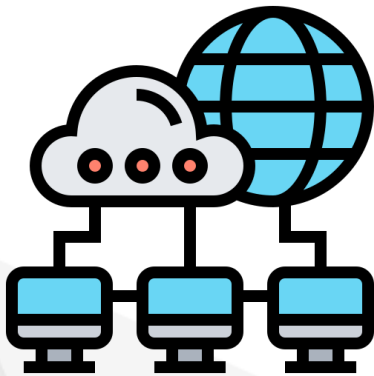


# Practical Work: Routing & Switching



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# I Lab N° 0: Introduction to PacketTracer

## 1. Introduction

Welcome to our first lab where we'll kickstart your networking journey. Our goals include understanding why Packet Tracer is pivotal in networking, mastering its installation process, and exploring its features. You'll learn how to navigate Packet Tracer, discovering its capabilities, and, by the end, you'll be creating your first basic network. Let's dive into the essentials and set the stage for practical networking skills.

## 2. Lab 0 Objectives: Introduction to Packet Tracer - Installation, Features, and Basic Network Creation

In this introductory lab, we have specific goals to enhance your understanding and proficiency in networking using Cisco Packet Tracer:

**Understanding the Significance:** Explore the fundamental reasons behind the utilization of Packet Tracer in networking. Gain insights into its role as a powerful simulation tool and its relevance in practical networking scenarios.

**Installation Mastery:** Acquire the necessary skills to install Packet Tracer. Navigate through the installation process to ensure a seamless setup, setting the stage for hands-on exploration.

**Feature Discovery:** Familiarize yourself with the features of Packet Tracer. Understand its capabilities for simulating diverse networking scenarios, providing you with a comprehensive toolkit for network design and troubleshooting.

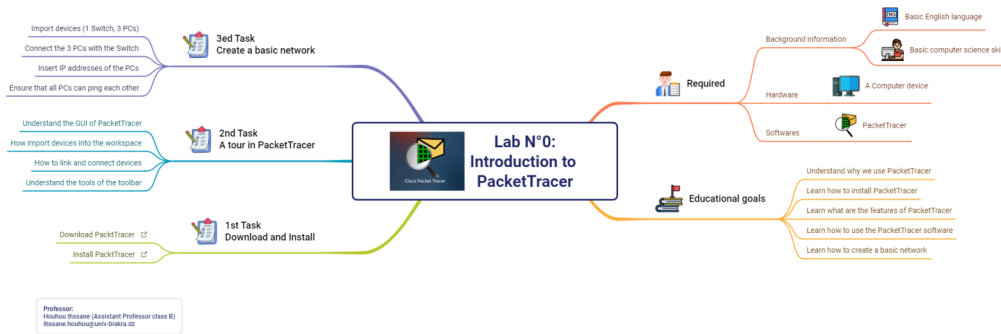
**Software Proficiency:** Learn how to navigate and effectively utilize the Packet Tracer software. Explore its user interface, tools, and functionalities to harness the full potential of this simulation tool.

**Creating a Basic Network:** Apply your newfound knowledge by creating a basic network within Packet Tracer. This hands-on experience will solidify your understanding of networking concepts as you design and configure a simple yet functional network.

By the end of this lab, you will have not only grasped the theoretical aspects but also gained practical skills essential for your journey into the realm of networking.

## 3. The Mind-Map

A mind map is presented below to give the student a summary of what we will see in this initiation lab.



The Mind-Map of Lab N°0 : Introduction to PacketTracer

You can download the Mind map with higher quality by clicking [Here](#)

[cf. Mind map Lab 0]

## 4. What is PacketTracer ?

Packet Tracer is a visual simulation tool that is designed by Cisco Systems to allow users to create network topologies and imitate modern computer networks. This software enables users to simulate the configuration of Cisco routers and switches using a simulated command line interface. It is a cross-platform tool that can be used on multiple operating systems.

## 5. Key features of Packet Tracer

**Network Simulation:** Users can configure virtual networks with networking devices such as routers, switches, computers, and servers. They can then simulate the flow of data packets to understand network behavior.

**Device Emulation:** Packet Tracer emulates Cisco networking devices, enabling users to configure and interact with them as if they were real. Users can configure router interfaces, establish VLANs, and implement routing protocols.

**Protocols and Technologies:** The tool supports a variety of networking technologies such as TCP/IP, DHCP, DNS, OSPF, and EIGRP, allowing users to explore various networking concepts.

**Visualization:** Packet Tracer offers a user-friendly interface for designing and configuring network topologies, making it an ideal tool for teaching and learning networking concepts.

**Assessment and Collaboration:** Instructors can utilize Packet Tracer in educational settings for assessments, while students can work together on projects and instructors can assess their work within the simulated environment.

It is worth mentioning that Packet Tracer, though a useful educational resource, may not be sufficient to cover all the intricacies and advanced features of actual networking situations. To simulate more complex and realistic scenarios, network experts may utilize alternative tools or physical equipment.

## 6. How to Download and Install Cisco Packet Tracer

Here are general steps to install Cisco Packet Tracer.

### Download Packet Tracer:

Visit the official [Cisco Networking Academy website](#).

Log in with your Cisco Networking Academy account. If you don't have an account, you may need to create one.

Navigate to the Packet Tracer download section.

**Select the Version:**

Choose the appropriate version of Packet Tracer for your operating system (Windows, macOS, or Linux).

**Download the Installer:**

Click on the download link to get the Packet Tracer installer file.

**Run the Installer:**

Locate the downloaded installer file on your computer.

Run the installer by double-clicking on the file.

**Follow Installation Wizard:**

The installation wizard will guide you through the installation process.

Accept the license agreement if prompted.

**Choose Installation Location:**

Specify the destination folder where you want Packet Tracer to be installed.

**Complete Installation:**

Click "Next", "Next", "Next", ... , then "Install" to start the installation process.

Wait for the installation to complete.

**Launch Packet Tracer:**

Once the installation is finished, you can launch Packet Tracer from the Start menu (Windows) or the Applications folder (macOS).

👤 **Complement:** *A Youtube video to help you Download and Install Packet Tracer:*

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*Cisco Packet Tracer | Everything You Need to Know*

## 7. Brief Tour of Cisco Packet Tracer

Here's a brief tour of Cisco Packet Tracer:

**Workspace:**

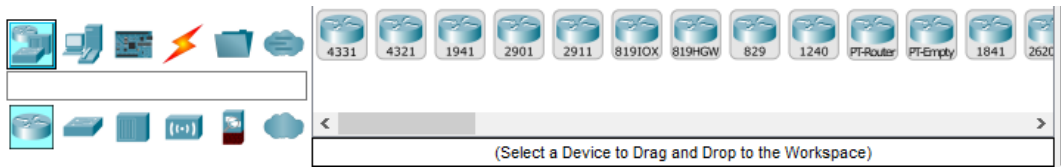
Upon launching Packet Tracer, you'll find the main workspace where you can build and visualize your network topologies. *Packet Tracer Workspace (cf. p.5)*



Packet Tracer Workspace

**Device Palette:**

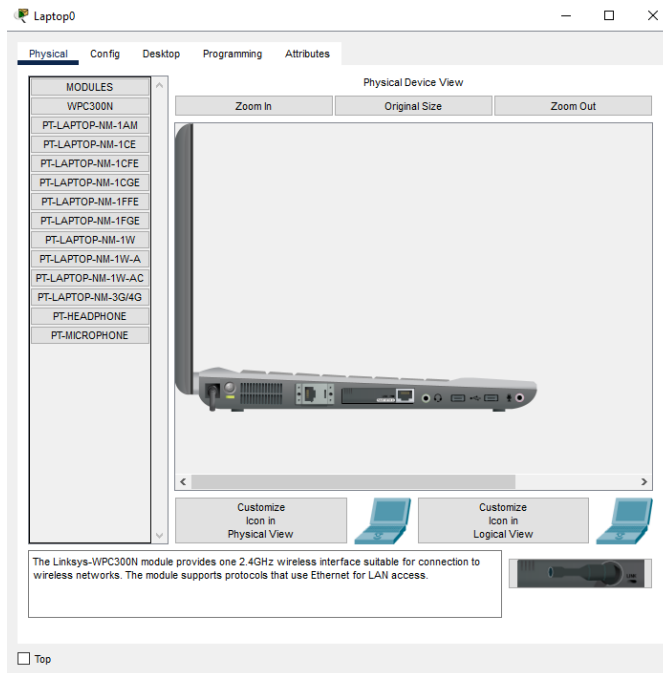
On the left side, you have a device palette containing routers, switches, PCs, servers, and more. Drag and drop these devices onto the workspace to create your network. *Device palette (cf. p.6)*



Device palette

**Device Configuration Panel:**

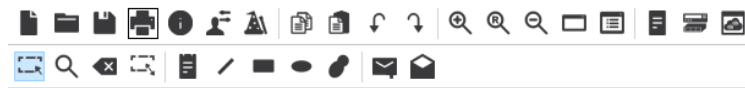
When you click on a device, a configuration panel appears on the right. This panel allows you to configure settings such as IP addresses, interfaces, and protocols. *Device Configuration Panel (cf. p.6)*



Device Configuration Panel

**Toolbar:**

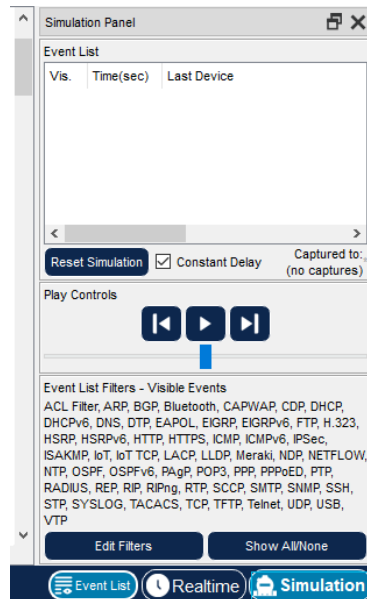
The top toolbar provides various tools and options. You can select devices, connect them with cables, use simulation mode, and access additional features. *Toolbar* (cf. p.7)



*Toolbar*

### ***Simulation Mode:***

Packet Tracer includes a simulation mode for testing and observing network behavior. Activate it to see how packets flow through your network. *Simulation mode* (cf. p.7)



*Simulation mode*

### ***Packet Tracer Labs:***

Packet Tracer Labs offer hands-on practice. These labs provide specific scenarios for you to configure and troubleshoot, reinforcing your networking skills.

### ***Customization and Design:***

Experiment with different network designs, add background images, and customize the appearance of your network to suit specific scenarios.

### ***Online Resources:***

Access online resources directly from Packet Tracer, including the Cisco Networking Academy and Packet Tracer community for additional support and learning materials.

This brief tour covers some key features, but there's much more to explore within Cisco Packet Tracer. Dive in, experiment, and use it as a tool to enhance your networking knowledge and skills.

## **8. Building and Testing a Basic Network in Packet Tracer**

Let's create a simple network with one switch and three PCs in Packet Tracer involves a few steps. Here's a basic guide:

### ***Open Packet Tracer:***

Launch Packet Tracer on your computer.

### ***Select Devices:***

Go to the left side of the screen where the device palette is located.

Choose a switch from the "Switches" category and drag it to the workspace.

### ***Connect Devices:***

From the "End Devices" category, select a PC and drag three instances onto the workspace.

Use the connection tool in the toolbar to connect the PCs to the switch. Click on a device, then click on the switch to create connections.

### ***Configure Devices:***

Click on each PC and the switch to open their configuration panels on the right.

For simplicity, you can keep the configurations basic. Set IP addresses on the PCs if needed.

### ***Save Your Project:***

Save your project to ensure you don't lose your work.

### ***Test the Network:***

Enter simulation mode by clicking on the lightning bolt icon in the toolbar.

Use the "Desktop" tab on each PC to check network connectivity and perform basic tests.

### ***Verify Connections:***

Check the switch to see the status of each port. You should see three active ports connected to the PCs.

### ***Troubleshoot (if necessary):***

If the network isn't functioning as expected, go back to the workspace and the configuration panels to troubleshoot. Check IP configurations and cable connections.

## **9. Conclusion**

In Lab 0, we embarked on a foundational journey into networking using Cisco Packet Tracer. Throughout this session, we gained insights into the significance of Packet Tracer, mastered its installation process, explored its diverse features, and successfully created and tested a basic network. This hands-on experience sets the stage for an interactive and immersive exploration of networking concepts in the upcoming labs. As we continue our learning journey, remember that the skills acquired in Lab 0 serve as the building blocks for a deeper understanding of networking principles. Great job, and let's move forward with confidence and enthusiasm!

## **10. Quiz: Can you...**

### **Question**

... explain why it is better to use Packet Tracer ?



## 11. Quiz: Explain...

### Question

Explain why Hubs were used as a solution.

## 12. Quiz: Explain...

### Question

Explain why Repeaters were used as a solution.

*Hint:*

*Distances !*

## 13. Quiz: Explain...

### Question

Explain how Bridge works.