Présentation TZ20

Lazare Lucas - Pinard Maxime

UTBM

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Objectifs

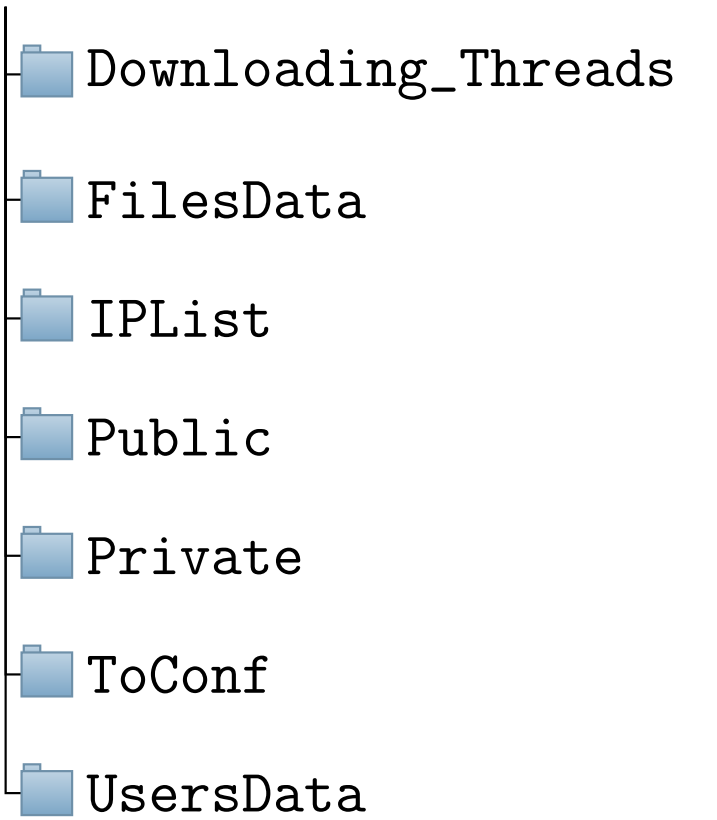
- Restriction d'accès
- Dossier privé et publique
- Affichage fonction *ls*
- Suppression des fichier (24h)
- Logs de connexion
- Changement de mot de passe
- Descriptions de fichiers
- Création de nouveaux comptes
- Configuration du serveur

Problèmes

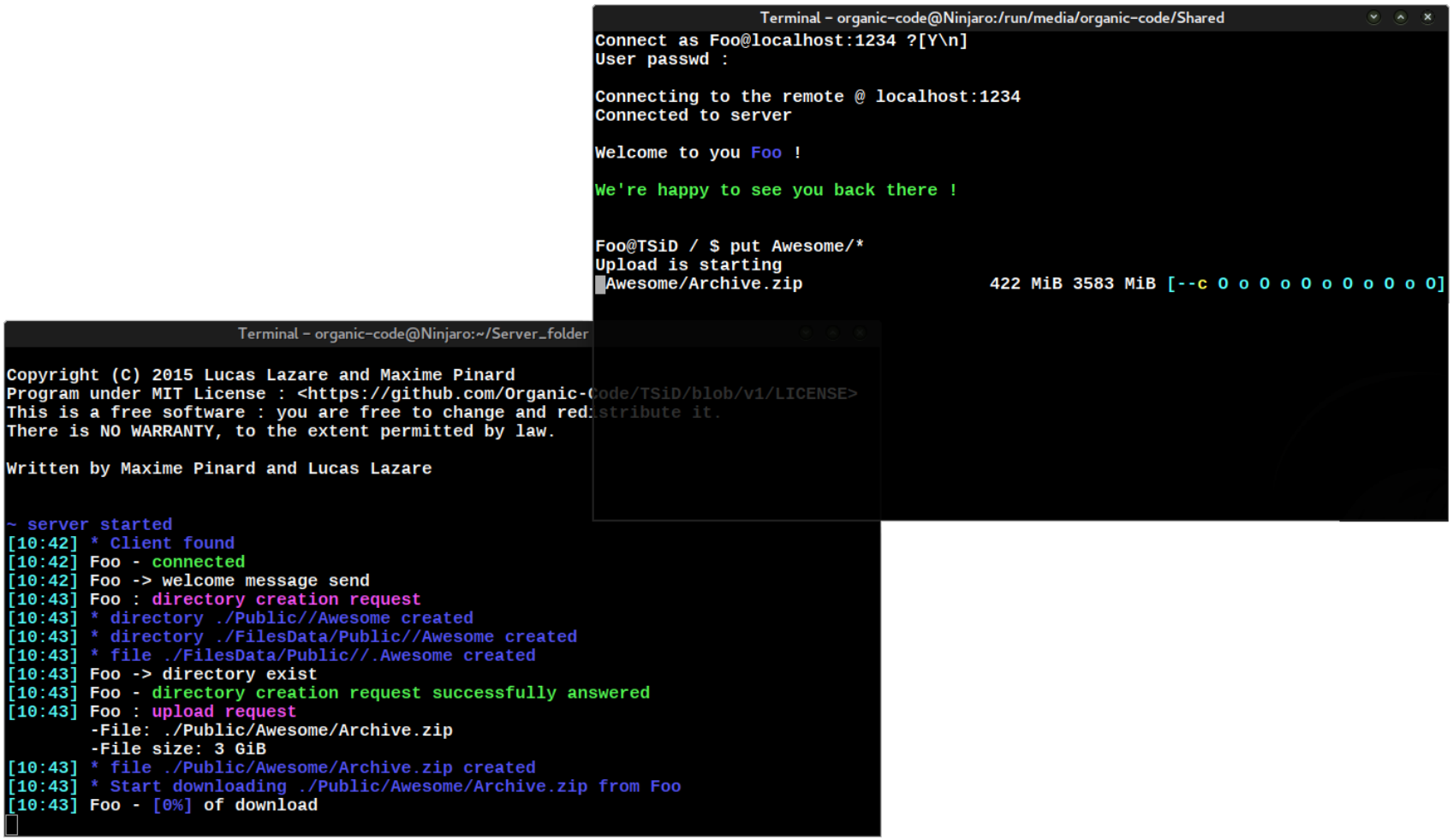
- Communication client - serveur
- Interprétation des commandes
- Gerer les restrictions d'accès
- Récupérer la liste des dossiers et fichiers présents dans un dossier
- Stocker des informations à propos des dossiers et fichiers uploadés
- Afficher des informations de façon ergonomique/lisible
- Envoyer des mails via un programme
- Créer, gérer et utiliser la configuration du serveur
- Permettre au client de télécharger / uploader un dossier complet

Architecture

server execution folder



Interface


Terminal – organic-code@Ninjaro:/run/media/organic-code/Shared
Connect as Foo@localhost:1234 ?[Y\n]
User passwd :
Connecting to the remote @ localhost:1234
Connected to server
Welcome to you Foo !
We're happy to see you back there !
Foo@TSiD / $ put Awesome/*
Upload is starting
Awesome/Archive.zip 422 MiB 3583 MiB [--c O o O o O o O o O o O]
Terminal – organic-code@Ninjaro:~/Server_folder
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Program under MIT License : <https://github.com/Organic-Code/TSiD/blob/v1/LICENSE>
This is a free software : you are free to change and redistribute it.
There is NO WARRANTY, to the extent permitted by law.
Written by Maxime Pinard and Lucas Lazare
~ server started
[10:42] * Client found
[10:42] Foo - connected
[10:42] Foo -> welcome message send
[10:43] Foo : directory creation request
[10:43] * directory ./Public//Awesome created
[10:43] * directory ./FilesData/Public//Awesome created
[10:43] * file ./FilesData/Public//.Awesome created
[10:43] Foo -> directory exist
[10:43] Foo - directory creation request successfully answered
[10:43] Foo : upload request
-File: ./Public/Awesome/Archive.zip
-File size: 3 GiB
[10:43] * file ./Public/Awesome/Archive.zip created
[10:43] * Start downloading ./Public/Awesome/Archive.zip from Foo
[10:43] Foo - [0%] of download

Serveur : a_retrieveData

```
//error
client.packet.clear();
client.packet << UnknownIssue;
client.socket.send(client.packet);
tprint();
std::cout << client.name() << "␣->␣There␣was␣an␣error␣[...]" << std::endl;

bool a_retrieveData(Client& client){

    unsigned int file_size;
    unsigned int bytes_per_packet;

    if( !(client.packet >> file_size >> bytes_per_packet) ){
        //error
        return false;
    }
    std::cout << "\t-File:␣" << client.path << std::endl;

    if( file_size == 0 ){
        //error
        return false;
    }
```

Serveur : a_retrieveData

```
if(file_size < 1024 ){
    std::cout << "\t-File␣size:␣" << file_size << "␣B" << std::endl;
}

else if(file_size < 1024 * 1024 ){
    std::cout << "\t-File␣size:␣" << file_size/1024 << "␣KiB" << std::endl;
}

else if(file_size < 1024 * 1024 * 1024 ){
    std::cout << "\t-File␣size:␣" << file_size/(1024 * 1024)<< "␣MiB" <<
        std::endl;
}

else{
    std::cout << "\t-File␣size:␣" << file_size/(1024 * 1024 * 1024)<< "␣
        GiB" << std::endl;
}
```

Serveur : a_retrieveData

```
client.packet.clear();

switch(createFile(client.path)){

    case AlreadyExist:
        client.packet << AlreadyExist;
        client.socket.send(client.packet);
        tprint();
        std::cout << client.name() << "␣->␣File␣already␣exists" <<
             std::endl;
        return false;
        break;

    case UnknownIssue:
        //error
        return false;
        break;

    default:
        break;
}
```

Serveur : a_retrieveData

```
std::ofstream output_file ( client.path.c_str(), std::ios::binary |
      std::ios::out );

unsigned int loop_number(file_size/bytes_per_packet);
char* input_data_array = new char[bytes_per_packet];
sf::Int8 input_data;
unsigned char percentage_count(0);

client.packet.clear();
client.packet << ServerReady;
client.socket.send(client.packet);

tprint();
setColors("light␣blue");
std::cout << "*␣Start␣downloading␣" << client.path << "␣from␣" <<
      client.name() << std::endl;
setColors("reset");
```

Serveur : a_retrieveData

```
for( unsigned int i(0) ; i<loop_number ; ++i){

    client.packet.clear();

    if(client.socket.receive( client.packet ) == sf::Socket::Disconnected){
        //error
        output_file.close();
        removeFile(client.path);
        return false;
    }

    for( unsigned int j(0) ; j<bytes_per_packet ; ++j ){
        client.packet >> input_data;
        input_data_array[j]=static_cast<char>(input_data);
    }

    output_file.write( input_data_array, bytes_per_packet );

    if( static_cast<unsigned char>(100*i/loop_number) > percentage_count ){
        tprint();
        std::cout << client.name() << " - ";
        setColors("light blue");
        std::cout << "[" << static_cast<short>(percentage_count) << "%]";
        setColors("reset");
        std::cout << " of download" << std::endl;
        percentage_count = static_cast<unsigned char>(percentage_count +
            25);
    }
}
```

Serveur : a_retrieveData

```
file_size -= loop_number * bytes_per_packet;
if( file_size > 0 ){

    client.packet.clear();
    if(client.socket.receive( client.packet ) == sf::Socket::Disconnected){
        //error
        output_file.close();
        removeFile(client.path);
        return false;
    }

    for( unsigned int j(0) ; j < client.packet.getDataSize() ; ++j){
        client.packet >> input_data;
        output_file << static_cast<char>(input_data);
    }
}
```

Serveur : a_retrieveData

```
    output_file.close();

    tprint();
    std::cout << client.name() << " - ";
    setColors("light blue");
    std::cout << "[100%]";
    setColors("reset");
    std::cout << " Transfer terminated successfully" << std::endl;
    createInformationFile(client.path, client.name());
    delete[] input_data_array;
    return true;
}
```

Serveur : createInformationFile

```
char createInformationFile(std::string path, std::string user_name){

    std::string info_path = "./FilesData" + path.substr(1, std::string::npos);
         //add "./FilesData" at the begening

    if( fileExist(info_path) ){
        setColors("light red");
        std::cout << "\t-The informations file already exist" << std::endl;
        setColors("reset");
        return AlreadyExist;
    }

    if(isFolder(path)){
        createDirectory(info_path);
    }
```

Serveur : createInformationFile

```
    info_path = info_path.insert(info_path.find_last_of("/") + 1,"."); //insert
        '.' before the filename
    createFile(info_path);
    std::ofstream file ( info_path.c_str(), std::ios::binary | std::ios::out );

    if( file.fail() ){
        file.close();
        std::cout << "\t-";
        setColors("light red");
        std::cout << "Error writting in the informations file" << std::endl;
        setColors("reset");
        return UnknownIssue;
    }

    file << formatedTime() << std::endl;
    file << user_name << std::endl;
    file.close();
    return Created;
}
```

Client : sendData

```
bool sendData(sf::TcpSocket& server, std::string const& current_directory) {

        std::ifstream input_file;
        unsigned int file_size;

        std::cin.ignore();
        std::string filename;
        std::getline(std::cin, filename);

        if (filename.back() == '*') {
                filename.pop_back();
                filename.pop_back();
                return recursiveUpload( server, current_directory, ".",
                     filename );
        }

        if (!startUpload(input_file, file_size, server, current_directory,
             filename)) {

                std::cout << "Could not send the file" << std::endl;
                return false;
        }
        return uploadFile( server, input_file, file_size, filename );
}
```

Client : startUpload

```
bool startUpload(std::ifstream& infile, unsigned int& file_size, sf::TcpSocket&
     server, std::string const& dir, std::string filename)

        std::string directory(dir);
        formatDir(directory);
        if (isFolder(filename)) {
                std::cout << "You are trying to upload a folder... (maybe you
                     forgot to add * ?)"
                        << std::endl;
                return false;
        }
        file_size = getFileLength( filename );
        infile.open( filename.c_str(), std::ios::binary | std::ios::in);
        if( file_size == 0 || infile.fail() ) {
                std::cout << "There was a problem reading the file : " <<
                     filename << " (maybe that this file is empty ?)" <<
                     std::endl;
                return false;
        }

        sf::Packet packet;
        packet << (directory+'/'+formatPath(filename)) << Upload << file_size
             << NB_BYTE_PER_PACKET;
        server.send(packet);
        packet.clear();

        int server_state;
        server.receive(packet);
        if( packet.getDataSize() > sizeof( int ) || !(packet >> server_state) ){
```