FTP Client

FTP Client for IBM 'i'

User Manual

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Notices

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Preface

About This User Guide

In this section you will find a description of the conventions used within this book and the methods of obtaining help for the various options provided in the product.

Product Conventions

The conventions described in this section apply to all Products unless otherwise noted.

Menus and Commands

All options are accessible from the Main Menu. All options are available to the user regardless of their security profile. If a User has insufficient authority to execute the required actions error messages are returned to the User and logged with FTP Security Manager.

When there is a corresponding command for a menu option, the command is shown at the far right of the display. You can use either the menu option or the command to achieve the same results.

To issue a command from a command line from outside of the menu interface, you can add the product library name to your library list before running the command.

Any required parameters will be highlighted and must be entered before the command is submitted. The commands can be used interactively or in batch where appropriate.

Accessing Online Help

Context sensitive help is provided for all displays and commands. Pressing F1 will display the help corresponding to the cursor position, pressing F2 will expand the help to display all help defined for the command or panel group.

Publication Conventions

This manual uses formatting where appropriate to help identify the type of information you are reading. The following topics identify formatting techniques that may be used in this manual.

NOTE: Notes emphasize additional information by the use of an alternative format. Notes immediately follow the text to which they are associated.

Attention

Attention notices indicate the possibility of damage to a program, device, system or data. Typically, Attention notices immediately follow the text to which they are associated. Descriptions of the possible exposures are provided where appropriate.

WRKACTJOB Commands, Command parameters, Panel Parameters and Function Keys will be in **BOLD** text.

List Options, Menu Options, All options will be in italic text.

What's New this Version

This is the First version of FTP Client.

What's New this Release

This is the first release of FTP Client at this version

Related Information

Internet URL

Shield Advanced Solutions (Canada) Ltd.   https://www.shieldadvanced.com
IBM   http://www.ibm.com

Chapter 1: Introduction

Product Overview

This is a fully functional FTP Client. User's create a list of site definitions, and use options to connect to the remote system without having to remember passwords or the connection information entered initially. The information is collected and displayed to the user in an easy to use format. Each site list is unique to the user who created them. The passwords are stored in an encrypted form and decrypted only when being sent to the remote site. Because the site definitions are user dependent they cannot be opened by other users, this creates a further security measure for the user. A log of the user's actions is also maintained in temporary storage, this can be used to check the responses to requests and track any actions taken.

FTP Client Highlights

Benefits of using FTP Client:

- A simple yet effective FTP Client which is easier to use than the FTP Client shipped with i/OS.
- Better support for certain functions than provided by the IBM Client.

FTP Client is developed using the latest API's available. Tangible benefits include:

- Low cost of ownership
- Added security using User Space Objects
- Link passwords stored in encrypted format
- User based links, only creator can see their own links
- Ease of Use

Hardware and software prerequisites

To run FTP Client the following Hardware and Software is required:

Hardware
- Any IBM 'i' model.

Software
For all installations the following levels of i/OS are required:

- i/OS V5R4M0 or upwards.
- Compiler for source builds

Chapter 2: Installing

Installing FTP Client

FTP Client is part of the OSSILE download and can be built using any of the methods defined.
1. Using Relic Package Manager.
2. Using the build scripts provided within OSSILE download.

> **Note:**
> The installation library by default is OSSFTPCLT

Chapter 3: Operating & Supporting FTP Client

FTP Client Main Menu

The starting point for all FTP Client operations is the FTP Client Main Menu.

To go to the FTP Client Main Menu, perform the following actions:
*   Ensure that the installation library is in your library list.
*   Enter the **GO FTPCMAIN** command from any command line.

```
FTPCMAIN                      FTP Client Main Menu
                                                      System:    SAS2
 Select one of the following:

      2. Configure FTP Client

      4. FTP Client

     20. FTP Client Messages

     90. Signoff




                                                              Bottom
 Selection or command
 ===>

 F3=Exit   F4=Prompt   F9=Retrieve   F12=Cancel
 (c) Copyright Chris Hird 1997-2017
```

Figure 1 FTP Security Manager Main Menu

The following options are available on this menu

2. Configure FTP Client

This option will take you to the FTP Client Configuration Menu where all aspects of the FTP Client can be configured.

4. *FTP Client*

This option will invoke the FTP Client.

20. *FTP Client Messages*

Take this option to display the messages logged to the FTP Client message queue.

90. *Signoff*

This option will sign off the current session.

FTP Client Configuration

Option 2 from the FTP Client Main Menu will display the following panel. It is used to set the global configuration parameters.

```
                    Work with FTP Client Config (WRKFTPCCFG)

 Type choices, press Enter.

 Output . . . . . . . . . . . . .    *              *, *PRINT















                                                                    Bottom
  F3=Exit    F4=Prompt    F5=Refresh    F12=Cancel    F13=How to use this display
  F24=More keys
```
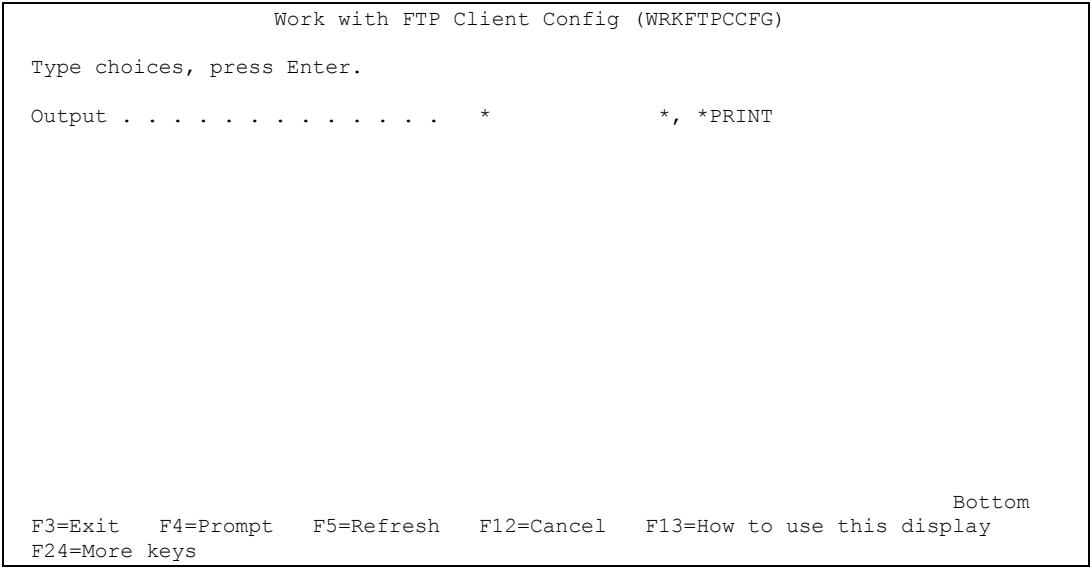
Figure 2 FTP Client Configuration

Parameters

> **Output** Output of the configuration parameters
>
> > **'*'** Output to display
> >
> > **'*PRINT'** Output to spool file

Pressing Enter with '*' selected results in the following panel

```
                    FTP Manager Configuration Details

 Product ID . . . . . . . . . . . . . . . :    *NONE
 Software Library . . . . . . . . . . . . :    OSSFTPCLT
 Software Level . . . . . . . . . . . . . :    010000
 Software PTF Level . . . . . . . . . . . :    0000000
 Keepalive seconds  . . . . . . . . . .    10
















 F3=Exit    F12=Cancel
 (c) Copyright Chris Hird 2017
```

Figure 3 FTP Client Configuration

The parameters that can be set are as follows:

Keepalive seconds   Number of seconds before sending a
                                          keepalive to the remote server once
                                          connected.

FTP Client

The existing IBM FTP Client is a simple command line option, it is not easy to use or user friendly for the novice user, with this feature users can have similar capabilities to those shipped with PC type products.

```
                              Site List
                                            System:   SHIELD2
 User  . . . . :   CHRISH
 Conn Status . :   Not Connected


 Type options, press Enter.
   1=Connect   2=Change Entry   4=Delete Entry

 Opt  Site Label              User ID
      mars                    root
      shield1                 chrish
      www.shield.on.ca        shield
      Pluto Linux Server      chrish




                                                          Bottom
 F3=Exit   F5=Refresh   F6=Add   F10=Display Log   F11=Display Host Address
 F12=Cancel
```

Figure 4 FTP Client Site List

The following options are available on this menu

1. *Connect*

This option will connect to the remote system. If the remote system does not respond within the required time frame the program will try to connect for the number of retries entered in the configuration.

Note:
Once connected the options shown above will change so only Option 3=Disconnect is shown.

Attention
If the Remote connection is lost the option to connect is re-displayed when returning to this panel

2. Change Entry

This option will display a panel with the currently stored information for this connection displayed. Pressing entry from the panel shown will update the information in the database.

4. *Delete*

This option will delete the selected entry.

Specialist Function Keys

Enter This will exit from the panel group and save the entries into the data store.

F6 Displays a panel to allow new entries to be added to the list.

F7 Displays the local directory listing (only after connected).

F8 Displays the remote directory listing (only after connection).

F10 Displays the user log for the current session.

F11 Cycles through the panels available.

The following panels are shown using the F11 Key.

```
                              Site List
                                            System:   SHIELD2
User  . . . . :    CHRISH
Conn Status . :    Not Connected


Type options, press Enter.
  1=Connect   2=Change Entry   4=Delete Entry

Opt  Host Address
     192.168.200.6
     192.168.200.9
     www.shieldadvanced.com
     192.168.200.7






                                                            Bottom
 F3=Exit   F5=Refresh   F6=Add   F10=Display Log   F11=Display Connection Info
 F12=Cancel
```

Figure 5 Site List Panel 2

```
                            Site List
                                            System:   SHIELD2
User  . . . . :   CHRISH
Conn Status . :   Not Connected


Type options, press Enter.
  1=Connect   2=Change Entry   4=Delete Entry

Opt  TMode     Port  Retry  Retry Delay
     ASCII       21    2          1
     ASCII       21    2          1
     ASCII       21    2          1
     ASCII       21    2          1




                                                  Bottom
F3=Exit   F5=Refresh   F6=Add      F10=Display Log
F11=Display Remote Directory Info   F12=Cancel
```

Figure 6 Site List Panel 3

```
                            Site List
                                            System:   SHIELD2
User  . . . . :   CHRISH
Conn Status . :   Not Connected


Type options, press Enter.
  1=Connect   2=Change Entry   4=Delete Entry

Opt   Initial Remote Directory
      /
      /home/chris
      /
      /home/chrish/servers/ftpstore




                                                  Bottom
F3=Exit    F5=Refresh   F6=Add      F10=Display Log
F11=Display Local Directory Info    F12=Cancel
```

Figure 7 Site List Panel 4

```
                            Site List
                                              System:   SHIELD2
User  . . . . :   CHRISH
Conn Status . :   Not Connected


Type options, press Enter.
  1=Connect   2=Change Entry   4=Delete Entry

Opt  Initial Local Directory
     /home
     /home/chris
     /home/www
     /home




                                                           Bottom
 F3=Exit   F5=Refresh   F6=Add   F10=Display Log   F11=Display Site Info
 F12=Cancel
```

Figure 8 Site List Panel 5

When the site is connected the following panel is displayed.

```
                            Site List
                                              System:   SHIELD2
User  . . . . :   CHRISH
Conn Status . :   Connected
Transfer Type :   ASCII

Type options, press Enter.
  3=Disconnect

Opt  Site Label              User ID
     mars                    root








                                                           Bottom
 F7=Local Directory         F8=Remote Directory   F10=Display Log
 F11=Display Host Address   F14=Set Transfer mode
```

Figure 9 Site List when Connected

FTP Client Site Details

This panel is displayed by using any of the following methods Selecting option 2 from the FTP Client Site List panel, when the product is first used by a user this panel is also displayed with blank detail, pressing F6 from the FTP Client Site List. This allows a user to create new site definitions for remte FTP Servers.

```
                          Site Details
                                                System:   SHIELD2
User  . . . . :   CHRISH
Conn Status . :   Not Connected

Site Label . . . . .   mars

Host Address . . . .   192.168.200.6

Remote Port  . . . .   21

User ID  . . . . . .   root

Password . . . . . .

Remote Directory . .   /


Local Directory  . .   /home


                                                      More...
F12=Cancel
```

Figure 10 Site List Details Panel 1

Pressing Page down will display the following panel

```
                          Site Details
                                                System:   SHIELD2
User  . . . . :   CHRISH
Conn Status . :   Not Connected

Transfer Type  . . .   ASCII

Connection Retry . .   2

Connection Delay . .   1







                                                      Bottom
F12=Cancel
```

Figure 11 Site List Detail Panel 2

Parameters

Site Label	A unique name for this site connection.
Host Address	The remote address for this site connection. The address can be in dotted decimal format or English format. If in English format ie: 'My Remote Server' this address must be resolvable by either a host table entry or a DNS entry.
Remote Port	The port the remote server is listening to for requests. 21 is the default port and should be used in most cases.

Attention
SSL Connections are not supported in this release of FTP Client.

User ID	The user ID which will be used for this connection.
Password	The password for the user profile which will be used for this connection.

Note:
The password is stored in an encrypted form and only decrypted when a connection attempt is made.

Remote Directory	The initial directory to be used when the connection is made.

Note:
It is the responsibility of the remote server to verify the ability of the user to access the directory entered.

Local Directory	The initial directory to be used when the connection is made.

Note:
The local directory should exist before a connection attempt is made. If the directory does not exist a message is sent informing the user as such and an empty list will be displayed.

Transfer Type	The transfer type which will be set for any file transfers to and from the remote server. If the transfer type is incorrect the object may not be useable on the local or remote system after the transfer.
Connection Retry	The number of retries which will be attempted if a remote system does not respond to a connection request.

Note:
Setting this value to more than 75 secs will result in the connection attempt failing after 75 seconds but the wait time between connection attempts will be the number set.

Connection Delay	The time the connection process will wait for a connection to succeed and the length of time it will wait between retries.

FTP Client Log

Pressing F10 on any of the following panels will result in the following panel being displayed. This is a log of the activity during the current FTP Client session. The log is deleted once the user ends the FTP Client session.

- Local or Remote Directory listing
- Site List

```
                         Display Messages
                                              System:   SHIELD2
Queue . . . . . :   FTPLOGQ              Program . . . . :    *DSPMSG
  Library . . . :     QTEMP                Library . . . :
Severity . . . :   00                    Delivery . . . :    *HOLD

Type reply (if required), press Enter.
  230-User root has group access to: video    tape     dialout  floppy
    wheel
  230- disk     adm     sys     daemon   bin      root
  230 OK. Current directory is /root
  Connected to mars
  PORT 192,168,200,20,60,26
  200 PORT command successful
  CWD /
  250 OK. Current directory is /
  LIST
  150 Connecting to port 15386
  226-Options: -l
  226 19 matches total
                                                               Bottom
F3=Exit            F11=Remove a message                  F12=Cancel
F13=Remove all     F16=Remove all except unanswered    F24=More keys
```

Figure 12 FTP Client Log

The FTP Log is a message queue which can be manipulated in the same manner as any other message log.

FTP Client Local/Remote Directory Display

The Directory Display is a list of the objects which have been sent by the Remote FTP Server or collected from the local server. Each is displayed as a list entry which can be accessed using the available options. Any request will be validated by the Server for validity, if a request is rejected the rejection is logged into the FTP Client log. Status messages are sent where applicable for selected actions. It is the initial display shown when a connection is accepted.

Note:
If the remote FTP Server is an IBM 'i', the QSYS.LIB file system does not return all objects. Any File other than a SAVF will be displayed as a directory. Special care must be taken when transferring these objects.

```
                          Directory Display
Site View . . :    Remote
Current path  :    /
Connected to  :    mars
Transfer Type :    ASCII


Type options, press Enter.
  1=Get   4=Delete   5=View   7=Rename   8=Attributes


Opt   Name                                                    Type
      bin                                                     *DIR
      boot                                                    *DIR
      dev                                                     *DIR
      etc                                                     *DIR
      home                                                    *DIR
      lib -> lib64                                            *STMF
      lib32                                                   *DIR
      lib64                                                   *DIR
      lost+found                                              *DIR
      make.profile -> /usr/portage/profiles/hardened/x86/2.6  *STMF
                                                                More...
F2=Set Directory   F5=Refresh   F6=Add Directory   F7=Local Directory
F10=Display Log    F12=Cancel   F14=Set Transfer Mode
```

Figure 13 Remote Directory View

The following options are available on this menu

1. *Get/Put*

This option will get or put the object to or from the remote server. The transfer is affected between the selected directories. If the object selected is a *DIR all sub Directories and objects will also be transfered.

Note:
The current working directory should be set before a remote transfer is requested. This is easily achieved by pressing F7 from the panel and maneuvering using option 5 to the required directory, or using the F2 Key from the directory listing (this can set the local and remote directory). If you do not set this directory the transfer will be made to the current working directory set by other processes.

4. *Delete*

This option will delete the selected object. Errors will be logged to the FTP Client Log.

Note:
The ability to delete an object is controlled by the remote server. Any rejected request is logged in the FTP Client log and the request is ignored locally.

5. *View*

This option will change the current working directory to the selected directory. If the object selected is a *STMF object it will be transferred to the local system in a temporary location and displayed using the DSPF command. Errors will be logged to the FTP Client Log.

> **Note:**
> The ability to change directory is controlled by the remote server. Any rejected request is logged in the FTP Client log and the request is ignored locally.

7.   Rename

This option will prompt for a new name for the selected object.

8*.   Attributes*

This option will display the details of the object to a panel. Errors will be logged to the FTP Client Log.

Specialist Function Keys

F2   Set Local and Remote Directory.

F5   Will reload the remote Directory Listing.

F6   Displays a panel to allow new directories to be created.

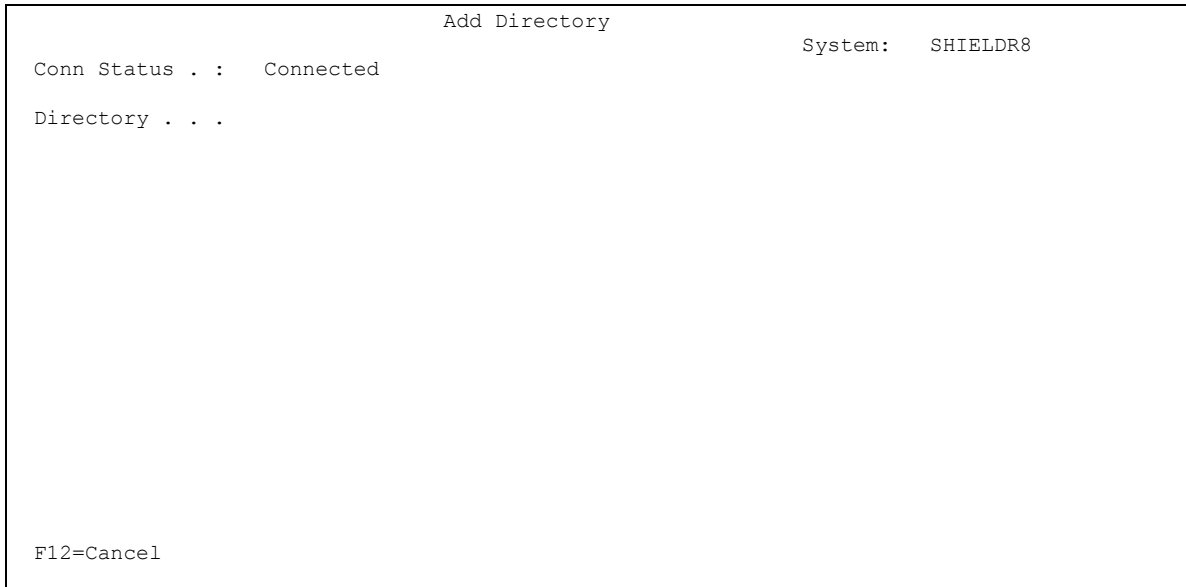**F7**   Displays the local directory.

F8   Displays the remote directory

F10   Displays the current session's log.

F14   Allows the transfer mode to be set

FTP Client Add Remote/Local Directory Display

This panel is displayed when a request to Add a Directory is made from any relevant panel. Enter the name of the new directory and press enter. Pressing F12 will cancel the request.

```
                           Add Directory
                                            System:   SHIELDR8
Conn Status . :   Connected

Directory . . .














F12=Cancel
```

Figure 14 Add Directory Panel

Specialist Function Keys

Enter   This will create the directory on the local or remote system.

F12   This will cancel the request.

FTP Client Change Transfer Mode Display

This panel is displayed when a request to change the transfer mode is made from any relevant panel.

```
                        Change Transfer Mode
                                              System:   SHIELDR8
Transfer Type     ASCII












F12=Cancel
```

Figure 15 Change Transfer Mode Panel

You can enter one of the following values

- 'b' 'B' or binary in any case
- 'a' 'A' or ascii in any case
- 'e' 'E' or ebcdic in any case

When setting the transfer mode care should be taken to ensure the object selected can be used if transferred using the selected mode. For SAVF objects in the QSYS.LIB file system the transfer type is automatically set to BINARY
mode and the local SAVF file created if it does not exist.

Specialist Function Keys

Enter   This will update the transfer mode.

F12   This will cancel the request.

FTP Client Attributes

This panel is displayed when a request to display the selected objects Attributes is made from any relevant panel.

```
                            Object Details
                                             System:   SHIELDR8
User  . . . . :   CHRISH
Conn Status . :   Connected

Attributes . . . . :   -rw-r--r--

Links . . . . . . :   1

Object Owner . . . :   chrish

Group ID . . . . . :   users

Size . . . . . . . :   4.1kB

Date Changed . . . :   Mar  1  2002

Object Name  . . . :   BLOWFISH.C



                                                        Bottom
F12=Cancel
```

Figure 16 Object Details Panel

<u>Parameters</u>

Attributes A listing of the attributes for the selected object.
<u>Column</u>

1	Type
2-4	Owner Authorities
5-7	Group Authorities
8-10	User Authorities

<u>Type Values</u>

d	Directory
l	Link
-	File

<u>Authority Values</u>

-	None
w	Write
r	Read
x	Execute

Links The number of links to the selected object.

Object Owner The owner of the selected object.

Group ID   The Group ID of the selected object.

Size   The actual size of the object rounded to the nearest $1/10^{th}$ displayed in Bytes (B) KiloBytes (kB) MegaBytes (MB) GigaBytes (GB) TerraBytes (TB).

Note:
The size is that reported by the system converted to the size parameter locally.

Date Changed   The last recorded object update.

Object name   The name of the object.

Specialist Function Keys

Enter   This will return you to the original display.
F12   This will return you to the original display.

FTP Client Rename Object Display

This display will allow the renaming of an object from either directory listing. Option 7 from the directory listing will display the following panel. If the request is for a remote object the system should be in connected status.

```
                              Rename Object
                                                   System:   SHIELDR8
Conn Status . :   Connected

Original Name :   sm050.csv



New Name   . . .








                                                              Bottom
F12=Cancel
```

Figure 17 Rename Object Display

Parameters

Original Name   The existing name for the object.

New Name   The new name for the object.

Specialist Function Keys

Enter   This will update the object entered.

F12   This will cancel the request.

FTP Client Set Current Working Directory Display

The following display allows the current working directory to be set for both the local and remote system. Pressing F2 from either of the directory display panels will result in the following panel.

> **Note:**
> The directory listing for the directory from which the request was made will be updated automatically, the other directory is not set until a request is made to display that directory list. That is if you press the F2 Key while in the remote directory display and change the Remote Directory parameter from *SAME the system will send a request to the remote system to change the current working directory and refresh the directory listing using that directory. Any failures will be logged to the FTP Client Log.

```
                               Set Directory
                                                    System:   SHIELDR8
Conn Status . :   Connected

Local Directory   *SAME




Remote
  Directory . .   *SAME









                                                            Bottom
  F12=Cancel
```

Figure 18 Change Directory Display

Parameters

Local Directory   Local Directory Name.

Remote Directory   Remote Directory Name.

Specialist Function Keys

Enter   This will update the directories entered.

F12   This will cancel the request.

Chapter 6: Hints and Tips

Log Management

The FTP Client Log is only held in temporary storage, it is deleted when the FTP Client is closed. If you need to capture the messages in the log you will need to do a screen capture process.

Directory Entries

When the users path variable is set to *PATH the user will be linked to the IFS and not to a library. The default entry of *HOMEDIR is used to set the users default directory to the directory set in the user profile. If this directory does not exist the user will be placed in the root directory of the IFS. Therefore care should be taken when setting this variable for the user. One instance where this may occur is if the directory is removed or changed after the user has been created in the configuration files. Ensure you check this before logging support calls as the return from the server does not point to this problem only that the session was rejected or that the service is unavailable.

FTP Client usage

The FTP Client is a simple implementation of the FTP services available on the IBM 'i'. Not all features which are built into the IBM FTP Client are available in this release of FTP Client. As we develop the product support for extra features will be implemented, if you wish to use a feature which is not supported in this release of FTP Client, use the IBM FTP Client, the security checking will be the same so no duplication of profile settings is required.

Save File Transfers

Save files have a specific layout within the QSYS.LIB file system. Therefore when transferring a save file object certain conditions have to be met. For ease of use we have implemented a naming convention which has to be followed. If the remote system is an IBM 'i' and the file system is QSYS.LIB, the file name will already be in the correct format for detection and correct transfer of the save file contents. However if the remote object is a copy of a save file stored outside of the QSYS.LIB file system the file extension may be anything, we have taken the stance that if the object has an extension of .SAV FTP Client will transfer that object to the local system as a save file. The save file will be created locally in the QSYS.LIB file system automatically. However if the local directory is a file system other than QSYS.LIB then the object will be transferred as a binary object only. Testing will continue to define methods of detection and correct processing of save file objects.

Table of Figures