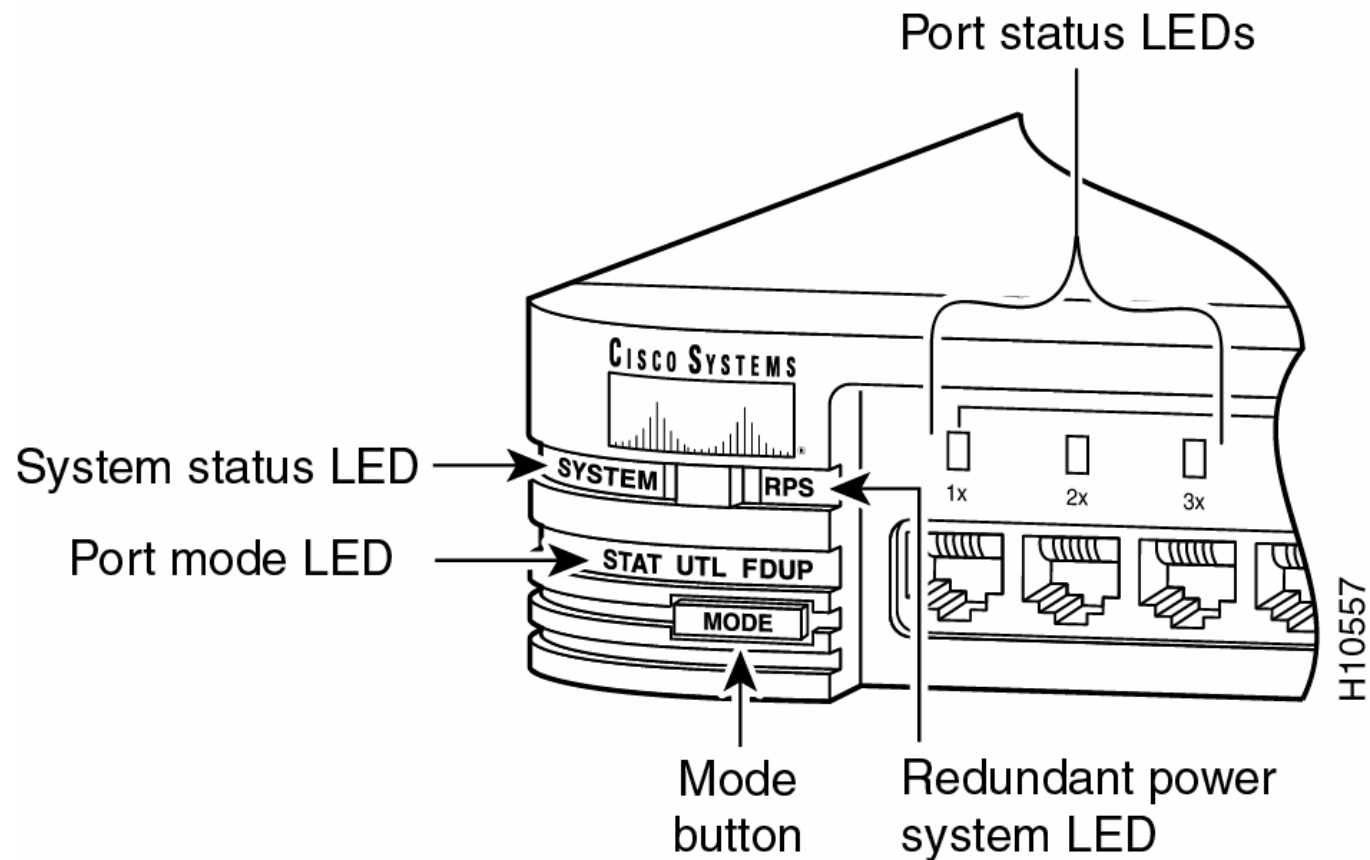
- **System startup routines initiate switch software**
- **Initial startup uses default configuration parameters**

- 1. Before you start the switch, verify the cabling and console connection**
- 2. Attach the power cable plug to the switch power supply socket**
- 3. Observe the boot sequence**
  - LEDs on the switch chassis
  - Cisco IOS software output text





# Checking Switch LED Indicators



# Port LEDs during Switch POST

- 1. At the start, all port LEDs are green.**
- 2. Each LED turns off after its test completes.**
- 3. If a test fails, its LED turns amber.**
- 4. System LED turns amber if any test fails.**
- 5. If no test fails, POST completes.**
- 6. On POST completion, LEDs blink then turn off.**

# Initial Bootup Output from the Switch

Catalyst 1900 Management Console  
Copyright (c) Cisco Systems, Inc. 1993-1998  
All rights reserved.  
Enterprise Edition Software  
Ethernet Address: 00-50-BD-73-E2-C0

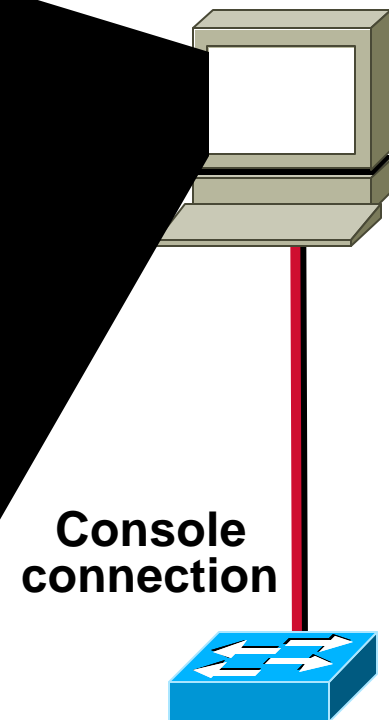
PCA Number: 73-3121-01  
PCA Serial Number: FAA0252A0QX  
Model Number: WS-C1924-EN  
System Serial Number: FAA0304S0U3  
Power Supply S/N: PHI025101F3  
-----

1 user(s) now active on Management Console.

## User Interface Menu

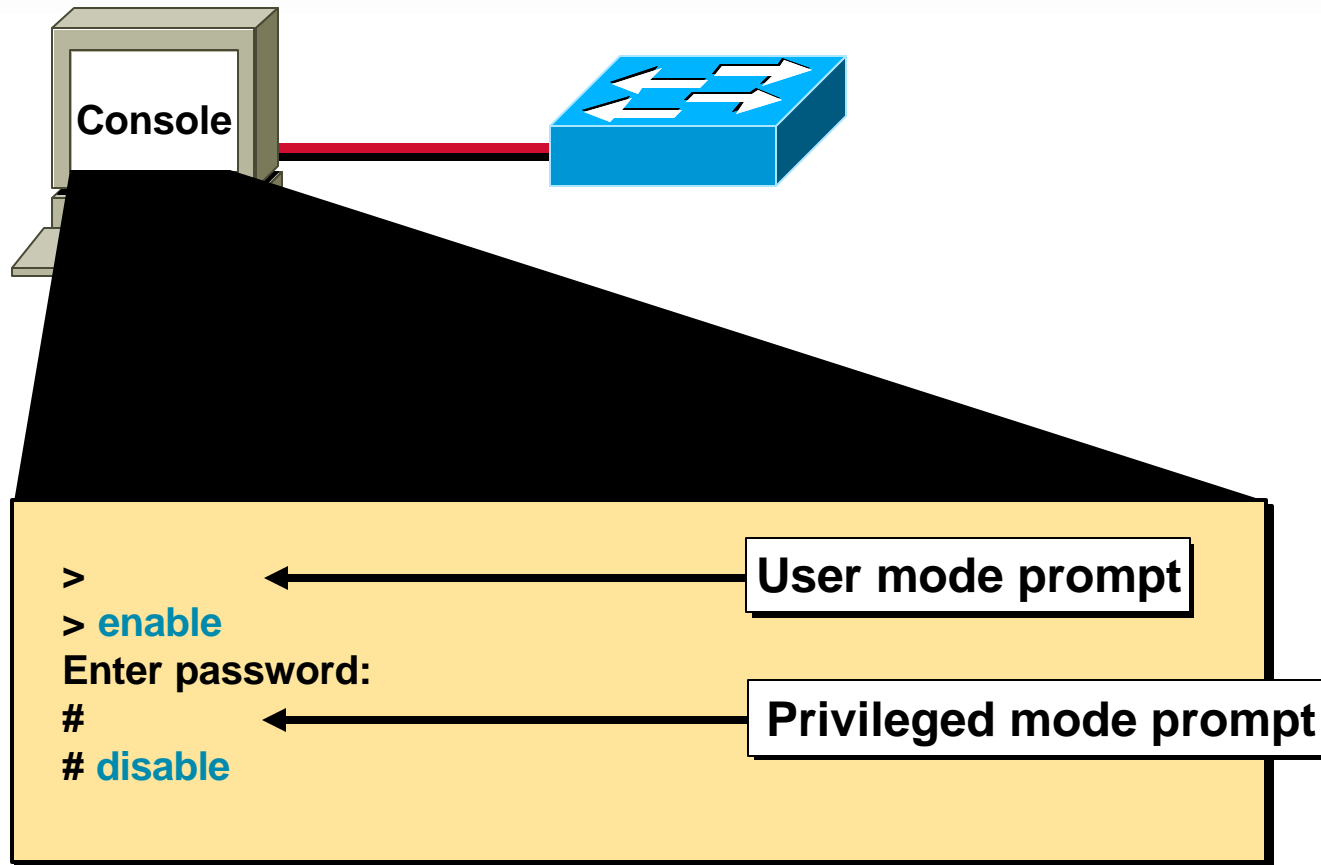
[M] Menus  
[K] Command Line  
[I] IP Configuration

Enter Selection:





# Logging into the Switch and Entering the Enable Password



# Switch Command Line Help Facilities

## Context-Sensitive Help

Provides a list of commands and the arguments associated with a specific command.

## Console Error Messages

Identify problems with switch commands incorrectly entered so that you can alter or correct them.

## Command History Buffer

Allows recall of long or complex commands or entries for reentry, review, or correction.

# Showing Switch Initial Startup Status

```
Switch#show version
```

```
Switch#show running-config
```

```
Switch#show interfaces
```

**Display operational status of switch components**



# Switch *show version* Command

**wg\_sw\_c#show version**

**Cisco Catalyst 1900/2820 Enterprise Edition Software**

**Version V8.01.01 written from 171.068.229.225**

**Copyright (c) Cisco Systems, Inc. 1993-1998**

**wg\_sw\_c uptime is 15day(s) 21hour(s) 53minute(s) 11second(s)**

**cisco Catalyst 1900 (486sxl) processor with 2048K/1024K bytes of memory**

**Hardware board revision is 5**

**Upgrade Status: No upgrade currently in progress.**

**Config File Status: No configuration upload/download is in progress**

**27 Fixed Ethernet/IEEE 802.3 interface(s)**

**Base Ethernet Address: 00-50-BD-73-E2-C0**

# Switch *show running-configuration* Command

## Catalyst 1924

```
wg_sw_c#show run

Building configuration...
Current configuration:
!
hostname "wg_sw_c"
!
ip address 10.1.1.33 255.255.255.0
ip default-gateway 10.3.3.3
!
interface Ethernet 0/1
<text omitted>
interface Ethernet 0/24
!
Interface Ethernet 0/25
!
interface FastEthernet 0/26
!
interface FastEthernet 0/27
```

## Catalyst 1912

```
wg_sw_c#show run

Building configuration...
Current configuration:
!
hostname "wg_sw_c"
!
ip address 10.1.1.33 255.255.255.0
ip default-gateway 10.3.3.3
!
interface Ethernet 0/1
<text omitted>
interface Ethernet 0/12
!
Interface Ethernet 0/25
!
interface FastEthernet 0/26
!
interface FastEthernet 0/27
```

# Switch *show interfaces* Command

```
wg_sw_c#show interfaces ethernet 0/1
```

```
Ethernet 0/1 is Enabled  
Hardware is Built-in 10Base-T  
Address is 0050.BD73.E2C1  
MTU 1500 bytes, BW 10000 Kbits  
802.1d STP State: Forwarding   Forward Transitions: 1  
Port monitoring: Disabled  
Unknown unicast flooding: Enabled  
Unregistered multicast flooding: Enabled  
Description:  
Duplex setting: Half duplex  
Back pressure: Disabled  
--More--
```

# Showing the Switch IP Address

```
wg_sw_a#show ip
IP Address: 10.5.5.11
Subnet Mask: 255.255.255.0
Default Gateway: 10.5.5.3
Management VLAN: 1
Domain name:
Name server 1: 0.0.0.0
Name server 2: 0.0.0.0
HTTP server : Enabled
HTTP port : 80
RIP : Enabled
wg_sw_a#
```



# Configuring the Switch

## Configuration Modes:



- **Global Configuration Mode**
  - `wg_sw_a# conf term`
  - `wg_sw_a(config)#`
- **Interface Configuration Mode**
  - `wg_sw_a(config)# interface e0/1`
  - `wg_sw_a(config-if)#`

# Configuring Switch Identification

## Switch Name

```
(config)#hostname wg_sw_c  
wg_sw_c(config)#
```



**Sets local identity for the switch**

# Configure the Switch IP Address

```
wg_sw_a(config)# ip address {ip address}  
{mask}
```

```
wg_sw_a(config)#ip address 10.5.5.11 255.255.255.0
```