

Client-Server Multi-threaded Repo User Manual

Introduction

The File Sharing Application is a secure client-server system that allows multiple users to upload, download, and manage files on a central server. It features password authentication, multi-user support, and both command-line and graphical interfaces.

System Requirements

Server:

- Windows 10+ or Linux
- 100MB+ free disk space
- Network connectivity

Client:

- Windows 10+ or Linux
- Network access to server
- Qt 5.15+ (for GUI client only)

Starting the Server

Basic Start (default settings):

```
# Linux  
./fileserver_mt 8080
```

```
# Windows  
fileserver_mt.exe 8080
```

This starts the server with:

- Port: 8080
- Password: admin123
- Max clients: 10
- Storage: server_files/

Custom Configuration:

```
./fileserver_mt <port> <storage_dir> <max_clients> <password>
```

Example:

```
./fileserver_mt 9000 my_files 20 SecurePass2024
```

Server Output

The server displays activity logs:

```
[Server] New connection from 192.168.1.100:54321 (Client ID: 1)
```

```
[Client 1] Authentication successful
```

```
[Client 1] Upload request for: document.pdf (2048576 bytes)
```

```
[Client 1] Upload complete: document.pdf
```

Stopping the Server

Press Ctrl+C to shut down the server. All connected clients will be disconnected.

Managing Files

Files are stored in the configured storage directory (default: server_files/). You can:

- **Browse files:** Open the storage directory in your file explorer
- **Backup files:** Copy the entire storage directory
- **Delete files:** Either use a client or manually delete from the directory

Using the Command-Line Client

Connecting to Server

All commands follow this format:

```
./fileclient <host> <port> <command> [arguments]
```

You'll be prompted for the password each time you connect.

Available Commands

1. List Files

View all files on the server:

```
./fileclient localhost 8080 list
```

Enter password: admin123

Output:

Files on server (3):

```
-----
```

report.pdf (2048576 bytes)
photo.jpg (1536000 bytes)
notes.txt (4096 bytes)

2. Upload File

Upload a file from your computer to the server:

```
./fileclient localhost 8080 upload /path/to/file.pdf
```

Enter password: admin123

Output:

Uploading: file.pdf (2048576 bytes)

Progress: 100%

Upload complete!

3. Download File

Download a file from the server to your computer:

```
./fileclient localhost 8080 download report.pdf /home/user/Downloads/report.pdf
```

Enter password: admin123

Output:

Downloading: report.pdf

Received: 2048576 bytes

Download complete! Saved to: /home/user/Downloads/report.pdf

4. Delete File

Remove a file from the server:

```
./fileclient localhost 8080 delete old_report.pdf
```

Enter password: admin123

Output:

Deleting: old_report.pdf

File deleted successfully

Using the Qt GUI Client

Launching the GUI

Linux:

./qt_fileclient

Windows: Double-click qt_fileclient.exe or run from command prompt.

Main Window Layout

File Operations

Refresh File List

Button: "Refresh"

Action: Updates the list of files on the server

Use When: After another user uploads/deletes files

Upload a File

1. Click "**Upload File**"
2. Browse and select file from your computer
3. Watch progress bar for upload status
4. File appears in list when complete

Tips:

- Multiple uploads queue automatically
- Can continue browsing while uploading
- Maximum 1GB per file

Download a File

1. **Select a file** from the list (single click)
2. Click "**Download Selected**"
3. Choose where to save the file
4. Watch progress bar for download status

Delete a File

1. **Select a file** from the list (single click)
2. Click "**Delete Selected**"
3. **Confirm deletion** in the popup dialog
4. File is removed from server and list updates

Activity Log

The log window at the bottom shows all operations:

- Connection status
- File operations (upload/download/delete)
- Errors and warnings
- Timestamps for all activities

Log Colors:

- Black: Normal operations
- Red: Errors (shown in ERROR: prefix)

Disconnecting

Click "Disconnect" button or close the application. All operations complete before disconnecting.

Upload/Download Issues

Problem: "File too large"

Solution: File exceeds 1GB limit. Split or compress the file.

1. Reconnect and retry
2. Check server logs

Getting Help**Check Logs:**

- Server terminal output shows all activity
- GUI log window shows client operations
- Look for ERROR messages

Server Admin: Contact your server administrator with:

- Time of issue
- Error message
- What you were trying to do
- Your client ID (shown in server logs)

File Issues:

- Server files are stored in server_files/ directory
- Administrator can manually inspect/recover files
- Backup server directory regularly