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BATCH-A-TY-CS

EXPERIMENT-9

Aim: Study of DHCP server and automatic IP assignment.
Theory:

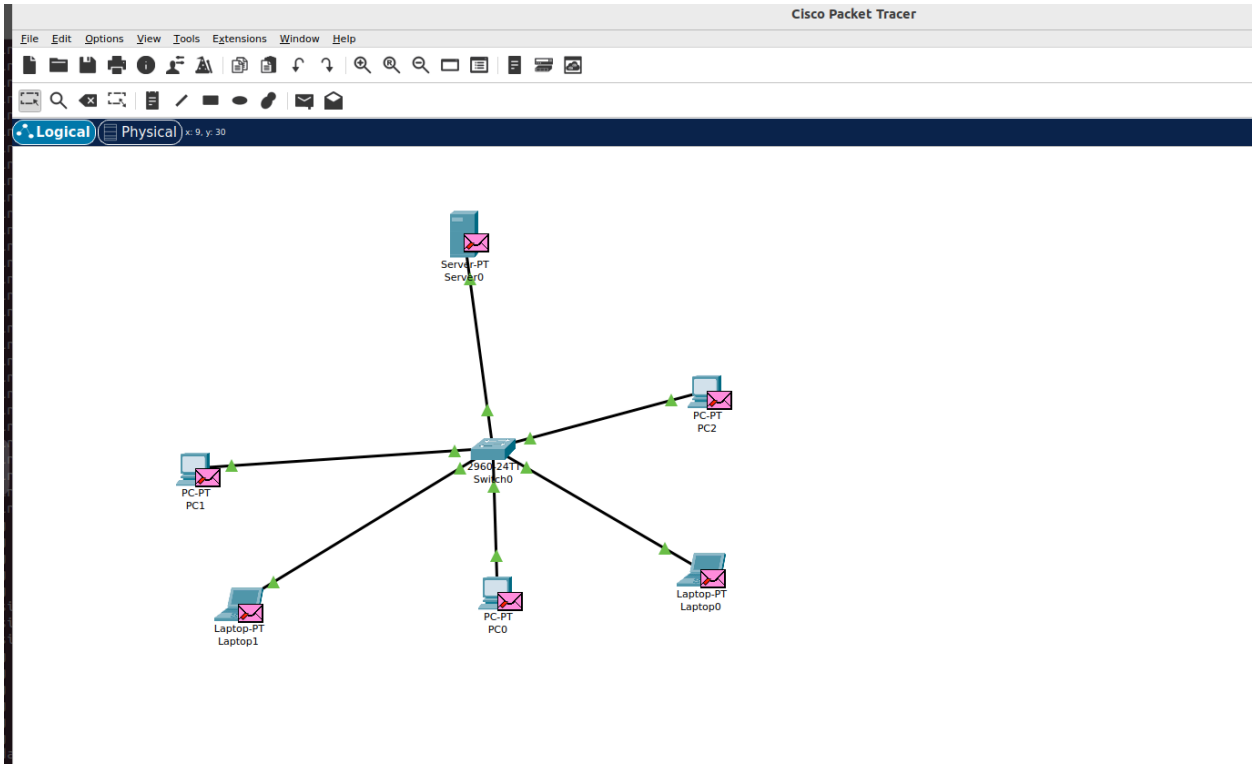
1. The Dynamic Host Configuration Protocol (DHCP) is a network management protocol used on UDP/IP networks whereby a DHCP server dynamically assigns an IP address and other network configuration parameters to each device on a network so they can communicate with other IP networks.

2. A DHCP server enables computers to request IP addresses and networking parameters automatically from the Internet service provider (ISP), reducing the need for a network administrator or a user to manually assign IP addresses to all network devices.

3. In the absence of a DHCP server, a computer or other device on the network needs to be manually assigned an IP address, or to assign itself an APIPA address, which will not enable it to communicate outside its local subnet.

4. DHCP can be implemented on networks ranging in size from home networks to large campus networks and regional Internet service provider networks.

5. A router or a residential gateway can be enabled to act as a DHCP server. Most residential network routers receive a globally unique IP address within the ISPnetwork.
6. Within a local network, a DHCP server assigns a local IP address to each device connected to the network.


Cisco Packet Tracer
File Edit Options View Tools Extensions Window Help
Logical
Physical
x: 9, y: 30
Server-PT
Server0
PC-PT
PC2
2960-24TT
Switch0
PC-PT
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Laptop-PT
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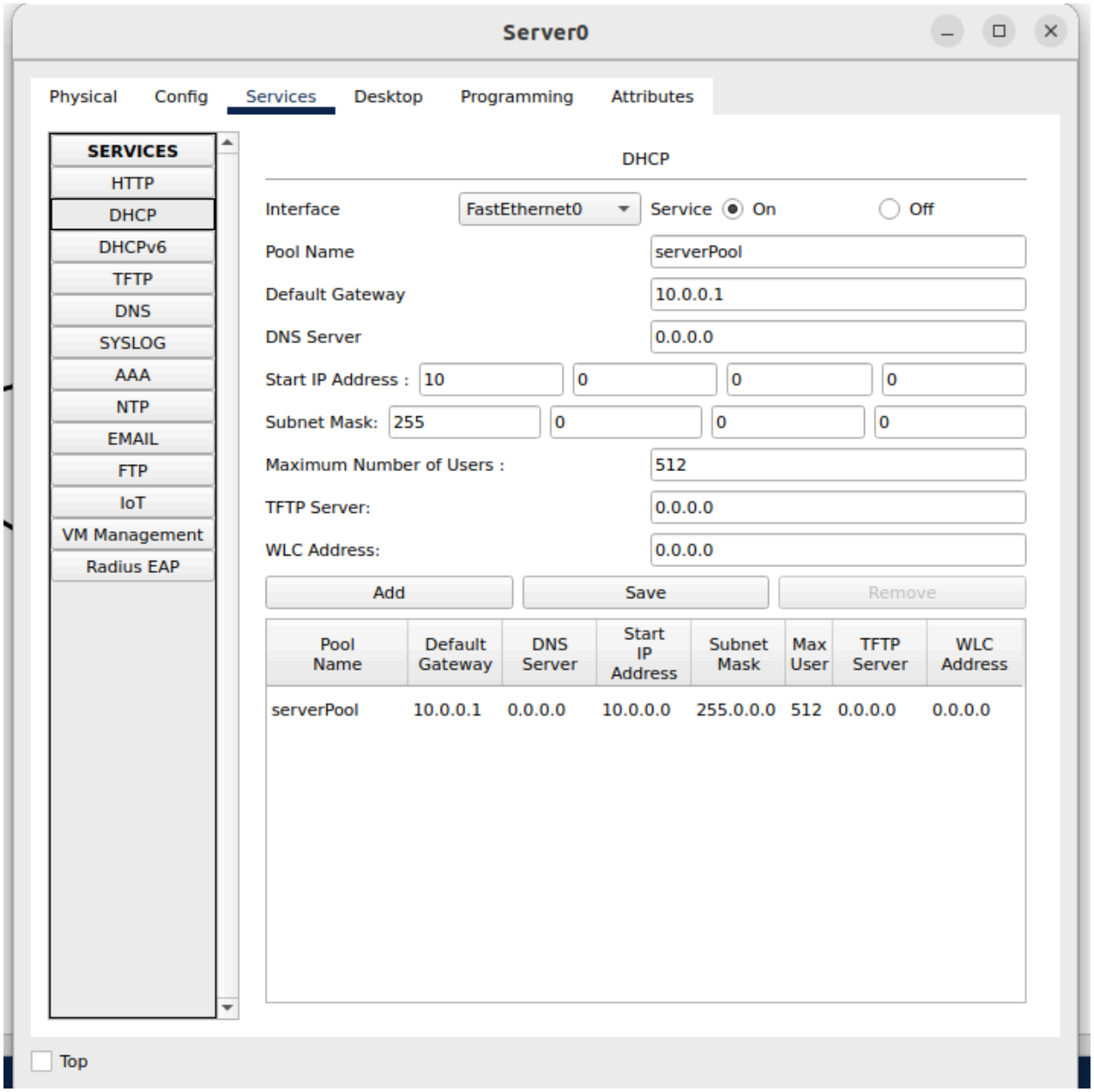
Server0
Physical
Config
Services
Desktop
Programming
Attributes
SERVICES
HTTP
DHCP
DHCPv6
TFTP
DNS
SYSLOG
AAA
NTP
EMAIL
FTP
IoT
VM Management
Radius EAP
DHCP
Interface
FastEthernet0
Service
On
Off
Pool Name
serverPool
Default Gateway
10.0.0.1
DNS Server
0.0.0.0
Start IP Address :
10
0
0
0
Subnet Mask:
255
0
0
0
Maximum Number of Users :
512
TFTP Server:
0.0.0.0
WLC Address:
0.0.0.0
Add
Save
Remove
Pool Name
Default Gateway
DNS Server
Start IP Address
Subnet Mask
Max User
TFTP Server
WLC Address
serverPool
10.0.0.1
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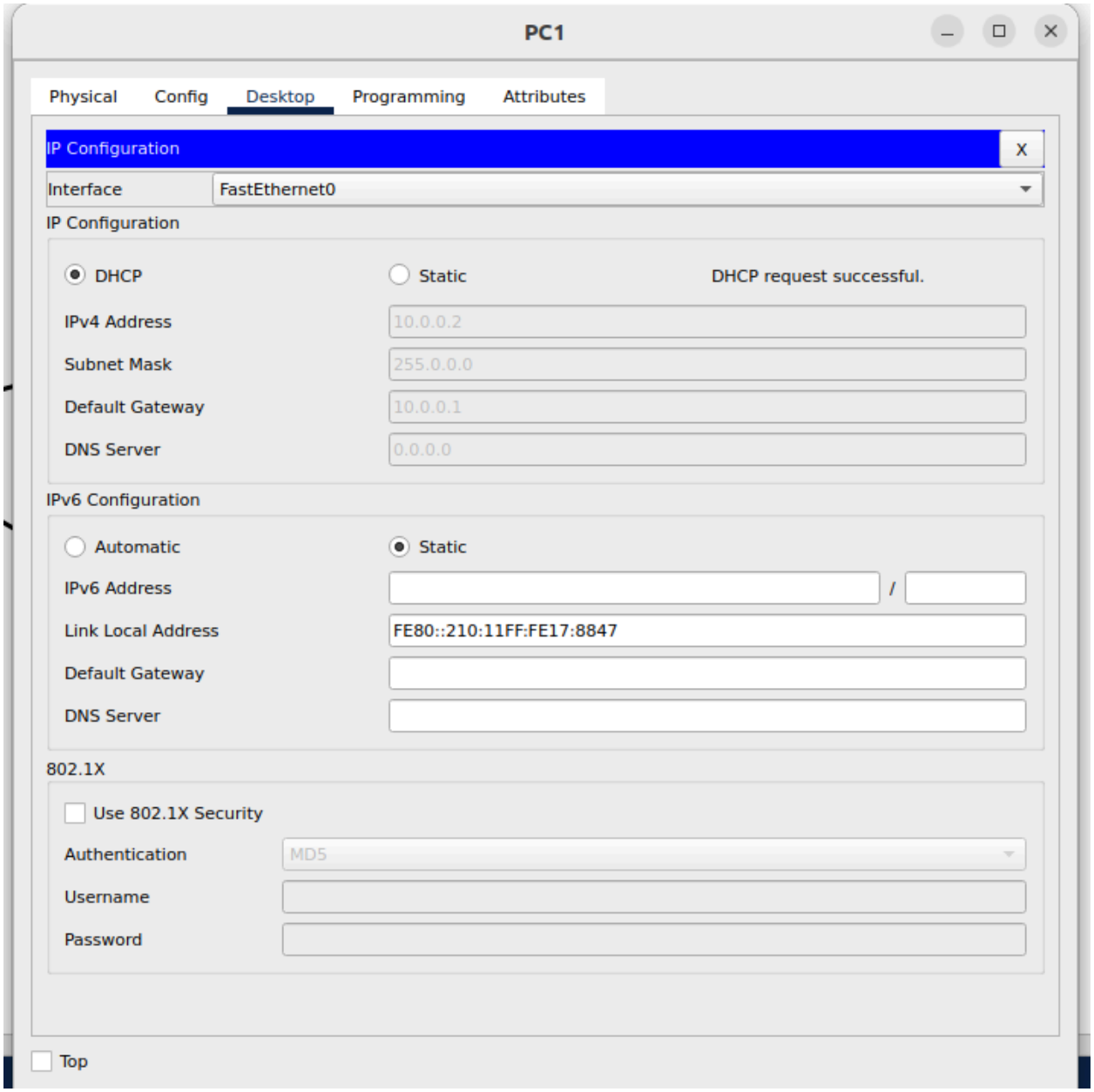

Benefits of DHCP:

Reliable IP address configuration. DHCP minimizes configuration errors caused by manual IP address configuration, such as typographical errors, or address conflicts caused by the assignment of an IP address to more than one computer at the same time.

Reduced network administration. DHCP includes the following features to reduce network administration:

Centralized and automated TCP/IP configuration.
The ability to define TCP/IP configurations from a central location.
The ability to assign a full range of additional TCP/IP configuration values by means of DHCP options.
The efficient handling of IP address changes for clients that must be updated frequently, such as those for portable devices that move to different locations on a wireless network.
The forwarding of initial DHCP messages by using a DHCP relay agent, which eliminates the need for a DHCP server on every subnet.
Conclusion: Thus, we have studied about DHCP server and automatic IP assignment