

Chapter 1: Introduction to Packet Tracer Packet Tracer is an exciting network design, simulation and modelling tool that allows you to develop your skill set in networking, cybersecurity, and the Internet of Things (IoT). To obtain and install your copy of Cisco Packet Tracer follow these simple steps: Log into your Cisco Networking Academy "I'm Learning" page. Select Resources from the menu in the upper right portion of your screen. Select Download Packet Tracer. Select the version of Packet Tracer you require. Save the file to your computer. Launch the Packet Tracer install program. After installation, close and restart your web browser. Launch Cisco Packet Tracer by selecting the appropriate icon. When prompted, use your Netacad login information to authenticate. Packet Tracer will launch and you are ready to explore its features

Chapter 2: The User Interface This chapter introduces the user interface and provides guidance on how to create a simple network using Packet Tracer

Packet Tracer User Interface Packet Tracer is a tool that allows you to simulate real networks. It provides three main menus that allow you to: add devices and connect them via cables or wireless select, delete, inspect, label, and group components within your network manage your network The network management menu allows you to: open an existing/sample network save your current network modify your user profile or your preferences Click Play in the video to learn how to use the menus and how to create your first Packet Tracer network Click here to read a transcript of this video. If you have used any program such as a word processor or spreadsheet, you are already familiar with the File menu commands located in the top menu bar. The Open, Save, Save As, and Exit commands work as they would for any program, but there are two commands that are special to Packet Tracer. The Open Samples command will display a directory of prebuilt examples of features and configurations of various network and Internet of Things devices included within Packet Tracer. The Exit and Logout command will remove the registration information for this copy of Packet Tracer and require the next user of this copy of Packet Tracer to do the login

Packet Tracer – Finding and Deploying Devices Since Packet Tracer simulates networks and network traffic, the physical aspects of these networks also needs to be simulated. This includes actually finding and deploying physical devices, customizing those devices, and cabling those devices. After the physical deployment and cabling is done, then it is time for configuration of the interfaces used to connect the devices. Finding a device to deploy requires looking in the Device–Type Selection Box. The Device–Type Selection Box works on the concept of categories and sub–categories as shown in the figure. The top row of icons represents the category list consisting of: [Networking Devices], [End Devices], [Components], [Connections], [Miscellaneous], and [Multiuser]. Each category contains at least one sub–category group.

Packet Tracer – Deploying Devices Instructions Packet Tracer – Deploying Devices Packet Tracer File Packet Tracer – Deploying and Cabling Devices Instructions Packet Tracer – Deploying and Cabling Devices Packet Tracer File Device Configuration Once your network has been created, it is time to configure the devices and components. Packet Tracer has the capability to configure the different intermediate and end devices that make up your network. To access the configuration interface of any devices first click on the device that you wish to configure. A popup window will appear displaying a series of tabs. Different types of devices have different interfaces. Click Play in the video to learn how to configure devices and components in your simulated network

Packet Tracer – GUI and CLI Configuration For intermediate devices such as routers and switches, there are

two methods of configuration available. Devices can be configured or investigated via a Config tab (a GUI interface) or a command line interface (CLI) (Figure 1). The Config tab does not exist in most physical equipment. This tab is a learning tab in Packet Tracer. If you don't know how to use the command line interface, this tab provides a way to "fill in the blank" to do basic configurations.

Packet Tracer Assessment Types Packet Tracer is used in the Networking Academy to assist in the design, creation and testing of networks and network applications. This mode allows you to verify device connectivity and to study how the various types of data traverse your network.

Creating PDUs in Simulation Mode Packet Tracer provides a Simulation mode that allows you to create and capture PDUs to check several functions within your network, such as:

- Basic Connectivity – Can all devices communicate with each other?

For some of the end devices, such as PCs and laptops, Packet Tracer provides a desktop interface that gives you access to IP configuration, wireless configuration, a command prompt, a Web browser, and much more (Figure 2). Click Play in the video to see how to use Simulation mode to create simple PDUs to replicate ICMP and ARP functionality and how to create more complex PDUs from a list of protocols such as DNS, HTTP, Telnet, SSH, FTP, and many more. In this chapter, Packet Tracer is introduced and instructions are provided to allow you to download and install it.

Overview of Packet Tracer Cisco Packet Tracer is an innovative network simulation and visualization tool. This tab allows a server to be configured as a web server, a DHCP server, a DNS server, or various other servers visible in the graphic. Packet Tracer has the physical workspace that allows you to make your network more realistic by adding backgrounds, buildings, and wiring closets. While this software is not a replacement for practicing on physical routers, switches, firewalls, and servers, it provides too many benefits to ignore!

Packet Tracer – Explore Network Functionality Using PDUs Instructions Chapter 3: Simulation Mode At the completion of this chapter, you should be able to:

- Investigate network functionality using Packet Tracer Simulation mode. It is used across numerous Cisco Academy courses to help develop and assess the skill set necessary for successful completion of the course. This free software helps you to practice your network configuration and troubleshooting skills via your desktop computer or an Android or iOS based mobile device. If viewed in OSI Model mode, you see a summary of the addresses and contents of the headers at each layer. Packet Tracer is an essential learning tool used in many Cisco Networking Academy courses. Viewing the contents of the PDUs can be used to verify connectivity, verify functionality, and troubleshoot issues. If you select Inbound or Outbound PDU Details, the exact format of the appropriate headers is displayed.

Packet Tracer – Explore Network Functionality Using PDUs In this lab, you will use the Packet Tracer Simulation mode, to explore network functionality. When the Physical view is shown, the basic organizational scheme is the following:

- a. intercity
- b. city
- c. building
- d. wiring closet

A user is able to add as many cities, buildings, and wiring closets as they need; however, there can only be one intercity. Packet Tracer provides an easy way to design and build networks of varying sizes without expensive lab equipment.

Download and Install Packet Tracer Students commonly use Packet Tracer to:

- Prepare for a certification exam.

Chapter 1: Introduction to Packet Tracer At the completion of this chapter, you should be able to:

- Explain the function and installation of Cisco Packet Tracer.

Packet Tracer – Create a Simple Network Using Packet Tracer Instructions Chapter 2: The User Interface At the completion of this chapter, you should be able

to: Investigate the Packet Tracer User Interface. It is also a great tool for studying or reviewing the contents of the OSI model layers and the mechanisms of communication. The default view for Packet Tracer is Logical, which is equivalent to creating a logical diagram for the network. The Physical view also has a great feature that shows the wireless coverage areas based on your equipment placement within buildings. For example, a building can be added to the intercity, but a city cannot be added to a building, and a building cannot be added to a wPacket Tracer – Packet Tracer Physical View In this lab, you will explore the capabilities of Packet Tracer Physical view. It is a compressed file that allows the inclusion of other files, such as .pdf files, along with the Packet Tracer files. The instruction window also contains a completion percentage to track how much of the activity has been successfully completed. Packet Tracer is available for both the Linux and Windows desktop environments. Packet Tracer allows you to easily explore how data traverses your network. Compete in Global Design Challenges (take a look at the 2017 PT 7 Design Challenge on Facebook). Click Play in the video for a detailed walk-through of the Packet Tracer download and installation process. For additional help and practice using Packet Tracer, please visit the Tutorials located under Help in the Packet Tracer program. Packet Tracer – Configure End devices Instructions Packet Tracer – Creating a Simple Network Using Packet Tracer In this lab, you will use Packet Tracer to create a simple network. For additional help and practice using Packet Tracer, please visit the Tutorials located under Help in the Packet Tracer program. Applications and Services – Are applications and services such as DNS, HTTP, and FTP functioning as designed? The default mode for Packet Tracer is Realtime mode. In Realtime mode the time is continuously running as indicated by the clock in the lower right hand corner of the worksheet. In Simulation mode, time can be stopped or slowed to allow users to view data traffic one packet at a time. Simulation mode is used to observe network traffic in detail with time controlled directly by the user. For additional help and practice using Packet Tracer, please visit the Tutorials located under Help in the Packet Tracer program. The other type of diagram used in networking is the physical diagram which not only shows the relationships of the network devices but also applies building and distance factors in making the design. Packet Tracer is also used for purposes of self-evaluation, practice, and formal assessment. A PTSA (Packet Tracer Skills Assessment) is used as a standalone skills-based assessment complete with a full set of instructions. Chapter 4: Packet Tracer Usage At the completion of this chapter, you should be able to: Investigate the Packet Tracer Physical view. For additional help and practice using Packet Tracer, please visit the Tutorials located under Help in the Packet Tracer program. With Packet Tracer you can choose to build a network from scratch, use a pre-built sample network, or complete classroom lab assignments. Examine the impact of adding new technologies into existing network designs. To view some examples of how Packet Tracer can be used, select File, then Open Samples from the main menu. It will show the equivalent CLI commands that would do the same thing if using the Command Line Interface. The CLI interface requires knowledge of device configuration. If you are configuring a server, the server has all of the functions of the Host with the addition of one more tab, the services tab (Figure 3). To view some examples of how Packet Tracer can be used, select File, then Open Samples from the main menu. Chapter 3: Simulation Mode In this chapter, you learn how to use Packet Tracer's powerful simulation mode. Viewing the Contents of PDUs

Once the PDUs have been captured, you have several ways to view their contents. To view some examples of how Packet Tracer can be used, select File, then Open Samples from the main menu. This mode allows you to place a logical network topology into a physical context. Packet Tracer creates various file types. The Packet Tracer Physical View Now that you know the purpose and the use of the menus in the logical workspace, we will move on to learn about the physical workspace in Packet Tracer. Place networking devices into racks within the closets. Packet Tracer – Packet Tracer Physical View In this lab, you will explore the capabilities of Packet Tracer Physical view. These file types are used for different purposes and include: .pkt, .pkz, and .pka. The .pkt file type is used when a simulated network is built in Packet Tracer and saved. The .pkt file can also have backgrounds embedded within it. The .pkz file type is not used very often. This file type contains a Packet Tracer activity plus an instruction window. A PTMO (Packet Tracer as a Media Object) is an assessment item where a Packet Tracer Activity is part of the assessment item. To view some examples of how Packet Tracer can be used, select File, then Open Samples from the main menu Chapter 4: Packet Tracer Usage In this chapter, you are introduced to the Physical view. The file types are introduced in this chapter and we also discuss how Packet Tracer is used as an assessment tool. These features are important for documentation, design, and visualization. This provides valuable information into the flow of traffic and the suitability and placement of equipment. Add backgrounds into the cities and offices. Add wiring closets to the offices. Containers of smaller sizes can be added at any level but larger containers cannot be added into smaller containers. Packet Tracer – Packet Tracer Physical View Instructions wiring closet. The .pka file type is a Packet Tracer Activity file. The instructions provide a walkthrough of the necessary processes required to complete the activity, assignment, or assessment. There is also a Check Results feature that can be configured to provide feedback. This section will display and discuss PTSAs and PTMOs. Once the .pka is loaded, the student is provided with a small set of instructions to be completed. Once the student has completed the activity, they submit their work to netacad.com. Once a PTSA has been completed, the student will receive their score plus item level feedback. All forms of feedback are intended to assist the student to improve their skills. Explain Packet Tracer File and Assessment types. It allows you to model complex systems without the need for dedicated equipment. Practice what they learn in networking courses. Security – Are access lists functioning as designed? In this section, you will learn to: Navigate the physical workspace. Add cities, corporate offices, and branch offices. Packet Tracer – Packet Tracer Physical View Instructions Packet Tracer File Types Packet Tracer has the ability to create three different types of files. PTMOs can be used by themselves or as an item on a quiz or final exam. Students are required to build, modify, and/or troubleshoot a network. PTSAs are often done in a timed environment. Some PTSAs are configured to allow students to save their work and continue at a later time. They also see a list of objectives of the PTSA along with information about what they did right and what they did wrong. Sharpen their skills for a job interview. Click here to read a transcript of this video. You can see the actual layout of the network within a room or a building. Once completed, they are able to return to the item to answer the question based on their work.