

# User Manual

# ChatVUE

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# 1. About Application

## 1.1 Project Overview

ChatVUE is a project that aims to provide a secure chat application using TunnelVUE's patented encryption methods that protect against even quantum attacks. The project follows a client-server architecture to allow users to host and participate in secure chat servers.

## 1.2 Application Functions

ChatVUE consists of two main pieces: Client and Server. They have different functions.

**Server:** The server will establish an automatic symmetrical encryption key generation process that continuously changes the keys for both the chat session and the packets within the sessions. Before the start of each chat session, the server will send a dynamic key to the client, which is encrypted. And as the chat sessions progresses, the dynamic key keeps changing.

**Client:** The ChatVUE client utilizes the patented encryption and key exchange process as defined and clients will not implement any proprietary languages or modules. The client can receive the encryption key sent by the server, and the encryption level can be changed according to the user's requirements, users can safely access the server and connect to other people on the same server, and send or receive files from the client application, can freely enter or exit the "chat room" at will, using common GUIs and commands. The client created by the previous group was a basic command line GUI that served as a proof of concept, so we have been developing a more intricate one that's closer to industry standards.

## 2. Setup

### 2.1 Source Code

#### 2.1.1 Clone the Code from GitHub

All of the source code for the ChatUI can be found within the Github repository. You can download the zip file from GitHub or use the Git Clone command to clone the code. To clone the ChatUI and most installer files clone the branch avaloniaUI which can be done as follows:

```
$ https://github.com/edwanic/ChatVUE-Client.git -b avaloniaUI
```

#### 2.1.2 Access Installers and remaining script files

The rest of the code and installers can be found within the PCloud location at Auburn Class 10/Team Resources/Shared Team Work Space/Fall 2021/. To access the current Installers using the PCloud navigate to Fall 2021/Installer Demos

### 2.2 Set the Dependencies

This project uses .NET Core 5.0. It also uses the following NuGet packages. Dependencies are only required for code development

- CliWrap 3.3.0 (<https://www.nuget.org/packages/CliWrap/3.3.0>)
- Microsoft.Win32.Registry 5.0.0  
(<https://www.nuget.org/packages/Microsoft.Win32.Registry/5.0.0>)
- System.Management 5.0.0  
(<https://www.nuget.org/packages/System.Management/5.0.0>)

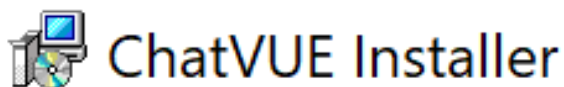
The test suite code uses the following NuGet packages:

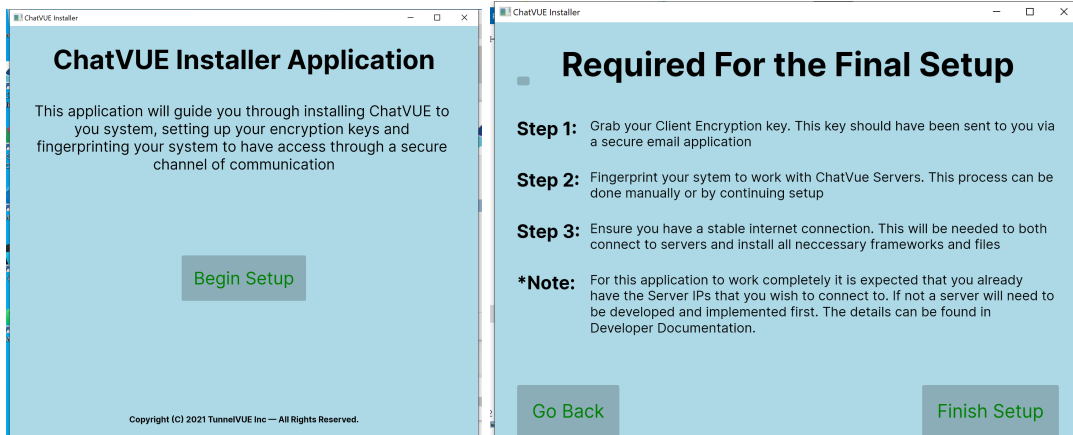
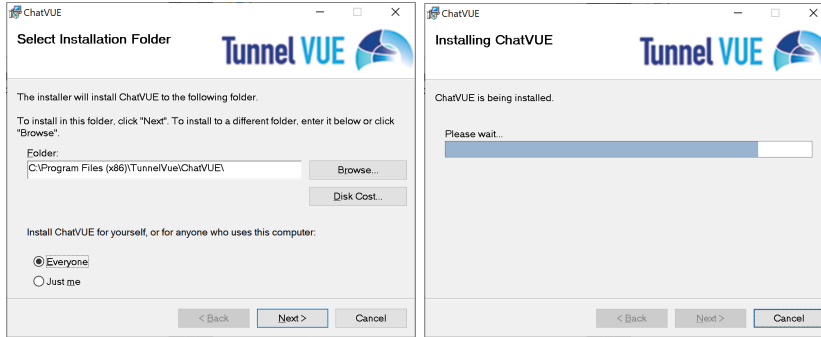
- coverlet.collector 1.3.0  
(<https://www.nuget.org/packages/coverlet.collector/1.3.0>)
- Microsoft.NET.Test.Sdk 16.7.1  
(<https://www.nuget.org/packages/Microsoft.NET.Test.Sdk/16.7.1>)
- xunit 2.4.1 (<https://www.nuget.org/packages/xunit/2.4.1>)
- xunit.runner.visualstudio 2.4.3  
(<https://www.nuget.org/packages/xunit.runner.visualstudio/2.4.3>)

## 3. Install and Uninstall Client

### 3.1 Install on Windows System

After running the ChatVUE Installer.msi, the system will pop up the user installation interface, and according to the sequence, complete the License Agreement, select the folder to install to. When users complete the installation, they can find a shortcut on the desktop.



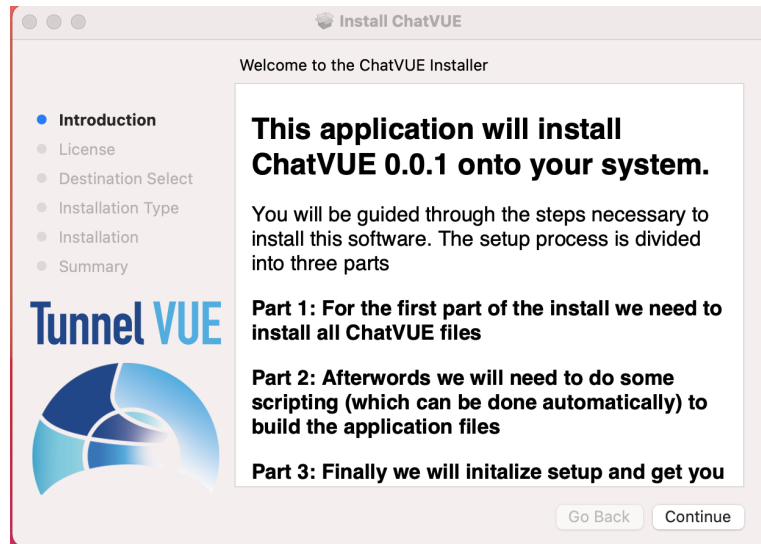


## 3.2 Install on Mac System

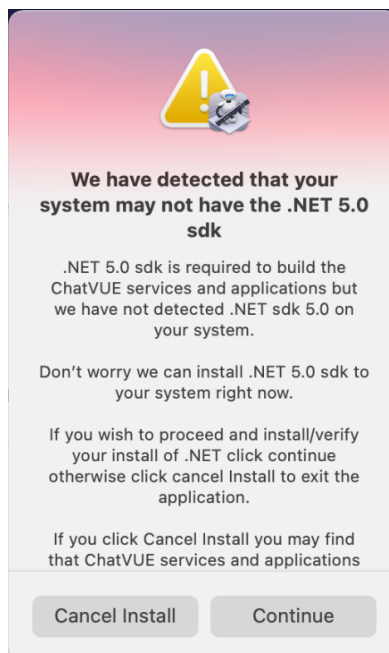
### 3.2.1 Mac Install as a .pkg

This installer installs files to /Library/ChatVUE. Open the ChatVUE-macos-installer...0.0.1.pkg, then it will pop out the user installation interface. Then follow these instructions to install ChatVUE. In the end it will generate an application shortcut. Before the installer runs it checks that the user has the appropriate .NET 5.0 framework installed to their system. When the user does not have .NET 5.0 framework installed the installer will transition to Microsoft's install process of .NET

5.0 and then transitions back to the installer application to continue the install.

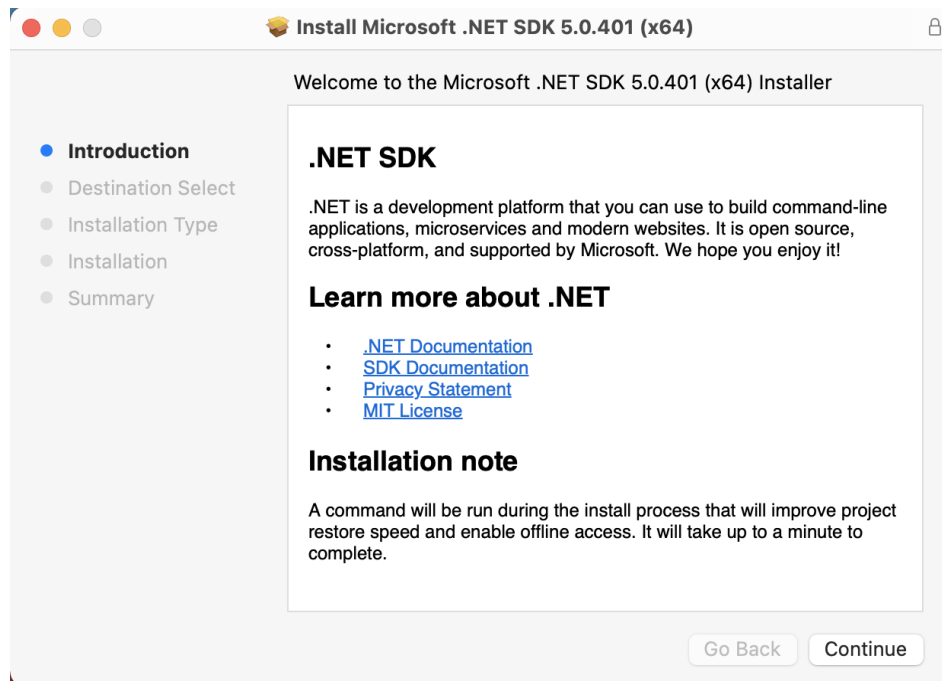


During the install a scripting sequence will occur which will require input from the user. A Dependency Installer.app prompt will appear when it is detected that the user's system does not have the appropriate .net 5 sdk installed.

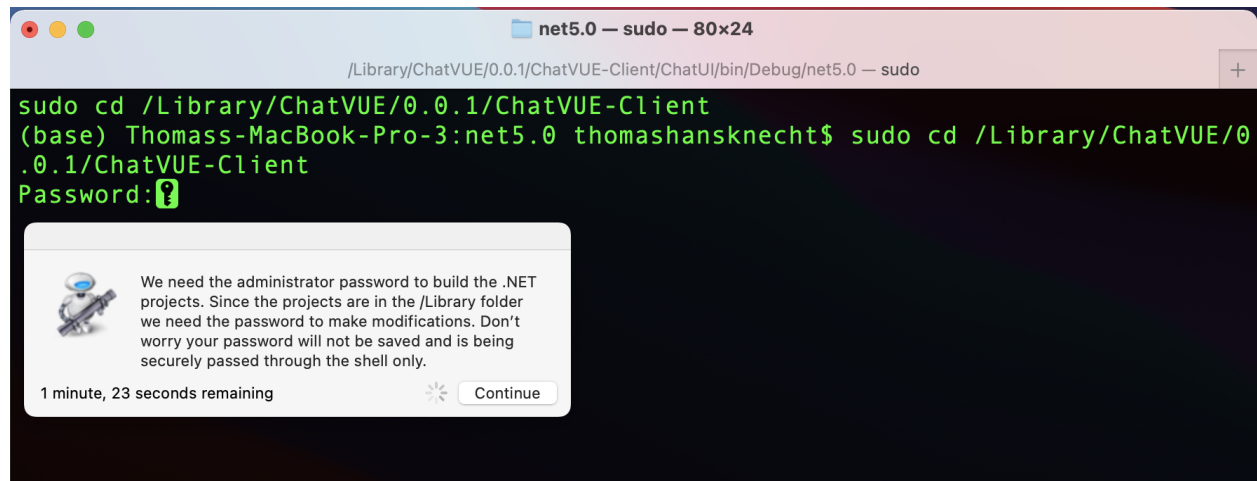


If the user clicks Cancel Install it only stops installing dependencies but does not stop the entire install. If instead the user clicks continue then the Dependency Installer will download files in the background and

present the Microsoft .net 5 installer to the user so the user can install the .net 5 sdk which is required for the .net 5 build process.



During the scripting sequence the following message will be displayed to the user.



If the above terminal window does not appear simply click on the terminal icon from the Mac dock. The user will need to type their system password and then press the enter key. If the timer expires the scripting process will terminate and needs to be executed later using the DotnetInstall.app which is found at /Library/ChatVUE/0.0.1



When the password is correct and the user clicks continue the installer will automatically build all of the .net projects in the terminal window. Afterwords a ChatVUE Installer window will open



Continue with the remaining questions to complete the install.

### 3.2.2 Mac Install as a dmg

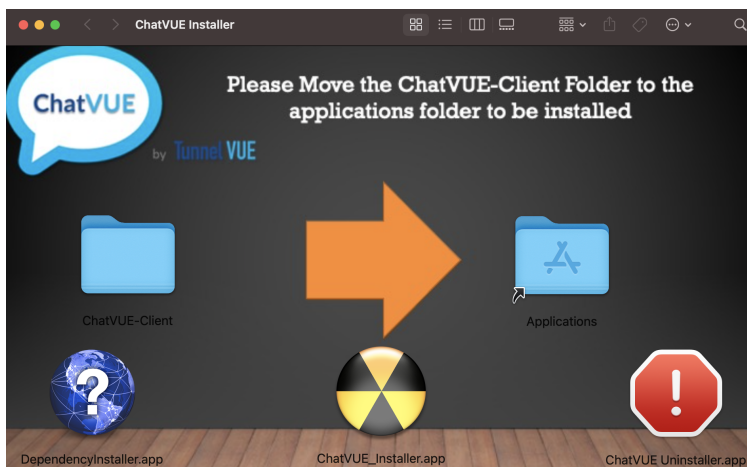
This installer installs the files to `/$USER/Applications`. This install is completed in several steps

Step 1: Mount the dmg file and open the resulting drive. The resulting file will appear as a mount drive when the ChatVue\_Install.dmg is opened.



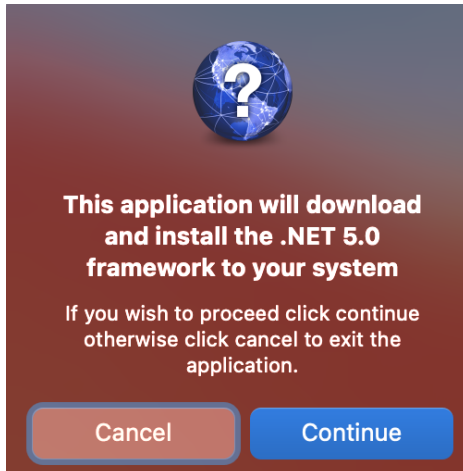
Step 2: Click on the ChatVUE\_install mounted drive

Step 3: The user will be presented with instructions shown below



Step 4: Drag the ChatVUE-Client folder to the Applications folder

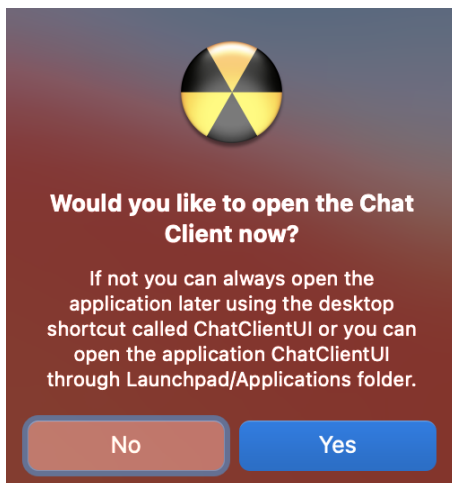
Step 5 (Optional): If you need .net 5.0 sdk run the DependencyInstaller.app



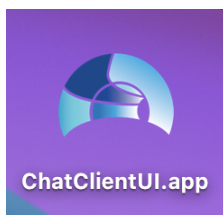
Step 6: Run the ChatVUE\_Installer.app

Step 7: Follow the instructions provided to complete the install

At the end of the install you will be asked if you want to open the Chat Client application shown below. Now the install is complete.



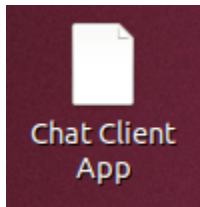
If the user opted to create shortcuts then the Chat ClientUI.app will be placed on the user's launchpad as well as the user's desktop



## 3.3 Install on Linux System

The Linux install is currently headless meaning that there is no graphical interface during the install process. Currently ChatVUE can be installed on Debian based systems as well as Red Hat based systems. The install procedure is identical for both the distributions aside from the install directory locations. Lets demonstrate the install for a Debian system. We will use Ubuntu 18.04.6 LTS x86\_64 for demonstration.

**Issue with current install:** in the current version of the install procedure the Desktop and launchpad icon file path does not change automatically and is specific to the username thomas. To ensure the icon file path is correct, edit the Chat Client App.desktop file **before running the setup file** which is found at ChatVUE-Client/InstallerApplication/Linux\ Installer and simply replace thomas with your username. If the icon path is incorrect nothing changes about the install except the icon will be replaced with the generic no icon found visual shown below.



### Steps for Installation

Step 1: Navigate to the installer location. The install location will contain the setup file

```

thomas@thomas-desktop:~/Documents/ChatVUE-Client/InstallerApplication/Linux Installer/Debian Install$ tree
.
├── DependencyInstallScript
├── dotnet-install-Script.sh
├── DotnetPublishScript
├── LicenseAgreement.txt
├── setup
└── UninstallerScript

0 directories, 6 files
thomas@thomas-desktop:~/Documents/ChatVUE-Client/InstallerApplication/Linux Installer/Debian Install$

```

Step 2: Ensure proper permissions to launch the setup file. If you are the root user nothing else is needed here. If you are not the root user give the setup file execution privileges using:

```
$ chmod u+x setup
```

```

thomas@thomas-desktop:~/Documents/ChatVUE-Client/InstallerApplication/Linux Installer/Debian Install$ chmod u+x setup

```

Step 3: Execute the setup file and follow the instructions and questions provided.

```

END OF TERMS AND CONDITIONS

Copyright [2021] [TunnelVUE]
Do you accept TunnelVUE's Terms of Use? y or n?

```

```

.....(1% Progress) [Intializing setup]
-----
Install the required .NET 5.0 sdk for ChatVUE?
-----
Continue? y or n?

```

```

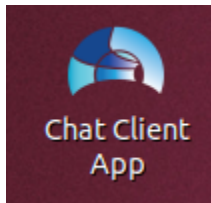
#####.....(75% Progress) [Created Launcher App]
-----
Create a Desktop Shortcut: y or n?
-----

```

Once the setup completes the following will be displayed and the install will be finished.

```
thomas@thomas-desktop: ~/Documents/ChatVUE-Client/InstallerApplication/Linux Installer/Debian Install
#####(100% Progress) [Install Complete]
thomas@thomas-desktop:~/Documents/ChatVUE-Client/InstallerApplication/Linux Installer/Debian In
stall$
```

To launch the application simply search the launchpad for Chat Client App. If the Desktop shortcut option was selected then you can also find the Chat Client App on the users Desktop.

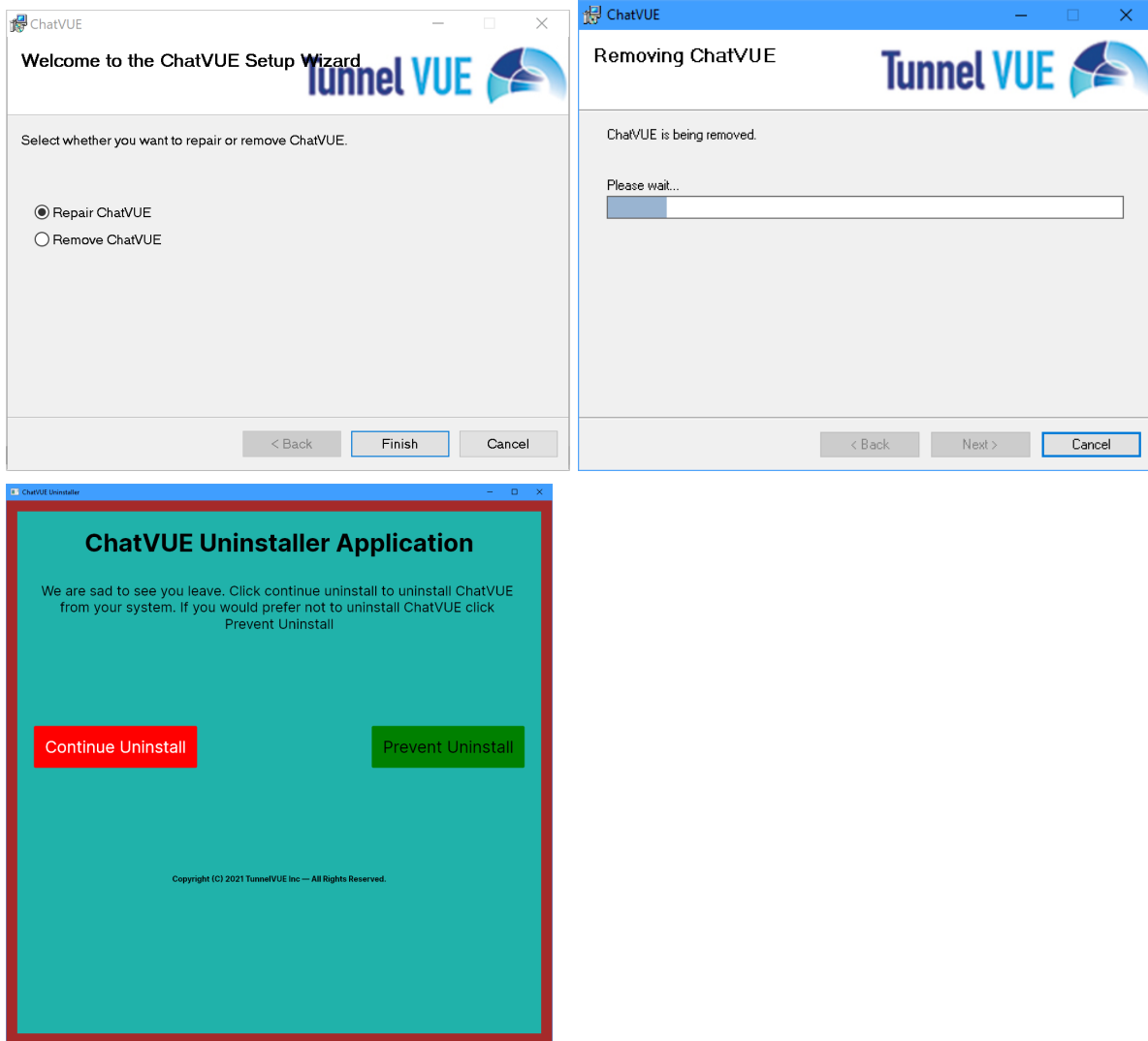


**Note:** On Debian systems the user may be prompted for a password to execute the Chat Client App. This step is simply a result of .net 5 only being available to the root user thus to launch the application with .net 5 a root/sudo password may be needed.

```
Terminal
File Edit View Search Terminal Help
[sudo] password for thomas:
```

## 3.4 Uninstall on Windows System

The uninstaller is built into the install application. If the user runs the installer while ChatVUE is already installed to their system then the user will be asked if they want to repair or remove ChatVUE on their system. The user can also find the uninstaller in the add and remove programs section in the Windows settings. The Installer/Uninstaller will be called ChatVUE. During the uninstall the user is taken to a goodbye screen that encourages them to keep ChatVUE on their system. The user can prevent the uninstaller from completing by clicking the Prevent Uninstall Button which will prematurely terminate the uninstaller.



## 3.5 Uninstall on Mac System

For Mac the uninstall is similar for both a dmg install as well as a .pkg install. If the install was done with the dmg then inside of that dmg is a file called ChatVUE Uninstaller.app. To remove ChatVUE from the applications folder as well as remove all shortcuts to the application simply run the ChatVUE Uninstaller.app from within the installer dmg file.



**If using the .pkg installer:** the uninstall process is a bit less streamlined. The ChatVUE Uninstaller.app can not be used in the /Library folder which is where the install is placed. Instead the user should move the ChatVUE Uninstaller.app file to anywhere other than within the /Library/ChatVUE/ folder. The ChatVUE Uninstaller.app can be found at /Library/ChatVUE/0.0.1/

The ChatVUE Uninstaller.app will require sudo permissions from the terminal window created by the uninstall to finish. Once the ChatVUE Uninstaller.app is complete there will still be a few files located at /Library/ChatVUE/0.0.1/ To remove these excess files simply delete the /Library/ChatVUE/ folder. To delete this folder the user will need root permissions since /Library/ChatVUE is part of the system folders.

## 3.6 Uninstall on Linux System

For Linux systems we navigate to the install location/ where the setup file is. From here navigate to the Debian Install location if using a Debian based system or navigate to the RedHat Install if using a Red Hat based system. For demonstration we will use Debian on a system running Ubuntu 18.04.6 LTS x86\_64



## Step 1: Navigate to UninstallerScript

```
thomas@thomas-desktop: ~/Downloads/ChatVUE-Client/InstallerApplication/Linux Installer/Debian Install
thomas@thomas-desktop:~/Downloads/ChatVUE-Client/InstallerApplication/Linux Installer/Debian Install$ ./UninstallerScript
```

**Note it is recommended that the UninstallerScript is moved outside of the ChatVUE-Client installation folder.** Otherwise the Uninstaller will delete itself which means the user will never know if the uninstall worked without manually checking.

Let's move the UninstallerScript to the Desktop for instance and then navigate to the desktop:

```
thomas@thomas-desktop: ~/Desktop
thomas@thomas-desktop:~/Downloads/ChatVUE-Client/InstallerApplication/Linux Installer/Debian Install$ mv UninstallerScript ~/Desktop/
thomas@thomas-desktop:~/Downloads/ChatVUE-Client/InstallerApplication/Linux Installer/Debian Install$ cd ~/Desktop/
thomas@thomas-desktop:~/Desktop$
```

**Note: Similar to the setup file, permissions may be needed to execute the file UninstallerScript.** These permissions can be given using `$ chmod u+x UninstallerScript`

```
thomas@thomas-desktop: ~/Desktop
thomas@thomas-desktop:~/Desktop$ chmod u+x UninstallerScript
thomas@thomas-desktop:~/Desktop$
```

Step 2: Run the Uninstaller Script using `$ ./UninstallerScript` and press enter

```
thomas@thomas-desktop: ~/Desktop
thomas@thomas-desktop:~/Desktop$ ./UninstallerScript
```

Step 3: Follow the instructions to complete the uninstall. The user may need to put in their sudo password to complete the uninstall process.

```
thomas@thomas-desktop: ~/Desktop
.....(0% Progress) [Starting Uninstaller]
-----
Do you want to continue with Uninstalling ChatVUE
from your system? If you continue the uninstall all
ChatVUE components and applications will be removed
from your system If you wish to install these components
later you will need to reinstall all ChatVUE components
-----
Continue? y or n?
```

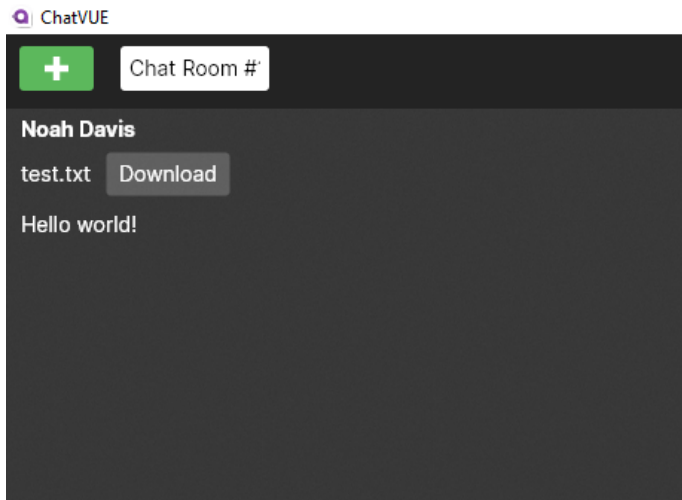
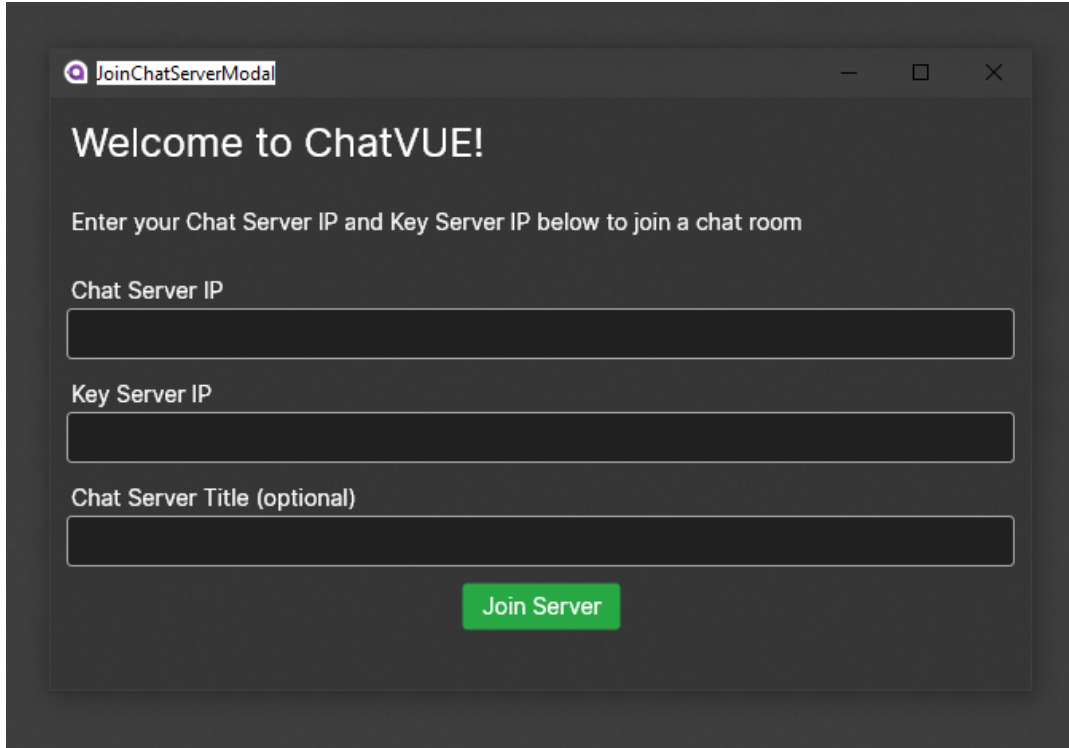
Once the uninstall is complete the user will see the shell application say Uninstall Process Complete

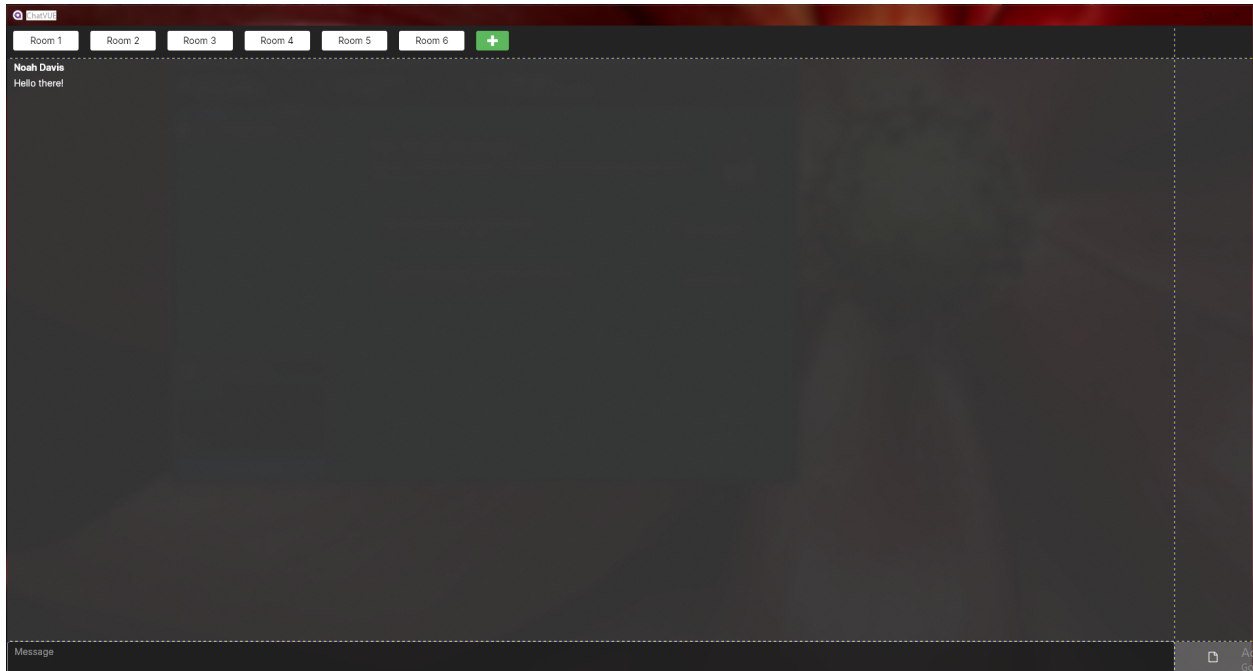
```
thomas@thomas-desktop: ~/Desktop
#####(100% Progress) [Uninstall Process Complete]
thomas@thomas-desktop:~/Desktop$
```

## 4. Running ChatUI

### 4.1 Create the Chat Rooms

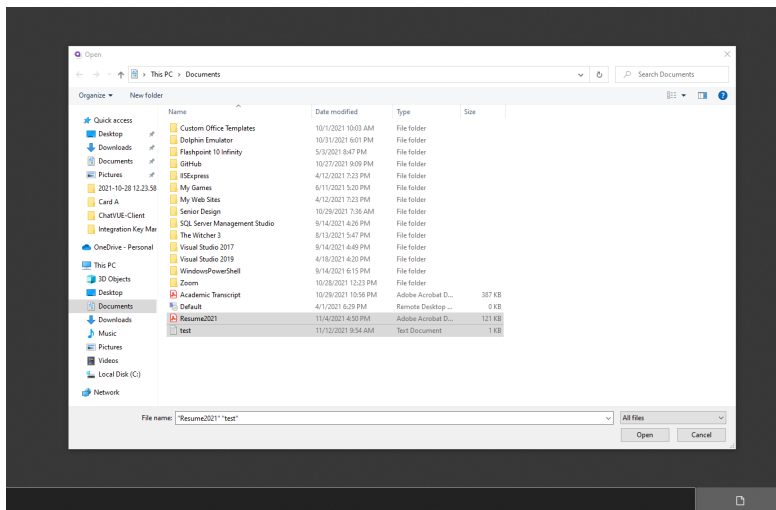
After opening the client, a window will pop up for the user to enter the server IP , key IP and server title to create or join the chat room. You can add more users through the green plus sign in the upper left corner. And they can send messages to each other by typing one in and sending enter.

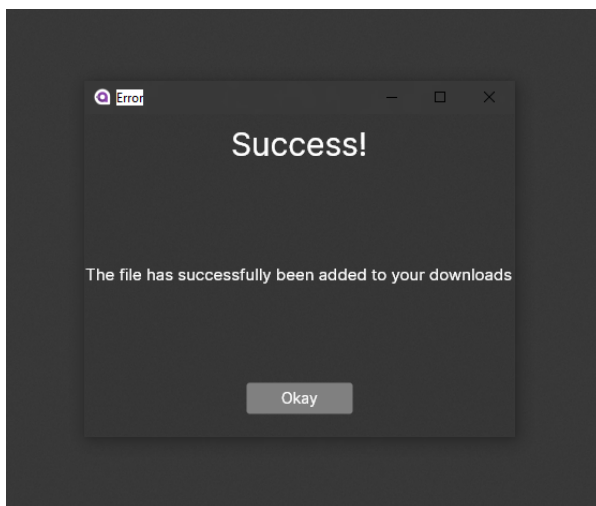
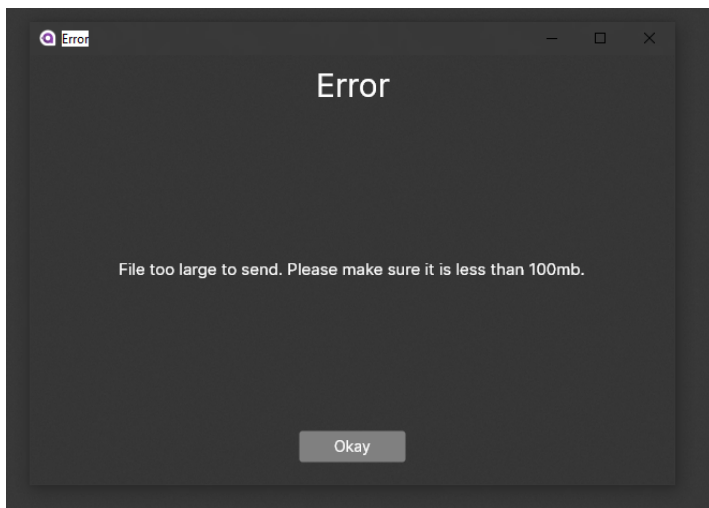
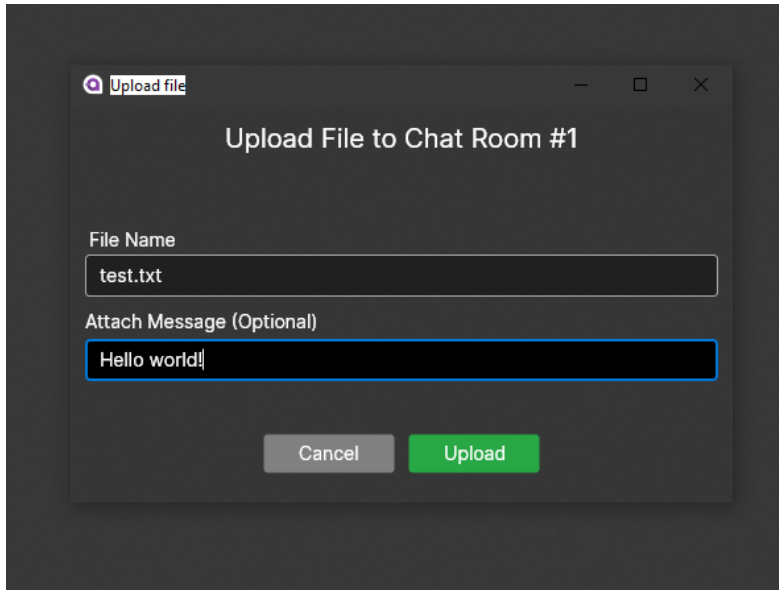




## 4.2 Upload the files

Through the gray file icon in the lower right corner, the user can select the file to upload. If the user uploads the file successfully, the client will pop up a window that the upload is successful, if the user uploads the file is too large, the client will pop up a window to prompt this file larger than 100 mb, and it can be uploaded successfully.





# 5. Contributions

Thomas Hansknecht - (Header Page, Table Of Contents, Chapters 2.1, 3, 5)

Jiaqi Liu - (Table Of Contents, Chapters 1, 2, 3.1-3.2,3.4)

Noah Davis - (Chapter 4)