FTP

File Transfer Protocol

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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

FTP
- 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

- FTP over TLS (FTPS、FTPES)
    - ➢ Only commands are encrypted while transmitting.
    - ➢ Better performance.
- FTP over SSH
    - ➢ Tunneling a normal FTP session over an SSH connection.
- SSH File Transfer Protocol (SFTP)
    - ➢ Both commands and data are encrypted while transmitting.
    - ➢ One connection, but poor performance.

Pure-FTPd
- Intro (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

Pure-FTPd
- Intro (2)

❑ Installation

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

```
                    pure-ftpd-1.0.36_3

 +[ ]  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]  SENDFILE      Sendfile syscall
 +[ ]  THROTTLING    Bandwidth throttling
 +[x]  TLS           Secure network connection support via TLS
 +[ ]  UPLOADSCRIPT  Uploadscript daemon support
 +[ ]  UTF8          UTF-8 filenames
 +[x]  VIRTUALCHROOT Follow symlinks outside a chroot jail
```

Pure-FTPd
- Intro (3)

- Other options

```
===>   Found saved configuration for pure-ftpd-1.0.36_3
===>    pure-ftpd-1.0.36_3 depends on file: /usr/local/sbin/pkg - found
You can use the following additional options:

LANG=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

TLS_CERTFILE=/path/to/file (default: /etc/ssl/private/pure-ftpd.pem)
- Custom location of certificate file for TLS
```

- TLS_CERTFILE   (Default: /etc/ssl/private/pure-ftpd.pem)
- LANG (Change the language of output messages)

❑ Startup:
- Add pureftpd_enable="YES" in /etc/rc.conf

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
```

Pure-FTPd
- Configurations(2)

ChrootEveryone	yes
TrustedGID	0
AnonymousOnly	no
NoAnonymous	no
PureDB	/usr/local/etc/pureftpd.pdb
UnixAuthentication	yes
AntiWarez	yes
Umask	133:022
TrustedIP	140.113.0.0
CreateHomeDir	yes
TLS	2
FileSystemCharset	UTF-8
ClientCharset	UTF-8

...... etc.

Pure-FTPd
- Tools

❑ pure-*

```
> ls -1 /usr/local/sbin/pure-*
/usr/local/sbin/pure-authd
/usr/local/sbin/pure-config.pl
/usr/local/sbin/pure-ftpd
/usr/local/sbin/pure-ftpwho
/usr/local/sbin/pure-mrtginfo
/usr/local/sbin/pure-quotacheck
/usr/local/sbin/pure-uploadscript
> ls -1 /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

Pure-FTPd
- Anonymous Users and Virtual Users

❏ Anonymous Users

❏ Virtual Users

- FTP-only accounts without messing up your system accounts.
- Store individual quotas, ratios, bandwidth.
- Virtual users share the same system user.
- They are chrooted and have their own home directory.

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 Anonymous 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

FTP
- 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