WEEK 4

Configure DHCP within a LAN and outside LAN.

OBSERVATION:

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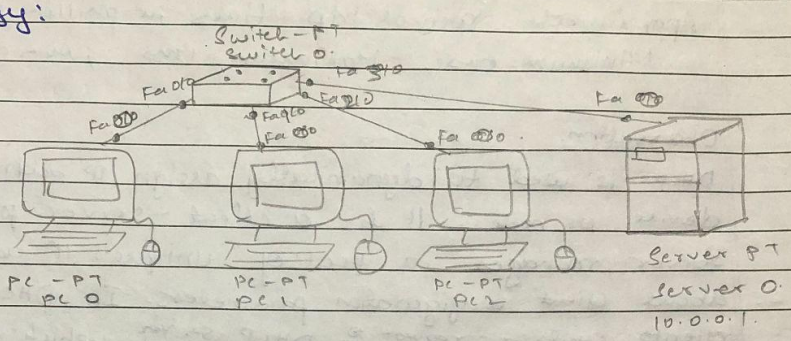
Aim: Configure DHCP within a LAN and Outside LAN.

Topology:



Procedure:

1. Connect 3 pc's & 1 Server to Switch using copper straight through cable.
2. Go to service tab in Server & turn on DHCP Service.
3. Set ip address of start ip address as 10.0.0.2 & save.
4. Before which set ip address of server to 10.0.0.1 under fast ethernet in config t.
6. click on PC 0 & go to desktop tab, click IP configuration select DHCP, it will request for IP address & successfully get DHCP request also set IP address.
7. Repeat same process to other two PC's.
8. Go to pc's command prompt & ping a message

Output:

```
pc> ping 10.0.0.3
pinging 10.0.0.3 with 32 bytes of data
Reply from 10.0.0.3 : bytes = 32 time = 0ms TTL = 128.
Reply from 10.0.0.3 : bytes = 32 time = 0ms TTL = 128
Reply from 10.0.0.3 : bytes = 32 time = 1ms TTL = 128
Reply from 10.0.0.3 : bytes = 32 time = 0ms TTL = 128.
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Ping statistics from 10.0.0.3:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss)
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms.

Observation:
DHCP is used to dynamically assign IP address to any device or node. It is a client-server protocol. Server manages a pool of unique IP addresses & also about client configuration parameters. In DHCP-enabled clients sends a request to DHCP server which responds to the request by providing IP configuration information from address pools.

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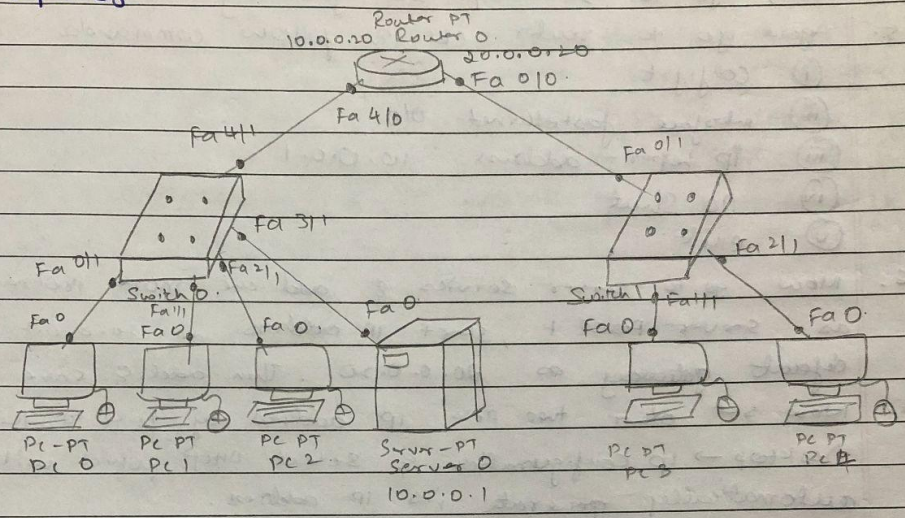
Aim: Configure DHCP within a LAN and outside Lan.

Topology:



Procedure:

1. Add a router, a switch & 2 PC's to previous program & connect the router to both switches.
2. Set the server IP address of server and with help of server set the first 3 PC's IP address through DHCP.
3. Now set router IP address with following commands
   - (i) NO
   - (ii) enable.
   - (iii) Config t
   - (iv) interface fastethernet 4/0
   - (v) IP address 10.0.0.20 255.0.0.0
   - (vi) no shut.
   - (vii) exit
   - (viii) interface fastethernet 0/0
   - (ix) ip address 20.0.0.20 255.0.0.0
   - (x) no shut
   - (xi) exit

(xii) exit
(xiii) show ip route.

4. Now, go to server & set gateway as 10.0.0.20
5. Again go to router CLI & follow commands.
   (i) config t
   (ii) interface fastethernet 0/0
   (iii) ip helper-address 10.0.0.1
   (iv) no shut
   (v) exit.
6. Now, go to server services & add one more pool name as server pool 1, start IP address as 20.0.0.2 & default gateway as 20.0.0.20. Then add & save.
7. Now set other two pc's IP address by going to their Desktop → IP configuration & select DHCP which will automatically generate it's IP address.
8. Now the network is complete & ready to send packets from pc to other by typing ping ipaddress in command prompt

Output:

```
pc> ping 20.0.0.2

pinging 20.0.0.2 with 32 bytes of data

Request timed out
Reply from 20.0.0.2 : bytes = 32  time = 0ms  TTL = 127
Reply from 20.0.0.2 : bytes = 32  time = 0ms  TTL = 127
Reply from 20.0.0.2 : bytes = 32  time = 0ms  TTL = 127

Ping statistics for 20.0.0.2 :
    Packets sent = 4, Received = 3, Lost = 1 (25% loss).
Approximate round trip times in milliseconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
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Observation:

DHCP is used to assign IP addresses dynamically to different devices. To assign continuous ip address we create a server pool where assign the starting IP address and a default gateway number. For Pc's under different switches we create a different server pool again and start. This takes care of delivering the packets to correct destination IP address & also sends back ack to initial device.

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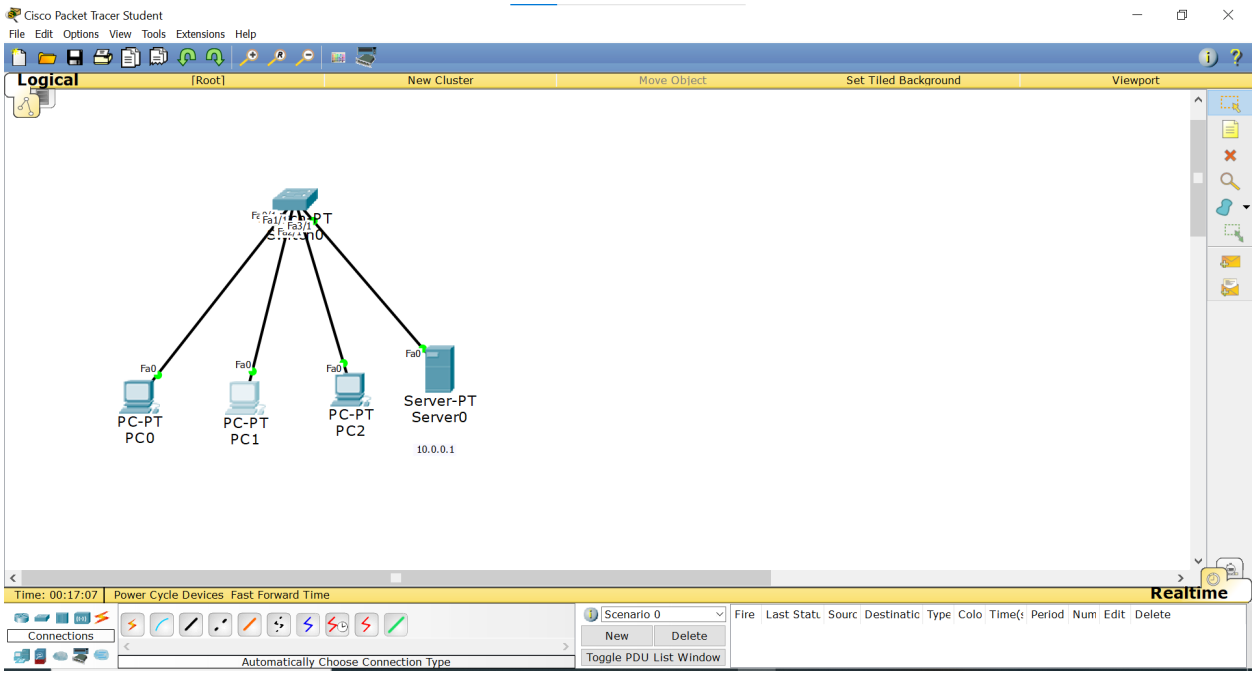
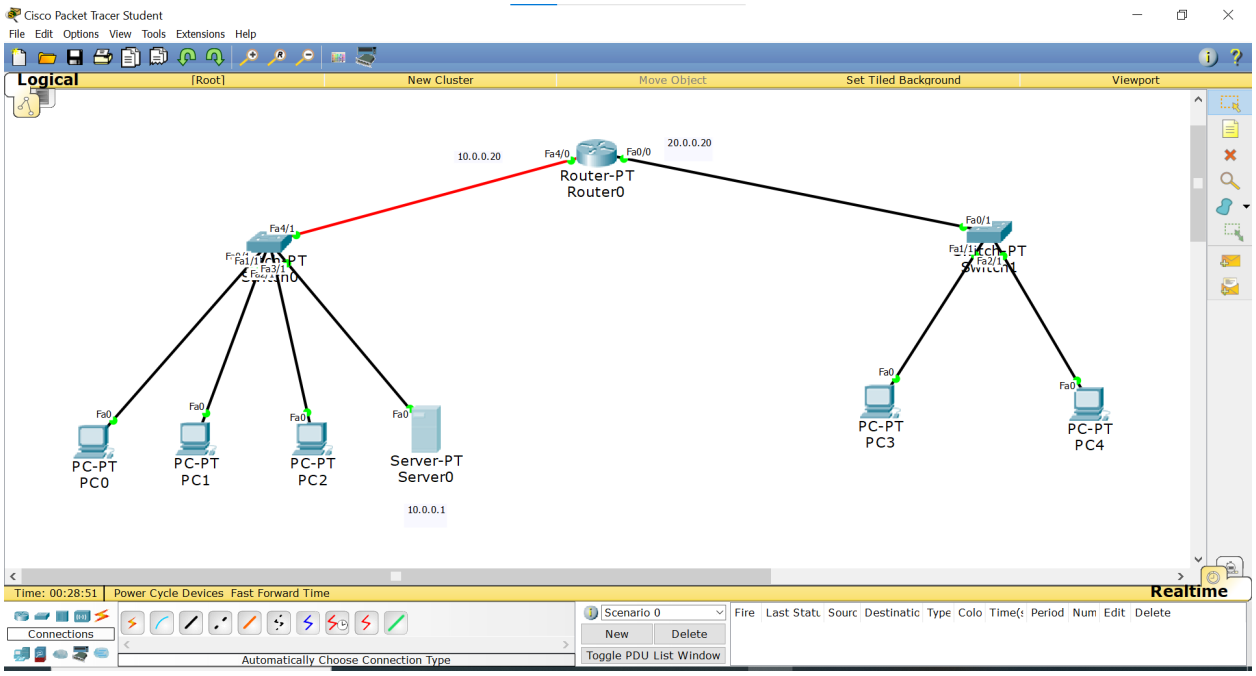
TOPOLOGY:

PROGRAM 4.1:

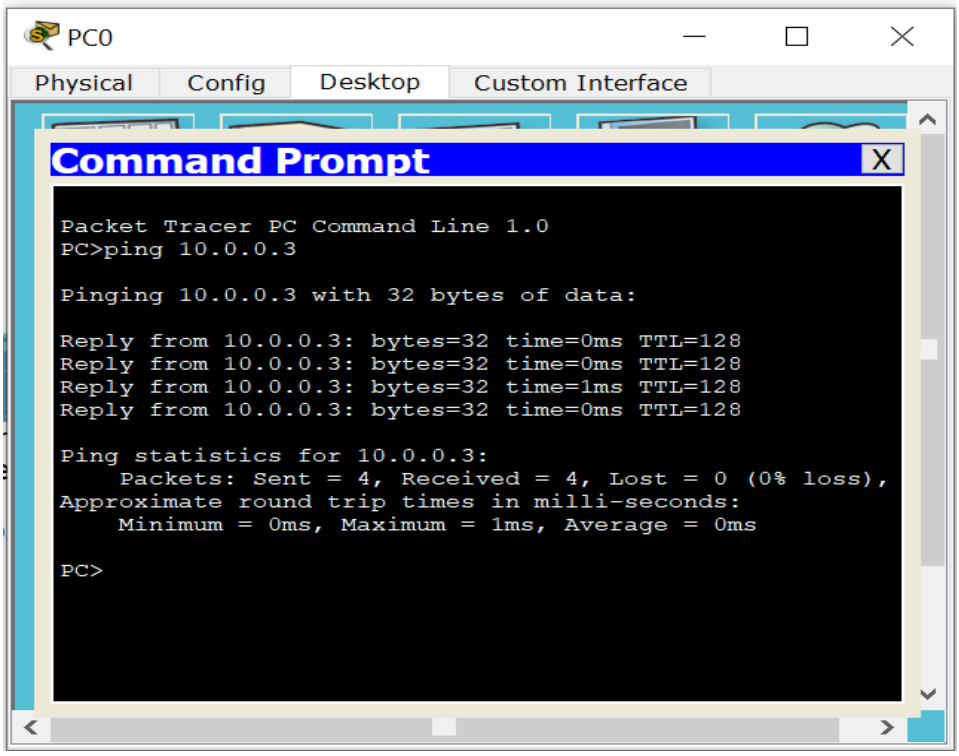


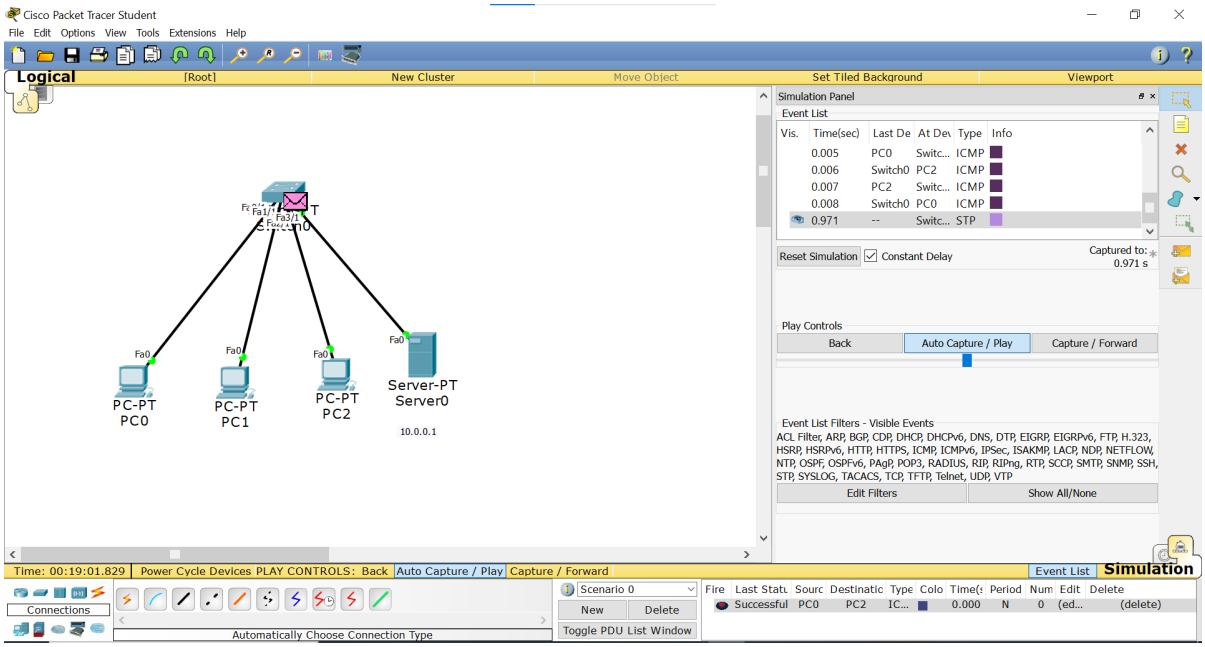
PROGRAM 4.2:



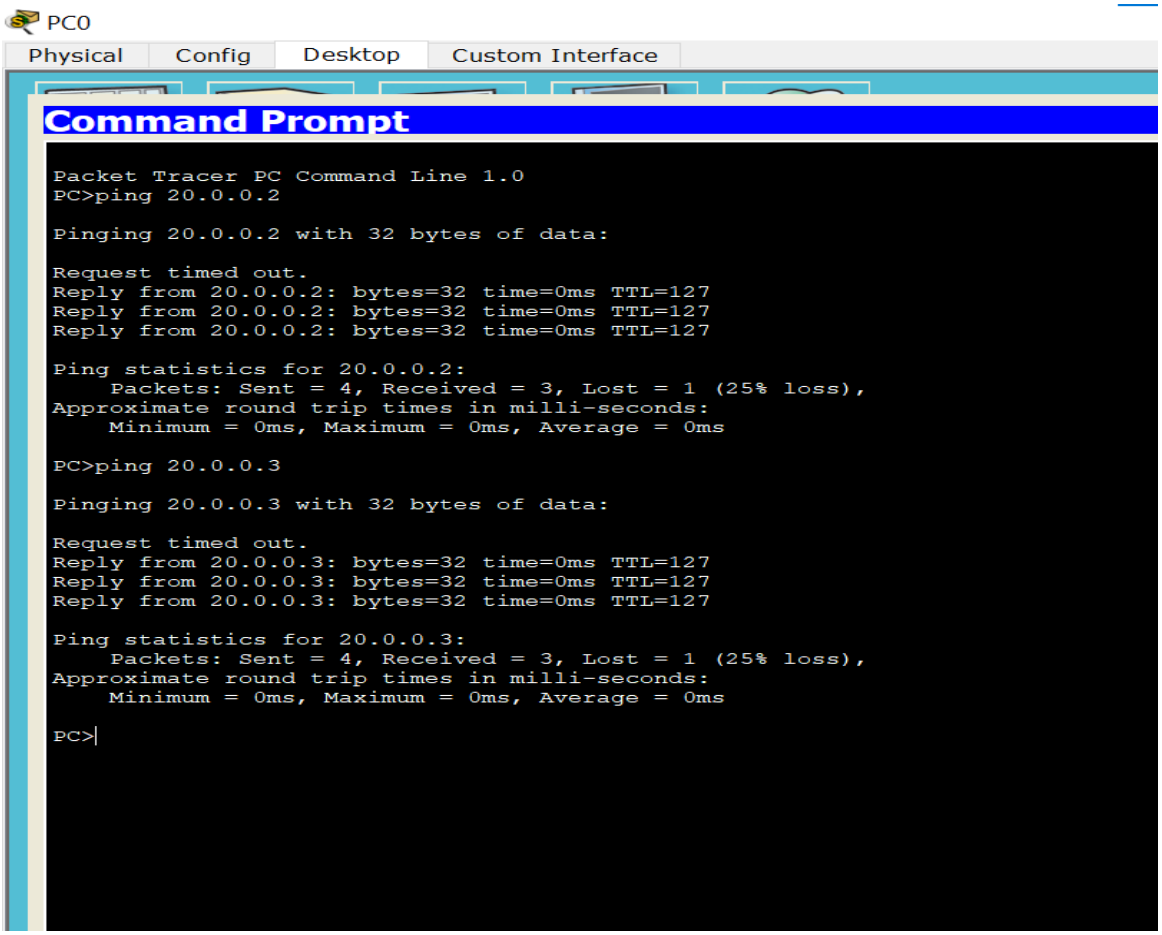
OUTPUT:

PROGRAM 4.1:





PROGRAM 4.2:


PC0
Physical
Config
Desktop
Custom Interface
Command Prompt
Packet Tracer PC Command Line 1.0
PC>ping 20.0.0.2
Pinging 20.0.0.2 with 32 bytes of data:
Request timed out.
Reply from 20.0.0.2: bytes=32 time=0ms TTL=127
Reply from 20.0.0.2: bytes=32 time=0ms TTL=127
Reply from 20.0.0.2: bytes=32 time=0ms TTL=127
Ping statistics for 20.0.0.2:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
PC>ping 20.0.0.3
Pinging 20.0.0.3 with 32 bytes of data:
Request timed out.
Reply from 20.0.0.3: bytes=32 time=0ms TTL=127
Reply from 20.0.0.3: bytes=32 time=0ms TTL=127
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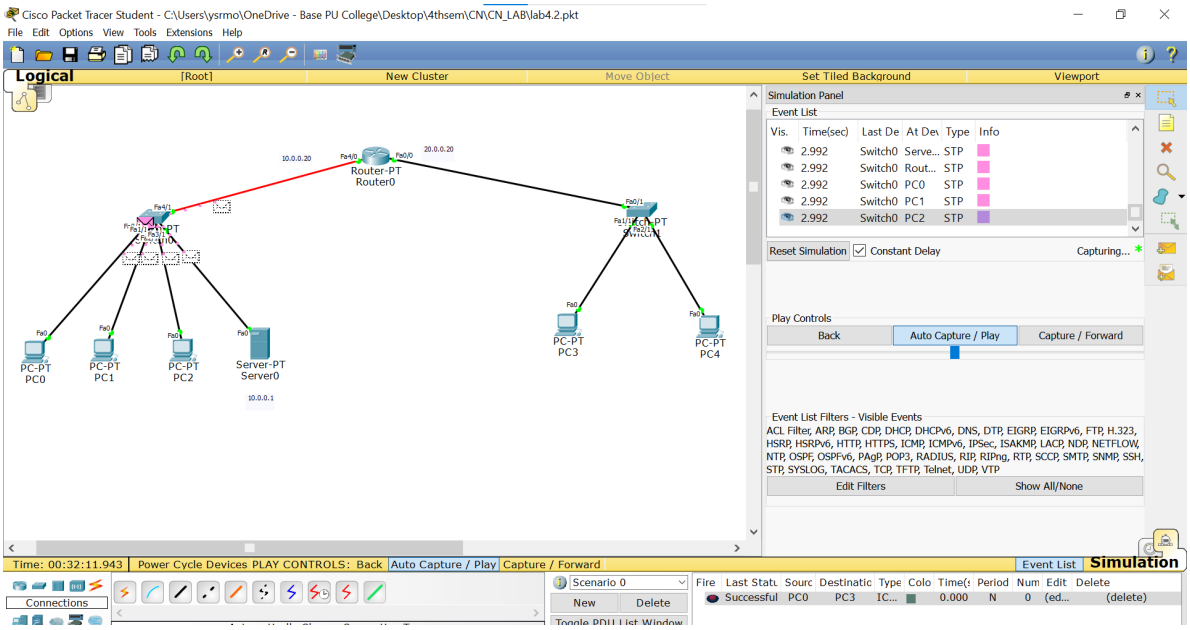
Ping statistics for 20.0.0.3:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
PC>


Cisco Packet Tracer Student - C:\Users\ysrmo\OneDrive - Base PU College\Desktop\4thsem\CN\CN_LAB\lab4.2.pkt
File Edit Options View Tools Extensions Help
Logical
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
Router-PT
Router0
PC-PT
PC0
PC-PT
PC1
PC-PT
PC2
Server-PT
Server0
PC-PT
PC3
PC-PT
PC4
Simulation Panel
Event List
Reset Simulation
Constant Delay
Capturing...
Play Controls
Back
Auto Capture / Play
Capture / Forward
Edit Filters
Show All/None
Time: 00:32:11.943
Power Cycle Devices PLAY CONTROLS: Back
Auto Capture / Play
Capture / Forward
Event List
Simulation
Connections
Scenario 0
New
Delete