



## COMPUTER NETWORKS LAB (CSL5403)

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Assignment - 5

# Introduction:



Cisco Packet Tracer as the name suggests, is a tool built by Cisco. This tool provides a network simulation to practice simple and complex networks.

As Cisco believes, the best way to learn about networking is to do it. The main purpose of Cisco Packet Tracer is to help students learn the principles of networking with hands-on experience as well as develop Cisco technology specific skills. Since the protocols are implemented in software only method, this tool cannot replace the hardware Routers or Switches. Interestingly, this tool does not only include Cisco products but also many more networking devices.

Using this tool is widely encouraged as it is part of the curriculum like CCNA, CCENT where Faculties use Packet Trace to demonstrate technical concepts and networking systems. Students complete assignments using this tool, working on their own or in teams.

Engineers prefer to test any protocols on Cisco Packet Tracer before

implementing them. Also, Engineers who would like to deploy any change in the production network prefer to use Cisco Packet Tracer to first test there quired changes and proceed to deploy if and only if everything is working as expected.

This makes the job easier for Engineers allowing them to add or remove simulated network devices, with a Command line interface and a drag and drop user interface.

## Workspace :

The screenshot displays the Cisco Packet Tracer workspace. On the left, a network diagram is visible with the following components and connections:

- PC-PT javascript** and **PC-PT python** are connected to **Switch0** (2960-24TT).
- Switch0** is connected to **Router0** (1941).
- Router0** is connected to **NetworkController0** (PT-Controller0).
- PC-PT blockly** is connected to **Switch0**.

Annotations on the diagram include:

- "Both Get and Post utilize security tokens"
- "test/test user credential has already been added"
- "Only Post is using the security token"
- "Replace the token in Blockly with the token obtained from the REST API"
- "The REST call will succeed."
- "Note: Need to replace blocks in order to use get method"

On the right, a terminal window titled "x: ~/packet-tracer-8" shows the following command and output:

```
curl -v http://test:test@localhost:58000/api/v1/host
* Trying ::1...
* TCP_NODELAY set
* connect to ::1 port 58000 failed: Connection refused
* Trying 127.0.0.1...
* TCP_NODELAY set
* Connected to localhost (127.0.0.1) port 58000 (#0)
* Server auth using Basic with user 'test'
> GET /api/v1/host HTTP/1.1
> Host: localhost:58000
> Authorization: Basic dGVzdDp0ZXN0
> User-Agent: curl/7.58.0
> Accept: */*
>
< HTTP/1.1 403 Forbidden !
< server: The Qt5 HTTP Server
< access-control-allow-origin: *
< content-type: application/json
< access-control-allow-methods: *
< date: Fri, 26 Mar 2021 07:13:00 UTC
< content-length: 217
<
{
  "response": {
    "detail": "Security Authentication Failure",
    "errorCode": "REST_API_EXTERNAL_ACCESS",
    "message": "Ticket-based authorization: empty ticket."
  },
  "version": "1.0"
}
```

The terminal also shows the status: "\* Connection #0 to host localhost left intact".

## 1. Logical –

Logical workspace shows the logical network topology of the network the user has built. It represents the placing, connecting and clustering virtual network devices.

## 2. Physical –

Physical workspace shows the graphical physical dimension of the logical network. It depicts the scale and placement in how network devices such as routers, switches and hosts would look in a real environment. It also provides geographical representation of networks, including multiple buildings, cities and wiring closets.

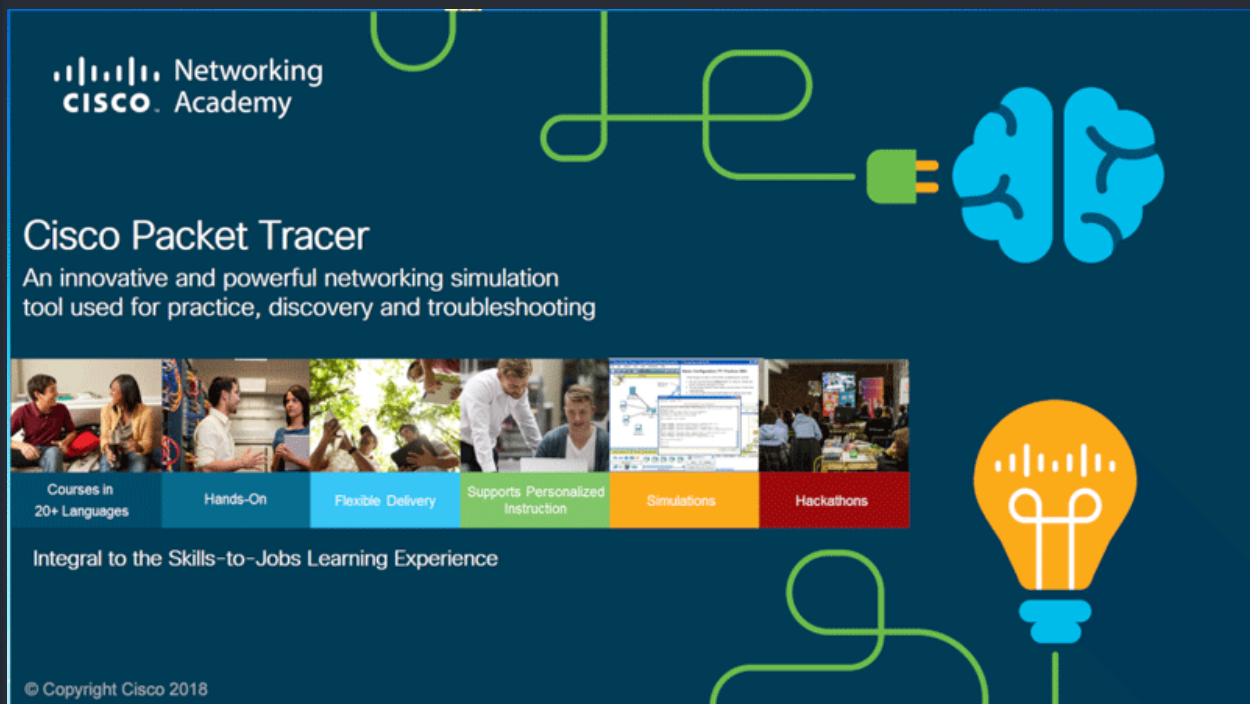
### Key Features:

- Unlimited devices
- E-learning
- Customize single/multi user activities
- Interactive Environment
- Visualizing Networks
- Real-time mode and Simulation mode
- Self-paced

- Supports majority of networking protocols
- International language support
- Cross platform compatibility

### Basic Programs:

Basic programs involve developing virtual simulation for real-time intra-networks, connecting networks, scaling and testing.



The image is a promotional banner for Cisco Academy's Packet Tracer. It features a dark blue background with green and yellow decorative lines. At the top left is the Cisco Academy logo. To the right is a large blue brain icon connected to a green plug. Below the logo, the text 'Cisco Packet Tracer' is followed by a description: 'An innovative and powerful networking simulation tool used for practice, discovery and troubleshooting'. A horizontal strip of six small images shows students in various learning environments. Below these images are six colored boxes with text: 'Courses in 20+ Languages' (blue), 'Hands-On' (teal), 'Flexible Delivery' (light blue), 'Supports Personalized Instruction' (green), 'Simulations' (yellow), and 'Hackathons' (red). Below this strip is the text 'Integral to the Skills-to-Jobs Learning Experience'. At the bottom left is the copyright notice '© Copyright Cisco 2018'. At the bottom right is a large yellow lightbulb icon.

**Networking  
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## Cisco Packet Tracer

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Courses in 20+ Languages   Hands-On   Flexible Delivery   Supports Personalized Instruction   Simulations   Hackathons

Integral to the Skills-to-Jobs Learning Experience

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*End Of Assignment*