4.4.1 FTP Intro and Microsoft FTP

SMB but across different networks and OS

What is FTP?

- File Transfer Protocol → client service protocol to transfer files between computers on the internet
- Relies on communication channels between client and server
  - Command channel for controlling conversation
  - Data channel for transmitting file content
- Security weaknesses: brute force attacks, FTP bounce, packet capture, port stealing, spoofing and username enumeration
- With FTP, users can establish port connections with remote machine and perform any necessary data transfers
- Executing an FTP port connection = two stage process
 - Authorization of FTP client and connection to server made by client

More On FTP

- Network functionality that allows users to upload files from personal computers to server where websites are located (also vice versa)
- Is provided through a TCP network protocol
- Default command port for FTP connections = port 21

Active v Passive FTP

- Active Mode
  - Connects from unprivileged port (N>1023) to FTP server's port (21)
  - Client listens to port N+1, sends to server, server connects to that specified port (from 20)
  - Incoming connections on port N+1 needs to be opened on the client!!
- Active FTP:
  - command: client (>1023) -> server (21)
  - data: (client >1023) <- server (20)
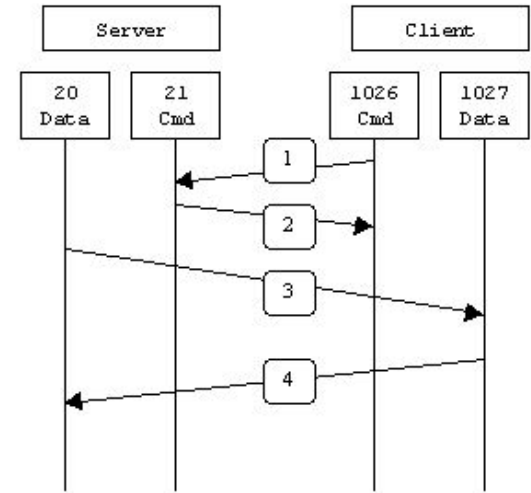
Active v Passive FTP

- Passive FTP (PASV)
    - Designed to resolve problems with firewalls and routers (that didn't allow active connection)
    - When opening FTP connection, client opens two random unprivileged ports (N>1023 and N+1)
        - Server opens its customized unprivileged port (P>1023) and sends to client in response to PASV command
    - Incoming customized port needs to be opened on server!!
- Passive FTP:
    - command: client (>1023) -> server (21)
    - data: client (>1024) -> server (>1023)

FTP Commands

- Some Notable Commands (caps don't matter)
  - *Cd* → changes directory
  - *Bye* or *Disconnect* → exits from FTP
  - *Delete* → deletes a file
  - *Dir* OR Ls → lists files of the remotely connected computer
  - *Get* → *get a file*
  - *Put* → *send a file*
  - *Pwd* → prints working directory
  - *Remotehelp* → get help from remote server
  - *Type* → sets file transfer type

FTP Command-Line Options for Win

ftp [parameters]

- -v   suppresses verbose display of remote server responses
- -n   suppresses auto-login upon initial connection
- -i   turns off interactive prompting during multiple file transfers
- -d   enables debugging
- -g   disables filename globbing
- -s:filename   specifies text file w ftp commands that automatically run
- -a   use any local interface when binding data connection
- -w:windowsize   overrides default transfer buffer
- Computer   specifies computer name or IP address of remote computer to connect to
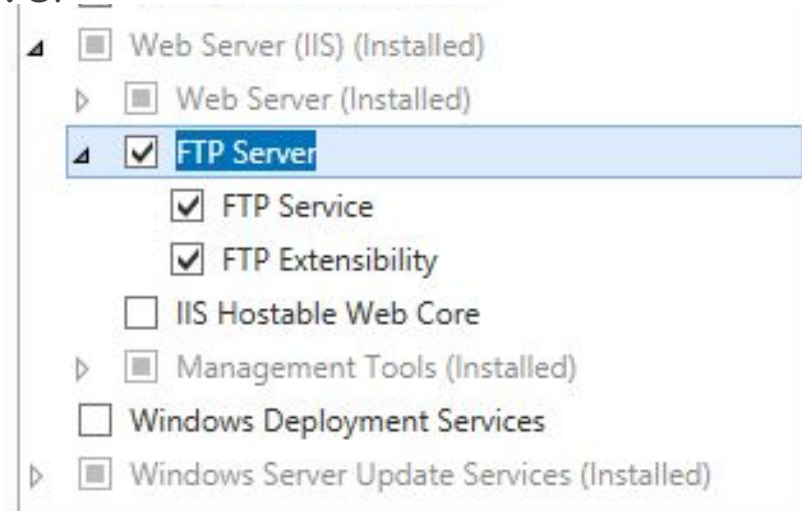
Try the command-line out!

Open cmd

- type in "ftp speedtest.tele2.net"
- specify "anonymous" for user and put anything you want for the password
- once login is successful, run "dir" or "ls" to list the FTP directory
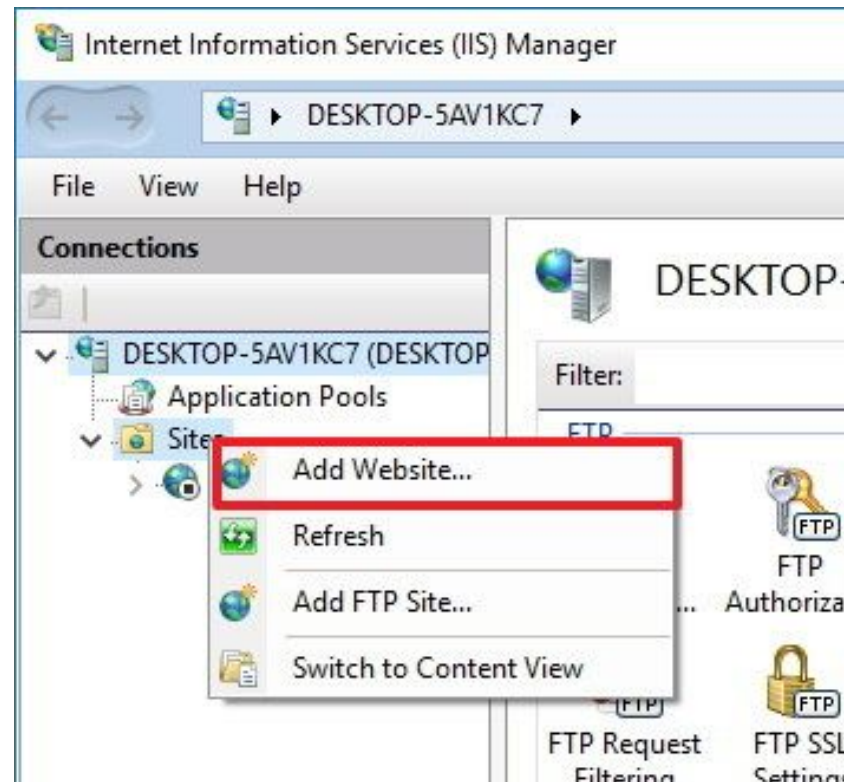- exit ftp

How To Set Up FTP Role

Server Manager > Add roles and features > Expand Web
Server (IIS) role > Check FTP Server _

How To Create FTP Site?

Right click on Sites and Select Add FTP Site...

Specify the site name and physical path of the share, then select the IP address and type port you want it to run under

Manage settings here. You have authentication, directory browsing, logging, messages (like Message of the Day banners), SSL settings, and more