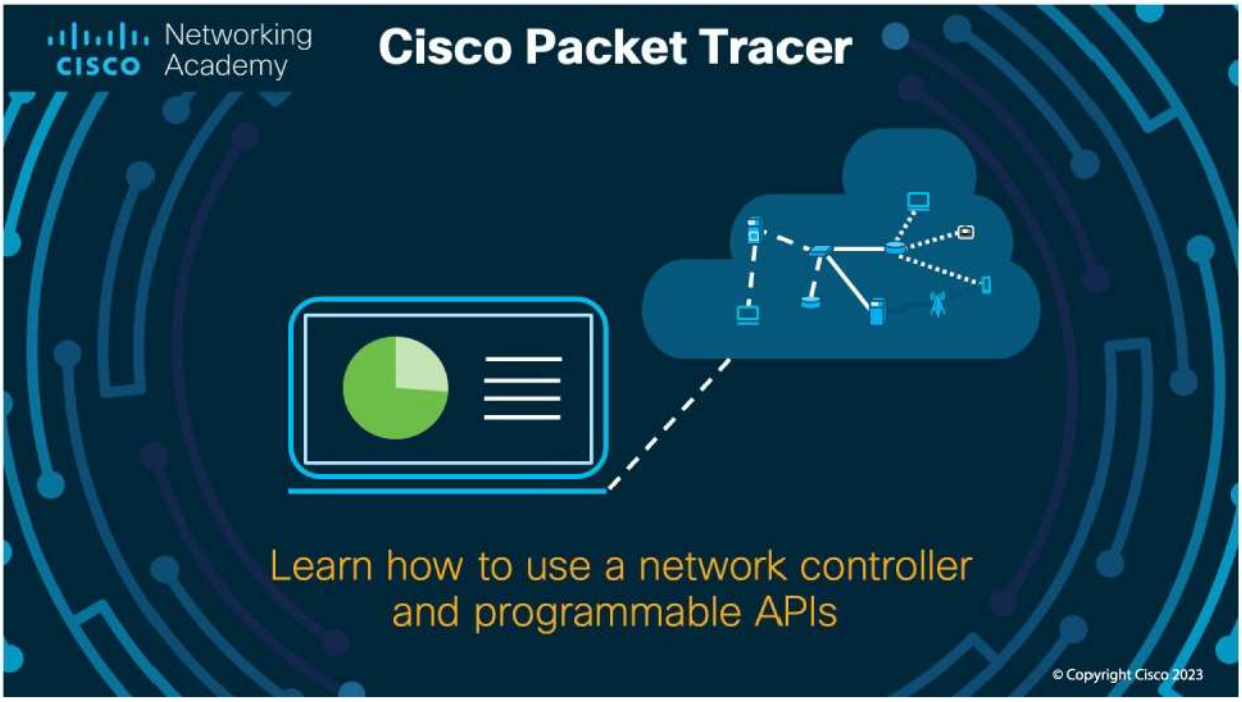
CISCO PACKET TRACER

USER MANUAL



Introduction

Welcome to the "Manual for Cisco Packet Tracer Networking Lab." This comprehensive guide is designed to help you master the art of networking through hands-on practice using Cisco Packet Tracer. This manual is your gateway to understanding, configuring, and troubleshooting network environments.

Purpose of the Manual

This manual serves as your go-to resource for exploring the capabilities of Cisco Packet Tracer and becoming proficient in networking. You'll find step-by-step instructions, practical examples, and insightful tips to help you create, configure, and manage network topologies effectively. The primary objectives of this manual include:

- Providing a solid foundation in Cisco Packet Tracer usage.
- Guiding you through the creation and configuration of network topologies.
- Offering insights into advanced networking concepts, troubleshooting, and security best practices.
- Equipping you with the knowledge and skills necessary to excel in the world of networking.

Prerequisites

Before diving into the world of Cisco Packet Tracer, it's important to ensure you have a few prerequisites in place:

- A computer that meets the system requirements for running Packet Tracer.
- A functional installation of Cisco Packet Tracer (we'll walk you through this).
- A basic understanding of networking concepts, such as IP addresses, subnets, and network protocols, will be beneficial.
- An eagerness to learn and experiment in a virtual networking environment.
- While not mandatory, some familiarity with Cisco devices and their command-line interface (CLI) can be advantageous.

Getting Started with Cisco Packet Tracer

To get you started on your networking journey, we'll guide you through the initial setup and introduce you to the Cisco Packet Tracer interface. This section will provide you with all the necessary information to begin your practical networking journey. We'll help you:

- Launch the application.
- Create an account (if required).
- Navigate the user interface.
- Open or create a new project.
- Choose your workspace and set preferred options.
- Start with pre-existing network topologies or create custom ones.
- The subsequent sections of this manual will delve deeper into these aspects, gradually building your expertise in Cisco Packet Tracer and networking.

Overview of Cisco Packet Tracer

Cisco Packet Tracer is a powerful and versatile network simulation tool designed to help users learn and practice networking concepts in a virtual environment. This section offers an in-depth overview of Cisco Packet Tracer, highlighting its key features, benefits, and system requirements.

What is Cisco Packet Tracer?

Cisco Packet Tracer is a network simulation and visualization tool developed by Cisco Systems. It is an essential resource for individuals studying networking and aspiring network professionals. Packet Tracer enables users to create, configure, and simulate network topologies and devices, replicating real-world network scenarios without the need for physical hardware. This virtual environment allows for experimentation and learning in a risk-free setting.

Benefits and Features

Cisco Packet Tracer boasts several features and benefits that make it an invaluable tool for network learning and training:

- **Virtual Networking**: Packet Tracer allows users to create and manage virtual network topologies, which can be as simple as a home network or as complex as an enterprise network.
- **Realistic Device Simulations**: It provides realistic simulations of Cisco devices, including routers, switches, firewalls, and more, with full command-line interface (CLI) functionality.
- **Networking Protocols**: Support for a wide range of networking protocols and technologies, enabling users to practice routing, switching, and security configurations.
- **Hands-on Practice**: Users can experiment with various network configurations, making changes, and observing their impact in a controlled environment.
- **Packet Capture and Analysis**: Packet Tracer allows users to capture network traffic, analyze packets, and troubleshoot network issues.
- **Visualized Network Topologies**: A graphical interface to create and visualize network topologies, making it easier to understand network structure.
- **Cross-Platform Compatibility**: Available for Windows, macOS, and Linux, ensuring accessibility for a wide range of users.

System Requirements

Before you begin using Cisco Packet Tracer, it's crucial to ensure that your system meets the necessary requirements for optimal performance:

- **Operating System**: Cisco Packet Tracer is compatible with Windows, macOS, and Linux. Ensure you have a supported operating system version.

- **Hardware Requirements**: Your computer should meet the hardware requirements for Packet Tracer. This typically includes a multi-core CPU, sufficient RAM, and storage space.
- **Software Dependencies**: Ensure that you have the required software dependencies installed, such as Java Runtime Environment (JRE) and specific libraries, as specified by the Cisco Packet Tracer installation instructions.

Features Cisco Packet Tracer

Item	*Description*
Protocols	**LAN**: Ethernet (including CSMA/CD*), 802.11 a/b/g/n wireless*, PPPOE **Switching**: VLANs, 802.1q, trunking, VTP, DTP, STP*, RSTP*, multilayer switching*, Etherchannel, LACP, PAgP, IP CEF **TCP/IP**: HTTP, HTTPS, DHCP, DHCPv6, Telnet, SSH, TFTP, DNS, TCP*, UDP, IPv4*, IPv6*, ICMP, ICMPv6, ARP, IPv6 ND, FTP, SMTP, POP3, VOIP(H.323) **Routing**: static, default, RIPv1, RIPv2, EIGRP, single-area OSPF, multi-area OSPF, BGP, inter-VLAN routing, redistribution **Other**: ACLs (standard, extended, and named), CDP, NAT (static, dynamic, inside/outside, and overload), NATv6, Netflow **WAN**: HDLC, SLARP, PPP*, and Frame Relay* **Security**: IPsec, GRE, ISAKMP, NTP, AAA, RADIUS, TACACS, SNMP, SSH, SYSLOG, CBAC, Zone-based policy firewall, IPS **QoS**: Layer 2 QoS, Layer 3 Diffserv QoS, FIFO Hardware queues, Priority Queuing, Custom Queuing, Weighted Fair Queuing, MQC, NBAR* **** indicates substantial modeling limitations imposed***
Logical Workspace	Network topology creation Devices: generic, real, and modular with customizable images Routers, switches, hosts (Server, Desktop and Laptop), hubs, bridges, wireless access points, wireless routers, clouds, ASA, and DSL/cable modems Device interconnection through a variety of networking media Multiuser remote networks
Physical Workspace	Network topology creation Hierarchy of device, wiring closet, building, city, and intercity views Structured cabling: create BendPoints and GroupPoints in cables and color code cables Ethernet cable length display and length limitation connectivity enforcement Images for devices now customizable and scalable Loading and scaling of user-created graphics Wireless association management
Realtime Mode	Realtime protocol updates Medium-fidelity Cisco IOS CLI configuration of routers and switches Menu based configuration of DHCP, DNS, HTTP, TFTP, Syslog, AAA, and NTP servers
Simulation Mode	Packet animation Global event list (packet sniffer) OSI Model, Detailed PDU, and Device Table Views User-defined multiple packet scenarios
Local Authoring and Sharing	Extensive file-saving options Multi-level Activity Wizard for authoring automatically scored practice activities and formative assessment Challenge Mode allowing users to make device algorithm decisions on packets Easily translated GUI Extensive textual and graphical annotation features External Applications (ExApps) through Inter-Process Communication (IPC)

Installation and Setup

In this section, we'll go through the installation and initial setup of Cisco Packet Tracer. Before you can start exploring the world of networking with this powerful tool, it's essential to have Packet Tracer correctly installed and configured on your system.

Download and Installation

Follow these steps to download and install Cisco Packet Tracer:

- **Visit the Cisco Networking Academy**: Cisco Packet Tracer is often available through the Cisco Networking Academy. Visit the official Cisco Networking Academy website and create an account if you don't already have one. One should enroll in their course to download the latest version of Cisco Packet Tracer.

  Link to enroll:

  https://skillsforall.com/learningcollections/cisco-packet-tracer?courseLang=en-US

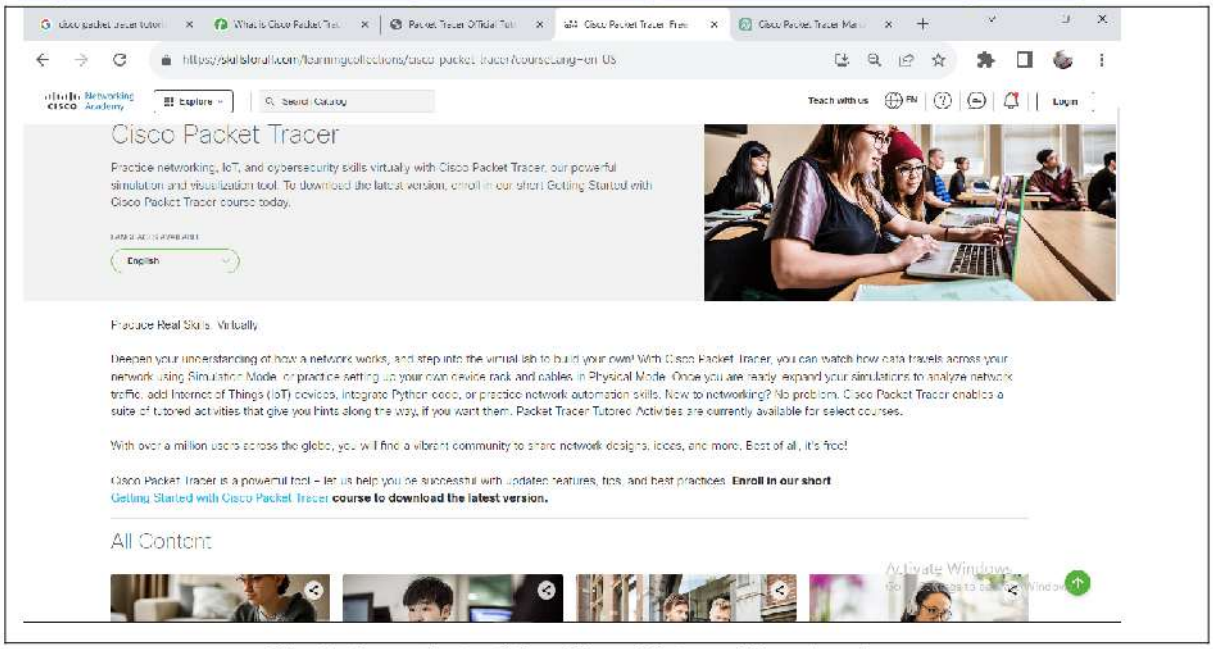


Fig 1. Snapshot of the Cisco Networking Academy

- **Download Packet Tracer**: After logging in, navigate to the Packet Tracer download section. Select the appropriate version for your operating system (Windows, macOS, or Linux) and start the download.
- **Install Packet Tracer**: Once the download is complete, run the installer. Follow the on-screen instructions to complete the installation.
- **License Activation**: Cisco Packet Tracer may require a license to access all features. You can often obtain a free guest login for basic functionality or a student account through the Cisco Networking Academy. If you have a valid license key, enter it during the installation process to activate all features.
- **Launch Packet Tracer**: After installation, launch Cisco Packet Tracer to ensure it's working correctly.

Log In:
Cisco Packet Tracer requires user authentication.
A NetAcad or a SkillsForAll account is required to sign in when you launch Cisco Packet Tracer.

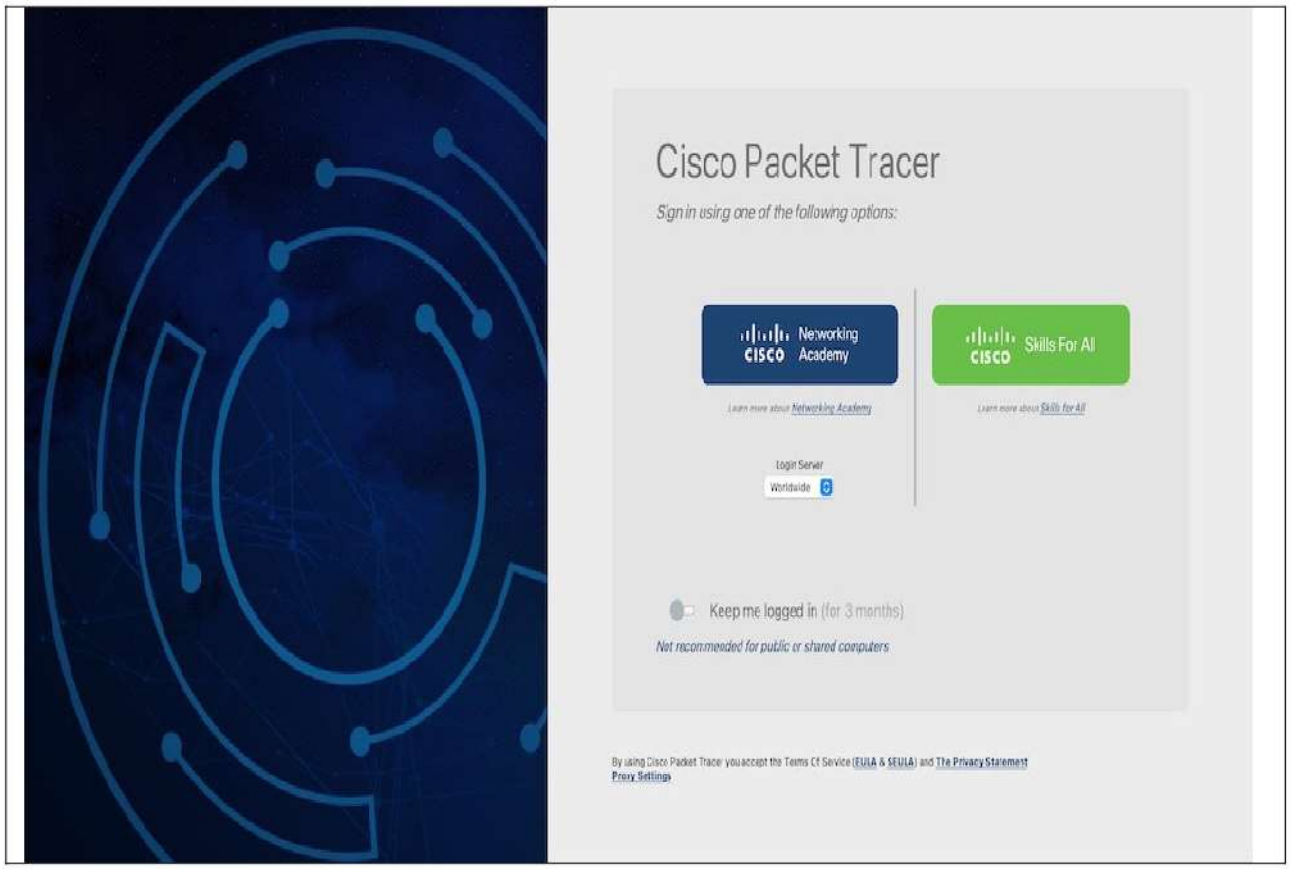


Fig 2. Log In Window

Cisco Packet Tracer Interface Overview

When you open Packet Tracer, by default you will be presented with the following interface:

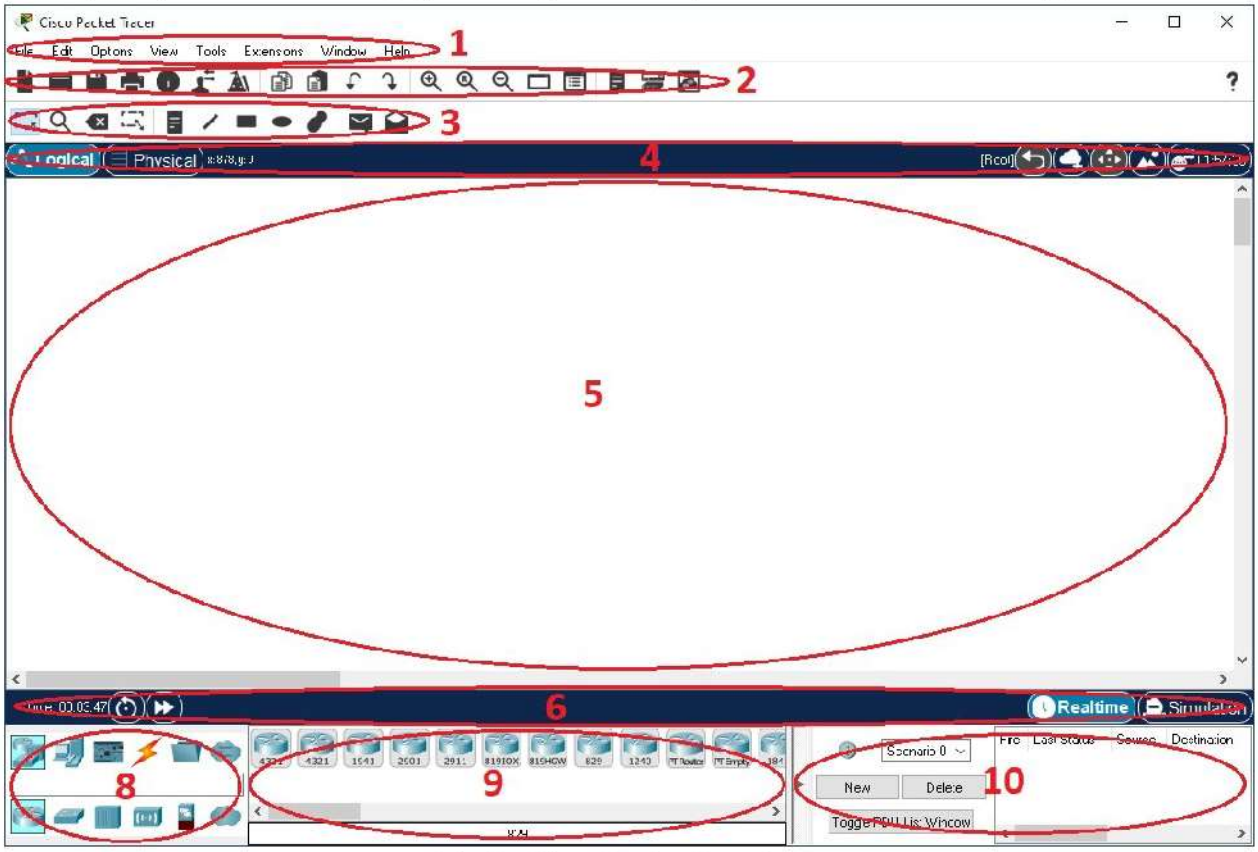


Fig 3. Cisco Packet Interface

This initial interface contains ten components. If you are unsure of what a particular interface item does, move your mouse over the item and a help balloon will explain the item.

1	**Menu Bar**	This bar provides the **File**, **Edit**, **Options**, **View**, **Tools**, **Extensions**, **Window** and **Help** menus. You will find basic commands such as **Open**, **Save**, **Save as Pkz, Print**, and **Settings and Preferences** in these menus. You will also be able to access the **Activity Wizard** from the **Extensions** menu. **Window** menu allows to enter/exit full screen mode, lists all top level windows open by Packet Tracer and allows to activate them.
2	**Main Tool Bar**	This bar provides shortcut icons to most commonly used menu commands.
3	**Common Tools Bar**	This bar provides access to these commonly used workspace tools: **Select**, **Inspect**, **Delete**, **Resize Shape**, **Place Note**, **Drawing Palette**, **Add Simple PDU**, and **Add Complex PDU**. See "Workspace Basics" for more information.
4	**Logical/Physical Workspace and Navigation Bar**	You can toggle between the Physical Workspace and the Logical Workspace with the tabs on this bar. In Logical Workspace, this bar also allows you to go back to a previous level in a cluster, create a **New Cluster**, **Move Object**, **Set Tiled Background**, and **Viewport**. In Physical Workspace, this bar allows you to navigate through physical locations, create a **New City**, create a **New Building**, create a **New Closet**, **Move Object**, apply a **Grid** to the background, **Set Background**, and go to the **Working Closet**.

5	**Workspace**	This area is where you will create your network, watch simulations, and view many kinds of information and statistics.
6	**Realtime/Simulation Bar**	You can toggle between Realtime Mode and Simulation Mode with the tabs on this bar. This bar also provides buttons to **Power Cycle Devices** and **Fast Forward Time** as well as the **Play Control** buttons and the **Event List** toggle button in Simulation Mode. Also, it contains a clock that displays the relative **Time** in Realtime Mode and Simulation Mode.
7	**Network Component Box**	This box is where you choose devices and connections to put into the workspace. It contains the **Device-Type Selection** Box and the **Device-Specific Selection** Box. There's a searchable field that allows you to enter a device name to look for that specific device quickly. Device name shows when you mouse over the device icon in the Device-Specific Box.
8	**Device-Type Selection Box**	This box contains the type of devices and connections available in Packet Tracer. The **Device-Specific Selection** Box will change depending on which type of device you choose.
9	**Device-Specific Selection Box**	This box is where you choose specifically which devices you want to put in your network and which connections to make. In this box, you'll find devices that may have already been obsolete. You have an option to hide legacy equipment in the Preferences window under Options.
10	**User Created Packet Window***	This window manages the packets you put in the network during simulation scenarios. See the "Simulation Mode" section for more details.

Workspaces and Modes

Packet Tracer has two workspaces (Logical and Physical) and two modes (Realtime and Simulation). Upon startup, you are in the Logical Workspace in Realtime Mode. You can build your network and see it run in real time in this configuration. You can switch to Simulation Mode to run controlled networking scenarios. You can also switch to the Physical Workspace to arrange the physical aspects (such as the location) of your devices.

Preferences

You can customize your Packet Tracer experience by setting your own preferences. From the Menu Bar, select Options/Cisco Packet Tracer(Mac) Preferences (or simply press Ctrl + R/Cmd + R(Mac)) to view the program settings.

Under the Interface panel, you can toggle the Animation, Sound, and Show Link Lights settings to suit the performance of your system and your preferences. You can also manage information clutter with the Show Device Labels, Always Show Port Labels, and Show Port Labels When Mouse Over settings. Also, you can also toggle Show QoS Stamps on Packets shown in Simulation Mode and Enable Cable Length Effects. The Disable Auto Cable option allows you to toggle the Automatic Connection when connecting devices. The Show Device Dialog Taskbar option allows you to toggle the taskbar that is displayed at the bottom of the workspace which organizes currently opened device dialogs. The Logging feature allows the program to capture all Cisco IOS commands that you enter and export them to a text file (refer to the "Configuring Devices" page for more information). You can also change the base language of the program by choosing from the Languages list and then pressing the Change Language button. Lastly, you can personalize your Packet Tracer appearance by select different color scheme.

Preferences Window is shown below:

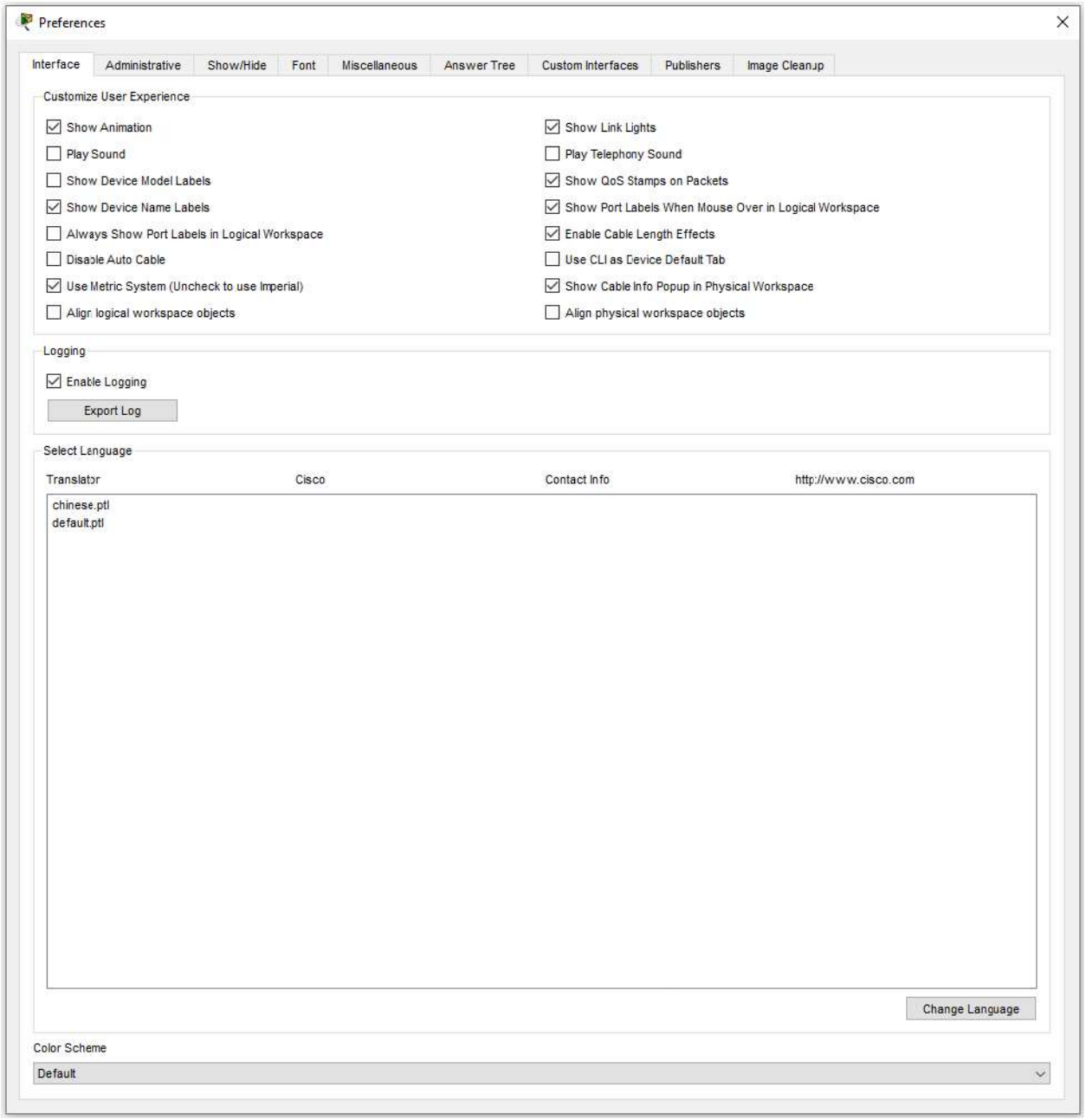


Fig 4. Preferences Tab

The Logical and Physical Workspaces

Packet Tracer uses two representation schemes for your network: the Logical Workspace and the Physical Workspace. The Logical Workspace allows you to build a logical network topology, without regard to its physical scale and arrangement. The Physical Workspace also allows you to build a topology and at the same time, allows you to arrange devices physically in cities, buildings, and wiring closets. Distances and other physical measures will affect network performance and other characteristics if wireless connections are used.

The Logical Workspace

The Logical Workspace is where you will spend the majority of your time building and configuring your network. In conjunction with Realtime Mode, you can use this workspace to complete many of the labs you encounter in your CCNA coursework.

First, you will want to create devices. This is done by choosing devices from the **Network Component box**. Then, you can do any of the following:

- Add modules to your devices to install additional interfaces. Note that you must turn off a device (by clicking its power button) before you can add a module.
- Connect your devices by choosing the appropriate cables (also found in the Network Component box).
- Configure device parameters (such as the device name and IP address) through graphical dialogue boxes or the Cisco IOS (in the case of routers and switches).
- Make advanced configurations and view network information from the CLI interface on a router or switch.

Creating Devices

To place a device onto the workspace, first choose a device type from the Device-Type Selection box. Then, click on the desired device model from the Device-Specific Selection box. Finally, click on a location in the workspace to put your device in that location. If you want to cancel your selection, click the Cancel icon for that device. Alternatively, you can click and drag a device from the Device-Specific Selection box onto the workspace. You can also click and drag a device directly from the Device-Type Selection box and a default device model will be chosen for you.

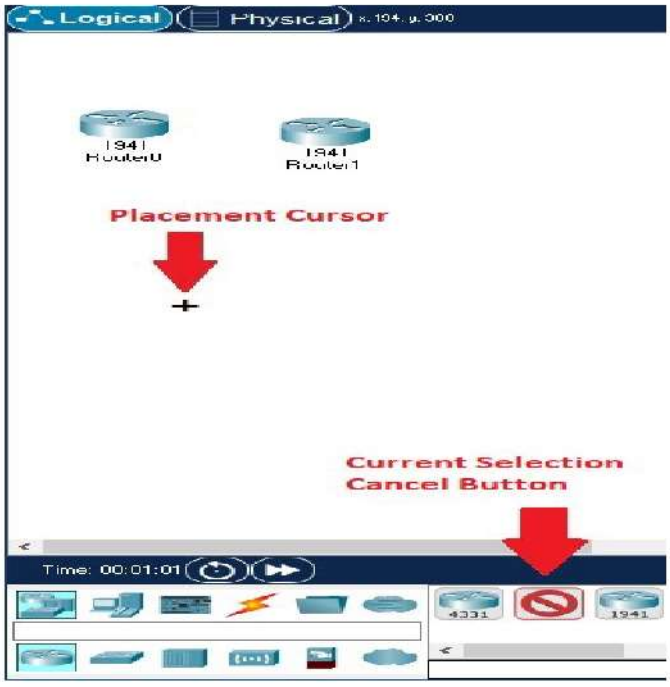


Fig 5. Logical Window

To quickly create many instances of the same device, press and hold the Ctrl/Cmd(Mac) button, click on the device in the Device-Specific Selection box, and then release the Ctrl/Cmd(Mac) button. The device is now locked and you can click on the workspace multiple times to add multiple copies of the device. Cancel this operation by pressing the Cancel icon for that device. To duplicate devices, you can press and hold the Ctrl/Cmd(Mac) button and then drag a device on the workspace or select the devices and then use the Copy and Paste buttons.

Moving Objects

To move an object around the Logical Workspace, be sure the Select Tool is selected on the Common Tools Bar. Once the Select Tool is selected, you can left-click and drag items around the Logical Workspace.

Fig 5. Option to move objects

Adding Modules

Most Packet Tracer devices have modular bays or slots into which you can insert modules. In the workspace, click on a device to bring up its configuration window. By default, you will be in the Physical Device View sub-panel of the device. An interactive picture of the device is on the right of the panel, and a list of compatible modules is on the left. You can resize the picture with the Zoom In, Original Size, and Zoom Out buttons. You can also resize the entire configuration window by dragging its borders with the mouse. When you have found the module you want to add, simply drag it from the list into a compatible bay on the device picture. You can remove a module by dragging it from the device back into the list, as shown below

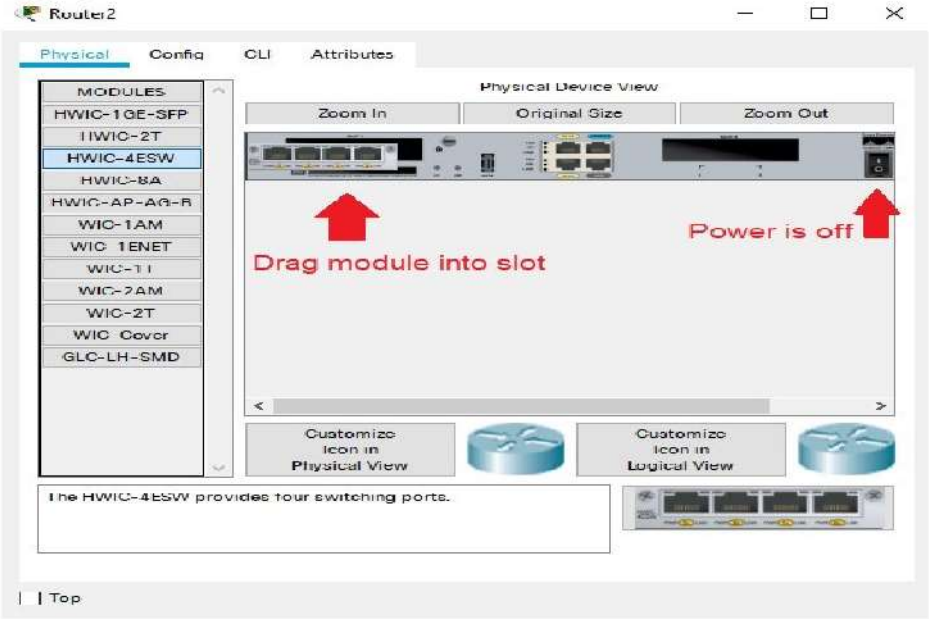


Fig 6. Module Selection for Router

Making Connections

To make a connection between two devices, first click the Connections icon from the Device-Type Selection box to bring up the list of available connections. Then click the appropriate cable type. The mouse pointer will change into a "connection" cursor. Click on the first device and choose an appropriate interface to which to connect. Then click on the second device and do the same. A connection cable will appear between the two devices, along with link lights showing the link status on each end (for interfaces that have link lights). If you made a mistake by connecting to an incorrect interface or you want to change the connection to a different interface, click on the link light near the device to unplug the connection from the device. Click on the device again and select the desired interface to reconnect the device.

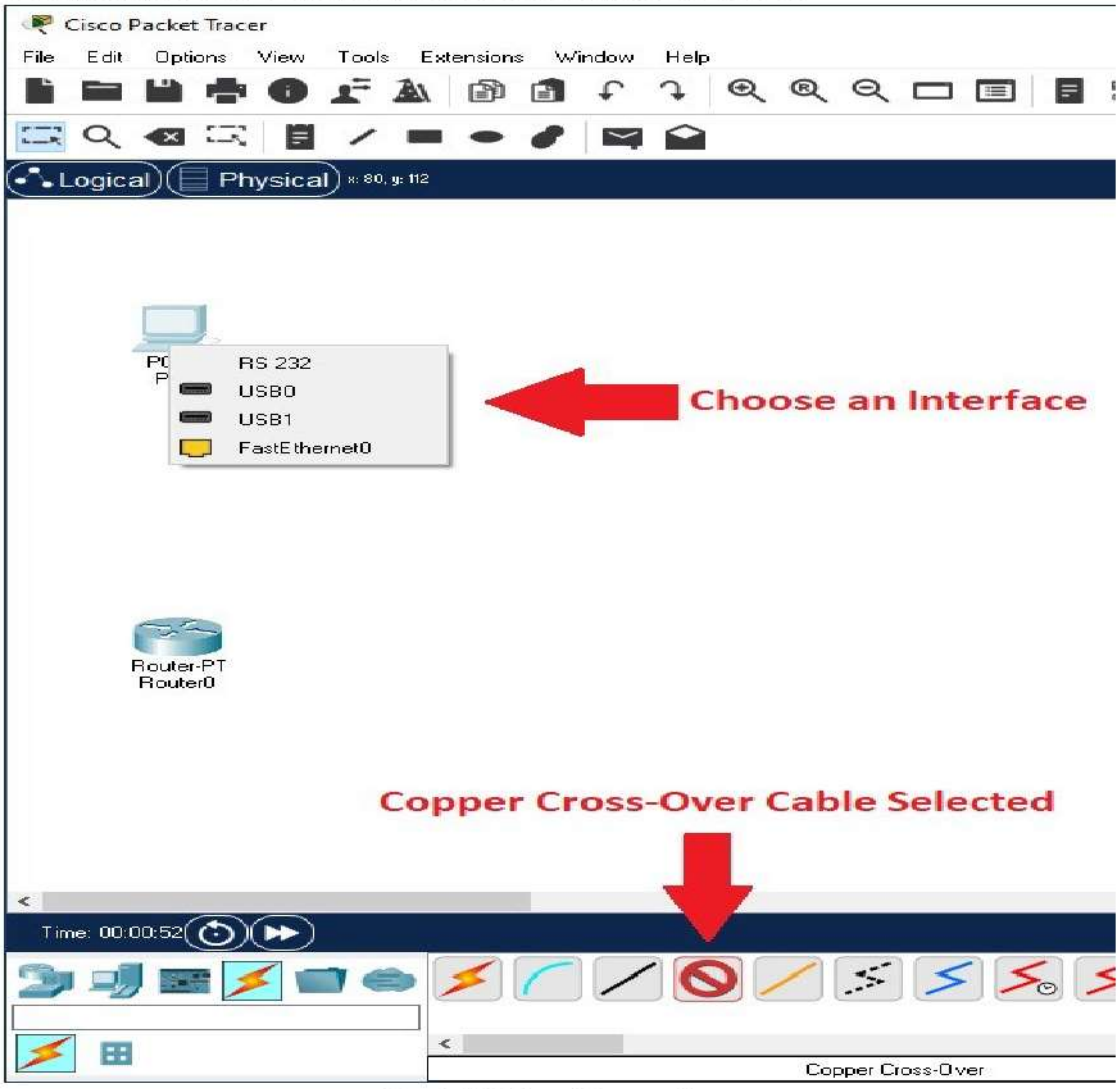


Fig 6. Making Connections

To quickly make many connections of the same type, press and hold the Ctrl/Cmd(Mac) button, click on a cable type in the Device-Specific Selection box, and release the Ctrl/Cmd(Mac) button. The connection cursor is now locked and you can repeatedly make the same connection type between devices. Cancel this operation by pressing the Cancel icon for the cable type.

The Physical Workspace

The purpose of the Physical Workspace is to give a physical dimension to your logical network topology. It gives you a sense of scale and placement (how your network might look in a real environment).

The Physical Workspace is divided into four main containers to reflect the physical scale of four environments: Intercity, City, Building, and Wiring Closet. The Intercity is the largest environment. It can contain many cities. Each city can contain many buildings. Finally, each building can contain many wiring closets. The wiring closet provides a view that is different from the other three views. This is where you actually see the devices that were created in the Logical Workspace; positioned in networking racks and on tables. The three other containers provide thumbnail views of their layouts as the next level icons. This is the default arrangement in the Physical Workspace. The devices in the wiring closet can be moved to any of the containers. When the devices are moved to another container, they revert to the icons used in Logical Workspace, although those can be customized (covered under Customization) to any graphic you would like to use.

In addition to the above mentioned main physical containers, users can create Generic Containers. These can contain any other containers provided they fit inside one another based on their volume. Other restrictions on why one container may not be possible to move into another is based on container type. For instance, a City can not be moved inside a Building regardless of the relative volumes of the two.

When you first enter the Physical Workspace, the default is the Intercity view (or "map").

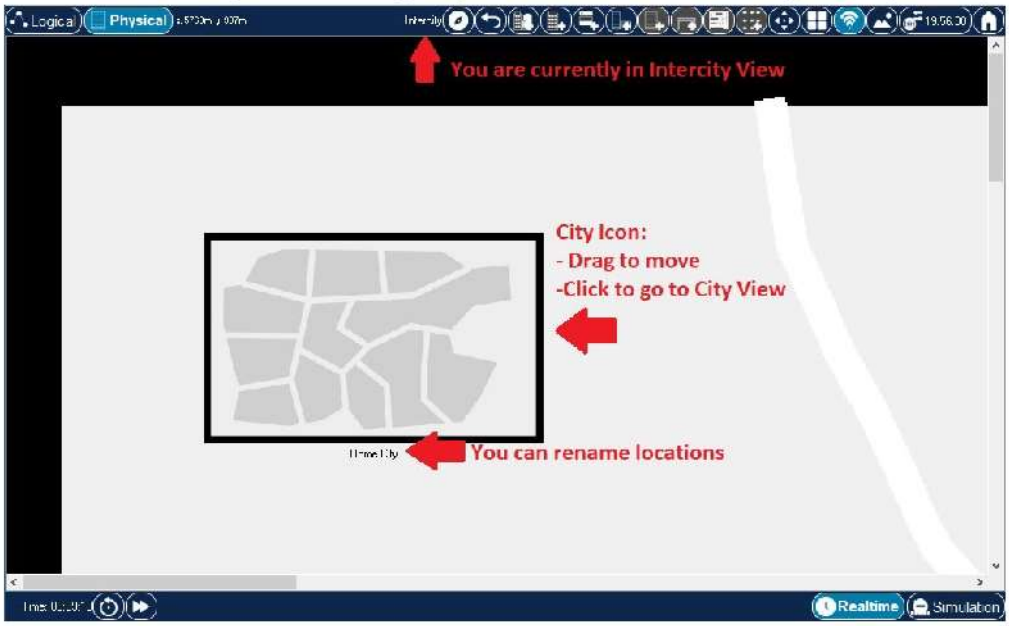


Fig 7. Intercity View

As you continue clicking City Icon, you will see City, Building, and Wiring Closet environments.

Operating Modes

Packet Tracer operating modes reflect the network time scheme.

In **Realtime Mode**, your network runs in a model of real time, within the limits of the protocol models used. The network responds to your actions immediately as they would in a real device. For example, as soon as you make an Ethernet connection, the link lights for that connection will appear, showing the connection state (see the "Connections/Links" page for details). Whenever you type a command in the CLI (such as ping or show), the result or response is generated in real time and you see it as such. All network activity, particularly the flow of PDUs across the network, happens in the Packet Tracer model of real time.

In **Simulation Mode**, you can "freeze" time -- you have direct control over time related to the flow of PDUs. You can see the network run step by step, or event by event, however quickly or slowly you like. You can set up scenarios, such as sending a ping packet from one device to another. However, nothing "runs" until you capture it (the first time through, as with a protocol sniffer) or play it (re-playing the captured events as an animation). When you capture or play the simulation, you will see graphical representations of packets traveling from one device to another. You can pause the simulation, or step forward or backward in time, investigating many types of information on specific PDUs and devices at specific times. However, other aspects of the network will still run in real time. For example, if you turn off a port, its link light will respond immediately by turning red.

Realtime Mode

In Realtime Mode, your network is always running (like a real network) whether you are working on the network or not. Your configurations are done in real time, and the network responds in near real time. When you view network statistics, they are displayed in real time, as shown in the Realtime toolbar. In addition to using the Cisco IOS to configure and diagnose networks, you can use the Add Simple PDU and User Created PDU List buttons to graphically send pings.

Inspecting Devices

As the network is running, you can use the Inspect tool to view tables of the device as they are populated and updated. For example, to inspect the ARP table of a router, choose the Inspect tool, click on the router to bring up the list of available tables, and then choose ARP Table.

In addition to the Inspect tool, you can simply mouse-over a device to view details such as the link status, IP address, and MAC address of all the ports on a device. Note that the mouse-over feature does NOT show the state of the tables maintained by a device, like a switch, but rather a convenient summary display of port-related information. For example, when you mouse-over a switch, you will see a list of ports and MAC addresses: this is not the switch MAC address table (CAM table, switching table) but rather a list of the MAC addresses of the switch built-in Ethernet interface hardware addresses.

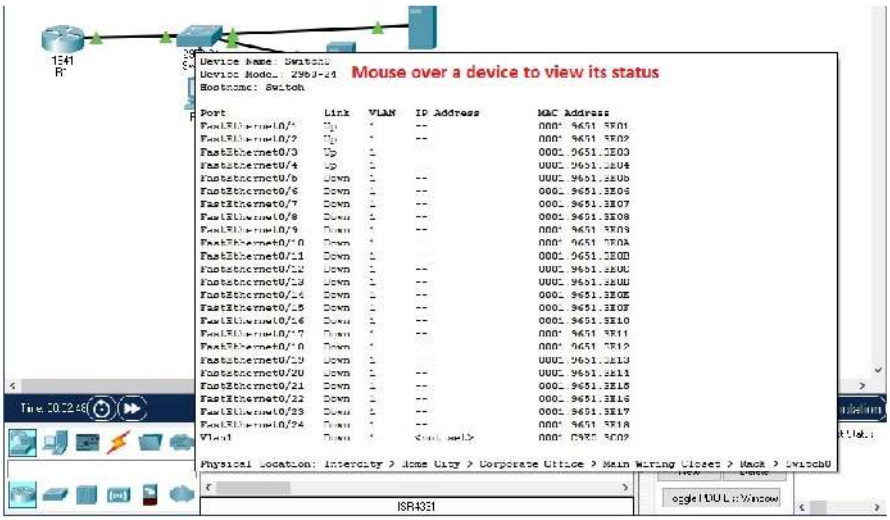


Fig 8. Inspecting Device

Sending PDUs graphically

Although Simulation Mode is the preferred mode for sending PDUs graphically, you can use the Add Simple PDU and User Created PDU List buttons to ping or send other PDUs (see the "Simulation Mode" section for details). The drawback is that you will not see PDU icons traveling slowly through the network; the entire ping sequence happens in real time. However, you can view the result of the ping from the User Created Packet Window.

Power Cycle Devices

The Power Cycle Devices button on the Realtime Bar allows you to power-cycle all of the devices in your network. Pressing it turns all devices off and then turns them back on. Pressing this button will also clear all events if you are running a simulation with the network. The Power Cycle Devices button is also available in Simulation Mode. See the "Simulation Mode" help section for more information.

Fast Forward Time

You can converge a network quickly by clicking on the Fast Forward Time button which will advance the realtime by 30 seconds each click. A use case would be where you have a large network of switches connected in loops and STP convergence may take a considerable amount of time. By clicking on the button a few times, STP to converge within a couple seconds instead of up to minutes.

Simulation Mode

In **Simulation Mode**, you can watch your network run at a slower pace, observing the paths that packets take and inspecting them in detail.

When you switch to **Simulation Mode**, the Simulation Panel will appear. You can graphically create PDUs to send between devices using the **Add Simple PDU** button and then pressing the **Auto Capture / Play** button to start the simulation scenario. The **Event List** window records (or "captures") what happens as your PDU propagates through the network. You can control the

speed of the simulation by using the **Play Speed Slider**. Pressing the **Auto Capture / Play** toggle button again will pause the simulation. If you need greater control of the simulation, use **Capture / Forward** button to manually run the simulation forward one step in time. You can use the Back button to revisit a previous timeframe and view the events that occurred then.

The Event List and Time Flow of Events

Packet Tracer simulations do not run on a linear time scale. Time is determined by the events that occur. An event can be defined as any instance of a PDU that is generated in the network. The Event List keeps track of all such PDU instances and lists their information in various fields like Visible, Time, Last Device, Type etc.

Sending Simple PDUs (Ping)

In Packet Tracer, the **Add Simple PDU** button is essentially a quick, graphical way to send one-shot pings. You can send pings between devices that have at least one interface with an IP address. To send a ping, click the Add Simple PDU button (the cursor changes to a "packet" icon), click on the source device, and then click on the destination device. Note that pings will only work if the devices have configured ports. After you make the request, the source device will queue an ICMP or ARP packet (or both), which will be on standby until you click **the Auto Capture / Play** or **Capture / Forward** button. When you click one of these buttons, the packets will start moving and you can observe the ping process. You may want to hide certain types of packets in the **Event List Filters** to avoid being confused by other packets in the network that you do not wish to observe.

You can keep track of all of the PDUs you created with the **Add Simple PDU** button in the **User Created Packet Window**.

QoS Stamps

QoS Stamps are visual indicators that the ToS/DiffServ (ToS = Type of Service, DiffServ = Differentiated Services) field has been set in the IP header. Usually this field is 0, but a value other than 0 will cause a color to appear. It does not indicate that it will be processed in any special way or that anything in particular will happen to it. It is just a marker that says "this field is different."

Qos Stamps are useful in that it is one way a QoS algorithm will tag packets as they pass through the interface for processing into queues on the other end. Setting the ToS/DiffServ field on the packet means that the router can check that value later when looking to put packets into certain priority queues. Marking the packets at the edge means that the core routers can treat them however they need to without guessing at the intended priority level.

Simulation Mode: PDU Information

During a simulation, you can click on a packet (on the topology or the corresponding event in the Event List) to bring up its information window and view its details. The details window contains three possible tabs: OSI Model, Inbound PDU Details, and Outbound PDU Details.

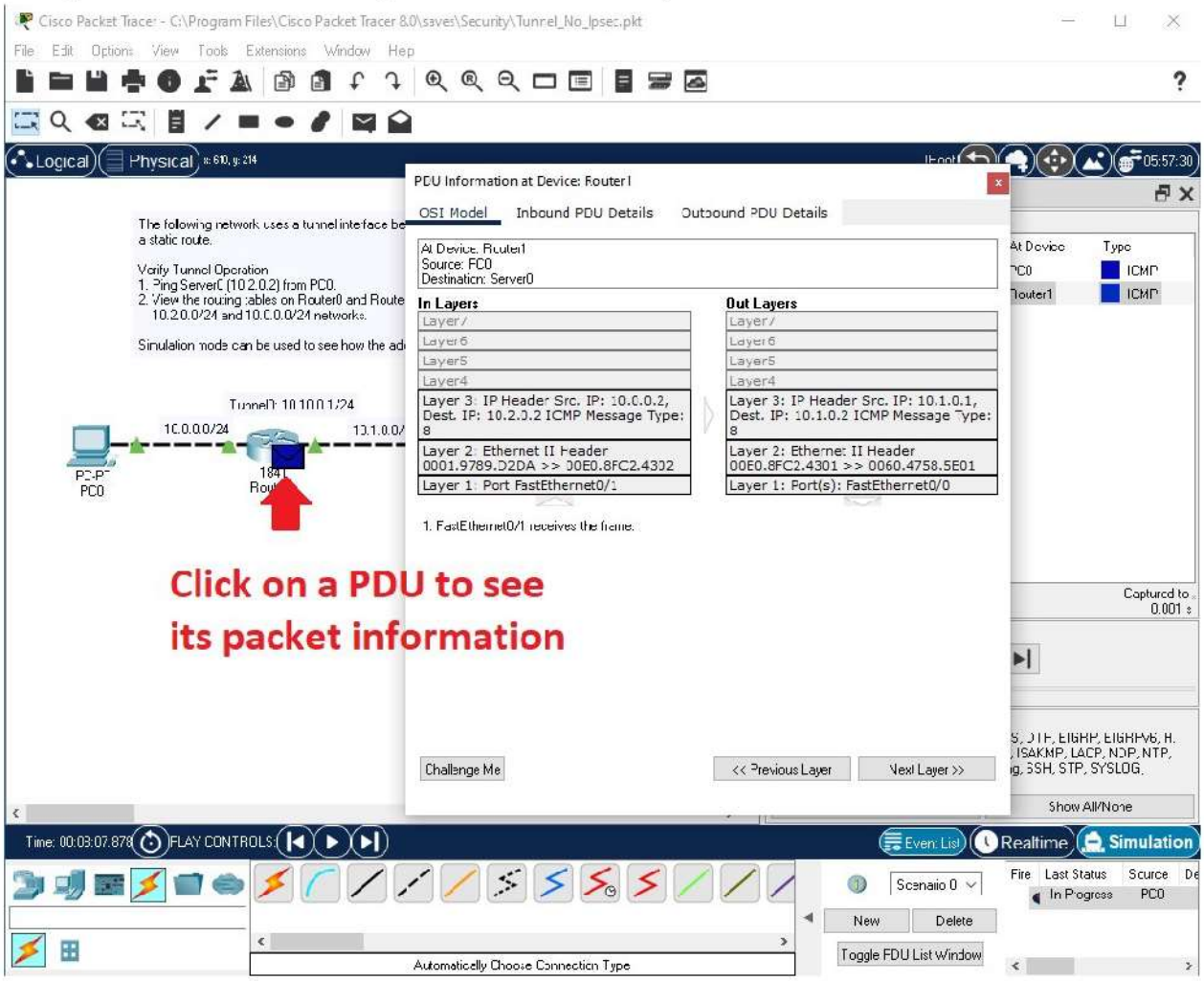


Fig 9. Inspecting PDU

The **OSI Model** tab shows how the packet is processed at each layer of the OSI model by the current device. The process is further separated by the direction in which the packets are traveling, incoming versus outgoing. The incoming layers (**In Layer**) show how the device processes an incoming or a buffered packet, and the outgoing layers (**Out Layer**) show the process a device goes through when it sends a packet to one or multiple ports.

The **In Layer** is meant to be read starting from bottom to top (from Layer 1 to Layer 7), while the **Out Layer** is read from top to bottom (from Layer 7 to Layer 1). This is because the physical layer is the first layer at which incoming PDUs are processed, and it is the last layer at which outgoing PDUs are processed when they exit the device.

The **Inbound PDU Details** tab only applies if the PDU you clicked on is being received on the device; it will not appear if the PDU originated from that device. The tab shows exactly what is in the headers of the PDU, broken up into header type and the individual fields in each header. For example, a PDU may have an Ethernet II and an ARP header, so the tab will show information such as the preamble, FCS, and source and destination addresses.

The **Outbound PDU Details** tab shows similar information for outgoing packets. This tab only applies if the device has a PDU to send.

Most of the time, a device will receive a PDU and then, as a result, send out a PDU. In this case, both the **Inbound PDU Details** and the **Outbound PDU Details** tabs apply.

All PDUs are color coded for easy identification.

Simulation Mode: Managing Simulation Scenarios

In Packet Tracer, you can set up and simulate complex networking situations (scenarios) through the **User Created Packet Window** (UCPW) found on the lower right corner of the application. A scenario is a set of PDUs that you have placed in the network to be sent at specific times. When you first switch to Simulation Mode, the default scenario is "Scenario 0." You can edit the name of the scenario, and you can write a description for the scenario by clicking the Scenario Description icon next to its name. You can create and delete scenarios with the New and Delete buttons, and you can switch between scenarios by choosing from the scenario drop-down menu. Multiple scenarios can be created for one logical topology, corresponding to different test conditions you may want to model. Note the contrast between the UCPW (packets you create) and the event list (all packets occurring anywhere on the network that you chose to display, whether or not they were originated by you or by protocols running on the network devices).

Basic Network Configuration

In this section, we'll explore the fundamental concepts of configuring a network using Cisco Packet Tracer. You'll learn how to create a network topology, add and configure network devices, connect them, and set device properties to create a functioning network environment.

Creating a Network Topology

1. **Launch Packet Tracer**: Start by launching Cisco Packet Tracer on your computer.
2. **Create a New Project**: From the welcome screen, select "File" and choose "New" to create a new project. Give your project a name and save it to your preferred location.
3. **Select a Workspace**: Choose the workspace environment where you'd like to create your network topology. Options include a city, office, home, and custom layouts.
4. **Adding Devices**: In your chosen workspace, you can start adding devices by selecting them from the device palette. Devices can include routers, switches, PCs, servers, and more.

Adding and Configuring Devices

1. **Device Placement**: Drag and drop devices onto the workspace. You can add multiple devices and arrange them as required.
2. **Device Configuration**: Double-click on a device to access its configuration menu. Here, you can set parameters like IP addresses, subnet masks, and other device-specific settings.
3. **Cabling**: To connect devices, select the "Connection" tool and click on one device, then click on another to create a link between them. Configure cable properties such as the cable type (e.g., Ethernet) and bandwidth.

Connecting Devices

1. **Wiring Devices**: To create connections between devices, use the connection tool as mentioned earlier. Ensure you connect the right interfaces and ports, mirroring how they would be connected in a physical network.
2. **Testing Connectivity**: After connecting devices, test the connectivity by attempting to ping or communicate between devices. Troubleshoot and fix any connection issues as necessary.

Configuring Device Properties

1. **Accessing Device Configuration**: To access the configuration of a device, double-click on it. You'll typically have access to the command-line interface (CLI) for configuration.
2. **Configuring IP Addresses**: Configure IP addresses, subnet masks, default gateways, and DNS server settings on relevant devices.

3. **Save Configurations**: Ensure to save configurations after making changes. This is especially important in a simulated environment, as configurations won't persist unless saved.

By following these steps, you'll be able to create a basic network topology, configure devices, and establish connections between them. This lays the foundation for more advanced networking tasks and configurations that we'll explore in subsequent sections of this manual.

In the next section, we'll delve into working with specific types of Cisco devices, such as routers and switches, and configuring them to perform routing, switching, and other network tasks.

This section provides users with a practical guide on how to create a basic network configuration in Cisco Packet Tracer, setting the stage for more advanced network configurations in the following sections.