

PIN Services FTP Configuration, Use and Administration

This document describes how to access the PIN Services FTP Service. It consists of two parts. The first part describes the normal configuration and use of FTP. The second part describes how to configure the FTP server and client to provide remote access to data for third parties.

Part A - Normal Configuration and Use

1. General Description of FTP

FTP, or **File Transfer Protocol**, is one of the oldest **protocols** in use on the web. A protocol is simply a set of software and/or hardware rules for encoding and decoding data to be sent over the Internet. FTP was designed to facilitate efficient and reliable file transfer and this is its primary use.

Server



Transferring files using FTP requires two separate software components: a server and a client. These are simply the programs that facilitate the two points of contact – the computer providing access to files and the computer wanting access to those files. The client is fairly limited in that its role is to connect to any available FTP file server and provide a simple

Client



Graphical User Interface (GUI) for moving files to or from the computer running the FTP server. The server software is more complicated as it is the tool that facilitates configuring what files are available, how they can be accessed, and who accesses them.



One of the best uses that can be made of FTP is to allow the sending of large files in email through links as opposed to attachments. It is considered good practice to not send files larger than 2MB through email, although Google allows attachments up to 25 MB. This is because an attachment is embedded in the email and is then transferred by a protocol designed to mainly send simple text. This added layer of complexity makes transferring large files as attachments very inefficient and causes email Inboxes to fill up rapidly, creates security threats, causes data bloat (duplication and accumulation of unimportant data) and undermines the best use of email. In addition, spam filters are increasingly configured to be suspicious of attachments and are more likely to cause your email to be treated as spam. It is a much better practice to make any large files you wish to share available on a website or using your own FTP server. You can then configure simple links in your email to provide access to single files or groups of files based on your moment to moment needs.



2. Configuration of FTP Services on PIN00-OldPC

The FTP server software is installed on PIN00-OldPC in the office. It is configured for both secure and un-secure FTP transfers. Typical FTP transfers are anonymous and un-secure. This means they use anonymous accounts that facilitate downloading files directly without any password and without encrypting the data.



It is possible for anyone with basic technical knowledge and motivation to intercept the data sent over a un-secure FTP connection, or for an individual to access other files through the anonymous account that were not meant to be accessible. For this reason if data is sensitive it is better to configure FTP to use both a password and encryption.

The first level of security is to create FTP accounts on the server with passwords that require users to log in before accessing files. To secure the data itself, it must be encrypted. There are several ways to do this. In this implementation the FTP server is configured to encrypt files using the SSL/TLS protocol, which is a form of cryptography that uses **keys** or **security certificates** that are in essence very large primes numbers randomly generated as seeds for altering the data so that if it is intercepted there is no way to access the data without a copy of the certificate.

  Using security certificates is an easy to implement, user-friendly, reliable, and extremely secure way of sending data through any service, not just FTP, over the Internet. However, your security depends entirely on the management of certificates. If the certificates themselves are not properly secured your system may be compromised directly.

Like all other services FTP is accessed through the IP address (and a port number) of the computer providing the service, and therefore, indirectly through the router connected directly to the Internet that the FTP server computer is behind. In most cases it is the IP address of the router that is used to access the actual FTP server. Most FTP servers are configured to use a domain name and DNS to be accessed. The PIN services FTP server is configured to be directly accessed through the **pin.dyndns.biz** domain.

Key Information for making a PIN Services FTP Connection

Server or Router IP address, or Domain: <ftp://pin.dyndns.biz>

Ports: Un-secure port number is **XXXXXX** (custom port, 21 is default for FTP), Secure port number is **XXXXXX**



Preconfigured user account for internal use: **XXXXXXXXXX**

Password: *********

(stored in Secure File Fault on **XXXXXXXXXX** and on **XXXXXXXXXXXXXXXXXX**)





Default folder on PIN00-oldPC for **XXXXXXXXXX** account:

C:\PIN_SERVICES_BACKUP\FTPShare


Level of File access: complete access to copy, edit, and delete files and folders in FTPShare Folder.

Network Drive mapped to **FTPShare** on PIN03-newPC and PIN02-newlaptop: **Z**

  To facilitate access to the **FTPShare** folder on PIN00-oldPC the folder **C:\PIN_SERVICES_BACKUP** has been shared using a password on the local **Guest** account of PIN00-oldPC. If someone is able to circumvent the router (risk is low if security is well managed) or is connected locally the shared folders are still secured. The **FTPShare** folder is only meant to be used to temporarily store data for remote retrieval or to allow the remote transfer of data to PIN00-oldPC for backup or other purposes. **FTPShare is not currently backed up, other than in a monthly complete image backup of PIN00-oldPC.**

3. Connecting to the PIN Services FTP server using Filezilla client and Internet Browsers

Connection to the FTP server can be accomplished in many ways. Typically one uses an FTP client. An FTP client provides more tools for viewing, organizing, and transferring files. Using an Internet Browser is very simple and doesn't require any specialized software but only allows basic access to files.

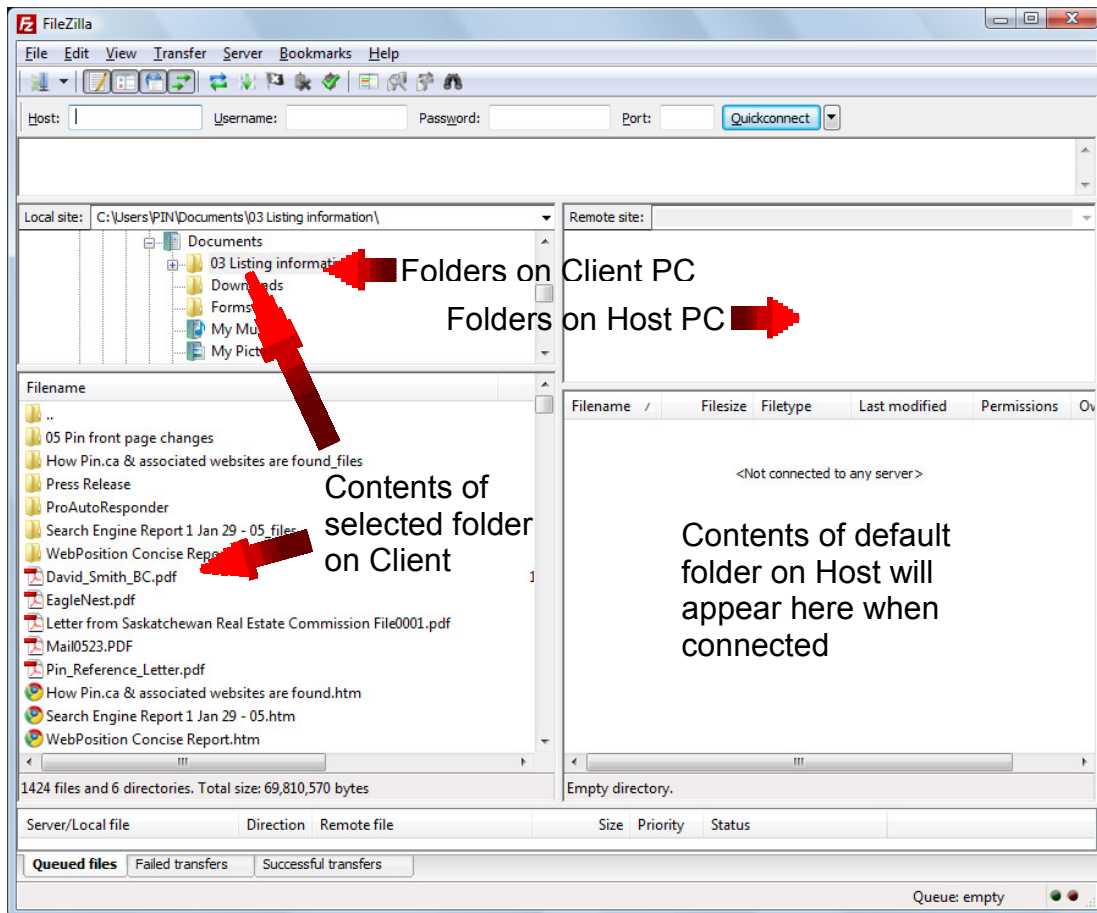
 In addition, other services available through the PIN Services Network provide FTP functionality, specifically UltraVNC remote control. The file transfer feature provided during a

remote control session is simply an embedded and combined FTP server/client. Familiarity with one FTP application or method of access provides transferable understanding of how to best exploit the FTP technology.

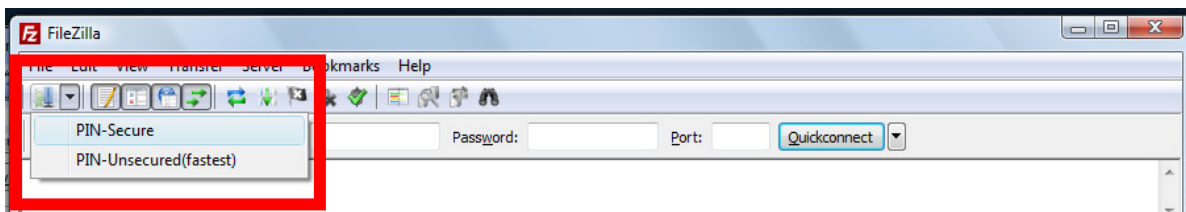
a) Connecting to PIN Service FTP server using Filezilla client



Filezilla client has been installed and pre-configured on PIN02-newlaptop for ease of use. To begin simply *double-click* the Filezilla client *shortcut* on the **Desktop** or on the **Start Menu**. The following window will open:

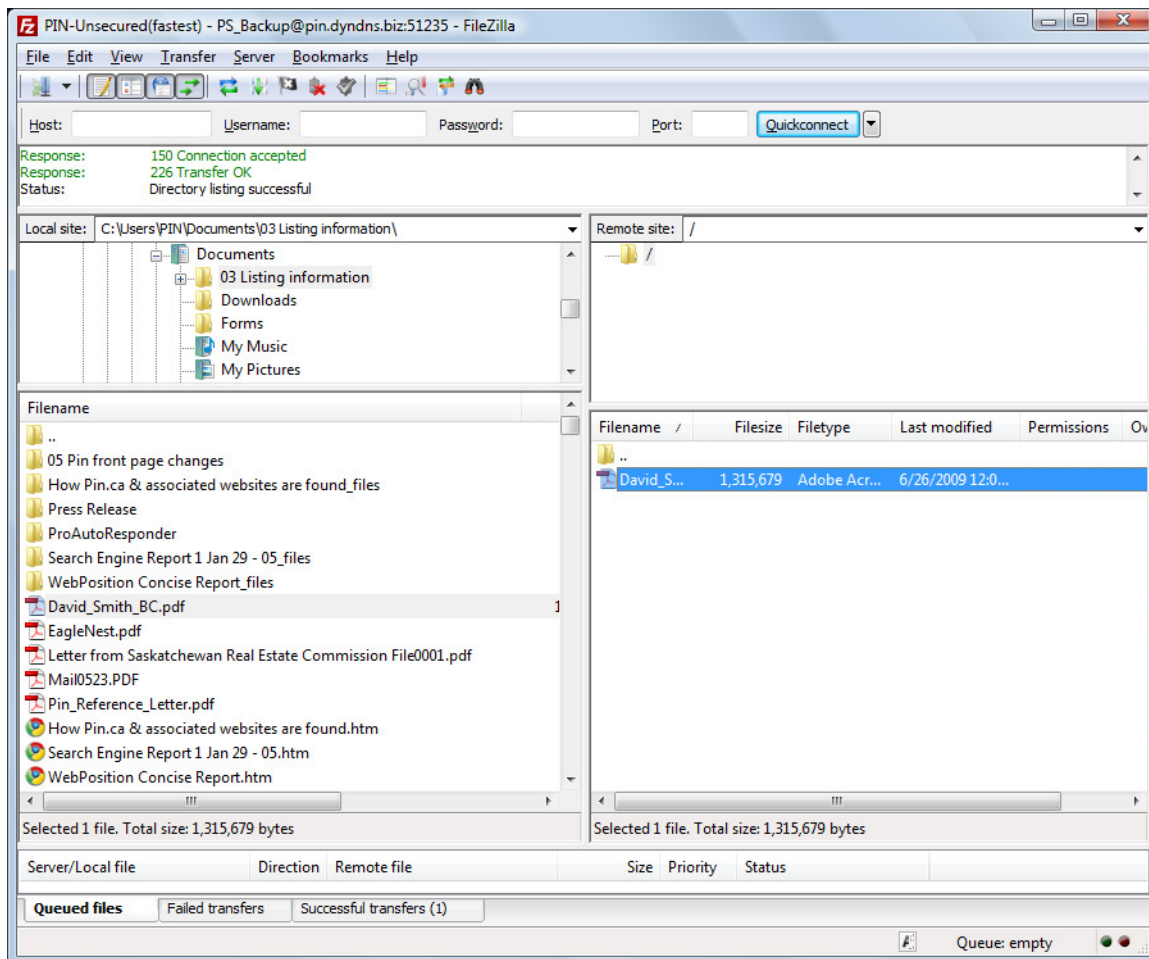


The FTP client GUI is divided left and right into two Window's-like **File Browsers** or **Explorers**. The left side shows the folder structure, and contents of the default folder for the client PC, the local site. The right side, when a connection is made, will show the same for the Host PC, the PC running the FTP server, the remote site.



Filezilla client has been pre-configured with two **Connection Profiles** or **Sites**. To connect simply *click* the drop-down arrow of the left-most icon on the toolbar and select either the **PIN-Secure** or **PIN-Unsecured** connection. The software will initiate and negotiate a connection and assuming

there are no problems, connect you to the remote folder. The main Window will then show the contents of the Host FTP default folder as shown below:



The primary use of FTP is to allow files, large or small, to be moved back and forth remotely for backup or other purposes. There are several ways to start a **file transfer**. *Double-clicking* a file on either the host or the client will initiate a file transfer between the currently selected folders. Multiple files and folders may be *shift or control selected* and transferred together.



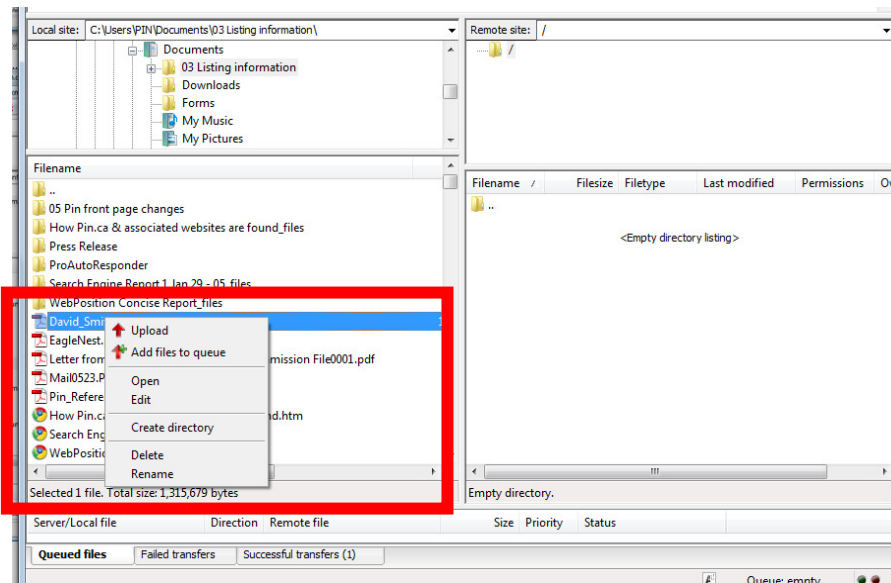
When *selecting* groups of files by *left-clicking* if you hold the **Shift** key and *click* one file, then move to another file, still holding **Shift**, and *click* it, all the files in between will be *selected* as well. If you hold the **Ctrl** (control) key instead then only the separate files you *click* on will be selected. Using these two ways of *click-selecting* it is easy to quickly *select* large numbers of contiguous (bunched together in a line or group) or uncontiguous (not bunched together in a line or group) files.

Another simple way to start a file transfer is by *clicking and dragging*. Browse for the folder with files you wish to transfer and the folder where the files are to be transferred. *Click and hold* the file or folder to be moved, then simply *drag* it to the target folder. The final method uses the **Context Menu**.

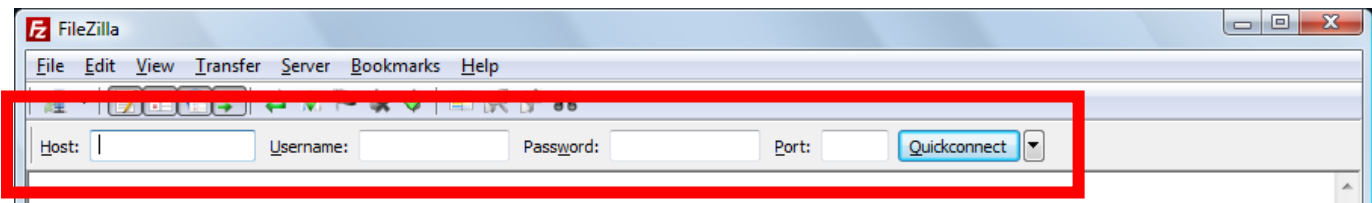


Any **object** in Windows can be *right-clicked* on and a **context menu** will appear providing actions to be performed that are appropriate to the object and where the object is located (its context).

The window below shows a context menu for a pdf file that is *right-clicked* on the client computer. **Selecting the Upload** command would transfer the file to the default folder on the host. By convention we **download** from a server and **upload** to it.



If for some reason the pre-configured connections fail or are unavailable the connection can be made manually by typing the connection information into the fields on the **Quickconnect** toolbar.



The following information can be manually entered into the fields:

Unsecure Connection: **pin.dyndns.biz** (or router ip address), **XXXXXXXX**, *********, **XXXXX**

Secure Connection: **pin.dyndns.biz** (or router ip address), **XXXXXXXX**, *********, **XXXXX**

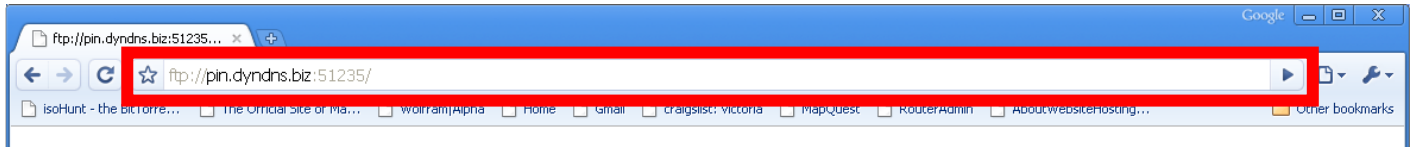
Then simply *click* **Quickconnect**. This connection method is useful for connecting to other FTP servers if such a situation arose.

b) Connecting to PIN Service FTP server using an Internet Browser

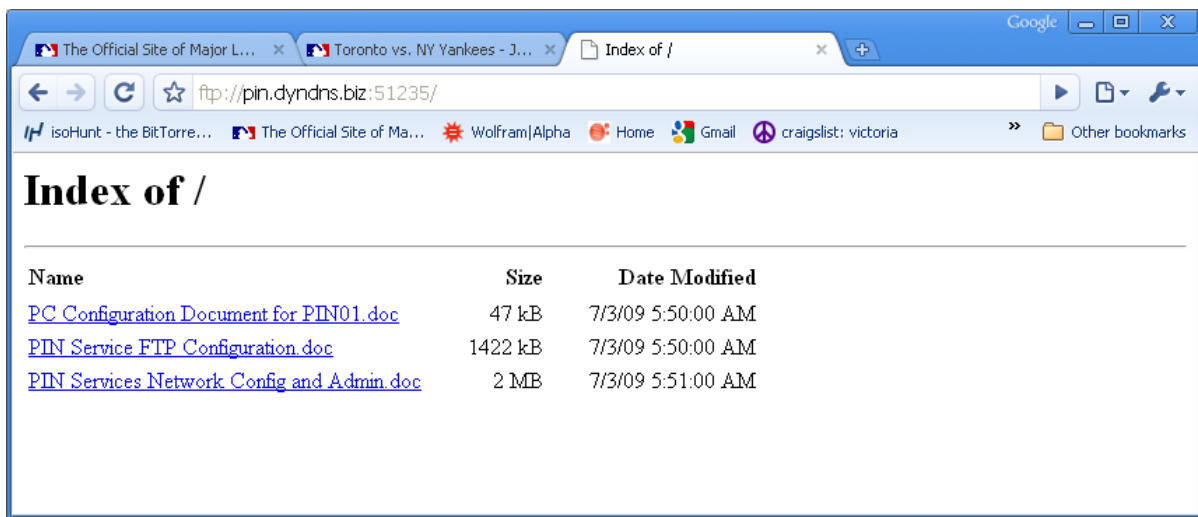
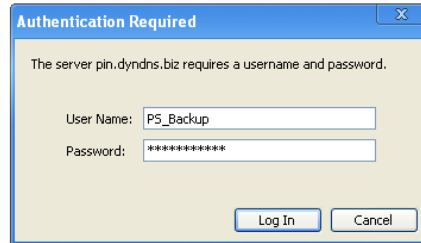
Most, if not all, current Internet Browsers have built-in FTP capabilities. To connect to the FTP folder simply type the following into any web browser address field (Chrome used in this example)

<ftp://pin.dyndns.biz:XXXXX/> for the unsecure connection or
<ftp://pin.dyndns.biz:XXXXX/> for the secure connection

The IP address of the PIN Service router can also be used instead of **pin.dyndns.biz** if it is known or can be determined.



A login dialogue box will open (below). Simply enter the User Name, **XXXXXXXX**, and the current password and *press Enter*. A new page showing the contents of the FTP folder will then appear. You can download files by simply *clicking* on the links, but an FTP client is required to upload files.



4. Making download links for email attachments

An account and folder on PIN00-oldPC has been preconfigured to allow remote Guest FTP access. To provide an email link to download files directly follow these steps:

- a) Place a copy of the file or files to be downloaded in the following folder: Z: (on PIN00-oldPC in C:\PIN_SERVICES_BACKUP\FTPShare\For_Download).



Remember that this folder is not backed up and is shared. Do not store originals here, and remove sensitive information if it no longer needs to be accessed through FTP.

- c) Type (or cut and paste from the example and edit) the following information into your email replacing the name 'your_document.filetype' with the actual document name:
ftp://guest:@pin.dyndns.biz:XXXXX/your_document.filetype (File extension must be included)

Depending on how their email client and browser are configured they may still be prompted for a user name and/or password. Add this disclaimer right after your link in the email.

NOTE: If you are prompted for a user name enter 'Guest'. If you are prompted for a password simply hit *Enter*

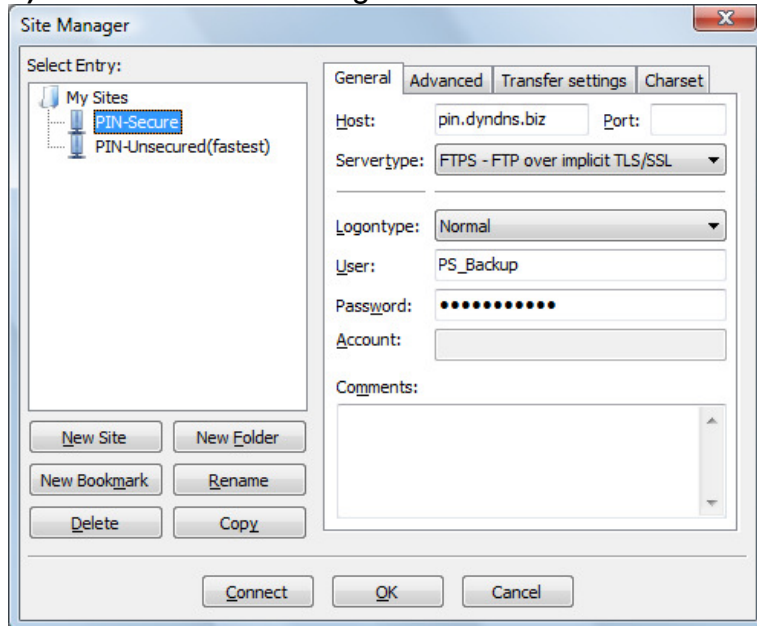
Part B – Administration of FTP Accounts and Folders

This part of the document provides additional configuration information for trouble-shooting and adding new FTP accounts.

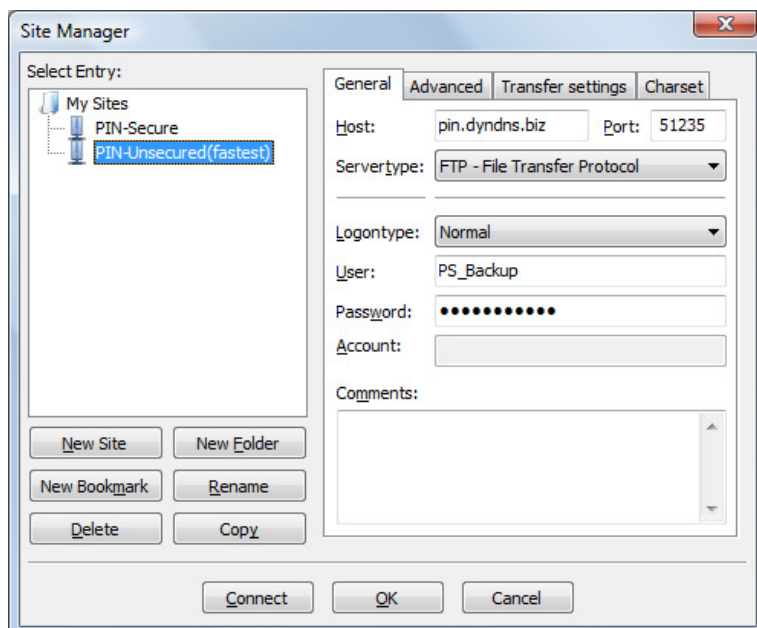
1. Configuration of Site Manager

Clicking on the **Site Manager** icon, the left-most icon on the toolbar, will open the Site Manager where the **PIN-Secure** and **PIN-Unsecure** connections are configured. Snapshots are included for trouble-shooting purposes.

a) PIN-Secure site configuration



b) PIN-Unsecure site configuration



2. Security Information

Security Certificate is located on:

XXXXXX – C:\XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Security Certificate Password: *****

(Certificate password stored in Secure File Fault on XXXXXX and certificate is backed up on the XXXXXXXXXXXX)

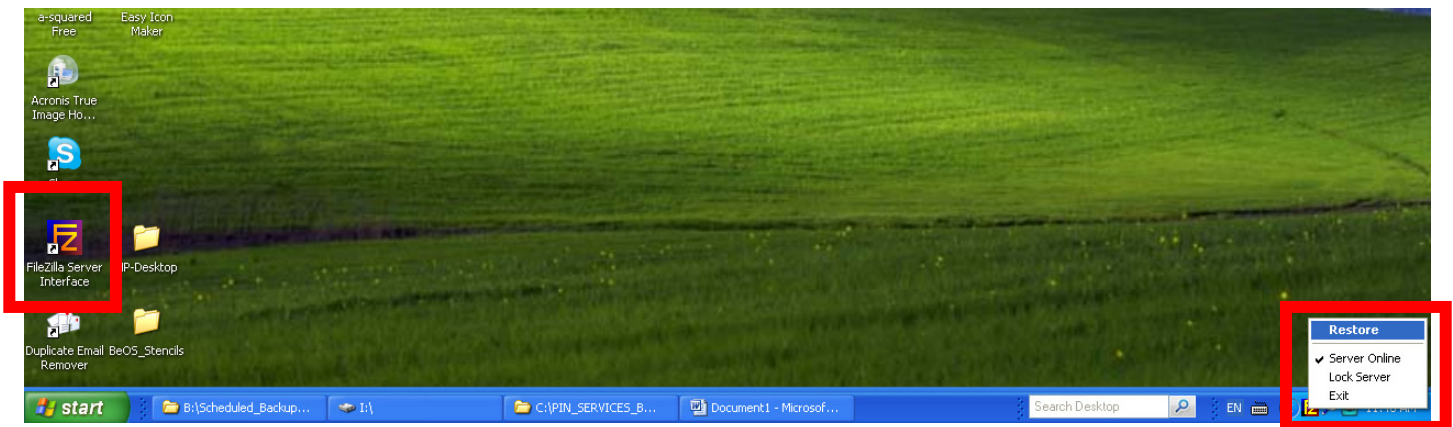


A new certificate can easily be made using Filezilla server. It is then copied to the folder listed above. The first time a client makes a secure connection the FTP client will download and convert the new certificate.

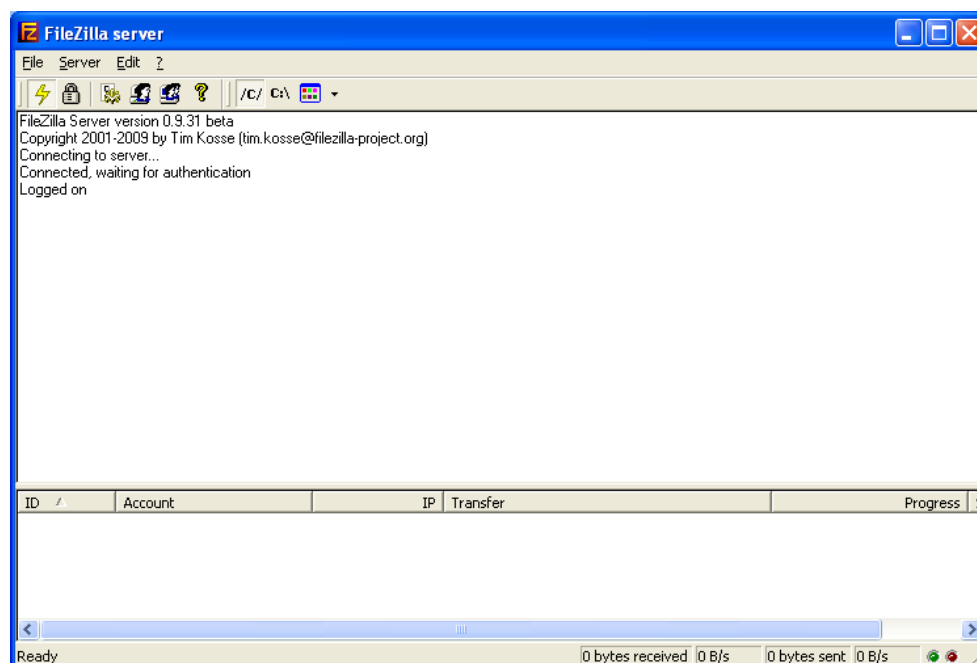
3. Key Server Configuration



The following snapshots show the key configuration of the FTP server on PIN00-oldPC. The **Filezilla Server Interface** is accessed on PIN00-oldPC by either *double-clicking* the Filezilla Server Interface shortcut on the Desktop or by *right-clicking* on the Filezilla icon in the **Icon Tray** and **Selecting Restore**.

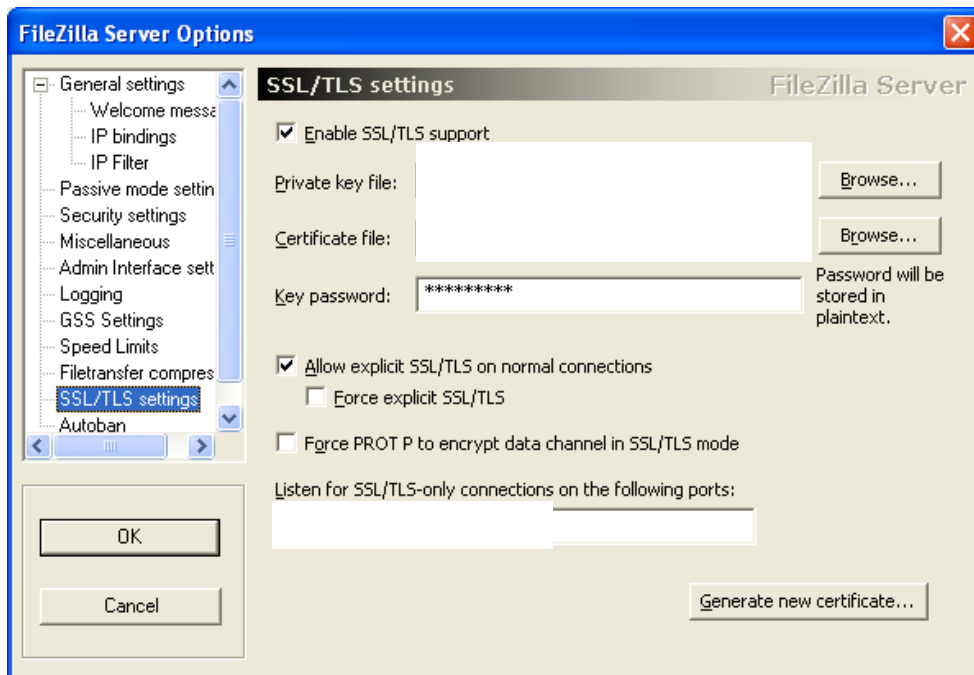
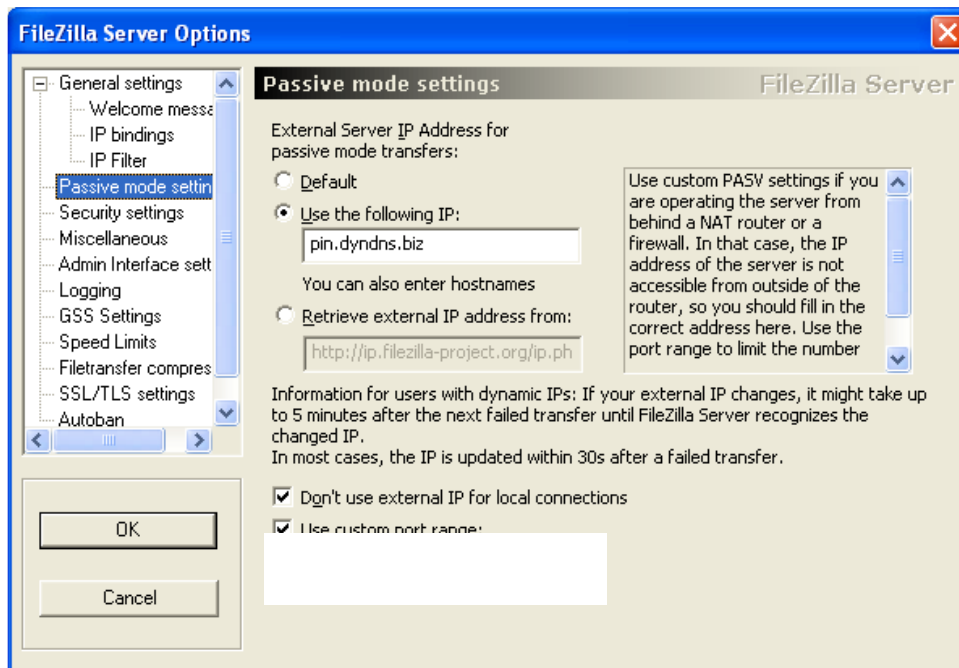


The following Window will open:



Click on **Edit | Settings** to access settings or **Edit | Users** to configure access.

Here are the key pages:



Notice the button in the lower right corner. This is used to generate a new security certificate if the original is corrupted or compromised.

4. Configuring new accounts and file and folder access using FTP Server

A practical use of FTP is to provide controlled access to specific files or folders to potential clients or other parties through temporary FTP accounts. This allows you to strictly control when, how, and what files are accessed without having to compromise the **XXXXXXXX** account or password.



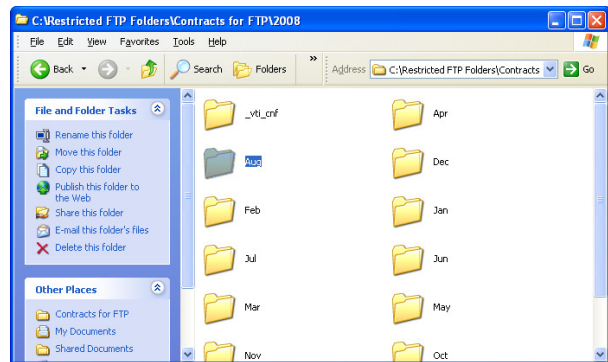
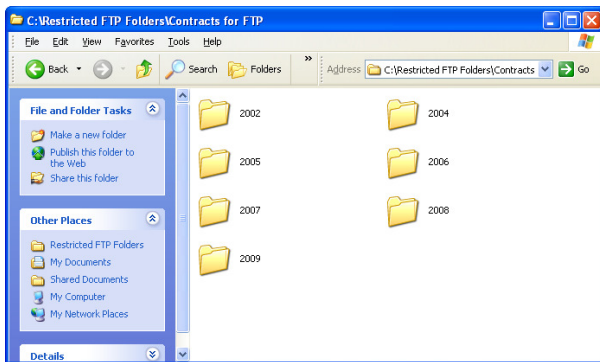
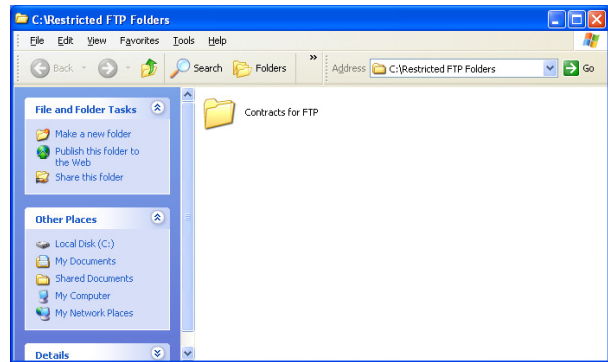
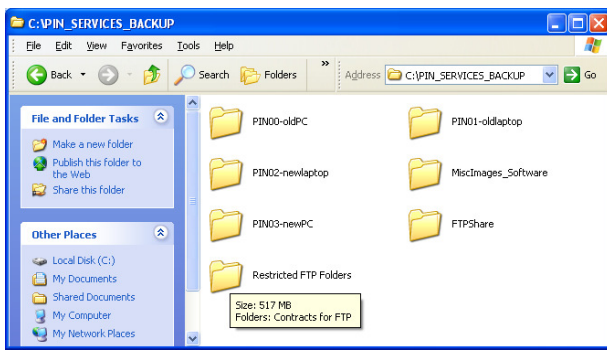
To configure FTP Server you must have access to PIN00-oldPC either in the office or through remote control.

In this example we will demonstrate how an account and access was created for all copies of PDF contracts for August 2008. The specific files to be made selectively available must all be in the same folder. In this case the folder structure and files have already been created on PIN00-oldPC.

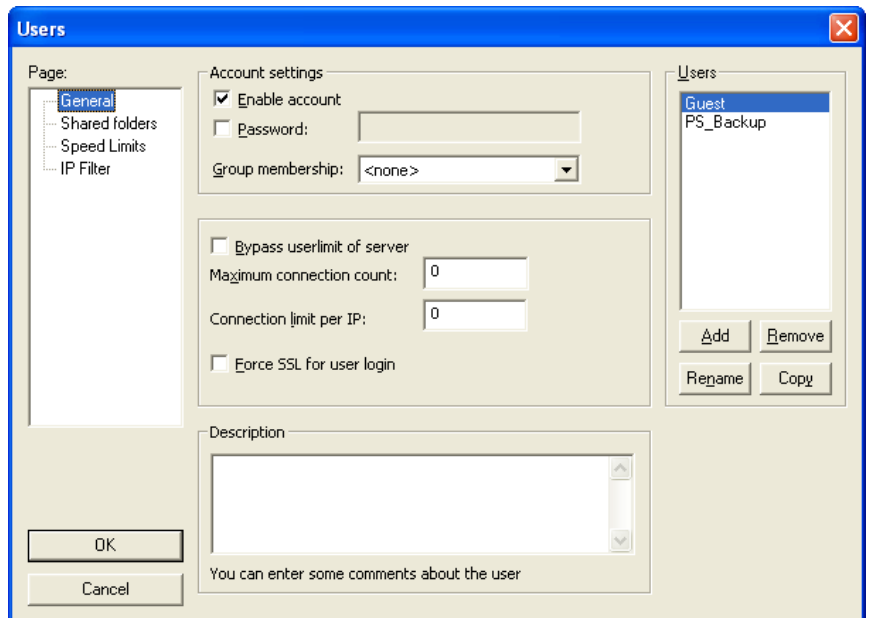


To minimize the risk to sensitive data do not place files to be made available to privileged accounts in the FTPShare folder on PIN00-oldPC as this folder is shared on the network and is more vulnerable. First copy the files to the Z drive from your PC or laptop and then move them to the Restricted FTP Folders on PIN00-oldPC while working from PIN00-oldPC.

Here is a snapshot of the folder structure that was setup on PIN00-oldPC:



Once the folders and files are set up you may configure an FTP account and access rights. To do this open the **Filezilla Server Interface** and select **Edit | Users** from the file menu. The dialogue box shown to the right will open:



This dialogue box displays all the configured FTP accounts, the specific folders they have access to, and the type of file and folder rights they have been granted.



Accounts that are not in use should be disabled here to maximize security by simply *un-checking* the **Enable account** checkbox for the appropriate account.

Click the **Add** button (middle-right) to create a new account. Type in an account name as shown to the right.

Click **OK** to return to the main **User** dialogue box.

Add user account

Please enter the name of the user account that should be added:

Aug09Contracts

User should be member of the following group:

<none>

OK Cancel

Users

Account settings

Enable account

Password: *****

Bypass userlimit of server

Maximum connection count: 0

Connection limit per IP: 0

Force SSL for user login

Description

You can enter some comments about the user

Users

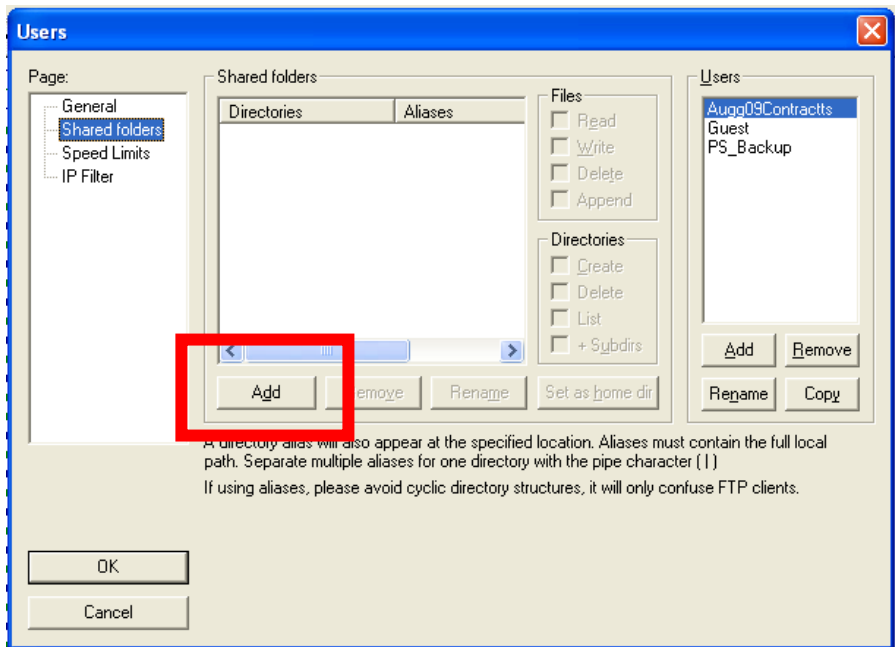
- Aug09Contracts
- Guest
- PS_Backup

Add Remove

Rename Copy

OK Cancel

Now that the account is created enter a password in the password field as shown above. Finally we can configure file and folder access by clicking the **Shared folders** link as shown above. The following window will open:



Now *click* on the **Add** button as shown above. The **Browse for Folder** window shown to the right will open. Use it to *browse* for the folder with the files to be made available, in this example the August 09 contracts. *Click* **OK** to return to the **User** dialogue box and set file permissions.

The snapshot shown below has the default file and folder rights. These are sufficient to allow people to download copies of the files without changing them on the server. With these settings it is not possible to change, or add, files or folders. The second snapshot (to the right) shows the file and folder rights that allows files and folders to be added, edited, or deleted on the server

