



FTP

File Transfer Protocol

FTP

□ FTP

- File Transfer Protocol
- Used to transfer data from one computer to another over the internet
- Client-Server Architecture
- Separated control/data connections

□ FTP connections

- Control connection
 - Created when an FTP session is established
 - Only for passing control information
- Data connection
 - Each time that data is sent, a distinct TCP data connect is established

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❑ Data connection Modes

- Active Mode
- Passive Mode
- Request For Comments (RFCs):
 - RFC 959 – File Transfer Protocol
 - RFC 2228 – FTP Security Extensions
 - RFC 2428 – FTP Extensions for IPv6 and NATs
 - RFC 2640 – UTF-8 support for file name
 - RFC 2324 – Hyper Text Coffee Pot Control Protocol

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❑ Security concern

- As we seen, FTP connections (both command and data) are transmitted in clear text
- What if somebody sniffing the network?
 - We need encryption

❑ Solutions

- FTP over SSH
 - A normal FTP session tunneled through a SSH channel
- SSH File Transfer Protocol (SFTP)
 - Both commands and data are encrypted while transmitting
 - One connection, but poor performance
- FTP over TLS (ftps, ftpes)
 - Only commands are encrypted while transmitting
 - Better performance

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- Pure-FTPd (1)

□ Introduction

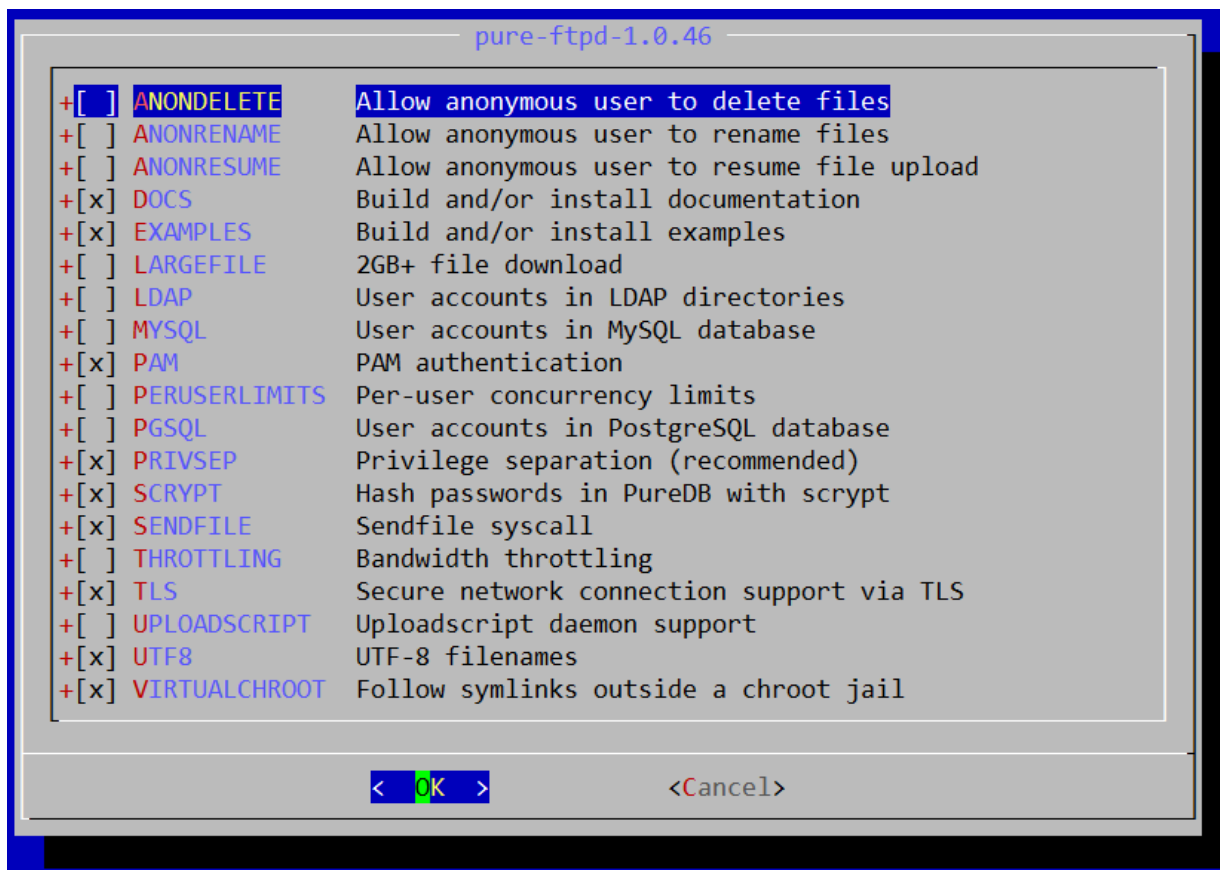
- A small, easy to set up, fast and secure FTP server
- Support chroot
- Restrictions on clients, and system-wide.
- Verbose logging with syslog
- Anonymous FTP with more restrictions
- Virtual Users, and Unix authentication
- FXP (File eXchange Protocol)
- FTP over TLS
- UTF-8 support for filenames

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- Pure-FTPd (2)

❑ Installation

- Ports: /usr/ports/ftp/pure-ftpd
- Options



```
pure-ftpd-1.0.46
+ [ ] ANONDELETE Allow anonymous user to delete files
+ [ ] ANONRENAME Allow anonymous user to rename files
+ [ ] ANONRESUME Allow anonymous user to resume file upload
+ [x] DOCS Build and/or install documentation
+ [x] EXAMPLES Build and/or install examples
+ [ ] LARGEFILE 2GB+ file download
+ [ ] LDAP User accounts in LDAP directories
+ [ ] MYSQL User accounts in MySQL database
+ [x] PAM PAM authentication
+ [ ] PERUSERLIMITS Per-user concurrency limits
+ [ ] PGSQL User accounts in PostgreSQL database
+ [x] PRIVSEP Privilege separation (recommended)
+ [x] SCRYPT Hash passwords in PureDB with scrypt
+ [x] SENDFILE Sendfile syscall
+ [ ] THROTTLING Bandwidth throttling
+ [x] TLS Secure network connection support via TLS
+ [ ] UPLOADSCRIPT Uploadscript daemon support
+ [x] UTF8 UTF-8 filenames
+ [x] VIRTUALCHROOT Follow symlinks outside a chroot jail

< OK > <Cancel>
```

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- Pure-FTPd (3)

- Other options

```
nctucs [/usr/ports/ftp/pure-ftpd] -wngth- sudo make extract
```

...

You can use the following additional options:

LANGUAGE=lang (default: english)

- Enable compilation of one language support
available lang: brazilian-portuguese, catalan, czech, danish, dutch,
english, french, french-funny, german, hungarian, italian, korean,
norwegian, polish, romanian, russian, simplified-chinese, slovak,
spanish, swedish, traditional-chinese, Turkish

- LANGUAGE
 - Change the language of output messages

❑ Startup

- Add `pureftpd_enable="YES"` in `/etc/rc.conf`

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- Pure-FTPd Configurations(1)

❑ Configurations:

- File: `/usr/local/etc/pure-ftpd.conf`
- Documents
 - Configuration sample: `/usr/local/etc/pure-ftpd.conf.sample`
 - All options are explained clearly in this file.
 - Other documents
 - See `/usr/local/share/doc/pure-ftpd/*`

```
nctucs [/usr/ports/ftp/pure-ftpd] -wngth- ls
AUTHORS                                README.LDAP
CONTACT                                README.MySQL
COPYING                                README.PGSQL
HISTORY                                README.TLS
NEWS                                    README.Virtual-Users
README                                  THANKS
README.Authentication-Modules           pure-ftpd.png
README.Configuration-File               pureftpd.schema
```


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- Pure-FTPd Configurations(2)

Restrict users to their home directory

ChrootEveryone yes

**# If the previous option is set to "no", members of the following group
won't be restricted. Others will be. If you don't want chroot()ing anyone,
just comment out ChrootEveryone and TrustedGID.**

TrustedGID 0

Disallow authenticated users - Act only as a public FTP server.

AnonymousOnly no

Disallow anonymous connections. Only accept authenticated users.

NoAnonymous yes

If you want simple Unix (/etc/passwd) authentication, uncomment this

UnixAuthentication yes

Port range for passive connections - keep it as broad as possible.

PassivePortRange 30000 50000

This option accepts three values:

0: disable SSL/TLS encryption layer (default).

1: accept both cleartext and encrypted sessions.

2: refuse connections that don't use the TLS security mechanism,

including anonymous sessions.

Do not uncomment this blindly. Double check that:

1) The server has been compiled with TLS support (--with-tls),

2) A valid certificate is in place,

3) Only compatible clients will log in.

TLS 2

UTF-8 support for file names (RFC 2640)

Set the charset of the server filesystem and optionally the default charset

for remote clients that don't use UTF-8.

Works only if pure-ftpd has been compiled with --with-rfc2640

FileSystemCharset UTF-8

ClientCharset UTF-8

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- Pure-FTPD Problem Shooting

❑ Logs Location

- In default, syslogd keeps ftp logs in `/var/log/xferlog`

❑ Most frequent problems

- `pure-ftpd: (?@?) [ERROR] Unable to find the 'ftp' account`
 - It's ok, but you may need it for Virtual FTP Account.
- `pure-ftpd: (?@?) [ERROR] Sorry, but that file doesn't exist: [/etc/ssl/private/pure-ftpd.pem]`
 - If you set `TLS = 2`, then this file is needed.
- How to generate a `pure-ftpd.pem`?
 - See `README.TLS`

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- Pure-FTPd Tools

❑ pure-*

```
nctucs [~] -wngth- ls /usr/local/sbin/pure-  
/usr/local/sbin/pure-alwaysfail /usr/local/sbin/pure-mrtginfo  
/usr/local/sbin/pure-authd /usr/local/sbin/pure-quotacheck  
/usr/local/sbin/pure-ftpd /usr/local/sbin/pure-uploadsript  
/usr/local/sbin/pure-ftpwho  
nctucs [~] -wngth- ls /usr/local/bin/pure-  
/usr/local/bin/pure-pw /usr/local/bin/pure-statsdecode  
/usr/local/bin/pure-pwconvert
```

❑ pure-ftpwho

- List info of users who are currently connecting to the FTP server.

❑ pure-pw

- Manage Virtual Users in PureDB format
- pure-pw(8)
- See README.Virtual-Users

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- More Tools

- ❑ ftp/pureadmin
 - Management utility for the PureFTPd
- ❑ ftp/lftp
 - Shell-like command line ftp client
 - Support TLS
- ❑ ftp/wget, ftp/curl
 - Retrieve files from the Net via HTTP(S) and FTP
- ❑ ftp/mget
 - Multithreaded commandline web-download manager
- ❑ FileZilla
 - A graphical cross-platform FTP client
 - Support TLS
- ❑ Pure-FTPd WebUI
 - PHP based web interface for Pure-FTPd