ATP. Lecture 2

Basic Switch Setup

Objectives

Basic Switch Setup

Out-of-band management

physical access to the switch

console port using the serial cable

does not require the switch to have network connectivity

Out-of-band management

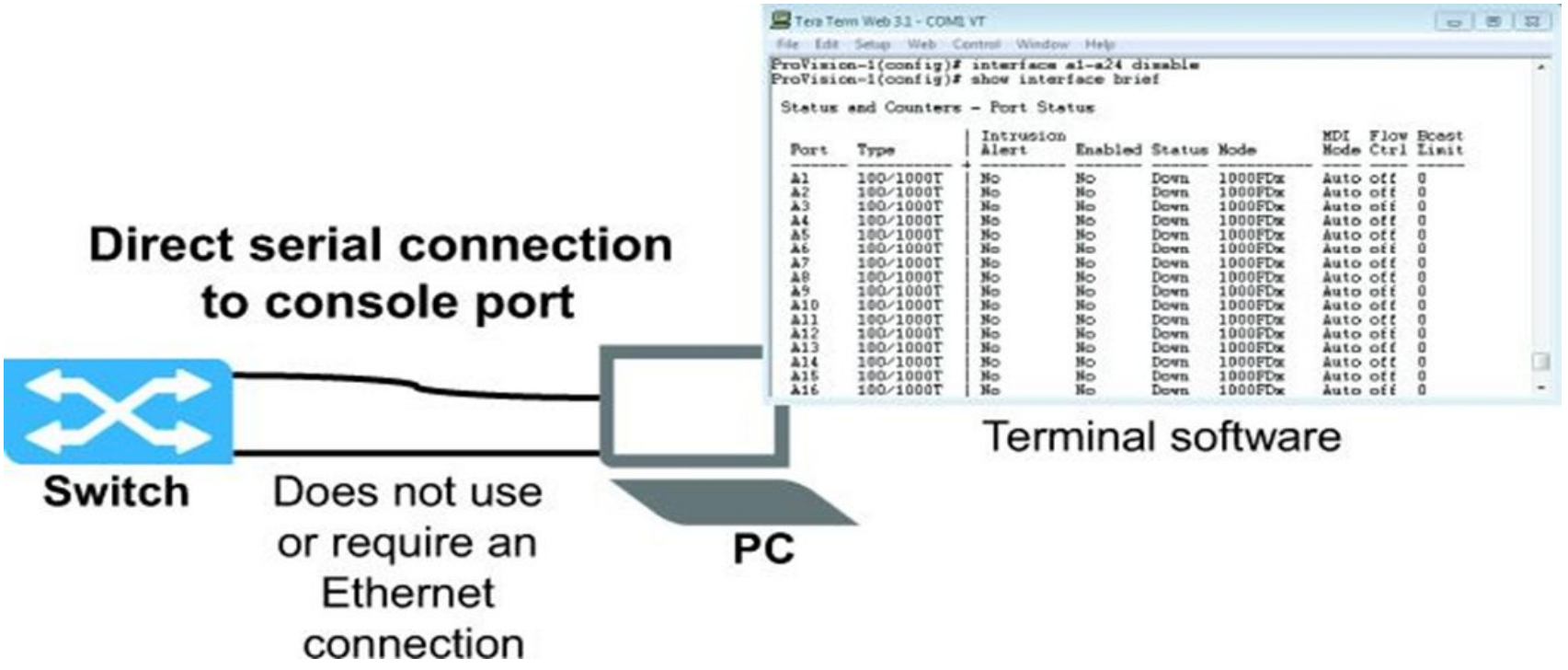
HP ProVision

Comware

Comware routers

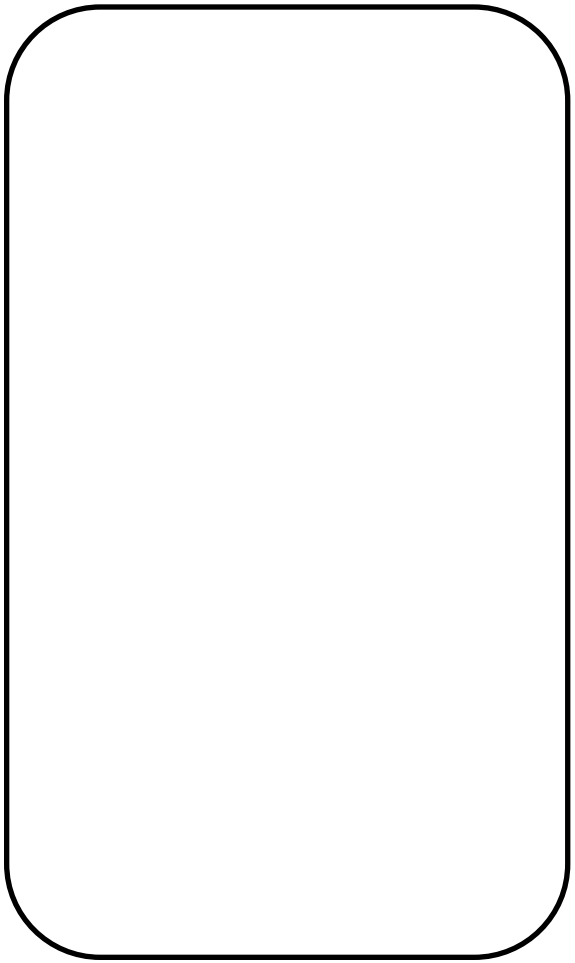
also support an additional auxiliary port for a secondary CLI access

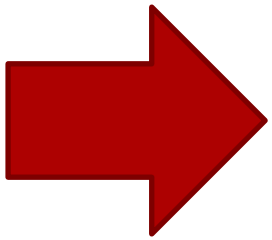
Out-of-band management



use terminal software **PuTTY**

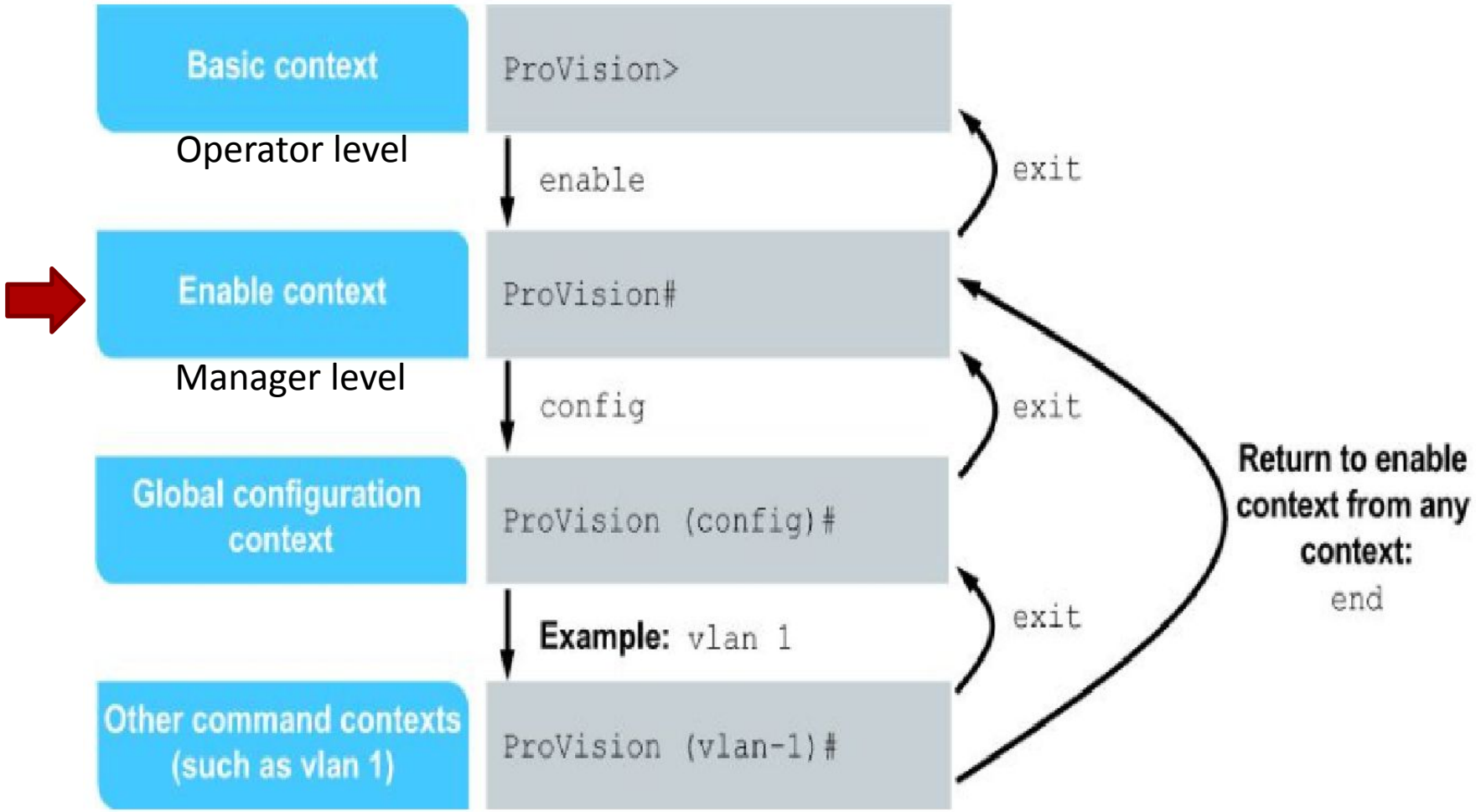
Out-of-band management





- 9600 bps
- 8 data bits
- No parity
- 1 stop bit
- No flow control

ProVision CLI contexts



ProVision CLI contexts

ProVision>

basic level

> (operator level).

enable context (manager level)

ProVision #

enable context

(manager level)

ProVision CLI contexts

config

```
ProVision(config)#
```

"(config)"

```
ProVision (<context>)
```

global configuration context

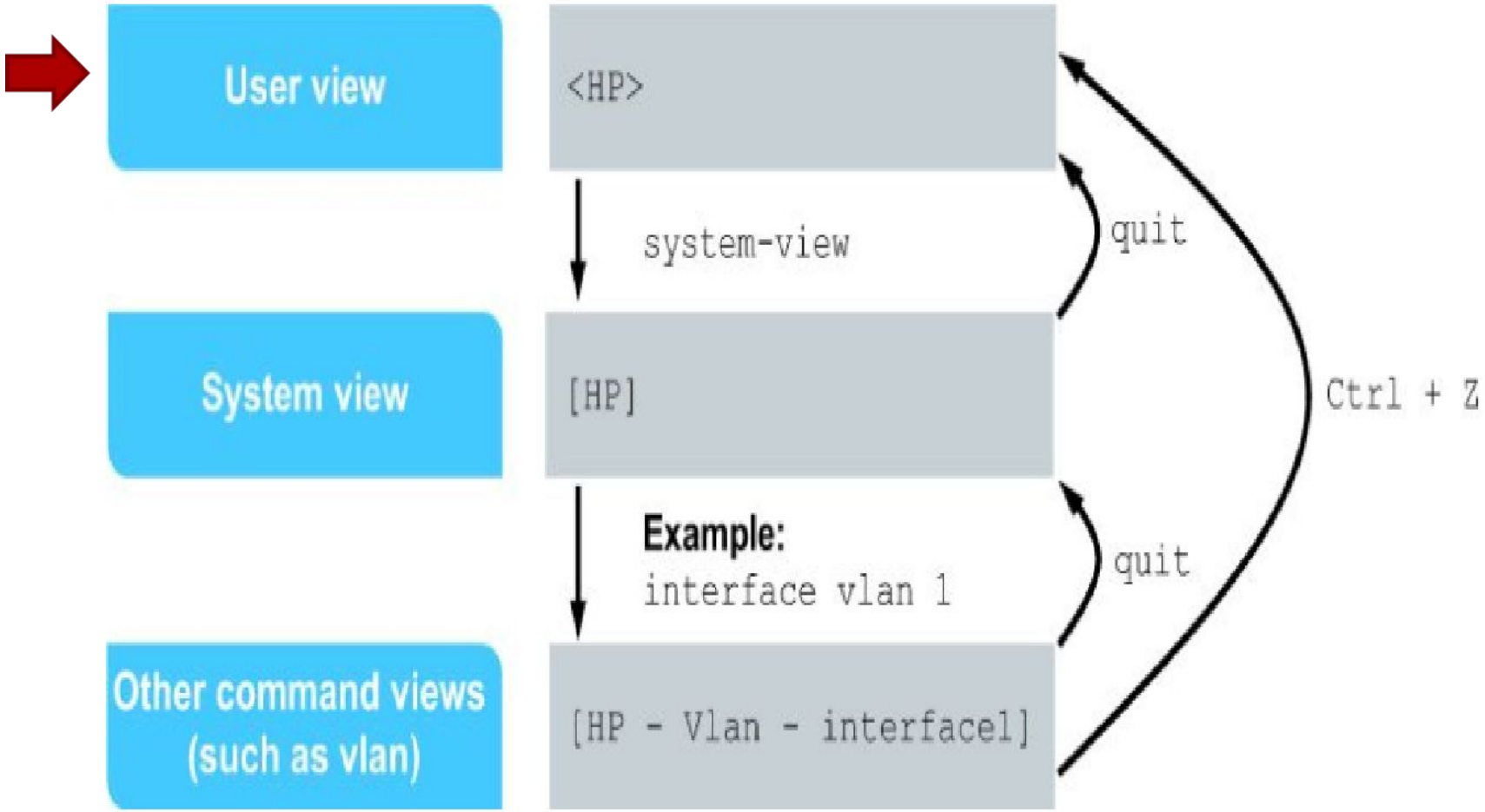
```
Switch(vlan-1)#   Switch(ospf)#
```

ProVision CLI contexts

Context	CLI Prompt	Description
Basic (operator level)	`Switch>`	**View a limited number of statistics and configuration settings.**
Enable (manager level)	`Switch#`	**Begin switch configuration (such as updating system software).**
Global configuration	`Switch(config)#`	**Make configuration changes to the system's software features.**

Other command contexts	`Switch (<context>)#`
	Examples:
	`Switch(vlan-1)#`
	`Switch(rip)#`
		Make configuration changes within a specific context, such as to a VLAN, one or more ports, or routing protocols.

Comware CLI views (contexts)



Comware CLI views (contexts)

(< >).

system-view → [HP]

Comware CLI views (contexts)

quit

Other command views

quit

Comware CLI views (contexts)

View name	Prompt	Description
User view	<DeviceName> <HP>	View settings, perform troubleshooting, and manage configurations and files. Move to the System View by entering system-view.
System view	[DeviceName] [HP]	Make changes to the switch's configuration. Also access other command views. Move to the User View by entering quit.
Other command views	[DeviceName-<view>]	Configure settings for specific physical or virtual interfaces, user interfaces, or other features. Move back a view by entering quit. Move to the User View by pressing [Crtl+Z].

Help keys

Both ProVision and Comware CLIs provide help keys

CLI	Description
? or help	See a brief description for all available commands at your context or view.
<string>?	See commands that start with certain letters.
<command> ?	See options for the command and a brief description of each option.
<string><Tab>	Auto complete a command or a command option: Type as many characters as necessary to identify the command uniquely and press <Tab>

Practice using CLI help commands

Help commands

- **Commands available at a certain context in the CLI**
- **Commands that begin with a certain character string**
- **Keywords associated with a particular command.**

HP ProVision switches help commands

ProVision# ?

- ***show***, **which enables you to examine current configuration parameters**
- ***copy***, **which enables you to back up the switch configuration**
- ***ping*** **and** ***traceroute***, **which are connectivity test tools**

ProVision# show ?

HP Comware switches help commands

<Comware> ?

- ***display***, **which enables you to examine current configuration parameters**
- ***save***, **which enables you to back up a switch configuration**
- ***ping*** **and** ***traceroute***, **which are connectivity test tools**

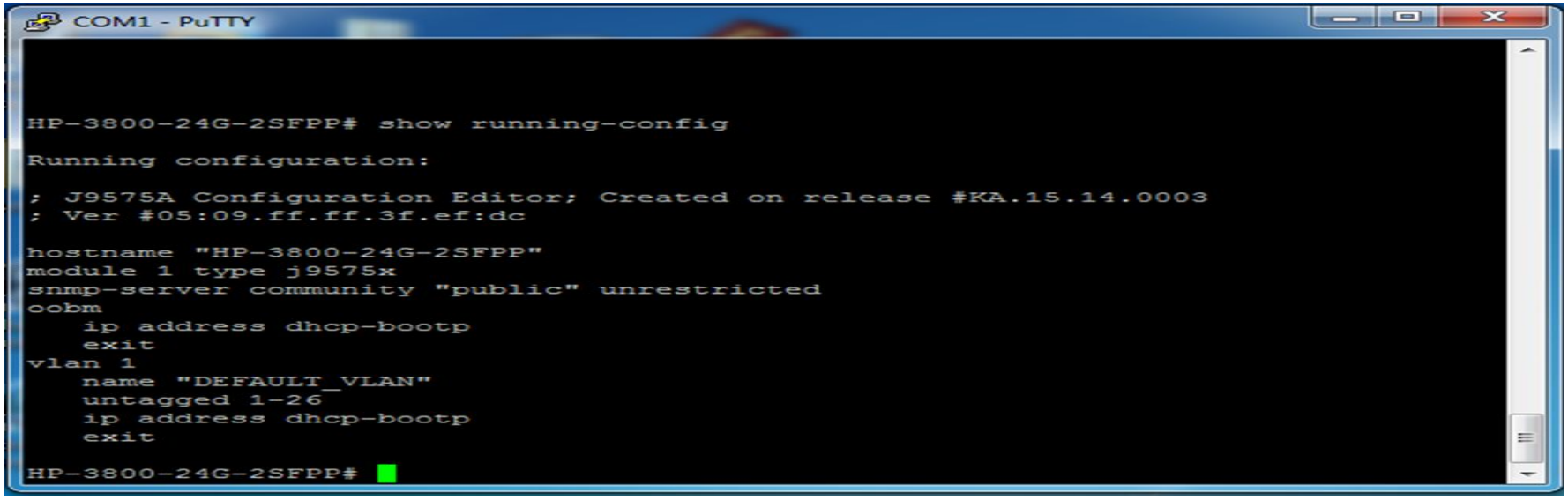
<Comware> display ?

Completing basic configuration tasks

- Return HP Comware and HP ProVision switches to factory default settings
- Configure a hostname on ProVision switches and a sysname on Comware switches
- Disable and enable interfaces
- Use CLI help commands to navigate the CLI and enter commands

Return HP ProVision switches to factory default settings

Switch# show running-config



Return HP ProVision switches to factory default settings

ProVision# erase startup-config

press y

Return HP Comware switches to factory default settings

[Comware] display current-configuration

```
HP> display current-configuration
version 5.20, Release 1211P09
#sysname HP
#irf mac-address persistent timer
  irf auto-update enable
  undo irf link-delay
#domain default enable system
#telnet server enable
#vlan 1
#radius scheme system
  server-type extended
  primary authentication 127.0.0.1 1645
  primary accounting 127.0.0.1 1646
  user-name-format without-domain
#domain system
  access-limit disable
  state active
  idle-cut disable
  self-service-url disable
#user-group system
#interface NULL0
#interface GigabitEthernet1/0/1
<-output omitted->
interface Ten-GigabitEthernet1/0/28
#load xml-configuration
#user-interface aux 0
user-interface vty 0 15
#return
```

Return HP Comware switches to factory default settings

```
<HP> reset saved-configuration
```

y

Enter

```
The saved configuration file will be erased. Are you sure? [Y/N]: Y
Configuration file in flash is being cleared.
Please wait ...
MainBoard:
Configuration file is cleared.
```

Return HP Comware switches to factory default settings

n Enter

y Enter

```
<HP> reboot

Start to check configuration with next startup configuration file, please wait.....DONE!

This command will reboot the device. Current configuration will be lost, save current
configuration? [Y/N]:n

This command will reboot the device. Continue? [Y/N]:y

#May 1 14:00:07:594 2000 Comware DEVM/1/REBOOT:

  Reboot device by command.

%May 1 14:00:07:694 2000 Comware DEVM/5/SYSTEM_REBOOT: System is -rebooting now.

Starting......
```

Basic Switch Setup

Configure a hostname or sysname

HP ProVision switches

To configure a hostname on a ProVision switch, simply access the global configuration mode by typing configure at the switch prompt. Then you can enter hostname [name] to make your changes. For example, if you wanted to assign a ProVision switch the hostname ProVision-1, you would enter:

```
HP-3800-24G-2SFP+ (config)# hostname ProVision-1
ProVision-1 (config)#
```

HP Comware switches

Custom names for Comware switches are called system names, or sysname. To assign a system name, first access the system view. From there, enter the sysname [name] command. If you wanted to assign the switch a sysname of Comware-1, you would enter:

```
[HP] sysname Comware-1
[Comware-1]
```

Disable and enable interfaces

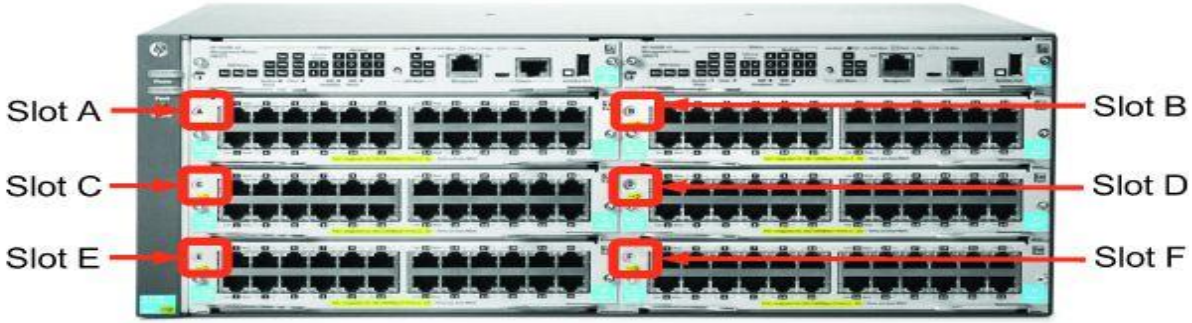
By default, all interfaces on ProVision and Comware switches are enabled.

Accessing HP ProVision switch interfaces

ProVision(config)# *interface 1,3-6*

ProVision(eth-1,3-6)#

- **Fixed switches:**
  - `interface <1-24>`
- **Modular switches:**
  - `interface <slot_letter><1-24>`
- **Examples:**
  - `interface 19`
  - `interface a14`
- **Configuring a range:**
  - `interface 1,3-6`



5406R zl2 switch

Disable and enable interfaces HP ProVision switches

```
ProVision(config)# interface 2-18,20-26 disable
```

```
ProVision(config)# interface 2 enable
```

Disable and enable interfaces HP ProVision switches

```
ProVision(config)# show interfaces brief
```

```
Status and Counters - Port Status

                  | Intrusion                                  MDI   Flow Bcast
Port   Type       | Alert     Enabled  Status Mode     Mode Ctrl Limit
----- ---------- + --------- -------- ------ -------- ---- ---- -----
   1   100/1000T | No        Yes      Down   1000FDx  Auto off  0
   2   100/1000T | No        No       Down   1000FDx  Auto off  0
<-output omitted->
   19  100/1000T | No        Yes      Up     1000FDx  Auto off  0
 <-output omitted->
```

Disable and enable interfaces HP ProVision switches

For example, you can enter a description that indicates the device to which the interface is connected.

```
ProVision(config)# interface 1 name Server

ProVision(config)# interface 19 name Comware-1
```

Accessing HP Comware switch interfaces

```
interface <type_slot_#>/<sub_slot>/<port_#>
```

GigabitEthernet **Ten-GigabitEthernet**

g

ten

<slot_#> begins at

<sub_slot> begins at 0 **ports are numbered from 1**

For example, interface g1/0/1

Creating a range of interfaces on HP Comware switches

```
[Comware] interface range name EdgePorts g1/0/1 g1/0/3 to g1/0/6
```

persists in the device configuration **You can access it again by specifying the range name.**

```
[Comware] interface range name EdgePorts
```

Creating a port group on HP Comware switches

manual port groups

```
[Comware] port-group manual EdgePorts

[Comware-port-group-manual-EdgePorts] group-member g1/0/1 g1/0/3 to g1/0/6
```

does not persist in the config

Disable and enable interfaces HP Comware switches

myports

```
[Comware] port-group manual myports
[Comware-port-group-manual-myports] group-member g1/0/1 to ten1/0/28
[Comware-port-group-manual-myports] shutdown
[Comware-port-group-manual-myports] quit
```

```
[Comware] interface g1/0/19
[Comware-GigabitEthernet1/0/19] shutdown
```

Disable and enable interfaces HP Comware switches

```
[Comware] display interface brief
```

```
The brief information of interface(s) under route mode:
Link: ADM - administratively down; Stby - standby
<-output omitted->
Speed or Duplex: (a)/A - auto; H - half; F - full
Type: A - access; T - trunk; H - hybrid
Interface            Link Speed  Duplex Type PVID Description
GE1/0/1              ADM  auto   A      A    1
<-output omitted->
GE1/0/19             UP   1G(a)  F(a)   A    1    Comware-2
GE1/0/20             ADM  auto   A      A    1
GE1/0/21             UP   1G(a)  F(a)   A    1    ProVision-1
<-output omitted->
```

Disable and enable interfaces HP Comware switches

undo shutdown command

```
[Comware] interface g1/0/19

[Comware-GigabitEthernet1/0/19] undo shutdown
```

to add descriptions

```
[Comware-GigabitEthernet1/0/19] description Connection to Comware-2

[Comware-GigabitEthernet1/0/19] quit
```

Save configuration settings

HP ProVision switches

To save the configuration on a ProVision switch, enter the following command: ***ProVision(config)# write memory***

HP Comware switches

To save the configuration on a Comware switch, enter:

[Comware] save

When prompted if you are sure you want to save the config, press y. When prompted to input a filename, accept the default and press <Enter>.

```
The current configuration will be written to the device. Are you sure? [Y/N]: y
Please input they file name(*.cfg)[flash:/config.cfg]
(To leave the existing filename unchanged, press the enter key): <Enter>
Validating file. Please wait....
Saved the current configuration to mainboard device successfully
```

View commands previously executed on the switch

HP ProVision switches

On a ProVision switch, enter: ***ProVision-1# show history.*** **You will see output similar to the following:**

```
  6     configure
  5     hostname ProVision-1
  4     show interfaces brief
  3     interface 2-18,20-26 disable
  2     interface 1 name Server
  1     interface 19 name Comware-1
```

HP Comware switches

On a Comware switch, enter: ***[Comware-1] display history.*** **You will see output such as:**

```
system-view
  sysname Comware-1
  port-group manual myports
  group-member g1/0/1 to ten1/0/28
  shutdown
  quit
```

Configuring IP addresses on HP ProVision switches

```
ProVision# configure

ProVision(config)# vlan 1 ip address 10.1.1.3/24

ProVision(config)# exit
```

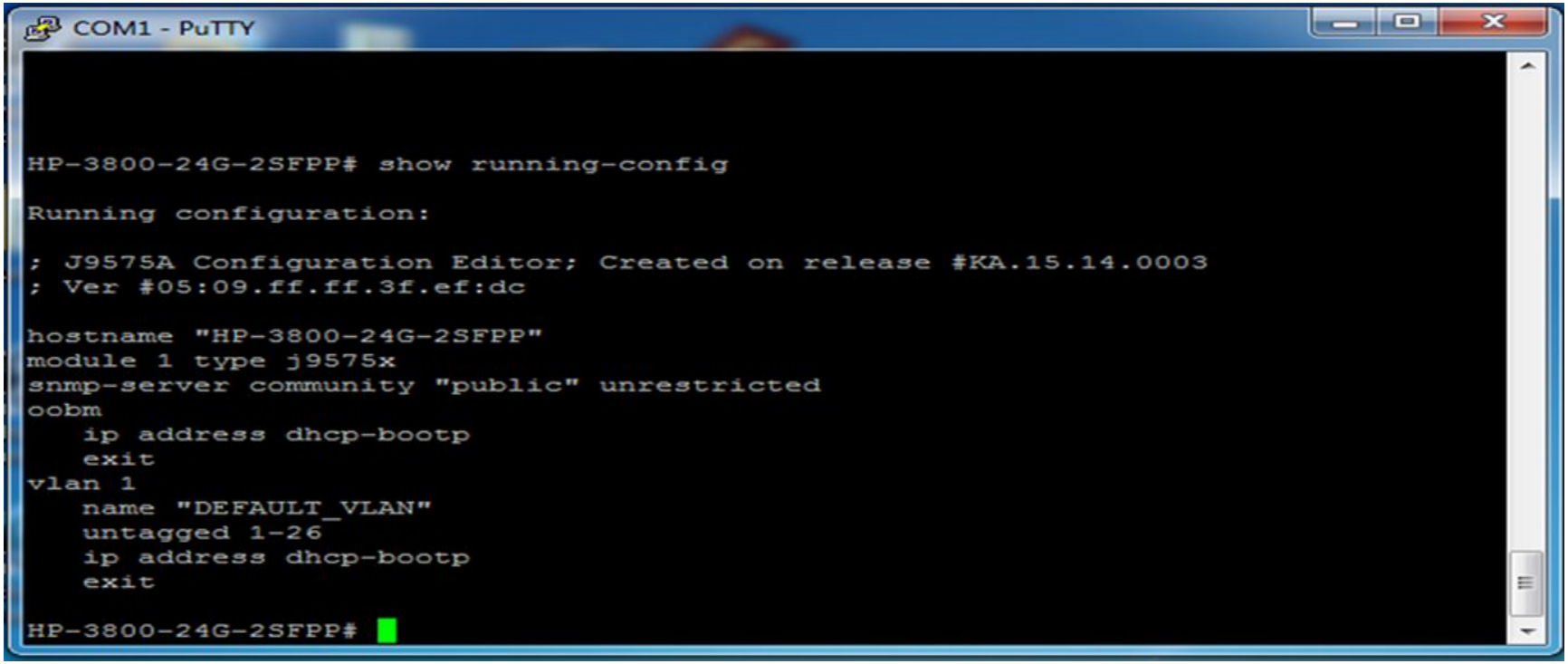
Configuring IP addresses on HP ProVision switches

```
ProVision# show ip
```

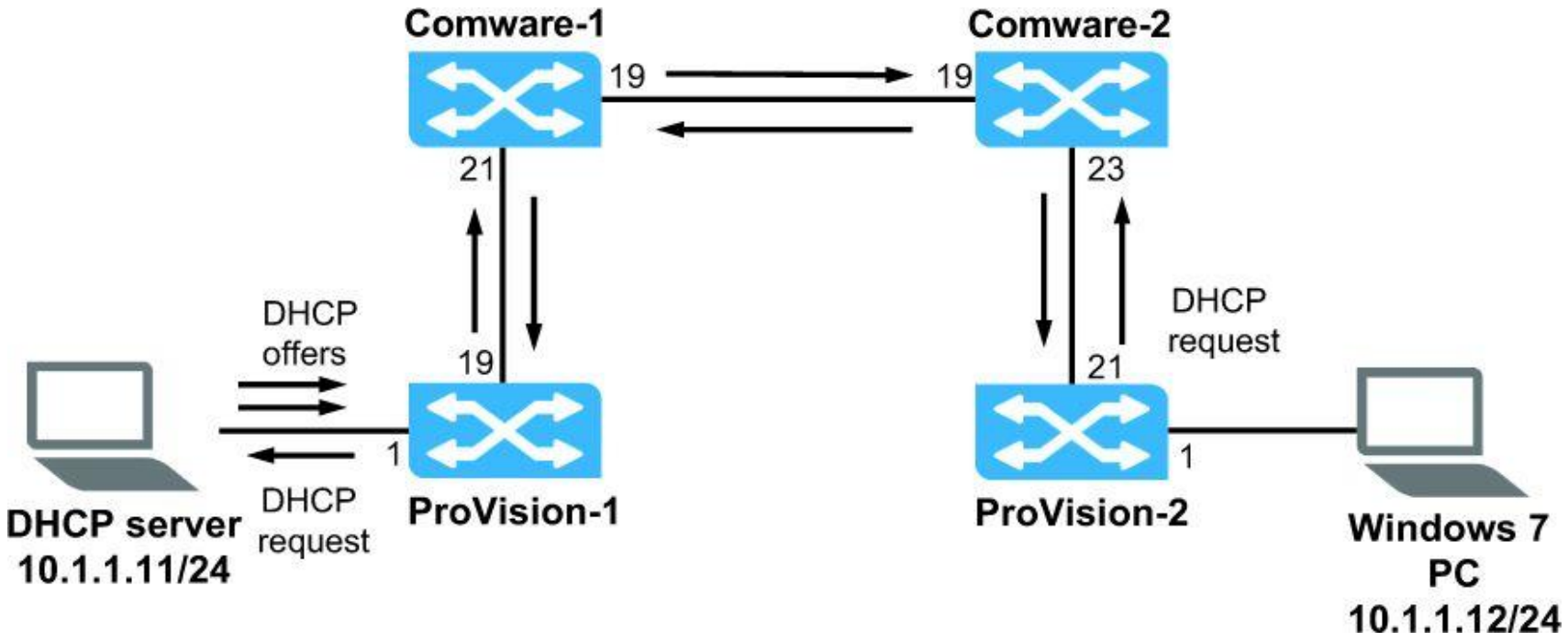
```
Internet (IP) Service
  IP Routing : Disabled
  Default Gateway :
  Default TTL : 64
  Arp Age : 20
  Domain Suffix :
  DNS server :
```

VLAN	IP Config	IP Address	Subnet Mask	Proxy ARP Std	Proxy ARP Local
DEFAULT_VLAN	Manual	10.1.1.3	255.255.255.0	No	No

Using DHCP to assign IP address on ProVision switches



Using DHCP to assign IP address on ProVision switches



Configuring IP addresses on HP Comware switches

IP address command

```
<Comware> system-view
System View: return to User View with Ctrl+Z.
[Comware] interface vlan 1
[Comware-Vlan-interface1] ip address 10.1.1.1 24
```

display this command

```
[Comware-Vlan-interface1] display this
```

Configuring IP addresses on HP Comware switches

```
interface Vlan-interface1
ip address 10.1.1.1 255.255.255.0
```

```
[Comware] display interface brief
The brief information of interface(s) under route mode:
Interface     Link      Protocol-link  Protocol type     Main IP
NULL0         UP        UP(spoofing)   NULL              --
Vlan1         UP        UP             ETHERNET          10.1.1.1
<-output omitted->
```

Link Layer Discovery Protocol (LLDP)

To enable this exchange of information, the Internet Engineering Task Force (IETF) defined LLDP in IEEE 802.1AB.

With LLDP, devices exchange local device information such as its major functions, management IP address, device ID, and port ID.

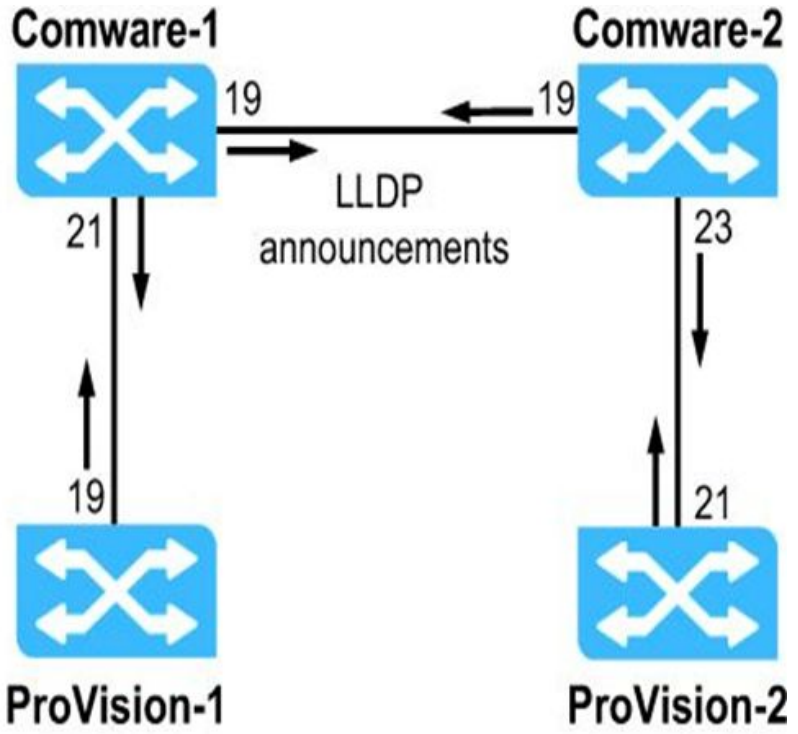
Each device sends this information as type, length, and value (TLV) in LLDP data units (LLDPDUs) to directly connected devices.

Simple Network Management Protocol (SNMP) programs can use the LLDP information stored in MIBs to quickly detect Layer 2 network topology changes and identify each change.

Link Layer Discovery Protocol (LLDP)

support LLDP.

- Devices use this Layer 2 protocol to send periodic announcements about:
  - Major device functions (such as bridging and routing)
  - Management IP address
  - Device identifier (such as sysname, MAC address, and chassis ID)
  - Port identifier (port ID and description)
- How do you think you could use LLDP in a lab environment?
- What are other uses for LLDP?



Verify connectivity HP ProVision switches

```
ProVision(config)# show lldp info remote-device
```

```
LLDP Remote Devices Information

 LocalPort | ChassisId          PortId PortDescr SysName

 --------- + ---------------- ------ --------- ----------

 21        | d07e28-ced31e    Gig... Gigabi... Comware-2
```

Verify connectivity HP ProVision switches

```
ProVision# show lldp info remote-device 21
LLDP Remote Device Information Detail
Local Port      : 21
ChassisType     : mac-address
ChassisId       : d07e28-ced31e
PortType        : inte...
PortId          : GigabitEthernet1/0/23
SysName         : Comware-2
System Descr  :  HP Comware Platform Software, Software Version 5.20,
Rele...
PortDescr       : GigabitEthernet1/0/23 Interface
Pvid            : 1
System Capabilities Supported   : bridge, router
System Capabilities Enabled     : bridge, router
Remote Management Address
  Type          : ipv4
  Address       : 10.1.1.2
<-output omitted->
```

Verify connectivity HP ProVision switches

show arp

```
ProVision# show arp

IP ARP table
IP Address       MAC Address        Type    Port
---------------  -----------------  -------  ----
15.255.128.1     00000c-07ac00      dynamic B1
15.255.131.19    00a0c9-b1503d      dynamic B1
15.255.133.150   000bcd-3cbeec      dynamic B1
```

Verify connectivity HP Comware switches

```
<Comware> display lldp neighbor-information list

System Name  Local Interface Chassis ID     Port ID

Comware-2    GE1/0/19       d07e-28ce-d31e GigabitEthernet1/0/19

ProVision-1  GE1/0/21       d4c9-ef85-1680 19
```

Verify connectivity HP Comware switches

```
<Comware> display lldp neighbor-information interface g1/0/21

LLDP neighbor-information of port 21[GigabitEthernet1/0/21]:
Neighbor index   : 1

Update time      : 0 days,2 hours,37 minutes,0 seconds

Chassis type     : MAC address

Chassis ID       : d4c9-ef85-1680

Port ID type     : Locally assigned

Port ID          : 19

Port description : 19

System name          : ProVision-1

System description  : HP J9575A 3800-24G-2SFP+ Switch, revision KA.15.10.0011, ROM KA.15.09
(/ws/swbuildm/KA_rel_irvine_qaoff/code/build/tam(swbuildm_KA_rel_irvine_qaoff_rel_irvine))
```

Verify connectivity HP Comware switches

```
System capabilities supported : Bridge,Router
System capabilities enabled   : Bridge
Management address type               : ipv4
Management address                    : 10.1.1.3
Management address interface type     : IfIndex
Management address interface ID       : Unknown
Management address OID                : 0
Port VLAN ID(PVID): 1
<-output omitted->
```

Verify connectivity HP Comware switches

```
[Switch] display arp

Type: S-Static D-Dynamic O-Openflow M-Multiport I-Invalid

10

IP address MAC address VLAN Interface Aging Type

192.168.1.1 00e0-fc01-0000 10 N/A N/A M
```

To verify that a switch can ping other devices

HP ProVision switches

To verify that a ProVision switch can ping other devices, use the ping command. For example, you might want to see if the ProVision switch can reach another switch that has the IP address 10.1.1.2.

ProVision# ping 10.1.1.2

HP Comware switches

Return to the Comware CLI and verify it can ping its neighbors.

<Comware> ping 10.1.1.2

Спасибо
за внимание!