

FTPD Service for Windows NT

by Software Innovations Incorporated

This document describes release 0.01 of Software Innovations Incorporated's FTP service for Windows NT. **Release 0.01 is a working prototype** and has a number of known bugs and problems, some of which are related to API problems. Be sure to read this document carefully as the security of your system is an issue when using this version of FTPD.

Software Innovations Incorporated makes no warranty as to the fitness of this software for any use.

This software and documentation is Copyright 1993 Software Innovations Incorporated. Portions of the software are Copyright 1984-1988 Regents of the University of California.

You are free to use and redistribute the binaries to the software provided that this document along with the above copyright notices are included. A \$25 shareware fee is requested. Payment of the registration fee will entitle you to a free copy of the full production software and documentation. For a limited time, source code for this working prototype may be purchased for an additional \$25.

Why order the source? The source provides examples of:

- A working NT service, service installer, deinstaller
- Control panel applet
- Registry use
- Multi-threaded operations
- Critical section code
- Thread-local storage
- LanManager calls
- WinSock operations in a multi-threaded environment

Send shareware and source fees to:

Software Innovations Incorporated
P.O. Box 644
Ames, Iowa 50010

or call (515) 232-9127 or fax (515) 232-7382 with credit-card orders (MC & Visa).

Fax orders are preferred. Be sure to include the following on a single sheet (no cover please):

The words : FTP/NT registration or: FTP/NT registration and source order
Your name as it appears on the card.
Type of card (MC or VISA)
Card Number
Expiration date
Shipping address
Your signature
The total amount authorized : \$25 registration, \$50 with source code, plus any tax or
express shipping (see below).

Iowa residents should include applicable sales tax. All source orders will be shipped within 24

hours by first class mail or UPS ground. Include an additional \$5.00 for UPS 2nd Day or \$9.00 for UPS next day. Production-version upgrades will be shipped as they become available.

Questions may also be e-mailed to:

martin@iastate.edu or 76137,3022 on CompuServe
bron@iastate.edu

DO NOT EMAIL CREDIT CARD ORDERS

Features

- Implemented as a true Windows NT service.
- Multi-threaded operation
- Full integration with NT facilities
- Logging recorded in the event logger
- Configuration stored in the registry - no external config files
- Connection limits
- Support for a welcome message and .message files

Manifest

Your release kit contains the following files:

ftpdserv.exe	The actual service program
ftpdmsgs.dll	Message file for the NT event logger
ftpdctl.cpl	The control panel applet
ftpd.wri	This document
ftpdinst.exe	An installer program
ftpddele.exe	A de-installer

Installation

Be sure to read the known bugs and problems section BEFORE activating FTPD on your system. This version of FTPD has a necessarily-weak security system. SII plans to replace this in the first productional version.

In the productional release, an MSSETUP install script will be provided. For now, the process is a manual one.

To install the ftpd server:

1. Log in as Administrator
Make sure that neither the control panel, service manager, or event logger are running on your desktop (close their windows).
2. Unzip the files in a temporary directory. The unzip program can be acquired from
ftp.iastate.edu pub/nt/(processor)/unzip.exe
unzip ftpdserv.zip
3. Execute the following commands:
copy ftpdserv.exe \winnt\system
copy ftpdmsgs.dll \winnt\system

copy ftpdctl.cpl \winnt\system

4. Run the installer program:
ftpdist
This program will initialize values in the registry with defaults, register ftpd with the event logger, and register the service program with the service manager.

To delete the service:

1. Run the de-installer:
ftpdcl
This program will un-register the service with the service manager.
Registry values remain.
2. You may delete the files:
 \winnt\system\ftpdsvr.exe
 \winnt\system\ftpdctl.cpl
3. You may also delete the file \winnt\system\ftpdmsgs.dll *after* clearing the event logger application log of any FTPD messages.

Configuration

The FTPD service is configured using a control-panel applet. Double click on the FTPD icon to set the following values. Configuration changes affect only future connections. Existing ftpd client-server connections will continue using the settings in effect when they were initiated.

Log Connections	Check this box if you wish to log all new connections and logins to the event logger.
Log Transfers	Check this box to log all files stored or retrieved
Maximum number of simultaneous connections	Enter the maximum number of simultaneous ftp client-server sessions that you wish to support at one time. This can be used to limit the load which FTPD places on your system during busy periods. If you don't want to limit the number of connections, set this value to 0.
Default session timeout	This sets the default idle timeout. Any session which is idle (no commands issued for this number of seconds) will be disconnected.
Maximum session timeout	This sets the maximum idle timeout that a client may request. A client may request a longer timeout value. This field represents the maximum allowable timeout value that may be requested.
Path to 'welcome' message	When a new connection is established, the text file indicated by this path will be displayed prior to the prompt for a login name and password. (disabled - see known bugs section)

This option has temporarily been replaced by the security-path kludge, below.

Share to use for access control

The share name used here (e.g., \\skyhawk\ftp) will be used to check usernames and passwords. If this field is left empty, then all that is required is a home directory for successful login. If this is set to a server and share name, then anyone with a correct name and password for and access to that share will be allowed to login to the ftpd service. This security kludge is in place until other appropriate measures can be coded (see: know bugs)

Whenever a client sets the current working directory using the cd command, the service checks for the existence of a file named '.message'. If a .message file is found, it will be sent to the client each time s/he enters that directory. This is useful for presenting a brief descriptive message, disclaimer, or copyright notice for items in that directory. These messages should be kept as short as possible as they are displayed *each* time the client enters that directory.

Operation

When serving out files via FTPD, please take care to respect all copyright, license, and shareware terms and conditions on the files you are making accessible.

Starting the FTPD Service

- o Open the control panel (in the group: Main).
- o Double-click the Services icon
- o Insure that the following services are started. You may wish to use the Configuration button to make them 'automatic' such that they start each time the system is booted.
 - LanmanWorkstation
 - LanManServer (may not be require in future releases)
 - TCP/IP
- o Select the FTPD service and click on 'Start'
If you wish FTPD to be started each time your system boots, click on Configure and make FTPD 'automatic'.

Stopping the FTPD Service

- o Open the control panel and double click on the Services icon.
- o Select FTPD from the list of services
- o Click on 'Stop' and confirm your selection by clicking on Yes in the confirmation dialog
- o You may change FTPD to 'manual' startup (such that it won't start automatically at each reboot) by clicking on Configure and then selecting Manual.

Viewing the Activity Log

- o Open the Event Logger (available to the administrator in the Administrative Tools group.
- o Select Application from the Log menu to see FTPD event.
- o As FTPD runs, you may press F5 to refresh the event logger's display.

See the Messages section of this document for a list of the possible log messages.

Client Operations

All normal FTPD server operations are supported. Because FTP was created for and exists primarily in the UNIX domains, some concessions to NT are required. Those include:

Directory delimiters. The following are all valid directory specifications:

```
cd d:\xxx\yyy
cd \\skyhawk\projects\ftp
cd /foo/bar
cd f:/foo/bar
```

Directory listings:

The client command 'ls' will print a simple list of filenames.

The client command 'dir' will print a more complete list of filenames and information:

```
ftp> dir
200 PORT command successful.
150 Opening ASCII mode data connection for file list.
d   Administrators  11-Feb-1993   3:02p           bash
d   Administrators   8-Feb-1993   5:16p           bison
d   Administrators   2-Feb-1993   3:00p           compress
      Administrators 29-Apr-1991   4:57p       4245 CRON.C
d   Administrators  17-Feb-1993   4:19p           dialit
d   Administrators  11-Feb-1993  12:49p           diff
      :
      :
d   Administrators  16-Feb-1993   9:55p           tcsh-6.03
d   Administrators   2-Feb-1993  12:27p           unzip
d   Administrators   1-Feb-1993   5:39p           UUCP
d   Administrators   1-Feb-1993   5:38p           WINNEWS
d   Administrators   1-Feb-1993   3:26p           zip
226 Transfer complete.
1725 bytes received in 2.32 seconds (0.74 Kbytes/sec)
```

The first column may contain one or more of:

d	This is a directory
R	a read-only file
S	a system file
T	a temporary file

Column 2 contains the name of the owner.

Column 3 contains the date last written

Column 4 contains the time last written

Column 5 (blank for directories) contains the size of the file

Column 6 contains the name of the item

Messages

The following messages are currently supported. Some will not appear unless the proper logging options are selected in the control panel applet.

The FTP service has started successfully.

The FTP service has shut down successfully.

A new connection has been received from %1. This connection is being

serviced by thread %2.
FTP login by %2 at %1
Anonymous FTP login from %1, %2
User %1 timed out after %2 seconds.
User %1 logged out from FTP.
User %1 has stored file %2.
User %1 has retrieved file %2.
Repeated login failures from %1.
Unable to create communication management thread.
The TCP/IP library reports it is not ready for use.
The requested WinSock API version is not available.
The specified WinSock version is not supported by this DLL.
CreateThread failed while trying to service a new connection.
getpeername() failed on new connection
getsockname() failed on new connection
Unable to allocate thread local storage index.
Unable to malloc thread local storage space.

Known Bugs and Problems

Description : Deprecated security. No real effective checking of the cleartext username and password is done. One or more needed security API calls are currently inaccessible at this level of NT.

Fix : Add additional API calls, as they become available, to obtain a thread-local access token in order to validate ftpd login and to use in controlling file access. This fix is a must before this program can be considered a well-behaved productional facility. This fix is being actively pursued with MicroSoft.

Workaround : The service currently allows you to enter a server and share name into the control panel applet. All attempted logins will be checked for access to that share. While this may sound like a reasonable compromise, because the ftp service runs as administrator, once logged in, no file or directory security is available.

Further, the authors' experience with the WNetAddConnection2() has shown this to be an iffy proposition. That is, sometimes the call behaves as expected, other times it doesn't. While this may be the result of programmer error, the situation does seem to improve if you use the NET USE command to mount the share at least once.

If you can't get this surrogate method of security to work, just use an empty share name in the control applet and anyone with a valid and accessible home directory will be allowed access to ftp.

Description : The 'welcome message' feature is disabled due to protocol incompatibilities with some ftp clients.

Fix : This feature will be re-enabled as the protocol for such messages becomes clearer.

Description : The .message file in a login (home) directory is not displayed.

Fix : Coding changes to ftpdserve to display this initial .message file.

Workaround : A command of CD . will display the .message file.

Description : The control-panel applet icon is temporary.

Fix : The author, not being an icon artist, welcomes suggestions and submissions.

Description : File sizes in the dir command only display the low 32 bits of the file size.

Description : Some paths supplied with the dir command result in invalid or empty responses while a cd to that same path and then an ls or dir without arguments displays the correct response.

Description : The stat-file command is not implemented. Under UNIX it displays the result of ls -algA.

Fix : This will be implemented in the next release in a format as close to UNIX as possible.

Description : The service sometimes reports that the connection limit has been reached when it in fact has not.

Workaround : Set the connection limit to 0 if this occurs on your system.