FTP Server and Troubleshooting

COMPUTER NETWORKING

Time: 60 mins

Introduction

In this class, the student/s will learn how to transfer files from one system to another over a computer network.

New Commands Introduced

- ?   Accesses the Help screen.
- cd <folder name>   Changes directory.
- delete <file name>   Deletes a file.
- dir   Lists files, if connected.
- get <file name>   Get files from the remote computer.
- help   Accesses the Help screen and displays information about the command if the command is typed after help.

- passive   Toggle between active and passive mode
- put <file name>   Send a file to the remote FTP server.
- pwd   Print working directory.
- quit   Exits from FTP.
- rename <file name>   Renames a file.
- ftp <ipaddress>   Connects to the FTP server at the given ip address.

Vocabulary

- **Protocol** is a set of rules defining how connected devices communicate across a network to exchange information easily and safely.
- **Data/ Network Traffic** is the amount of data moving across a computer network at any given time.
- **FTP** is the protocol used for transferring files between computing devices.
- **FTP** is one of the many services provided by a server.
- **Default Gateway** is the path used to pass information when the device doesn't know where the destination is.
- **Troubleshooting** is the process that the network engineers follow to improve the overall network operations.

Learning Objectives

Student/s should be able to:
- ***Recall*** how switches and routers help connect devices across LANs.
- ***Explain*** the protocol used to transfer files between the server and client.

● **Demonstrate** how a server is deployed and FTP services are enabled.

Activities

1. **Class Narrative:** *(3 mins)*

   ● Introduce the hook where the gamers are unable to download the new game character files. Sarah and friends decide to solve this by creating a FTP (File Transfer Protocol) server.

   ● Brief the student/s about how files are downloaded over the internet from a shared drive or servers.

2. **Concept Introduction Activity:** *(4 mins)*

   ● Let the student/s undertake the explore-activity to observe that one needs to be an authorized person to connect to the drive and download files.

   ● Using the slides, explain that the student/s will learn:

       ○ to add a server

       ○ to activate the FTP services

       ○ to troubleshoot the network

3. **Activity 1: Add a Server** *(12 mins)*

   Teacher Activity: *(6 mins)*

   ● Introduce the student/s to servers and their use.

   ● Introduce FTP as the protocol used to transfer files between devices on a network.

   ● Demonstrate how to deploy a server and configure the default gateway.

   Student Activity: *(6 mins)*

   ● Guide the student/s to add a server in the network and assign the default gateway to it.

4. **Activity 2: Activate the FTP Services** *(12 mins)*

   Teacher Activity: *(6 mins)*

   ● Introduce the student/s to the permissions they can set for a new user.

   ● Introduce the student/s to the commands they can use on the FTP server.

   ● Inform the student/s that commands don't have to be remembered and they can be checked using the help command.

- Demonstrate how to enable the FTP services, add a user on the server and download a file from the server on the client.

  Student Activity: *(6 mins)*

- Guide the student/s to enable the FTP services and download a file from the server.

5. **Activity 3: Troubleshoot the Network** *(12 mins)*

   Student Activity: *(12 mins)*

- Recall the computer networking concepts learnt till now.

- Guide the student/s to use the concepts learned to troubleshoot two networks.

6. **Introduce the Post class project:** *(2 mins)*

- Help the new recruit, John in the office to troubleshoot the issue in the network.

7. **Test and Summarize the class learnings:** *(5 mins)*

- Check for understanding through quizzes and summarize learning after respective missions.

- Summarize the overall class learning towards the end of the class.

8. **Additional activities:**

- Encourage the student/s to identify why a PC is not able to connect to the FTP client.

- Encourage the student/s to download a new file from the FTP server.

9. **State the Next Class Objective:** *(1 min)*

- In the next class, student/s will learn about Socket programming to add chat communication in the game.

U.S. Standards:

CSTA: 2-CS-02, 2CS-03, 2-NI-04, 2-AP-19

Links Table		
Activity	**Activity Name**	**Link**
Class Presentation	FTP Server and Troubleshooting	https://s3-whjr-curriculum-uploads.whjr.online/15405ef3-f4d6-406d-81c0-3f2bc8955a01.html
Explore Activity	FTP Server and Troubleshooting	https://s3-whjr-curriculum-uploads.whj

		r.online/634589f4-63f3-4814-ab2a-95 16b036541e.gif
Teacher Activity 1	Add a Server	https://github.com/Tynker-Computer-Networks/TNK-M14-C108-TAS-BP
Teacher Reference: Teacher Activity 1 Solution	Add a Server	https://github.com/Tynker-Computer-Networks/TNK-M14-C108-TAS
Student Activity 1	Add a Server	https://github.com/Tynker-Computer-Networks/TNK-M14-C108-SAS-BP
Teacher Reference: Student Activity 1 Solution	Add a Server	https://github.com/Tynker-Computer-Networks/TNK-M14-C108-SAS
Teacher Activity 2	Activate the FTP Services	https://github.com/Tynker-Computer-Networks/TNK-M14-C108-TAS-BP
Teacher Reference: Teacher Activity 2 Solution	Activate the FTP Services	https://github.com/Tynker-Computer-Networks/TNK-M14-C108-TAS
Student Activity 2	Activate the FTP Services	https://github.com/Tynker-Computer-Networks/TNK-M14-C108-SAS-BP
Teacher Reference: Student Activity 2 Solution	Activate the FTP Services	https://github.com/Tynker-Computer-Networks/TNK-M14-C108-SAS
Student Activity 3.1	Troubleshoot the Network	https://github.com/Tynker-Computer-Networks/TNK-M14-C108-SAS-BP
Teacher Reference: Activity 3.1 Solution	Troubleshoot the Network	https://github.com/Tynker-Computer-Networks/TNK-M14-C108-SAS
Student Activity 3.2	Troubleshoot the Network	https://github.com/Tynker-Computer-Networks/TNK-M14-C108-SAS-BP
Teacher Reference: Student Activity 3.2 Solution	Troubleshoot the Network	https://github.com/Tynker-Computer-Networks/TNK-M14-C108-SAS
Student's Additional Activity 1	Connect to FTP Client	https://github.com/Tynker-Computer-Networks/TNK-M14-C108-SAS-BP
Teacher Reference: Student's Additional Activity 1 Solution	Connect to FTP Client	https://github.com/Tynker-Computer-Networks/TNK-M14-C108-SAS
Student's Additional Activity 2	Download Another File	https://github.com/Tynker-Computer-Networks/TNK-M14-C108-SAS-BP
Teacher Reference: Student's Additional Activity 2 Solution	Download Another File	https://github.com/Tynker-Computer-Networks/TNK-M14-C108-SAS
Post Class Project	Troubleshoot Office Network	https://github.com/Tynker-Computer-Networks/TNK-M14-C108-PCP-BP
Teacher Reference: Post Class Project Solution	Troubleshoot Office Network	https://github.com/Tynker-Computer-Networks/TNK-M14-C108-PCP