

DRONACHARYA
College of Engineering

Computer Science & Engineering

Data Communication and Computer
Networks

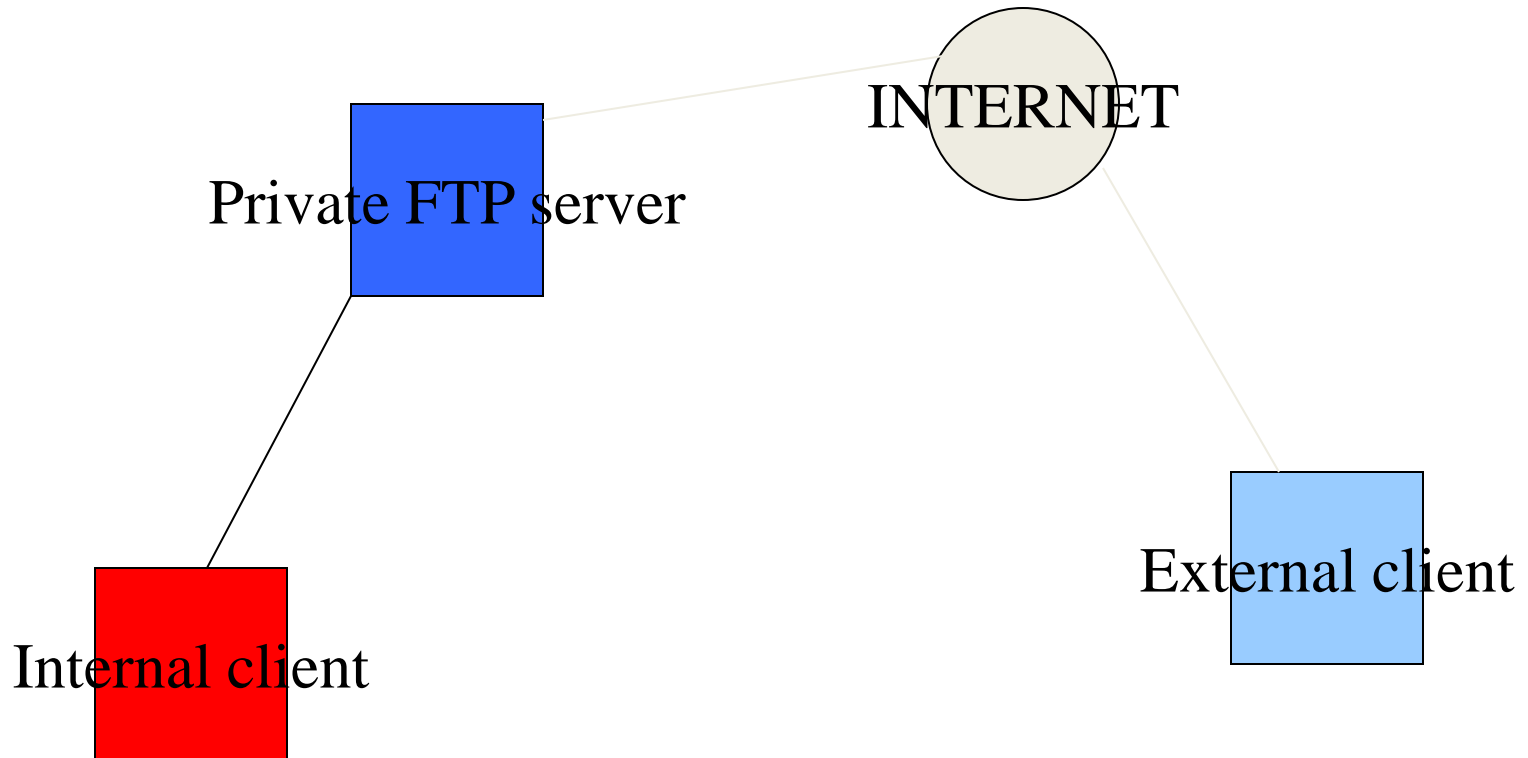
(MTCSE-101-A)

General Overview(FTP)

FTP

This stands for *File Transfer Protocol*. This is a popular way to transfer files from machine to machine across a network.

Ways to connect to an FTP server



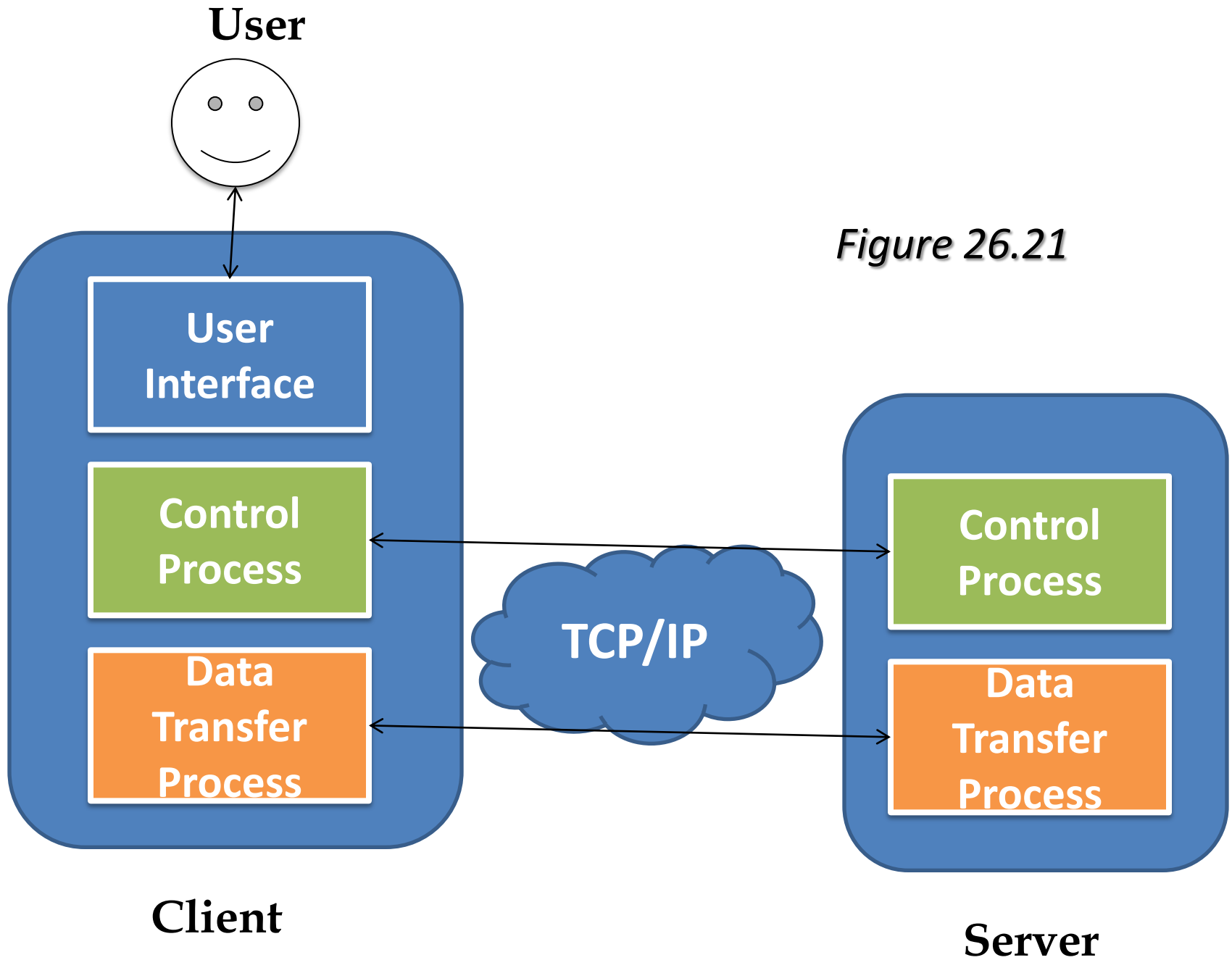
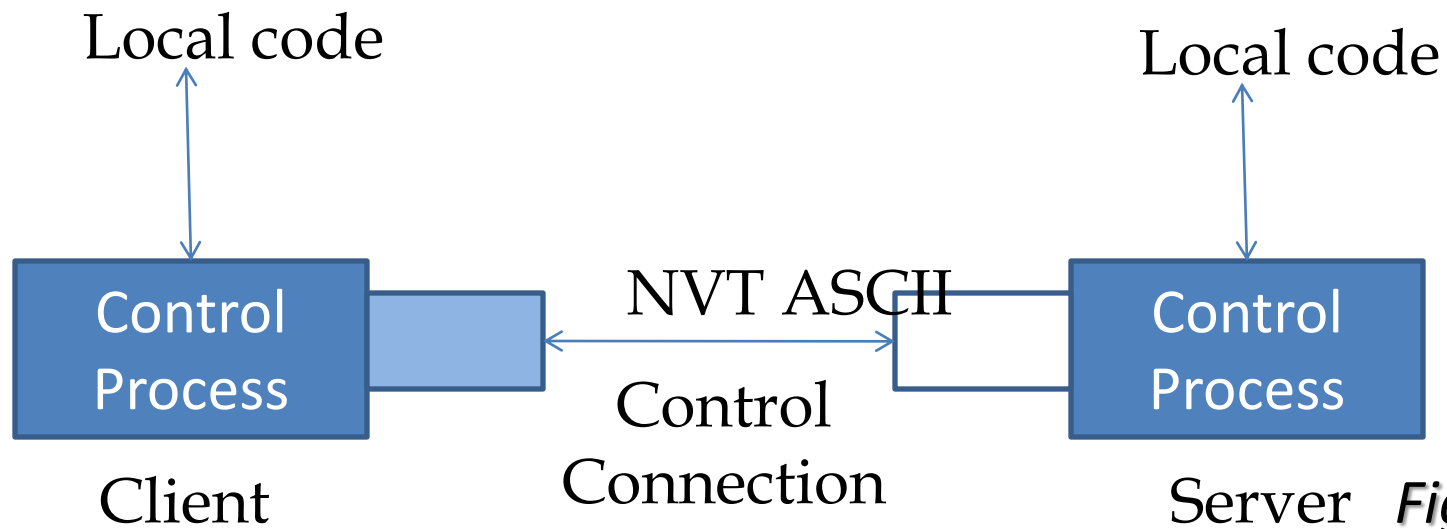


Figure 26.21

Communication over Control Connection

- FTP uses the same approach as SMTP to communicate across the control connection.
- 7-bit ASCII character set
- Commands and Responses



Communications over Data Connections

- Data files are sent through the Data Connection.
- FTP can mean one of three things:
 - A file is to be copied from the server to the client.
(*Retrieving a file*, RETR command)
 - A file is to be copied from the server to the client.
(*Storing a file*, STOR command)
 - A list of directory or file names is to be sent from the server to the client.
(LIST command)

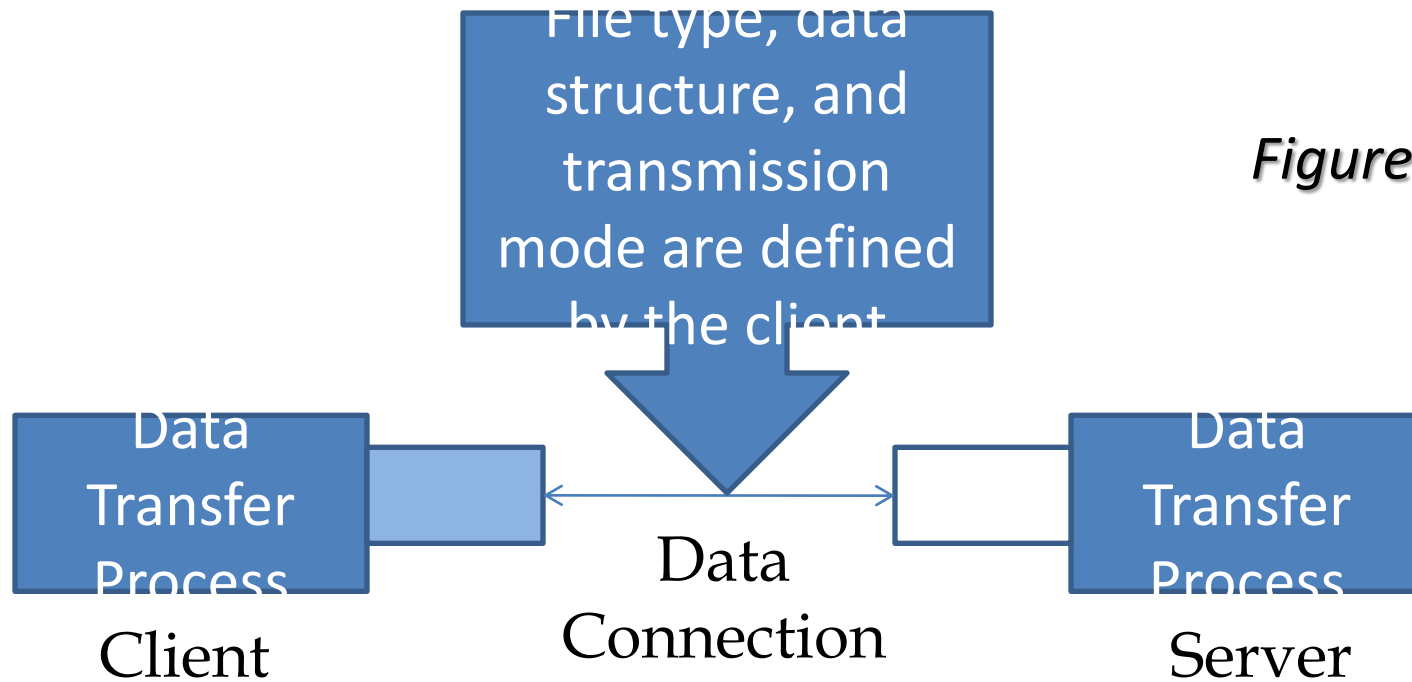


Figure 26.23

File Types

- ASCII file- Default for sending text
- Image file- Default for sending binary files (such as compiled programs)

Data Structure

FTP can transfer a file across the data connection by using one of the following interpretations about the data structure of the data:

- File Structure: Continuous Stream of bytes
- Record Structure: Divided into records (Text only)
- Page Structure: Divided into pages

Connection Mode

▣ Active Mode

- The Client dynamically picks a port and sends the port and IP to the Server. The Server then binds the connection to port 20.

▣ Passive Mode

- The Server dynamically picks a port and sends the port and the IP to the Client. The Client then binds the connection to the port.

▣ Extended Passive Mode

- The Server dynamically picks a port and sends only the port to the Client. The Client binds the

Transmission Mode

- Stream Mode (Default)
 - The data is sent from the FTP to the TCP as a continuous stream of bytes. TCP is responsible for breaking down the data to be transmitted.
- Block Mode
 - FTP sends data to the TCP in blocks, using a 3-byte header. 1st byte is the Block descriptor, while the next 2 define the size of the block.
- Compressed Mode
 - FTP sends the data to the TCP compressed using what is called run-length encoding

More about the Transmission

- Data Transmission can be interrupted and resumed with the REST command.
 - Client will send this command to the server, and tell it how many bytes it has received and the server will then resume sending data from that point.
- Data Transmission can also be resumed on uploads using the APPE command. (Append)
 - The client first has to use the SIZE command on the directory to find out the file size before it can resume sending data to the server. The server

We can configure FTP servers one of two ways.

- Private user-only site. Allows only system users to connect via FTP and access their files.
- Anonymous. Allows anyone on the network to connect to it and transfer files without having an account.

FTP commands

- [ftp \[sitename\]](#)

ftp starts the program and connects to the specified site

- [cd \[directory\]](#)

cd stands for change directory. This command will change to the specified directory

- [pwd](#)

Print working directory (tells the user which directory he/she is in)

- [dir \[filespec\]](#)

List details about the file specification

More ftp commands

- [prompt](#) Turns off confirming uploads/downloads
- [bin](#) Change the transfer of files to binary mode
- [hash](#) Turn on hash indicators for download/upload
- [get \[filename\]](#) Allows to download the specified filename
- [mget \[filespec\]](#) Allows multiple download of specified files
- [put \[filename\]](#) Allows for upload of specified filename

Example...

Assume you are required to download the file

lan.txt

from

papa.cdrom.com/pub/games/

STEPS TO FOLLOW

1. At the command prompt type :

ftp papa.cdrom.com (this will start the ftp and connection to the site)

The system will respond with the message

>connected to sunsite.cnlab-switch.ch.

>220 warchive.cdrom.com.FTP server
(Version wu-2.4.2(18)

>Thu nov 26 09:30:12 MET 2001) ready.

>Name (carchive.cdrom.com:usr):

2. Type *ftp*

The system will respond with something similar to.

```
>331 Guest login ok, send your complete  
    e-mail address as password  
    >Password: (type your email)
```

3. After the welcome message that may look something like this.

230 guest login ok, access restrictions apply.

Remote system type is UNIX.

We must now change to the directory
“/pub/games”

Type in

cd pub (this will change to the directory
pub), in this directory we will find
downloadable material.

Lets type *dir* to see the list of files in there we should see the directory games in the list.

```
drwxr-xr-x 6 731 730 512 Nov 4 05:11 games
```

The *d* in front of the listing tells me it is a directory.

If *dir* does not work we can use the command: *ls-al*

4. Use 'cd' to change into the remaining directories:

Type:

cd games

5. Use 'dir' to find the file:

Type:

```
dir l*
```

to get a listing of all files which start with 'l'. You should see:

```
-rw-rw-r-- 1 2066 ftp-game 134868 Jun 30 2001 lan.txt
```

- Because there is no 'd' at the far left, you know that it is a file, not a directory.
- The 134868 is the file size, it is 134,868 bytes (approx. 134 Kb). It was last modified on the 30th of June 2001.

6. To download, type:

bin

- This will make your download in ‘binary’ form
- This mode will always work for all files, whereas the default mode ‘*ascii*’ will only work for text files.
- Therefore always make sure you type ‘*bin*’ before you download or you may get garbage!

Type:

get lan.txt

And type 'y' when asked to confirm.

- '*lan*' will now download, and will soon be on the computer you ran '*ftp*' from.
- Alternately, if you want to download multiple files, you could type: '*mget **', this would download *all* files in the directory; '*mget l**' would download all files beginning with '*l*'.
- If you do not wish to confirm each download one by one, type '*prompt*' to turn that off. If you wish to have a download indicator, type '*hash*'.

6b. To upload:

- To upload a file you must be in a directory you are allowed to upload into.
- You would type '*put lan.txt*' if you wished to upload '*lan.txt*' or '*mput l**' to upload all files beginning with '*l*' for example.
- Make sure that you type '*bin*' again before you upload anything.

7. Logging off.

Type:

bye

to close the connection and quit FTP.

- If you have any questions type either '*man ftp*'

Installing FTP server in windows 2K

We Must make sure that IIS (Internet Information Service) is installed. To install IIS and the FTP service, follow this steps

1. Click Start, point to Settings, and click Control Panel
2. In control panel, double-click Add/Remove programs
3. Select Add/Remove windows components
4. In the windows components wizard, select IIS, then click Detail
5. Select Common files, Documentation, File Transfer Protocol (FTP)

. Click next

7. If you are prompted to configure terminal service, click next

8. If you are prompted for a path for a FTP root folder, type a suitable folder path. The default is C:\Inetpub\Ftproot.

9. When you are prompted, Insert the Windows 2000 CD , then click ok

10. Click finish

IIS and FTP service are now installed, but we must configure the FTP service before we can use it.

To begin configuration the FTP server:

1. Choose Start, Administrative Tools, Internet Service Manager. Right click the FTP server, then select properties. On the default FTP site Properties dialog box as shown in fig 1. Click the FTP site tab. To select the number of users.
2. To add login for the User name(cs-username) and host (cs-host), click Properties on the FTP site tab, then click the extended properties tab, shown in fig 2. These options are available only when we use W3C Extended logging, which is the default for IIS.
3. On the default FTP site Properties dialog box, shown in figure 3. Click the security account tab. Clear the allow anonymous connections check box.
4. The message tab has three simple input boxes-a welcome message, an exit message, and the error message user receives if the server has exceeded its maximum number of users.

4. On the home directory tab, we set our home directory, which is the location from which users can access their folders. The directory listing Style on this tab defines file-date format. The default is DOS format 2 digit year. The UNIX style is a four digit year style.

5. The directory security tab lets you allow connections to the server only from certain computers. We can use this settings to provide IP addresses for computers in a separate location.

6. The next task is to set your NTFS permissions so that users will be able to access only their data.

- Set the local System account and the domain and local administrator accounts to full control permission
- Set the users group to read & execute permissions

7. To set the users permissions, click advanced on the security tab of the folder's properties dialog box. On the access Control Settings for folder dialog box, select the users group, and click view edit, as shown in figure 4.

8. On the permissions Entry folder dialog box, shown in fig 5, select this folder only from the apply onto drop-down list, then clear all check boxes except those allowing the following permission.

- List folder/Read Data
- Read Attributes
- Read Extended Attributes
- Read Permissions

Figure 1

Default FTP Site (Stopped) Properties [?] [X]

FTP Site | Security Accounts | Messages | Home Directory | Directory Security

Identification

Description:

IP Address: ▼

ICP Port:

Connection

Unlimited

Limited To: connections

Connection Timeout: seconds

Enable Logging

Active log format:

▼

Figure 2

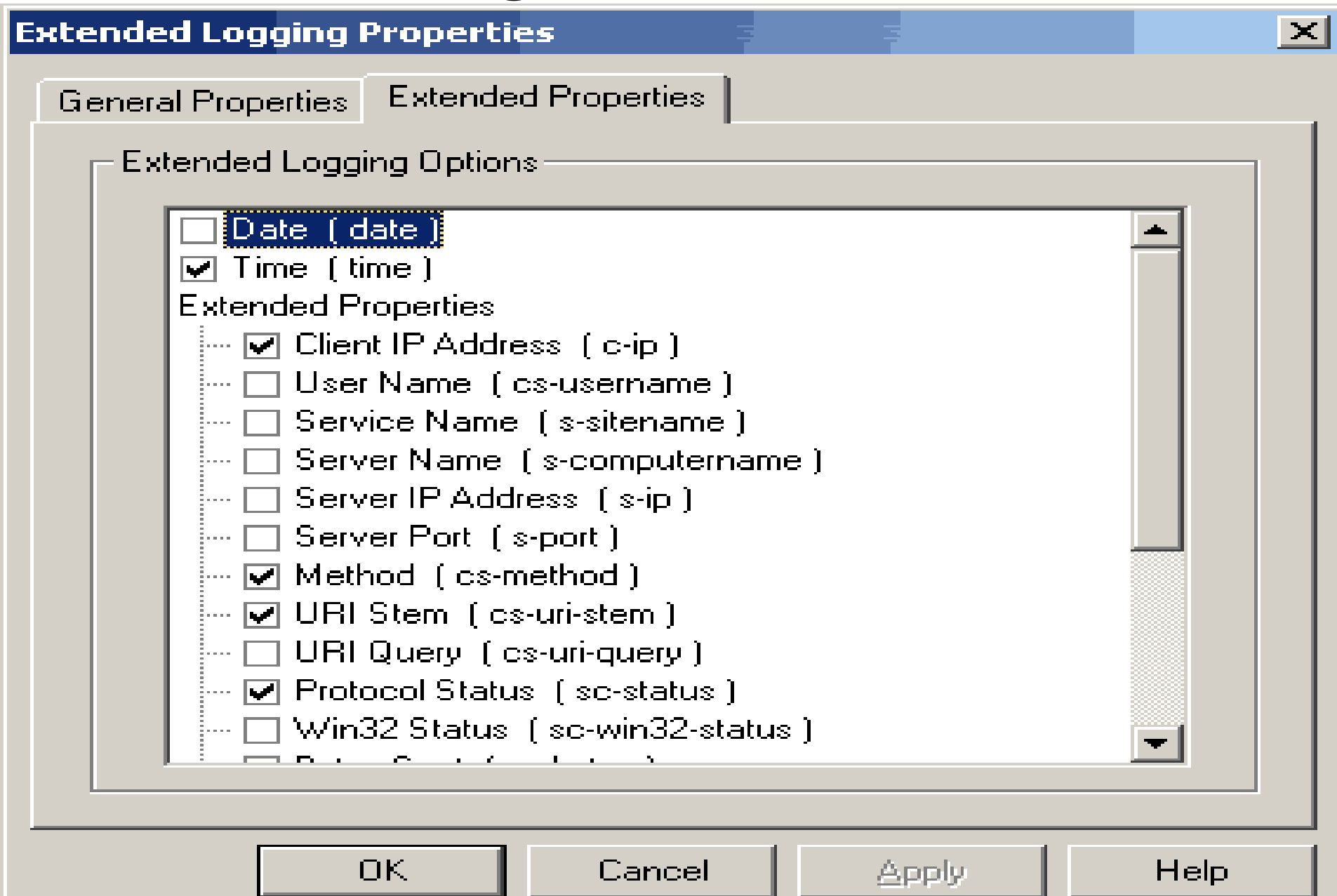


Figure 3

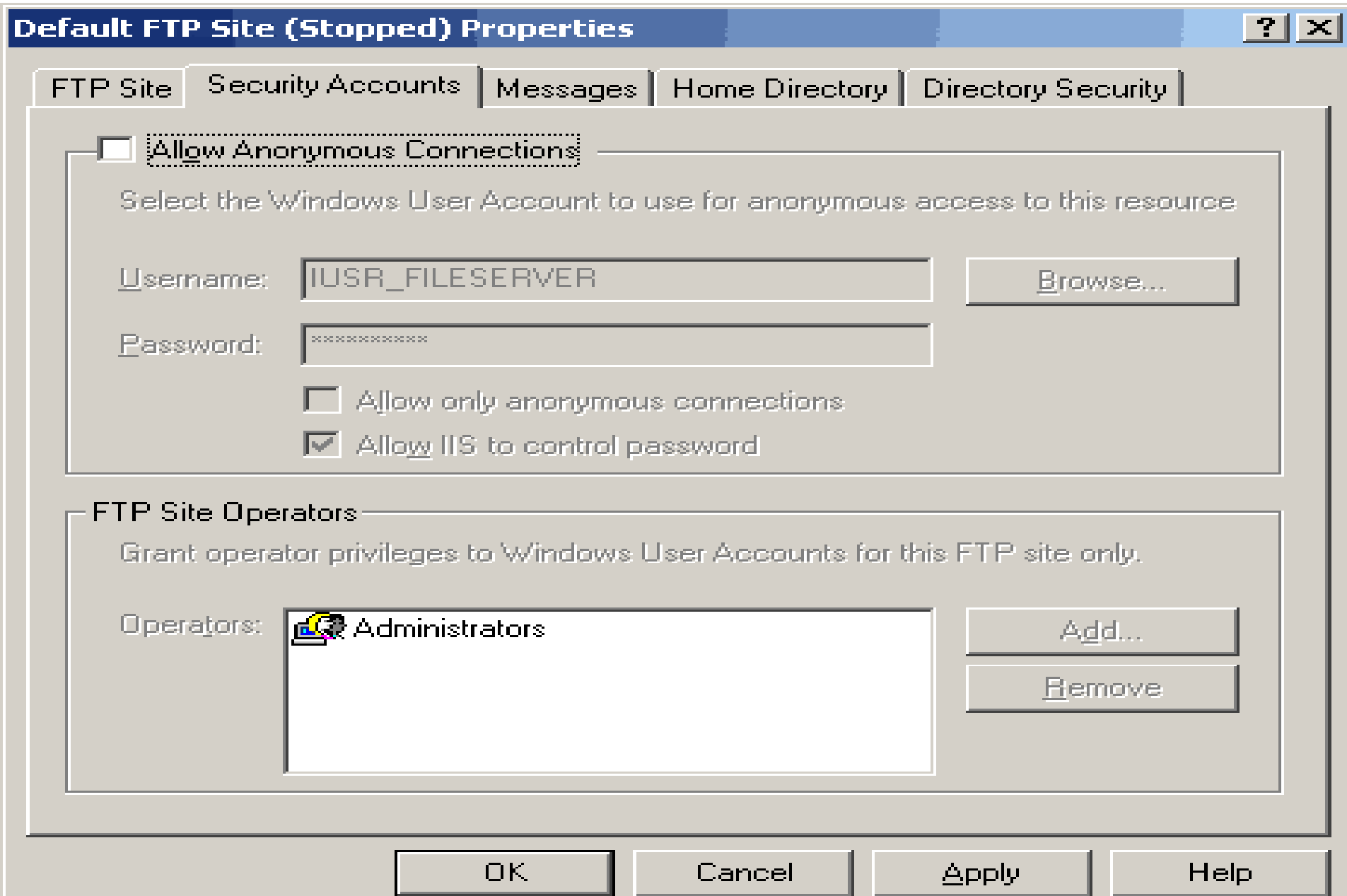


Figure 4

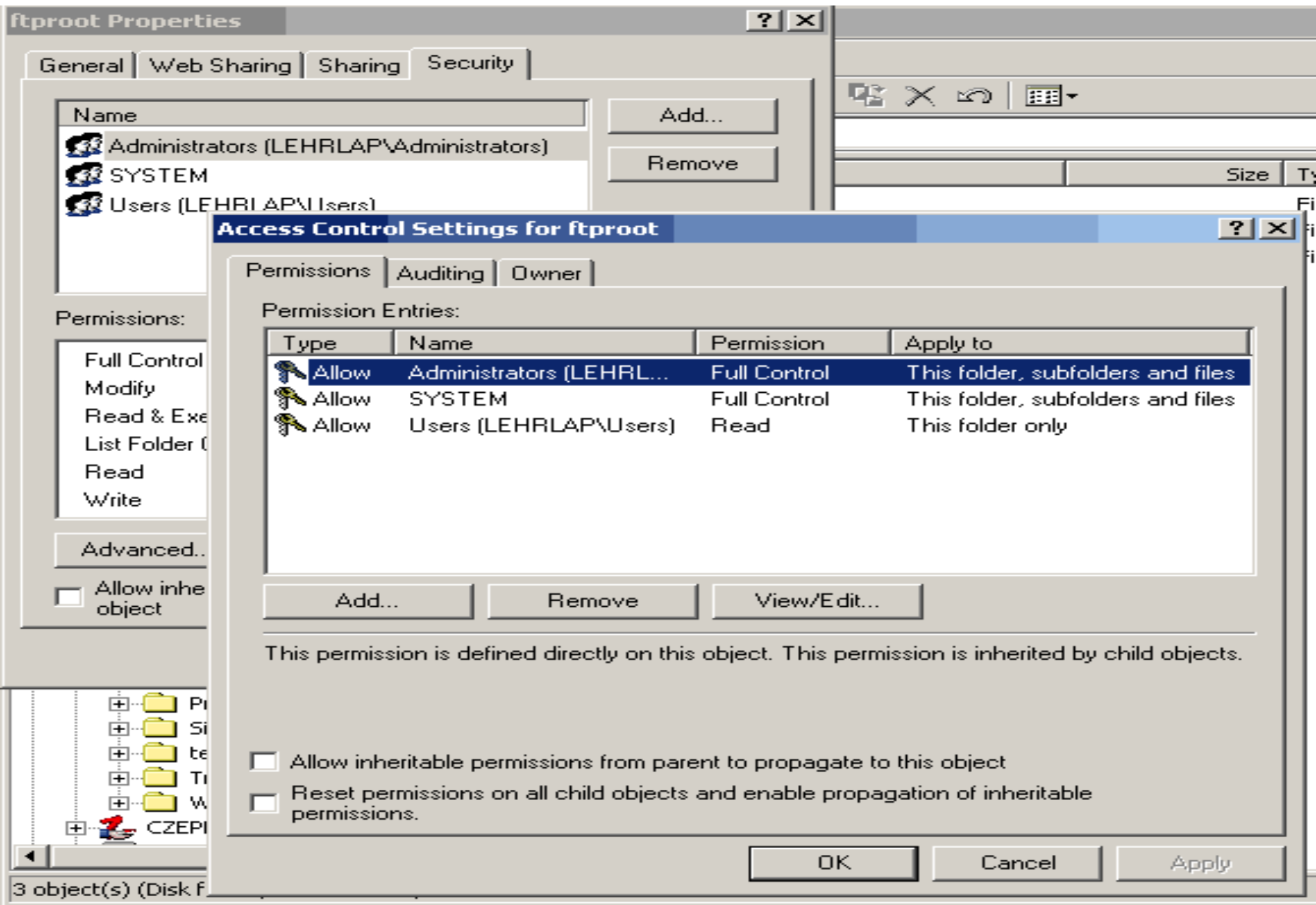


Figure 5

