1. **Setting the MOTD (Message of The Day)**

```
Switch#conf
Switch#configure t
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#?
Configure commands:
  access-list         Add an access list entry
  banner              Define a login banner
  boot                Boot Commands
  cdp                 Global CDP configuration subcommands


 Switch(config)#
 Switch(config)#
 Switch(config)#banner
 Switch(config)#banner mo
 Switch(config)#banner motd x
 Enter TEXT message.  End with the character 'x'.
 Welcome to Jeetu's networking basics!!!

 x

 Switch(config)#exit
 Switch#
 %SYS-5-CONFIG_I: Configured from console by console

 Switch#exit
```

Verify:

```
Welcome to Jeetu's networking basics!!!



Switch>
```

2. **Setting password on switch within cisco packet tracer**

```
Switch>enable
Switch#configure ter
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#line con
Switch(config)#line console 0
Switch(config-line)#password pass@word1
Switch(config-line)#login
Switch(config-line)#exit
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console
exit
```

Verify:

```
Switch con0 is now available




Press RETURN to get started.

 User Access Verification

 Password:

 Switch>
```

3. **Removing the password from the switch:**

```
User Access Verification

Password:

Switch>en
Switch>enable
Switch#conf t
Switch#conf t
Switch#conf terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#line con
Switch(config)#line console 0
Switch(config-line)#no pass
Switch(config-line)#no password
Switch(config-line)#exit
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#exit
```

Verify: exit and then login again to same switch

4. **Configuring username and password on switch**

```
Switch>en
Switch>enable
Switch#conf
Switch#configure t
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#line con
Switch(config)#line console 0
Switch(config-line)#log
Switch(config-line)#login
Switch(config-line)#login loca
Switch(config-line)#login ?
  local  Local password checking
  <cr>
Switch(config-line)#login local
Switch(config-line)#exit
Switch(config)#
Switch(config)#usernam
Switch(config)#username jeetu passwo
Switch(config)#username jeetu password pass@word1
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#
```

Verify:

```
Welcome to Jeetu's networking basics!!!



User Access Verification

Username: jeetu
Password:

Switch>
```

5. **Configuring secret (way to lock the enable mode on switch)**

```
Switch(config)#en
Switch(config)#enabl
Switch(config)#enable ?
  password  Assign the privileged level password
  secret    Assign the privileged level secret
Switch(config)#enable sec
Switch(config)#enable secret ?
  0       Specifies an UNENCRYPTED password will follow
  5       Specifies an ENCRYPTED secret will follow
  LINE    The UNENCRYPTED (cleartext) 'enable' secret
  level   Set exec level password
Switch(config)#enable secret secrettext
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#exit

Username: jeetu
Password:

Switch>en
Switch>enable conf
Switch>enable
Password:
Switch#
Switch#
```

Type password "pass@word1" to login.

Type secret "secrettext" to enable admin access.

Viewing the secret value (encrypted)

```
Switch#show ru
Switch#show running-config | inc
Switch#show running-config | include secret
enable secret 5 $1$mERr$P3fI0.mdYeT9UhYzM81TP.
Switch#
Switch#exit
```

6. **Saving the configuration to NVRAM:**

```
Switch#wr
Switch#write
Building configuration...
[OK]
```

7. **Showing the MAC table**

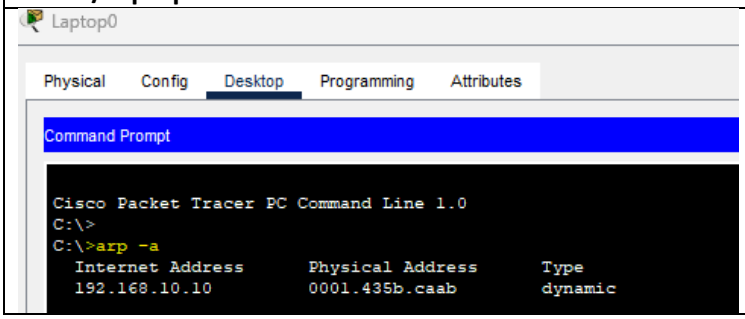
On switch – before pinging 2 machines

```
Switch>en
Switch>enable
Switch#
Switch#sh
Switch#show ma
Switch#show mac-
Switch#show mac-address-table
          Mac Address Table
-------------------------------------------

Vlan    Mac Address       Type        Ports
----    -----------       --------    -----
```

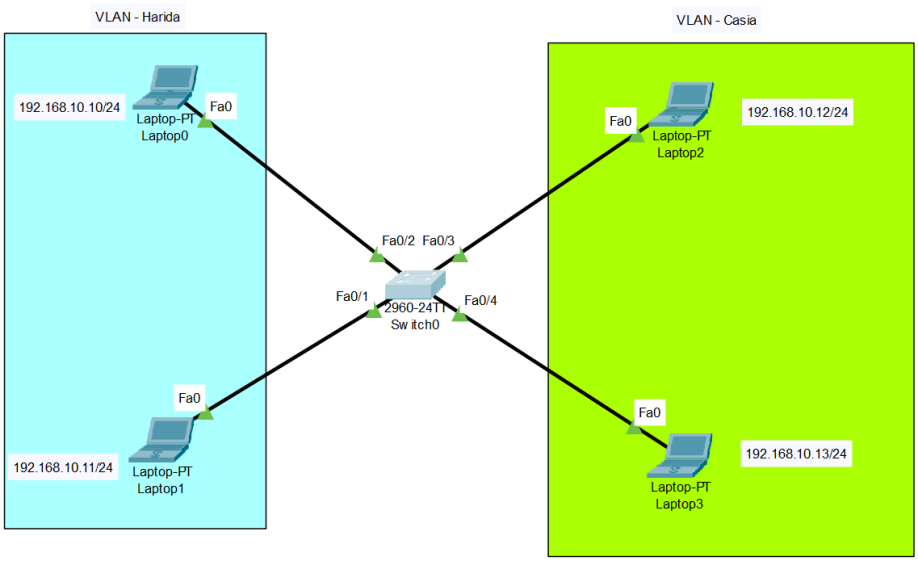
On switch – After pinging

```
Switch#show mac-address-table
          Mac Address Table
-------------------------------------------

Vlan    Mac Address       Type        Ports
----    -----------       --------    -----

   1    0001.435b.caab    DYNAMIC     Fa0/1
   1    00d0.d345.5a18    DYNAMIC     Fa0/2
Switch#
```

On PC/Laptop



Creating VLANs:



Creating VLAN 10 – harida and VLAN 11 – Casia:

```
Switch>en
Switch>enable
Switch#conf t
Switch#conf terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#vlan 10
Switch(config-vlan)#name harida
Switch(config-vlan)#exit
Switch(config)#
Switch(config)#vlan 11
Switch(config-vlan)#name casia
Switch(config-vlan)#exit
Switch(config)#exit
Switch#
```

Verify:

```
Switch#show vlan brief

VLAN Name                              Status    Ports
---- --------------------------------- --------- -------------------------------
1    default                           active    Fa0/1, Fa0/2, Fa0/3, Fa0/4
                                                 Fa0/5, Fa0/6, Fa0/7, Fa0/8
                                                 Fa0/9, Fa0/10, Fa0/11, Fa0/12
                                                 Fa0/13, Fa0/14, Fa0/15, Fa0/16
                                                 Fa0/17, Fa0/18, Fa0/19, Fa0/20
                                                 Fa0/21, Fa0/22, Fa0/23, Fa0/24
                                                 Gig0/1, Gig0/2
10   harida                            active
11   casia                             active
1002 fddi-default                      active
1003 token-ring-default                active
1004 fddinet-default                   active
1005 trnet-default                     active
Switch#
```

Creating VLAN config for Harida

```
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#
Switch(config)#inter
Switch(config)#interface fas
Switch(config)#interface fastEthernet 0/2
Switch(config-if)#switch
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 10
Switch(config-if)#exit
Switch(config)#
Switch(config)#interface fastEthernet 0/1
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 10
Switch(config-if)#exit
```

Creating VLAN config for Casia

```
Switch(config)#interface fastEthernet 0/3
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 11
Switch(config-if)#exit
Switch(config)#interface fastEthernet 0/4
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 11
Switch(config-if)#exit
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console
```

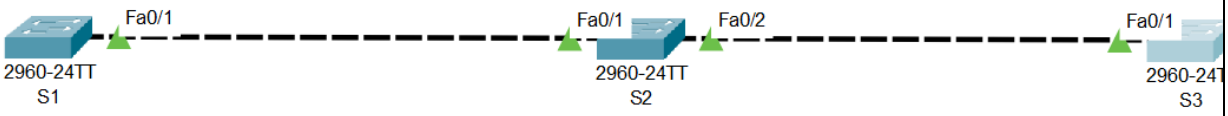
Verify:

```
Switch#show vlan brief

VLAN Name                              Status    Ports
---- --------------------------------- --------- -------------------------------
1    default                           active    Fa0/5, Fa0/6, Fa0/7, Fa0/8
                                                 Fa0/9, Fa0/10, Fa0/11, Fa0/12
                                                 Fa0/13, Fa0/14, Fa0/15, Fa0/16
                                                 Fa0/17, Fa0/18, Fa0/19, Fa0/20
                                                 Fa0/21, Fa0/22, Fa0/23, Fa0/24
                                                 Gig0/1, Gig0/2
10   harida                            active    Fa0/1, Fa0/2
11   casia                             active    Fa0/3, Fa0/4
1002 fddi-default                      active
1003 token-ring-default                active
1004 fddinet-default                   active
1005 trnet-default                     active
```

After pinging system:

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Failed	Laptop0	Laptop2	ICMP		0.000	N	0	(edit)	
	Failed	Laptop1	Laptop3	ICMP		0.000	N	1	(edit)	

8. Configure VTP using 3 switches:



Before configuring:

```
S1#show vtp status
VTP Version capable             : 1 to 2
VTP version running             : 1
VTP Domain Name                 :
VTP Pruning Mode                : Disabled
VTP Traps Generation            : Disabled
Device ID                       : 0060.2FC4.8C00
Configuration last modified by 0.0.0.0 at 0-0-00 00:00:00
Local updater ID is 0.0.0.0 (no valid interface found)

Feature VLAN :
--------------
VTP Operating Mode                : Server
```

Enabling trunk mode on Switch 1:

```
S1(config)#inte
S1(config)#interface fa
S1(config)#interface fastEthernet 0/1
S1(config-if)#switchport mode tr
S1(config-if)#switchport mode trunk

S1(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

S1(config-if)#exit
S1(config)#exit
```

Verifying VLAN mode on interface FA0/1 Switch 2:

```
S2#
S2#sh
S2#show int
S2#show interfaces fa
S2#show interfaces fastEthernet 0/1 sw
S2#show interfaces fastEthernet 0/1 switchport
Name: Fa0/1
Switchport: Enabled
Administrative Mode: dynamic auto
Operational Mode: trunk
Administrative Trunking Encapsulation: dot1q
Operational Trunking Encapsulation: dot1q
Negotiation of Trunking: On
Access Mode VLAN: 1 (default)
Trunking Native Mode VLAN: 1 (default)
Voice VLAN: none
```

Checking VLAN mode on interface FA0/2 – before changing:

```
S2#show interfaces fastEthernet 0/2 switchport
Name: Fa0/2
Switchport: Enabled
Administrative Mode: dynamic auto
Operational Mode: static access
Administrative Trunking Encapsulation: dot1q
```

Changing mode on interface FA0/2:

```
S2#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
S2(config)#in
S2(config)#interface fa
S2(config)#interface fastEthernet 0/2
S2(config-if)#swi
S2(config-if)#switchport mo
S2(config-if)#switchport mode tru
S2(config-if)#switchport mode trunk

S2(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2, changed state to up

S2(config-if)#exit
S2(config)#
```

Verify on S2 after changes:

```
S2#show interfaces fastEthernet 0/2 switchport
Name: Fa0/2
Switchport: Enabled
Administrative Mode: trunk
Operational Mode: trunk
```

Verifying switch port on switch 3:

```
S3#show interfaces fastEthernet 0/1 sw
S3#show interfaces fastEthernet 0/1 switchport
Name: Fa0/1
Switchport: Enabled
Administrative Mode: dynamic auto
Operational Mode: trunk
Administrative Trunking Encapsulation: dot1q
```

Checking trunk mode on all 3 switches:

S1: # show interfaces trunk

```
S1>en
S1>enable
S1#sh
S1#show in
S1#show interfaces tru
S1#show interfaces trunk
Port        Mode         Encapsulation  Status        Native vlan
Fa0/1       on           802.1q         trunking      1
```

S2: # show interfaces trunk

```
S2#
S2#sh
S2#show in
S2#show interfaces tr
S2#show interfaces trunk
Port        Mode         Encapsulation  Status        Native vlan
Fa0/1       auto         n-802.1q       trunking      1
Fa0/2       on           802.1q         trunking      1
```

S3: # show interfaces trunk

```
S3#
S3#sw
S3#sh
S3#show inte
S3#show interfaces tr
S3#show interfaces trunk
Port        Mode         Encapsulation  Status        Native vlan
Fa0/1       auto         n-802.1q       trunking      1
```

Switching to switch 1 and configuring VTP on it:

```
S1#show vtp stat
S1#show vtp status
VTP Version capable             : 1 to 2
VTP version running             : 1
VTP Domain Name                 :
VTP Pruning Mode                : Disabled
VTP Traps Generation            : Disabled
Device ID                       : 0060.2FC4.8C00
Configuration last modified by 0.0.0.0 at 0-0-00 00:00:00
```

Changing VTP domain on Switch S1:

```
S1#conf terminal
Enter configuration commands, one per line.  End with CNTL/Z.
S1(config)#vt
S1(config)#vtp dom
S1(config)#vtp domain ltimb372
Changing VTP domain name from NULL to ltimb372
S1(config)#exit
S1#
%SYS-5-CONFIG_I: Configured from console by console

S1#show vtp status
VTP Version capable             : 1 to 2
VTP version running             : 1
VTP Domain Name                 : ltimb372
VTP Pruning Mode                : Disabled
VTP Traps Generation            : Disabled
Device ID                       : 0060.2FC4.8C00
Configuration last modified by 0.0.0.0 at 0-0-00 00:00:00
Local updater ID is 0.0.0.0 (no valid interface found)

Feature VLAN :
--------------
VTP Operating Mode              : Server
Maximum VLANs supported locally : 255
```

Checking VTP domain status on switch s2:

```
S2>en
S2#sh
S2#show vtp stat
S2#show vtp status
VTP Version capable             : 1 to 2
VTP version running             : 1
VTP Domain Name                 : ltimb372
VTP Pruning Mode                : Disabled
VTP Traps Generation            : Disabled
Device ID                       : 00E0.F7C5.2700
Configuration last modified by 0.0.0.0 at 0-0-00 00:00:00
Local updater ID is 0.0.0.0 (no valid interface found)
```

Checking VTP domain status on switch s3:

```
S3>en
S3>enable
S3#sh
S3#show vtp stat
S3#show vtp status
VTP Version capable             : 1 to 2
VTP version running             : 1
VTP Domain Name                 : ltimb372
VTP Pruning Mode                : Disabled
VTP Traps Generation            : Disabled
Device ID                       : 0030.F241.E900
Configuration last modified by 0.0.0.0 at 0-0-00 00:00:00
Local updater ID is 0.0.0.0 (no valid interface found)
```

Creating VLAN on Switch S1:

```
S1#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
S1(config)#vla
S1(config)#vlan  100
S1(config-vlan)#name vtplanblue
S1(config-vlan)#exit
S1(config)#
S1(config)#vlan  101
S1(config-vlan)#name vtplangreen
S1(config-vlan)#exit
S1(config)#exit
S1#
%SYS-5-CONFIG_I: Configured from console by console
```

Listing VLANs on S1:

```
S1#show vl
S1#show vlan

VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
1    default                          active    Fa0/2, Fa0/3, Fa0/4, Fa0/5
                                                Fa0/6, Fa0/7, Fa0/8, Fa0/9
                                                Fa0/10, Fa0/11, Fa0/12, Fa0/13
                                                Fa0/14, Fa0/15, Fa0/16, Fa0/17
                                                Fa0/18, Fa0/19, Fa0/20, Fa0/21
                                                Fa0/22, Fa0/23, Fa0/24, Gig0/1
                                                Gig0/2
100  vtplanblue                       active
101  vtplangreen                      active
1002 fddi-default                     active
1003 token-ring-default               active
```

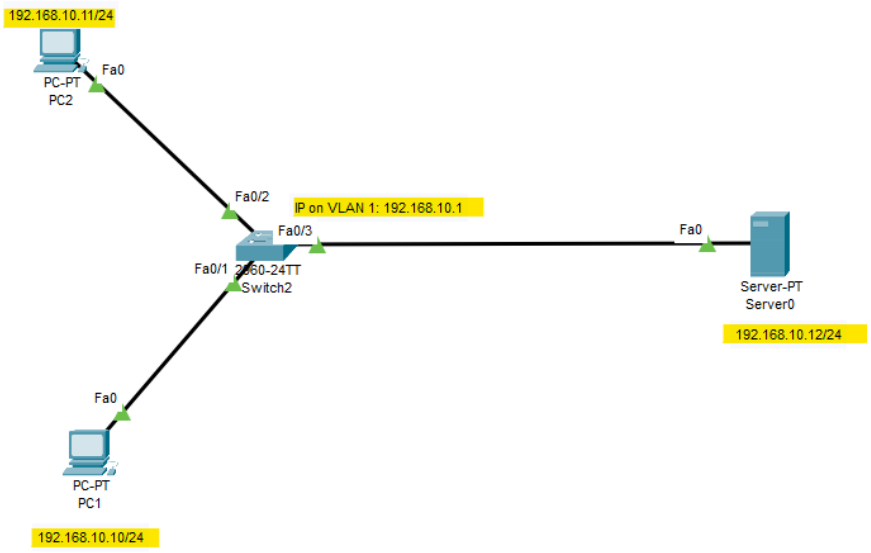
Listing VLANs on S2:

```
S2#
S2#sh
S2#show vtp
S2#show vtp ?
  counters  VTP statistics
  password  VTP password
  status    VTP domain status
S2#show vtp stat
S2#show vtp status
VTP Version capable             : 1 to 2
VTP version running             : 1
VTP Domain Name                 : ltimb372
VTP Pruning Mode                : Disabled
VTP Traps Generation            : Disabled
Device ID                       : 00E0.F7C5.2700
```

Listing VLANs on Switch S2:

```
S2#show vlan

VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
1    default                          active    Fa0/3, Fa0/4, Fa0/5, Fa0/6
                                                Fa0/7, Fa0/8, Fa0/9, Fa0/10
                                                Fa0/11, Fa0/12, Fa0/13, Fa0/14
                                                Fa0/15, Fa0/16, Fa0/17, Fa0/18
                                                Fa0/19, Fa0/20, Fa0/21, Fa0/22
                                                Fa0/23, Fa0/24, Gig0/1, Gig0/2
100  vtplanblue                       active
101  vtplangreen                      active
1002 fddi-default                     active
1003 token-ring-default               active
1004 fddinet-default                  active
1005 trnet-default                    active
```

9. Backing up switch to TFTP server.



Setting IP address for VLAN on switch:

```
Sl(config)#int
Sl(config)#interface vlan
Sl(config)#interface vlan 1
Sl(config-if)#ip add
Sl(config-if)#ip address 192.168.10.1 255.255.255.0
Sl(config-if)#no shut
Sl(config-if)#no shutdown
```

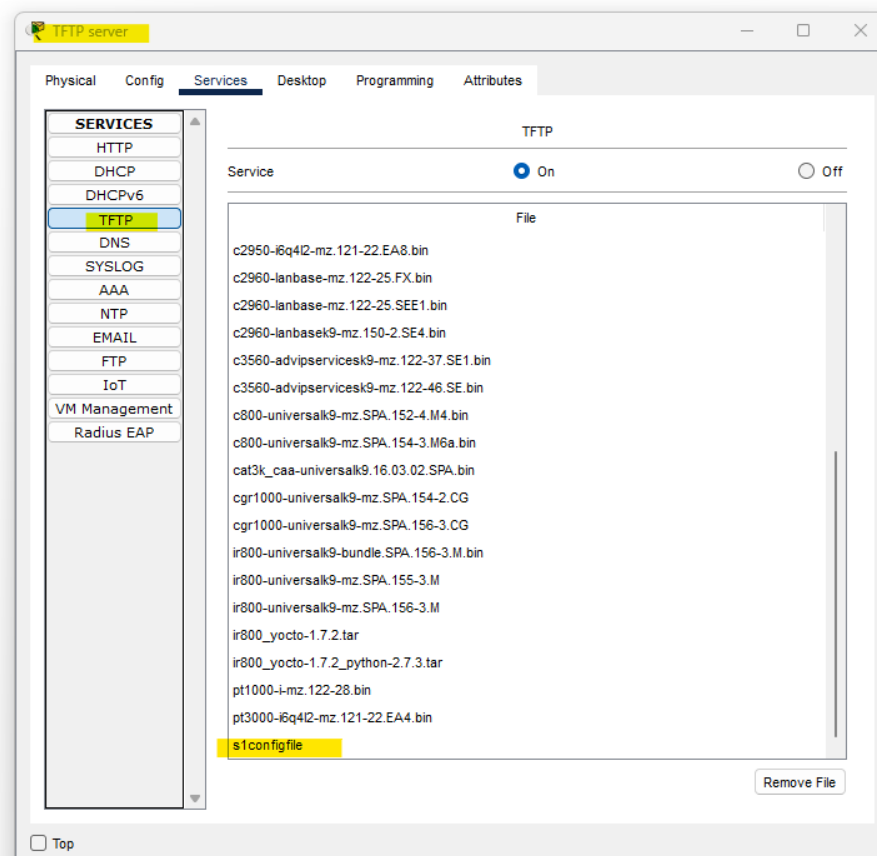
Viewing current config:

```
Sl#show int vlan 1
Vlan1 is up, line protocol is up
  Hardware is CPU Interface, address is 0002.4a56.d8cb (bia 0002.4a56.d8cb)
  Internet address is 192.168.10.1/24
  MTU 1500 bytes, BW 100000 Kbit, DLY 1000000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
```

Backing up TFTP server:

```
Sl#cop
Sl#copy run
Sl#copy running-config tf
Sl#copy running-config tftp:
Address or name of remote host []? 192.168.10.10
Destination filename [Sl-confg]? slconfigfile

Writing running-config....!!
[OK - 1090 bytes]

1090 bytes copied in 3.001 secs (363 bytes/sec)
Sl#
```

Verifying TFTP service on TFTP server:



After backup, make some changes on the switch (say changing the IP address on VLAN 1)

```
S1#con
S1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
S1(config)#int
S1(config)#interface vla
S1(config)#interface vlan 1
S1(config-if)#ip addres
S1(config-if)#ip address 192.168.10.100 255.255.255.0
S1(config-if)#no shut
S1(config-if)#exit
S1(config)#exit
S1#
%SYS-5-CONFIG_I: Configured from console by console
```

Verifying the IP address:

```
S1#show interfaces vla
S1#show interfaces vlan 1
Vlan1 is up, line protocol is up
  Hardware is CPU Interface, address is 0002.4a56.d8cb (bia 0002.4a56.d8cb)
  Internet address is 192.168.10.100/24
  MTU 1500 bytes, BW 100000 Kbit, DLY 1000000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 21:40:21, output never, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: fifo
```

10. Recovering switch data from the TFTP server.

Run below command on switch:

```
Sl#
Sl#cop
Sl#copy tftp run
Sl#copy tftp running-config
Address or name of remote host []? 192.168.10.10
Source filename []? slconfigfile
Destination filename [running-config]?

Accessing tftp://192.168.10.10/slconfigfile....
Loading slconfigfile from 192.168.10.10: !
[OK - 1090 bytes]

1090 bytes copied in 3.007 secs (362 bytes/sec)
Sl#
%SYS-5-CONFIG_I: Configured from console by console
```

Verifying the configuration:

```
Sl#show interfaces vlan 1
Vlan1 is up, line protocol is up
  Hardware is CPU Interface, address is 0002.4a56.d8cb (bia 0002.4a56.d8cb)
  Internet address is 192.168.10.1/24
  MTU 1500 bytes, BW 100000 Kbit, DLY 1000000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 21:40:21, output never, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
```