



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.**
- 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

❑ 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

- SFTP
 - SSH File Transfer Protocol.
 - Encrypts data and commands
- FTP over SSH
 - Tunneling a normal FTP session over an SSH connection.
- FTP over TLS
 - Encrypts commands default.

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- Pure-FTPd (1)

□ Introduction

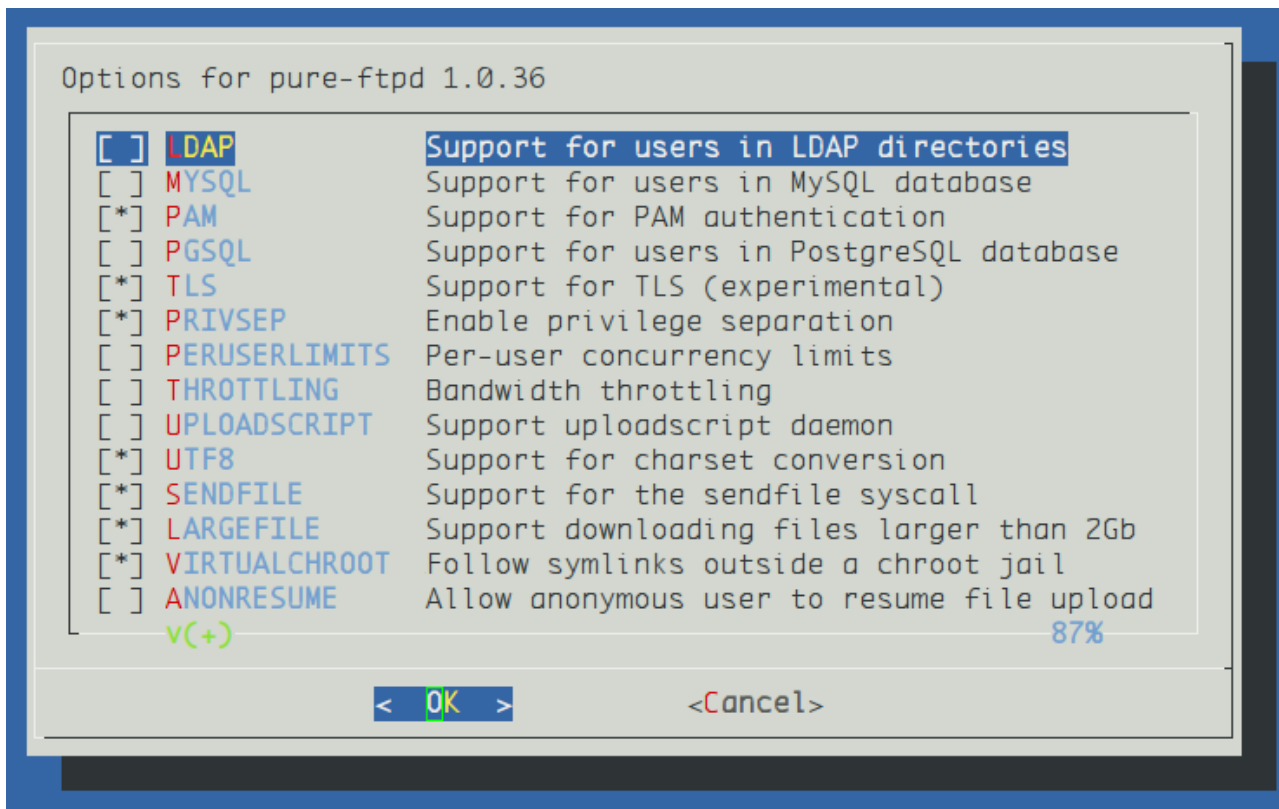
- A small, easy to set up, fast and secure FTP server
- Support chroot
- Restrictions on clients, and system-wide.
- Verbose logging with syslog
- Anonymous FTP with more restrictions
- Virtual Users, and Unix authentication
- FXP (File eXchange Protocol)
- FTP over TLS
- UTF-8 support for filenames

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- Pure-FTPd (2)

❑ Installation

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



```
Options for pure-ftpd 1.0.36
[ ] LDAP          Support for users in LDAP directories
[ ] MYSQL        Support for users in MySQL database
[*] PAM          Support for PAM authentication
[ ] PGSQL        Support for users in PostgreSQL database
[*] TLS          Support for TLS (experimental)
[*] PRIVSEP      Enable privilege separation
[ ] PERUSERLIMITS Per-user concurrency limits
[ ] THROTTLING   Bandwidth throttling
[ ] UPLOADSCRIPT Support uploadsript daemon
[*] UTF8         Support for charset conversion
[*] SENDFILE     Support for the sendfile syscall
[*] LARGEFILE    Support downloading files larger than 2Gb
[*] VIRTUALCHROOT Follow symlinks outside a chroot jail
[ ] ANONRESUME   Allow anonymous user to resume file upload
v(+)                                                    87%
```

< OK > <Cancel>

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- Pure-FTPd (3)

- Other options

```
> sudo make extract
===> Found saved configuration for pure-ftpd-1.0.36
You can use the following additional options:
WITH_CERTFILE=/path - Set different location of certificate file for TLS
WITH_LANG=lang      - Enable compilation of language support, lang is one of
  english, german, romanian, french, french-funny, polish, spanish,
  danish, dutch, italian, brazilian-portuguese, slovak, korean, swedish,
  norwegian, russian, traditional-chinese, simplified-chinese, czech,
  turkish, hungarian, catalan
```

- WITH_CERTFILE for TLS
 - Default: /etc/ssl/private/pure-ftpd.pem
- WITH_LANG
 - 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/*

```
> ls /usr/local/share/doc/pure-ftpd/
AUTHORS          README.Authentication-Modules  README.TLS
CONTACT          README.Configuration-File      README.Virtual-Users
COPYING          README.Contrib                 THANKS
HISTORY          README.LDAP                    pure-ftpd.png
NEWS             README.MySQL                   pureftpd.schema
README           README.PGSQL
```

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- Pure-FTPD Configurations(2)

Cage in every user in his home directory

ChrootEveryone yes

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

TrustedGID 0

PureDB user database (see README.Virtual-Users)

PureDB /usr/local/etc/pureftpd.pdb

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

UnixAuthentication yes

Port range for passive connections replies. - for firewalling.

PassivePortRange 30000 50000

This option can accept three values :

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

1 : accept both traditional and encrypted sessions.

**# 2 : refuse connections that don't use SSL/TLS security mechanisms,
including anonymous sessions.**

Do _not_ uncomment this blindly. Be sure that :

1) Your server has been compiled with SSL/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)

**# Define charset of the server filesystem and optionnally the default charset
for remote clients if they 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-*

```
> ls -l /usr/local/sbin/pure-*  
/usr/local/sbin/pure-authd  
/usr/local/sbin/pure-config.pl  
/usr/local/sbin/pure-ftp  
/usr/local/sbin/pure-ftpwho  
/usr/local/sbin/pure-mrtginfo  
/usr/local/sbin/pure-quotacheck  
/usr/local/sbin/pure-uploadsript  
> ls -l /usr/local/bin/pure-*  
/usr/local/bin/pure-pw  
/usr/local/bin/pure-pwconvert  
/usr/local/bin/pure-statsdecode
```

❑ 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