TIBCO BusinessConnect Plug-In for FTP Server™ User's Guide

Software Release 1.0
November 2011

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Contents

Preface

TIBCO BusinessConnect Plug-In for FTP Server™ provides both the plain and secure access for trading partners, so that the external users associated with these trading partners can log in and perform simple file uploads and downloads.

Topics

Related Documentation

TIBCO BusinessConnect Plug-In for FTP Server™ Documentation

The following documents form the TIBCO BusinessConnect Plug-In for FTP Server documentation set:

- TIBCO BusinessConnect Plug-In for FTP Server™ *Installation and Configuration:* Read this guide to install and configure TIBCO BusinessConnect Plug-In for FTP Server.

- TIBCO BusinessConnect Plug-In for FTP Server™ *User's Guide:* Read this guide to to learn how to manage TIBCO BusinessConnect Plug-In for FTP Server.

- TIBCO BusinessConnect Plug-In for FTP Server™ *Release Notes*: Read this document to learn about new features, changes in functionality, deprecated features, known issues, and closed issues for each release. This document is supplied for each release and is available only in PDF format.

TIBCO BusinessConnect™ Documentation

The following documents form the BusinessConnect documentation set:

- *TIBCO BusinessConnect™ Installation and Configuration.* Read this guide to learn how to install and configure TIBCO BusinessConnect.

- *TIBCO BusinessConnect™ Concepts*: Read this guide to learn about TIBCO BusinessConnect architecture, deployment modes, protocols, and security.

- *TIBCO BusinessConnect Interior Server™ Administration*: Read this guide in order to administer, operate, and manage TIBCO BusinessConnect Interior Server.

- *TIBCO BusinessConnect Gateway Server™ Administration*: Read this guide in order to administer, operate, and manage TIBCO BusinessConnect Gateway Server.

- *TIBCO BusinessConnect™ Trading Partner Administration:* Read this guide to configure and manage trading partners.

- *TIBCO BusinessConnect™ Scripting Deployment User's Guide*: Read this guide to configure and manage TIBCO BusinessConnect using the command line interface.

- *TIBCO BusinessConnect™ Release Notes*: Read this document to learn about new features, changes in functionality, deprecated features, known issues, and closed issues for each release. This document is supplied for each release and is available only in PDF format.

Other TIBCO Product Documentation

You may find it useful to read the documentation for the following TIBCO products, which may be used or integrated with BusinessConnect:

- TIBCO Administrator™ software: The software allows you to manage users, machines and applications defined in a TIBCO Administration Domain. The TIBCO Administrator graphical user interface enables users to deploy, monitor, and start and stop TIBCO applications.

- TIBCO ActiveMatrix BusinessWorks™ software: This software is a scalable, extensible, and easy to use integration platform that allows you to develop integration projects. TIBCO BusinessWorks includes a graphical user interface (GUI) for defining business processes and an engine that executes the process.

- TIBCO Designer™ software: This graphical user interface is used for designing and creating integration project configurations and building an Enterprise Archive (EAR) for the project. The EAR can then be used by TIBCO Administrator for deploying and running the application.

- TIBCO Runtime Agent™ software: This software suite is a prerequisite for other TIBCO software products. In addition to TIBCO Runtime Agent components, the software suite includes the third-party libraries used by other TIBCO products such as TIBCO Designer, Java Runtime Environment (JRE), TIBCO Hawk®, and TIBCO Rendezvous®.

- TIBCO Rendezvous®: This software enables programs running on many different kinds of computers on a network to communicate seamlessly. It includes two main components: the Rendezvous programming language interface (API) in several languages, and the Rendezvous daemon.

- TIBCO Enterprise Message Service ™ software: This software provides a message service that enables integration of applications within an enterprise based on the Java Message Service (JMS) specifications.

Typographical Conventions

The following typographical conventions are used in this manual.

Table 1   General Typographical Conventions

Convention	Use
ENV_NAME *TIBCO_HOME* *ftps_HOME*	TIBCO products are installed into an installation environment. A product installed into an installation environment does not access components in other installation environments. Incompatible products and multiple instances of the same product must be installed into different installation environments. An installation environment consists of the following properties: • **Name** Identifies the installation environment. This name is referenced in documentation as *ENV_NAME*. On Microsoft Windows, the name is appended to the name of Windows services created by the installer and is a component of the path to the product shortcut in the Windows Start > All Programs menu. • **Path** The folder into which the product is installed. This folder is referenced in documentation as *ftps_HOME*. TIBCO BusinessConnect Plug-In for FTP Server installs into a directory within a *TIBCO_HOME*. This directory is referenced in documentation as *ftps_HOME*. The default value of *ftps_HOME* depends on the operating system. For example on Windows systems, the default value is `C:\tibco\bc\`*version*`\protocols\ftps`.
`code font`	Code font identifies commands, code examples, filenames, pathnames, and output displayed in a command window. For example: Use `MyCommand` to start the foo process.
`bold code font`	Bold code font is used in the following ways: • In procedures, to indicate what a user types. For example: Type **`admin`**. • In large code samples, to indicate the parts of the sample that are of particular interest. • In command syntax, to indicate the default parameter for a command. For example, if no parameter is specified, `MyCommand` is enabled: `MyCommand [`**`enable`**`	disable]`

Table 1   General Typographical Conventions (Cont'd)

Convention	Use
italic font	Italic font is used in the following ways: • To indicate a document title. For example: See *TIBCO ActiveMatrix BusinessWorks Concepts*. • To introduce new terms For example: A portal page may contain several portlets. *Portlets* are mini-applications that run in a portal. • To indicate a variable in a command or code syntax that you must replace. For example: `MyCommand` *PathName*
Key combinations	Key name separated by a plus sign indicate keys pressed simultaneously. For example: Ctrl+C. Key names separated by a comma and space indicate keys pressed one after the other. For example: Esc, Ctrl+Q.
	The note icon indicates information that is of special interest or importance, for example, an additional action required only in certain circumstances.
	The tip icon indicates an idea that could be useful, for example, a way to apply the information provided in the current section to achieve a specific result.
	The warning icon indicates the potential for a damaging situation, for example, data loss or corruption if certain steps are taken or not taken.

Connecting with TIBCO Resources

How to Join TIBCOmmunity

TIBCOmmunity is an online destination for TIBCO customers, partners, and resident experts, a place to share and access the collective experience of the TIBCO community. TIBCOmmunity offers forums, blogs, and access to a variety of resources. To register, go to http://www.tibcommunity.com.

How to Access All TIBCO Documentation

After you join TIBCOmmunity, you can access the documentation for all supported product versions here:

http://docs.tibco.com/TibcoDoc

How to Contact TIBCO Support

For comments or problems with this manual or the software it addresses, please contact TIBCO Support as follows.

- For an overview of TIBCO Support, and information about getting started with TIBCO Support, visit this site:

  http://www.tibco.com/services/support

- If you already have a valid maintenance or support contract, visit this site:

  https://support.tibco.com

  Entry to this site requires a user name and password. If you do not have a user name, you can request one.

Chapter 1   **Introduction**

This chapter introduces TIBCO BusinessConnect Plug-In for FTP Server™.

Topics

Overview

TIBCO BusinessConnect Plug-In for FTP Server provides FTP access for trading partners, so that the external users associated with these trading partners can log in and perform simple file uploads and downloads.

The external users running an FTP Client can connect to the host site running TIBCO BusinessConnect Plug-In for FTP Server, which has two components:

- TIBCO BusinessConnect Plug-In for FTP Server and
- FTP Client

TIBCO BusinessConnect Plug-In for FTP Server

TIBCO BusinessConnect Plug-In for FTP Server (called FTP Server later in this document) is located on the TIBCO BusinessConnect Gateway Server, which also can hold other servers such as the HTTP or PartnerExpress. The Gateway Server is located in the demilitarized (DMZ) zone outside the company's firewall, which protects against the threat of malicious communications.

The FTP Server is configured using TIBCO Administrator, but it runs as a container in the Gateway Server. The configurations related the FTP Server are pushed from the Interior Server as part of the Gateway Server initial startup and discovery process.

In release 1.0.0, the FTP Server supports TIBCO BusinessConnect Services Plug-in and only the Notify operation type.

It has the following major features.

- **Standards Support** The Clients communicate with the FTP Server by exchanging documents over FTP. Support for this industry standard means that the software can be easily implemented, using existing technology infrastructure.
- **Scalability** Multiple FTPS Gateway Services can be configured to run in different Gateway Server instances to scale and receive transactions across multiple partners.
- Support for the following connection types:
  — plain connection
  — TLS/SSL Implicit connection
  — TLS/SSL explicit connection
- Support for the active and passive mode
- DDTP is always used for data transport, uploading and downloading

- Logging control performed using these three properties:

  — `ftps.plugin.maxLoginFailures`

  — `ftps.plugin.maxLoginDelay`

  — `ftps.plugin.maxLogins`

- IP Filtering support for two levels:

  — GS level

  — TP level.

FTP Client

The FTP Client is located on an external location and provides FTP access mode for customers to perform transactions.

Users can upload their files to the FTP Server using the PUT command, as well as download files from the FTP Server using the GET command.

When using the FTP Server and FTP Client, BusinessConnect transactions are presented using a Virtual File System (VFS). See Virtual File System, page 6 for more details.

Functional Components

This section provides a general overview of each TIBCO product component used by the FTP Server.

TIBCO BusinessConnect

TIBCO BusinessConnect is a business-to-business server that enables the secure exchange of business documents and automates cross-company processes. Its architecture leverages TIBCO expertise with Enterprise Application Integration (EAI) to completely integrate systems and processes across company boundaries.

TIBCO BusinessConnect also provides partner management features to let businesses efficiently define and maintain the complex partner relationships required for electronic commerce.

TIBCO Rendezvous

TIBCO Rendezvous allows you to exchange data among applications across a network. It supports network data transport and network data representation as well as many hardware and software platforms, so applications running on many different kinds of computers on a network can communicate seamlessly.

TIBCO Rendezvous applications communicate by exchanging messages sent on subjects. Messages can contain any kind of data (except memory pointers); they usually contain notification of business events and any associated data.

TIBCO Rendezvous features self-describing data structures that contain information about their data types, sizes and names. Rendezvous applications on heterogeneous platforms can communicate easily by exchanging self-describing data.

User Profiles

TIBCO BusinessConnect Plug-In for FTP Server allows that the BusinessConnect installation on the FTP Server side can securely communicate not only with internal users, but also with Clients (external users) that are associated with one of the trading partners.

External Users

The external users on the FTP Client side can use a third-party FTP Client Software and need to have only a basic knowledge of the business transactions they are performing.

To create an external user and assign it to a partner, see TIBCO BusinessConnect *Trading Partner Administration*, Add External Users and Edit External Users. Once external users are created and assigned to a partner, the BusinessConnect administrator will be able to define which Gateway services they will be allowed to use.

Business Connect Administrator

The BusinessConnect administrator on the host site configures the FTP Server components, specifies external users, and associates these external users with a trading partner.

The BusinessConnect administrator must have advanced knowledge of the TIBCO BusinessConnect software, other TIBCO software, and their network environment.

Virtual File System

TIBCO BusinessConnect uses a UNIX-based Virtual File System (VFS) to present the operation of each protocol in BusinessConnect combined with virtual folders, such as Inbox and Outbox, to facilitate file downloading and uploading. In this system, each file belongs to an owner, and each owner belongs to a group. In this concept, the owner is the external user who logs on to the FTP Server, and the group is the trading partner with whom the external user is associated.

While in BusinessConnect it was assumed that the user ROOT creates folders and that these folders belong to ROOT, the FTP Server uses a virtual file system.

Folders used for TIBCO BusinessConnect Plug-In for FTP Server are virtual folders and cannot be deleted.

File permissions are created such as in UNIX: read, write, and execute (R, W, X). In addition, this virtual file system has to be structured so that it is compatible with the one used by TIBCO BusinessConnect, with the file structure such as:

```
Inbox
    EZComm
        BC
            1.0
                Notify
```

User permissions for accessing files are granted to the Owner, Group, or others. Usually, the permission levels are more restricted for levels above the Owner. An example of permissions granted to owners and groups is presented in Table 1.

Table 1   Permissions in the Virtual File System

	Date	Permission	Owner	Group
Inbox	When BusinessConnect is created	rwxr-xr-x	root	root
EZComm	When the protocol was last modified	rwxr-xr-x	root	root
BC 1.0 Notify (Inbox)	When the protocol was last modified	rwxr-xr-x	root	root
Notify (Outbox)	When the protocol was last modified	rwxrwxrwx	root	root
File	When the file is created	r--r--r--	User	Trading Partner

Chapter 2 **Setting Up the FTP Server on the Host Site**

This chapter explains how the TIBCO BusinessConnect administrator can configure the FTP Server on the host site.

Topics

Configuring the FTP Server

To configure the FTP Server on the host site using TIBCO Administrator follow these steps:

Task A   Enable the FTPD or FTPSD Service in BusinessConnect

1.   Select **BusinessConnect> System Settings> Inbound Public Transport Types.**

2.   Check the checkbox next to the transport types FTPD (FTP Daemon) or FTPSD (FTPS Daemon).

3.   Click **Enable**.

4.   The enabled transport appears with a red checkmark in the Enabled column.

5.   Click **Done**.

Task B   Add a New Gateway Service

1.   Select **BusinessConnect > Gateway> Gateway Services.**

2.   Click **New**.

3.   The window New Gateway Service appears.

4.   Enter the name for the new service.

5.   From the Type drop-down list, select **FTPS**.

6.   Click **OK**.

Task C   Activate the FTPS Service

In the General Tab, check the checkbox **Active** to activate the service.

Task D   Configure Credentials

The Credentials tab allows you to select a private key used by the FTPS Service.

1. Click on **New Private Key**.

Table 2   FTPS Service: New Private Key

Field	Description
Alias	Enter the name for the new private key.
Current Credential	To set a new key or to replace an existing one, click `change`, and upload the new private key.
Password	Add the password to access the key (required).

2. Click **Save**.

    The new Private key is now listed under Credential Name.

Task E   Configure a Transport

This tab contains three subtabs to configure the FTP Service transport.

Table 3   FTPS Service: Transport Tab

Field	Description
Ports	If you run the FTP Server in the Gateway Server on UNIX with port numbers lower than 1025, the operating system will not allow that the gsengine starts these ports. Make sure that either the gsengine is installed and run as a "root", or give the appropriate permission to the gsengine to be run as a "root" by setting the executable with root permissions.
Plain Port	Enter the port number for the non-secure port. The default is 21.
Secure Port	Enter the port number for the secure port. Default is 990.
Private Key	Select a private key that was previously configured for the Gateway Service using Table 2, FTPS Service: New Private Key.
Implicit SSL/TLS	When this option is checked, it implies that the FTP Client connection will use implicit SSL connection on the mentioned Secure Port. The FTP Client should support implicit SSL for this to work. This option must be used with 'Enable SSL'.

Table 3   FTPS Service: Transport Tab

Field	Description
Enable SSL	When this option is checked, the FTP Client must initiate SSL connection with either `AUTH SSL` or `Auth TLS` command. This is required by the FTP Command specification for SSL as listed in RFC 2228.
	The FTP Clients should support the `AUTH` command to enable FTP over SSL. When this is not checked, a plain FTP connection is assumed.
Data Connection	
Active Enabled	When this option is checked, the FTP Server will support the Active transfer mode.
Active Local Port	In active transfer mode, the Data Connection would be opened on this active local port from the FTP Server.
	Default is 20.
Passive Port	Passive port can be entered as:
	• Single port (as an integer),
	• Multiple ports separated by commas (such as 123, 124, 125)
	• Ranges of ports including open ended ranges (such as 123-125, 30000-, -1023)
	• Combination of single ports and ranges,
	The port number will come from the range entered in the GUI.
Advanced	
Session Settings	
User Session Timeout (min)	Time after the session times out.
	Default is 30.
Gateway to Interior Settings	
Request Timeout (secs)	Default is 30.

    3. Click **Save**.

Assigning the Service to a Gateway Instance

After the TIBCO BusinessConnect Plug-In for FTP Server Gateway Service is configured, it has to be assigned to a Gateway Instance.

1. Select B**usinessConnect> Gateway> Gateway Instances**.

2. Check the radio button next to the Gateway instance.

3. Click **Manage**.

   The Manage Services dialog opens

4. Check the radio button next to the TIBCO BusinessConnect Plug-In for FTP Server service and click **Assign**.

5. Choose the FTP Gateway service from the Gateway Server Group drop-down list and click **OK**

6. Click **Done**.

7. In the Gateway Instances dialog, click **Start** to start the instance.

   The State column will display RUNNING-*service* and the Status is OK.

Configuring the Outbound Transport

To configure the outbound transport associated with the partner, use TIBCO Administrator as follows:

1. Select **BusinessConnect> Participants>** *partner>* **Protocols.**

2. If there are no available enabled protocols, click **Enable** and enable EZComm.

3. Click on the **EZComm** link.

4. In the Edit Enabled Protocol dialog, select **Transports** tab.

5. Click on **Add** and add the transport of the Inbox type.

6. Enter the name for the new transport.

   The New Inbox Transport screen opens.

Table 4   New Inbox Transport

Field	Description
Transport Name	This name can be changed
URL	mailto:
	Enter the email for the Partner to receive email notifications of the files that are ready for them to download.
Subject	Pre-determined subject to use to convey on the Email subject to the partner.

Once the new Inbox transport is configured, it appears in **Participants> Protocols>** *protocol_name>* **Transports** as a transport of a Inbox type that is available for the partner.

IP Filtering

Two levels of IP filtering are supported for the FTP Server:

- Gateway Server level filtering:
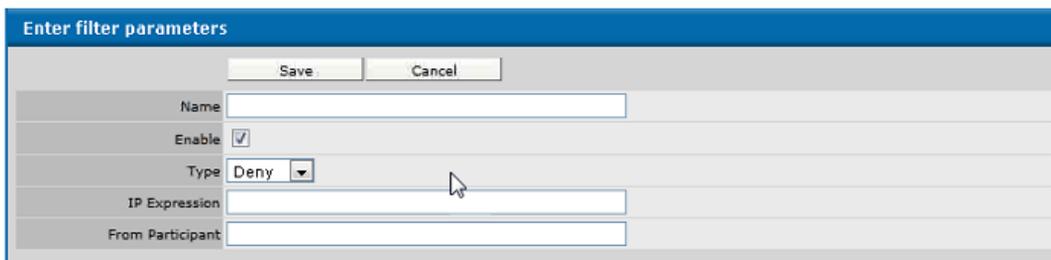
Enter filter parameters

	Save Cancel
Name	
Enable	☑
Type	Deny ▾
IP Expression	
From Participant	

This filtering is configured on the GS side

- Trading Partner level filtering: configured on the TP level. For each request there can be a filter configured on the TP level.

Managing Services Plug-in Properties

You may remove only user defined properties; the default properties should not be removed.

You can add, change, or remove the properties for the FTP Server using the Edit Plug-in Properties dialog. To view, add, or delete a property, perform these steps:

1. In TIBCO Administrator, select **BusinessConnect > System Settings >Activated Protocol Plug-ins and Properties**.

2. Click **GS-FTPS.**

   The following FTP Server properties are displayed:

   — **ftps.plugin.maxLoginFailures** . This property sets the maximum number of failed login attempts before the connection is closed.

   The default is 3.

   — **ftps.plugin.maxLoginDelay** This property sets number of seconds that the connection is delayed after a failed login attempt.

   The default is 30.

   — **ftps.plugin.maxLogins** .This property sets the maximum number of simultaneous users allowed.

   Default of 0 means unlimited.

Add a Property

1. Click **Add**.
2. Type a name for the property in the Property Name field.
3. Select a data type from the Property Type dropdown list: boolean, string. or integer.
4. Type a description of the new property in the Description field.
5. Click **Save**.

Delete a Property

1. Click **Delete**.
2. Type the name of the property you want to delete and click **OK**.

Chapter 3 | **Using the FTP Client**

This chapter provides instructions for users who are using the FTP Client.

Topics

Overview

Using an FTP Client, a user can connect with the FTP Server and upload or download files.

With an FTP Client users can perform PUT or GET transaction between the FTP Client and the TIBCO BusinessConnect Plug-In for FTP Server.

Inbox is used to download files and Outbox is used to upload files.

Connecting with the FTP Server

The FTP Server administrator provides to each FTP Client a host name, username, and password that must be used to access the FTP Server.

Depending on the FTP Client you are using, you may have a different interface but the following information has to be provided to establish an FTP connection. All data has to be provided from the FTP Server administrator to the FTP Clients before they log in.

- **Host**   This is the name of the FTP Server machine with which the FTP Client wants to connect

- **Username**   Partner and User authentication information provided by the FTP Server Host to exchange B2B documents. It is in the format *Trading Partner/user,* which means that it contains also the name of the Trading Partner with whom this external user is associated .

- **Password**   Password for the user that has been set up by the FTP Server administrator

- **Port**   This is the port of the FTP Server machine to which the FTP Client wants to connect.

Each FTP Client will have a slightly different usage, which will be explained by the provider of the software package.

Inbox and Outbox

After you connect with the FTP Server, your FTP Client will show the file structure that is available on your local machine when navigating through the Inbox or Outbox using the FTP CWD command.

The Host machine, FTP Server, will also have a specific folders designated as Inbox and Outbox. These folders are used to either upload your files to the FTP Server using the PUT command, or to download files from the FTP Server using the GET command.

Inbox is used to download files and Outbox is used to upload files.

Appendix A **Command Reference**

This appendix lists the CLI commands used for the FTP Server.

Topics

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FTP Server Commands

Table 5   FTP Command List

Command	Description	Server Reply	Plug-in for FTP Server Support
ABOR	Aborts the previous FTP service command and any associated transfer of data	`226 ABOR command successful`	YES
ACCT	Provides the user's account.	`202 Command ACCT not implemented`	NO

APPE	Appends data to the end of a file on the remote host. If the file does not already exist, it is created. This command must be preceded by a `PORT` or `PASV` command.	`501 Syntax error`
		`550 Not a plain file`
		`550 Permission denied`
		`150 Opening data connection`
		`425 Cannot open data connection`
		`426 Data connection error`
		`551 Error on output file`
		`226 Transfer complete`
			NO

Auth	Establishes SSL encrypted Session. Only SSL type is supported	`501 Syntax error`
		`431 Service is unavailable`
		`234 AUTH command okay; starting SSL connection`
			YES

CDUP	Change to parent directory	`250 Command okay` `550 No such directory`	YES
CWD	Changes the working directory. If directory name is not specified, root directory (/) is assumed	`250 Command okay` `550 No such directory`	YES

DELE	Deletes the file specified by the provided path	`250 Command okay`
		`450 No permission to delete`
		`450 Can't delete file`
		`550 Not a valid file`
		`501 Syntax error in parameters or arguments`
			NO

Table 5   FTP Command List

Command	Description	Server Reply	Plug-in for FTP Server Support

EPRT	The EPRT command allows for the specification of an extended address for the data connection. The extended address MUST consist of the network protocol as well as the network and transport addresses. The format of EPRT is EPRT |<net-prt>|<net-addr>|<tcp-port>|	`501 Syntax error`
		`510 EPRT is disabled`
		`510 Syntax error`
		`553 Host unknown`
		`510 EPRT IP is not same as client IP`
		`552 Not a valid port number`
		`200 EPRT command okay`
			NO

EPSV	425 Cannot open passive connection. 229 Entering passive mode (`<message>`)	`425 Cannot open passive connection` `229 Entering passive mode (<message>)`	NO
FEAT	Displays the feature list	`221 List of all the extensions supported`	YES
HELP	Displays the help information	`214 Help information`	YES
LANG	A new command LANG is added to the FTP command set to allow server-FTP process to determine in which language to present server greetings and the textual part of the command responses.	`502 Not yet implemented`	NO

LIST	This command causes a list to be sent from the server to the passive DTP. If the pathname specifies a directory or other group of files, the server should transfer a list of files in the specified directory. If the pathname specifies a file then the server should send current information on the file. A null argument implies the user's current working or default directory. The data transfer is over the data connection. This command must be preceded by a PORT or PASV command	`150 Opening data connection`
		`425 Cannot open data connection`
		`426 Data connection error`
		`551 File listing failed`
		`501 Syntax error`
		`226 Closing data connection`
			YES

MDTM	Returns the date and time of when a file was modified	501 Syntax error. 550 File unavailable. 213 <timestamp>	YES

Table 5   FTP Command List

Command	Description	Server Reply	Plug-in for FTP Server Support

MKD	This command causes the directory specified in the pathname to be created as a directory (if the pathname is absolute) or as a subdirectory of the current working directory (if the pathname is relative).	`501 Syntax error`
		`550 Not a valid file`
		`550 Already exists`
		`550 No permission`
		`250 Directory created`
		`550 Cannot create directory`
			NO

MLST	Returns info on the file over the control connection		YES

MLSD	Causes a list to be sent from the server to the passive DTP	`150 File status okay; about to open data connection.`
		`226 Closing data connection`
		`425 Can't open data connection`
		`426 Data connection error`
		`501 Syntax error in parameters or arguments`
		`551 File listing failed`
			YES

MODE	Set data transfer mode. The valid values are S and Z	`501 Syntax error` `504 Not implemented for this command`	YES

NLST	This command causes a directory listing to be sent from the server to the user site. The pathname should specify a directory or other system-specific file group descriptor; the null argument implies the current directory. The server will return a stream of file names and no other information.	`150 Opening data connection`
		`425 Cannot open data connection`
		`426 Data connection error`
		`551 File listing failed`
		`501 Syntax error`
		`226 Closing data connection`
			YES

NOOP	No operation	`200 Command okay`	YES

OPTS	Cause the server use optional features for the command specified	`500 Execution failed`
		`501 Syntax error in parameters or arguments`
		`502 Command OPTS not implemented for ...`
		`Additional return codes available for different OPTS commands`
			YES

Table 5   FTP Command List

Command	Description	Server Reply	Plug-in for FTP Server Support

PASS	The argument field is a Telnet string specifying the user's password. This command must be immediately preceded by the USER command.	`501 Syntax error`
		`503 Login with USER first`
		`202 Already logged-in`
		`421 Maximum anonymous login limit has been reached`
		`421 Maximum login limit has been reached`
		`530 Authentication failed`
		`230 User logged in, proceed`
			YES

PASV	This command requests the server-DTP to listen on a data port that is not its default data port, and to wait for a connection rather than initiate one upon receipt of a transfer command. The response to this command includes the host and port address this server is listening on.	`425 Cannot open passive connection` `227 Entering passive mode (<h1,h2,h3,h4,p1,p2>)`	YES
PBSZ	Protection buffer size **NOTE** RFC2228 requires that the PBSZ sub-command be issued prior to the PROT sub-command. However, TLS/SSL handles blocking of data, therefore **0** is the only value accepted.	`200 Command okay`	NO

PORT	The argument is a HOST-PORT specification for the data port to be used in data connection. There are defaults for both the user and server data ports, and under normal circumstances this command and its reply are not needed. If this command is used, the argument is the concatenation of a 32-bit internet host address and a 16-bit TCP port address. This address information is broken into 8-bit fields and the value of each field is transmitted as a decimal number (in character string representation). The fields are separated by commas. A port command would be:
	`PORT h1,h2,h3,h4,p1,p2`
		`501 Syntax error`
		`510 Syntax error in parameters`
		`510 Port is disabled`
		`553 Host unknown`
		`510 PORT IP mismatch`
		`552 Invalid port number`
		`200 Command PORT okay`
			YES

Table 5   FTP Command List

Command	Description	Server Reply	Plug-in for FTP Server Support

PROT	Data channel protection level. The supported level values are C, P.	`501 Syntax error`
		`431 Security is disabled`
		`504 Server does not understand the specified protection level`
		`200 Command PROT okay`
			YES

PWD	This command causes the name of the current working directory to be returned in the reply.	`257 "<current directory>"`	YES
QUIT	Closes connection.	`200 Goodbye`	YES
REIN	Flushes a user, without affecting transfers in progress.	`220 Service ready for new user`	YES

REST	The argument field represents the server marker at which file transfer is restarted. This command does not cause file transfer, but skips over the file to the specified data checkpoint. This command must be immediately followed by the appropriate FTP service command, which will cause file transfer to resume.	`501 Syntax error`
		`501 Not a valid number`
		`501 Marker cannot be negative`
		`350 Restarting at <position>.`
		`Send STORE or RETRIEVE to initiate transfer`
			NO

RETR	This command causes the server-DTP to transfer a copy of the file, specified in the pathname, to the server- or user-DTP at the other end of the data connection. The status and contents of the file at the server site is unaffected.	`501 Syntax error`
		`550 No such file or directory`
		`550 Not a plain file`
		`550 Permission denied`
		`150 Opening data connection`
		`425 Cannot open the data connection`
		`426 Data connection error`
		`551 Error on input file`
		`226 Transfer complete`
			YES

RMD	This command causes the directory specified in the pathname to be removed as a directory (if the pathname is absolute), or as a subdirectory of the current working directory (if the pathname is relative).	`501 Syntax error`
		`550 No permission`
		`550 Not a valid directory`
		`250 Directory removed`
		`550 Cannot remove directory`
			NO

Table 5 FTP Command List

Command	Description	Server Reply	Plug-in for FTP Server Support

RNFR	This command specifies the old pathname of the file which is to be renamed. This command must be immediately followed by the RNTO command specifying the new file pathname.	`501 Syntax error`
		`550 File unavailable`
		`350 Requested file action pending further information`
			NO

RNTO	This command specifies the new pathname of the file specified in the immediately preceding RNFR command. Together, these two commands cause the file to be renamed.	`501 Syntax error`
		`503 Cannot find the file which has to be renamed`
		`553 Not a valid file name`
		`553 No permission`
		`250 Requested file action okay, file renamed`
		`553 Cannot rename file`
			NO

SIZE	Returns the size of the file in bytes.	`501 Syntax error`
		`550 No such file or directory`
		`550 Not a plain file`
		`213 <size>`
			YES

STAT	This command causes a status response to be sent over the control connection in the form of a reply.	`211 Statistics information`	YES

STOR	This command causes the server-DTP to accept the data transferred via the data connection, and to store the data as a file at the server site. If the file specified in the pathname exists at the server site, then its contents will be replaced by the data being transferred. A new file is created at the server site if the file specified in the pathname does not already exist.	`501 Syntax error`
		`550 Invalid path`
		`550 Permission denied`
		`150 Opening data connection`
		`425 Cannot open the data connection`
		`426 Data connection error`
		`551 Error on output file`
		`226 Transfer complete`
			YES

Table 5   FTP Command List

Command	Description	Server Reply	Plug-in for FTP Server Support
STOU	This command behaves like STOR except that the resulting file is created in the current directory under a name unique to that directory. The 250 Transfer Started response must include the generated name.	550 Unique file name error 550 Permission denied 150 Opening data connection 425 Cannot open the data connection 250 \<file> Transfer started 426 Data connection error 551 Error on output file 226 Transfer complete	NO
STRU	The argument is a single Telnet character code specifying the file structure. The allowed argument is F.	501 Syntax error 504 Command not implemented 200 Command okay	NO
SYST	This command is used to find out the type of operating system on the server.	215 UNIX Type: Apache FTP Server	YES
TYPE	The argument specifies the representation type. The allowed types are A and I,	501 Syntax error 504 Command not implemented 200 Command okay	YES
USER	The argument field is a Telnet string identifying the user. The user identification is the one required by the server for access to its file system. This command will normally be the first command transmitted by the user after the control connections are made.	501 Syntax error 230 Already logged-in 530 Invalid user name 530 Anonymous connection is not allowed 421 Maximum anonymous login limit has been reached 421 Maximum login limit has been reached 331 Guest login okay, send your complete e-mail address as password 331 User name okay, need password	YES
SITE	Handle Apache FTP Server specific custom commands.	200 Command SITE okay 502 Command SITE not implemented for this argument 500 Execution failed 530 Access denied	YES

Table 5 FTP Command List

Command	Description	Server Reply	Plug-in for FTP Server Support

SITE/Zone	This command displays the time zone information of the FTP server in RFC 822 4-digit time zone format. The format is
	`Sign TwoDigitHours`
	`TwoDigitMinutes`
			YES

SITE/Who	This command displays all currently logged-in user information. It displays the user name, client IP, login time and last access time.
	Only the administrative user has the permission to execute this command.
		Sample Server Reply:
		`200-`
		`admin          127.0.0.1`
		`2005-09-01T12:20:26`
		`2005-09-01T12:20:52`
		`anonymous      127.0.0.1`
		`2005-09-01T12:20:37`
			NO

SITE/Stat	This command displays different server statistics information.
	Only the administrative user has the permission to execute this command.
		Sample Server Reply:
		`200-`
		`Start Time            :`
		`2005-09-01T12:10:11`
		`File Upload Number : 0`
		`File Download Number : 0`
		`File Delete Number : 0`
		`File Upload Bytes : 0`
		`File Download Bytes : 0`
		`Directory Create Number: 0`
		`Directory Remove Number:0`
		`Current Logins : 1`
		`Total Logins : 1`
		`Current Anonymous Logins: 0`
		`Total Anonymous Logins: 0`
		`Current Connections : 1`
		`Total Connections : 1`
		`200`
			NO

Table 5   FTP Command List

Command	Description	Server Reply	Plug-in for FTP Server Support

SITE/DES CUSER***	This commands returns the specified user information.
	
	Only the administrative user has the permission to execute this command.
		Sample Server Reply:
		`200-`
		`uid            : admin`
		`userpassword   : ********`
		`homedirectory  : C:\`
		`writepermission : true`
		`enableflag     : true`
		`idletime       : 0`
		`uploadrate     : 0`
		`downloadrate   : 0`
		`200`
			NO

Index

A

ABOR 20
ACCT 20
add properties 14
APPE 20
assign the service to a Gateway Instance 11
Auth 20

B

Business Connect administrator 5

C

CDUP 20
command reference 19
configure the outbound transport 12
connecting with the FTP Server 17
customer support x
CWD 20

D

DELE 20
delete properties 14

E

EPRT 21
EPSV 21

external users 5

F

FEAT 21
FTP Client 3
functional components 4

H

HELP 21

I

Inbox and Outbox 18
IP filtering 13

L

LANG 21
LIST 21

M

MDTM 21
MKD 22
MLSD 22
MLST 22
MODE 22