CDCP User Manual

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Getting Started:

Software Prerequisites

To get started with using CDCP it is important to ensure that all the following prerequisites are met:

- A Windows machine with a minimum of 2GB RAM and 40MB Hard Drive space
- A fully working broadband internet connection of an upload and download speed of more than 4mbps
- MySQL Workbench Version 8.0.20 installed
- Python 64-bit version installed

Python Module Prerequisites

CDCP has the following module dependencies:

- mysql-connector-python
- pyautogui
- ttkthemes
- pycryptodome

These can be installed by either running the following commands via CMD (command prompt) sequentially if pip is already installed in windows:

- pip install pycryptodome
- pip install pyautogui
- pip install mysql-connector-python
- pip install ttkthemes

Or by going to the folder python is installed in

' C:\Users\Your-Username\AppData\Local\Programs\Python\Python38\Scripts' (this might differ depending on how where you installed python)

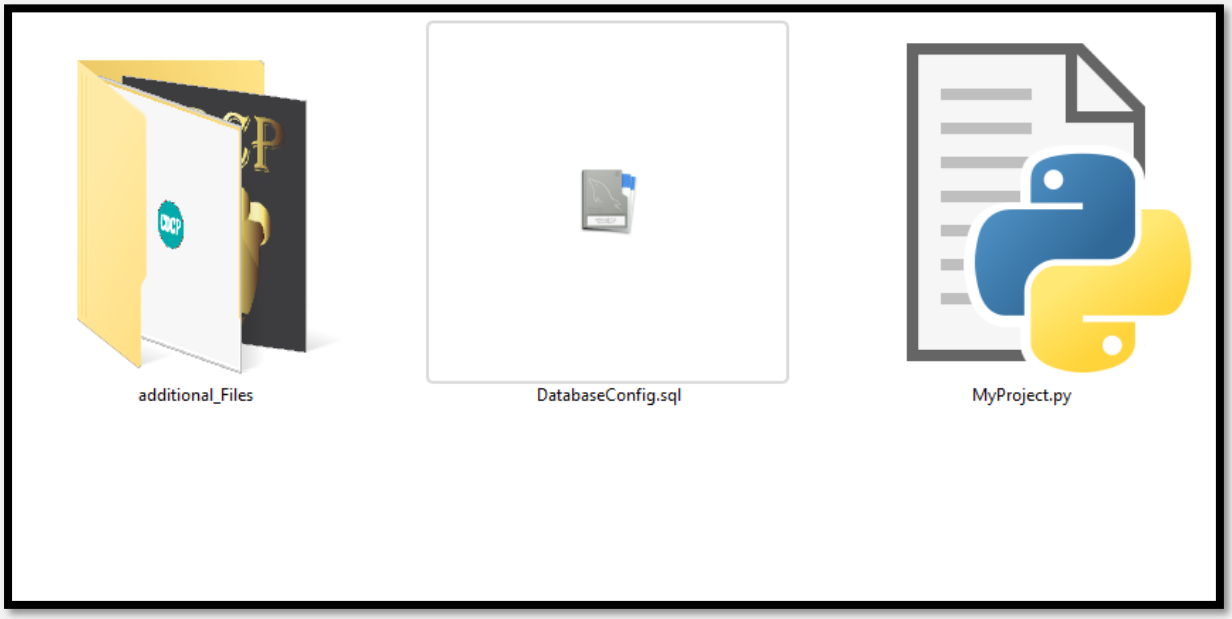
Then running the following commands in a CMD window sequentially:

- python -m pip install pycryptodome
- python -m pip install pyautogui
- python -m pip install mysql-connector-python
- python -m pip install ttkthemes

MySQL Set-up

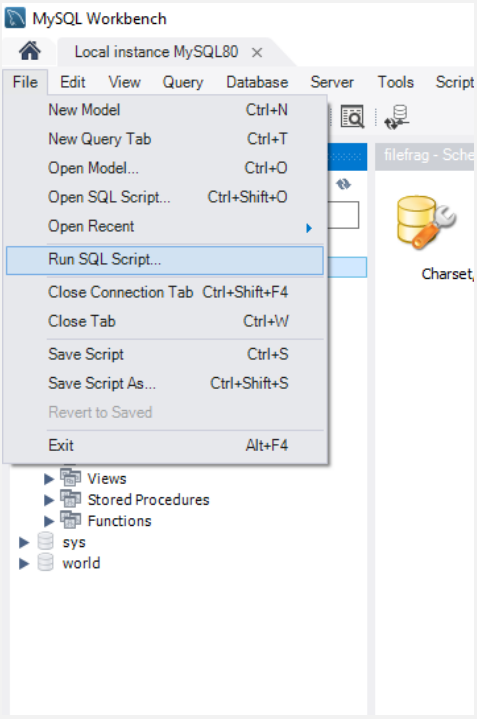
Step 1

Since the program relies on MySQL's for managing file information, it needs to be setup correctly. In the CDCP folder you will find the included 'DatabaseConfig.sql' file, as shown below. This will be used to set-up the database design in MySQL workbench.



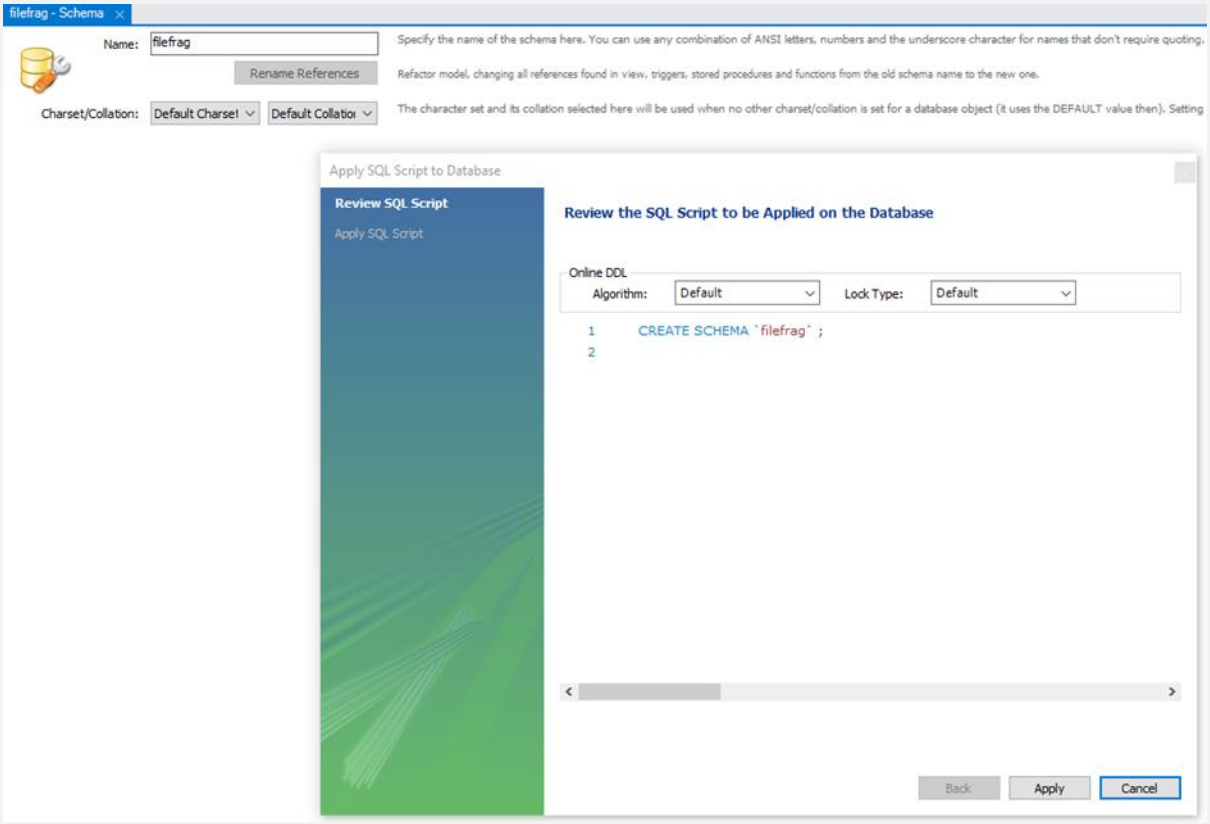
Step 2:

Open the MySQL workbench and click on ‘File’ > ‘Run SQL Script’ > and select the ‘DatabaseConfig.sql’ found in the CDCP folder.



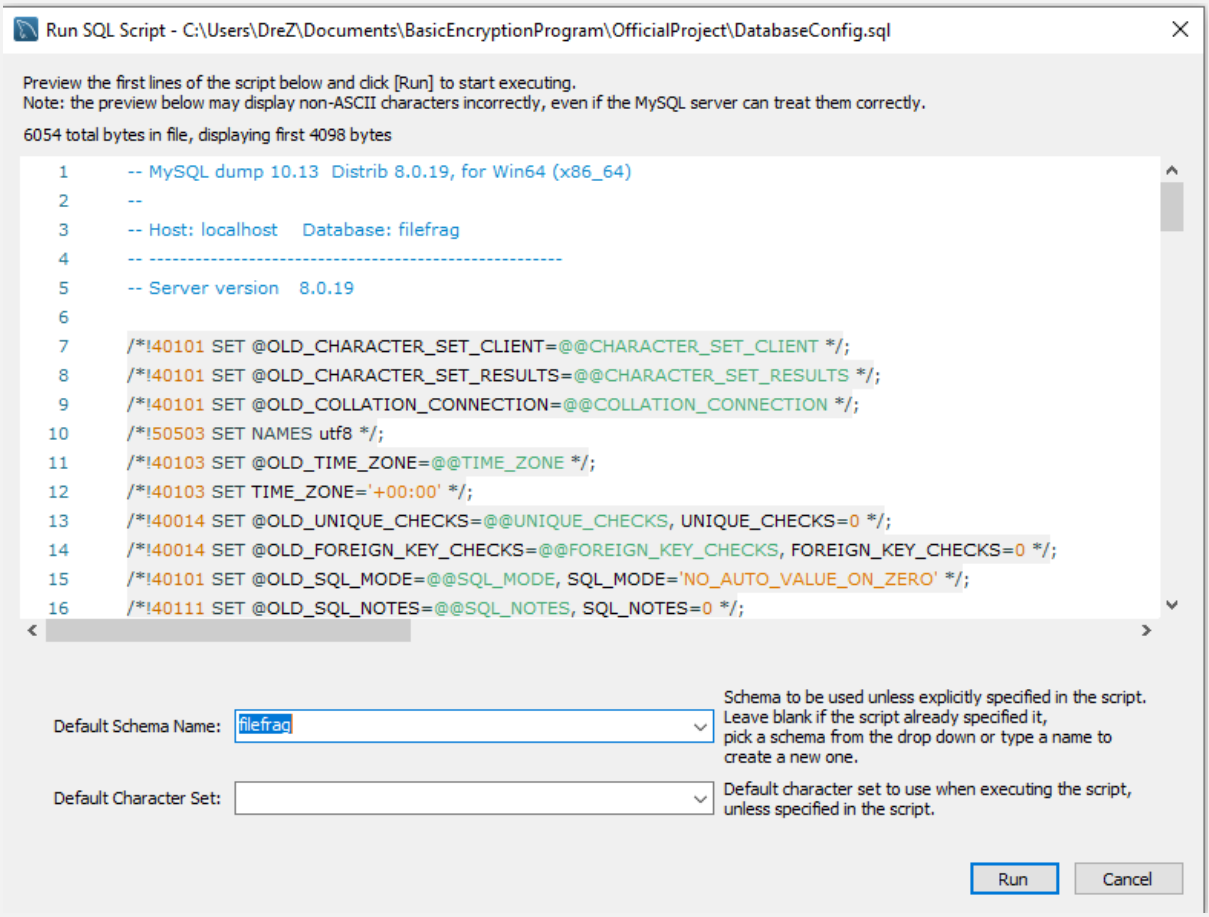
Step 3

Click Apply on the following window

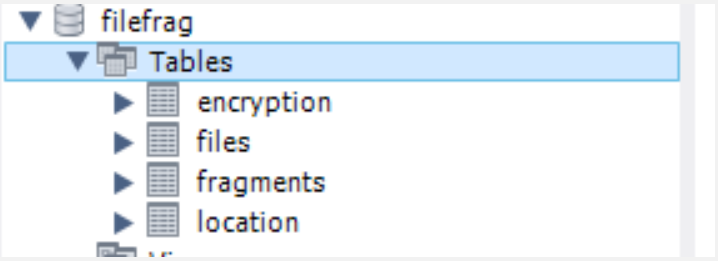


Step 4

Type in the ‘filefrag’ into the Default Schema name dropbox menu and click run. Remember that this scheme should already have been created. If it does not exist simply create the scheme by right clicking on the schemas window and creating a schema with the name ‘filefrag’.



The table should then be created with all the necessary fields. Now the database is fully set-up for CDCP.

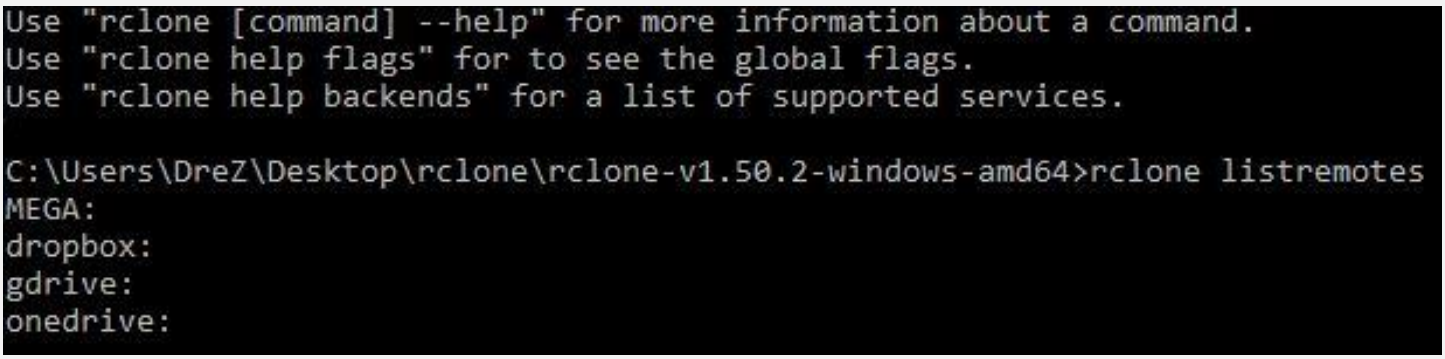


R-Clone Set-up

Step 1

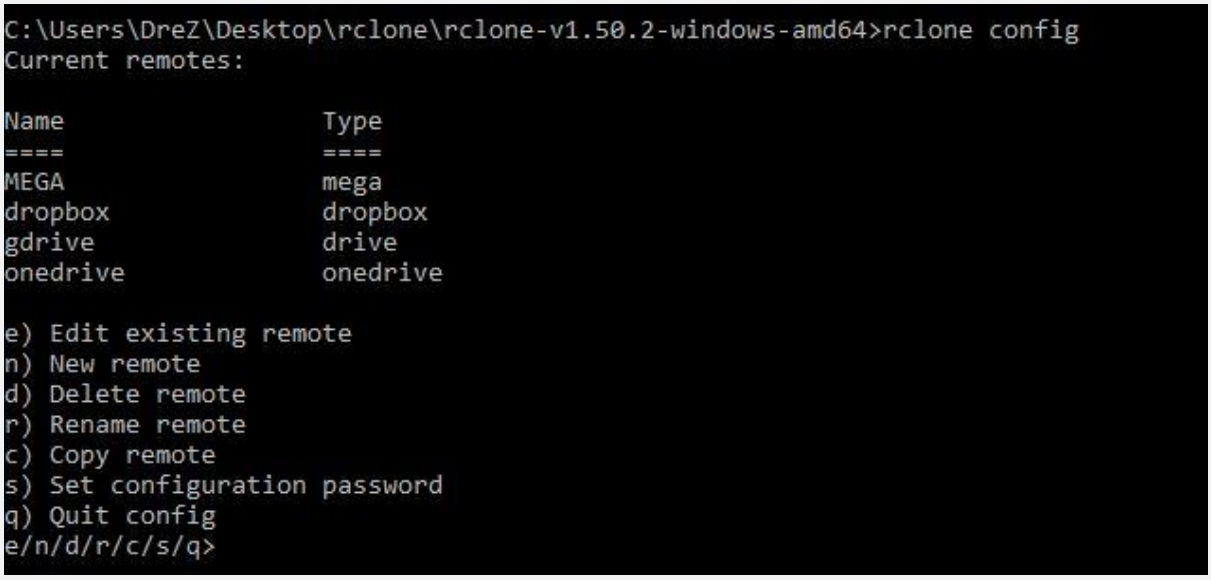
R-clone is the framework needed for interacting with the API's of cloud providers for uploading/downloading file shares to. To configure it so CDCP can interact with it correctly, go into the 'rclone' folder located in the 'CDCP/additional_Files' directory and open a cmd terminal in this location. Then run the command 'rclone list remotes'.

This will display all the current remote cloud providers that have already been set-up. However, in your first use of the software you would have none.



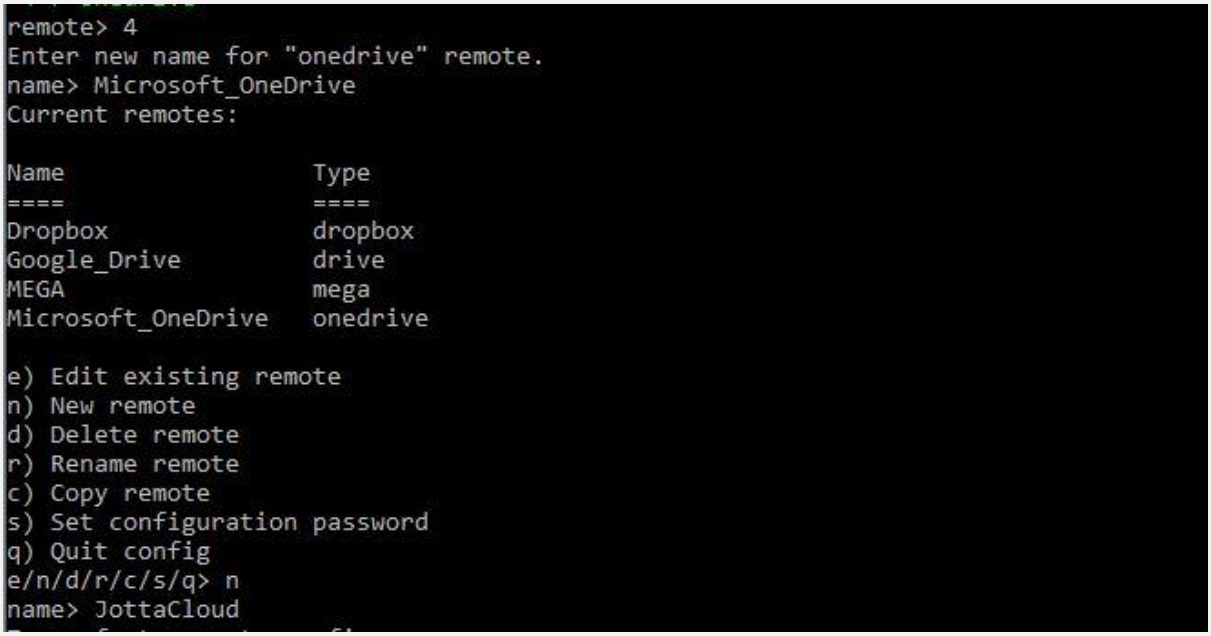
Step 2:

To add a new cloud provider, type ‘rclone config’. This will bring an optional menu. As illustrated below, the three most important options here are ‘delete remote’, ‘rename remote’ and ‘new remote’. All these options either allow the user to delete, rename or add a new cloud provider for CDCP. Enter ‘n’ for creating a new cloud provider.



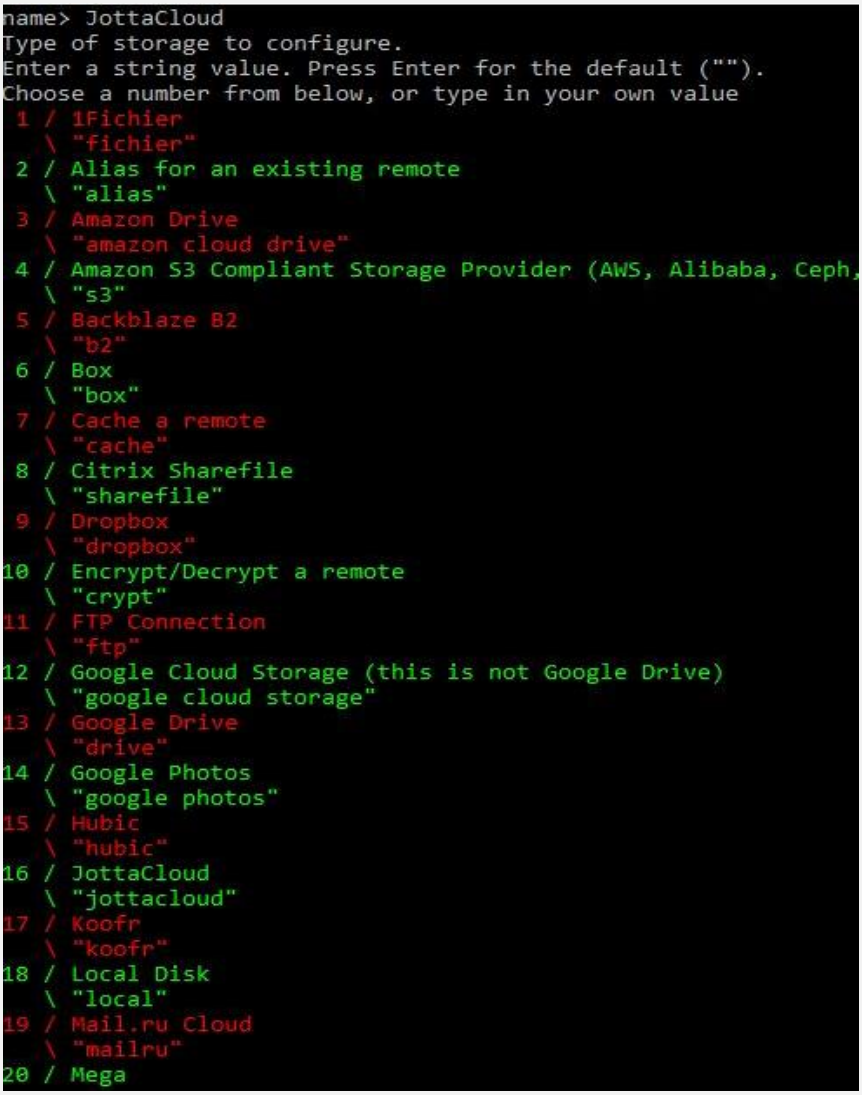
Step 3:

Once you hit enter, R-clone will ask you to specify the name of the remote cloud provider. Enter its name. In the below example, the intended cloud provider for creation is ‘JottaCloud’, however this would differ depending on which cloud provider you wish to add.



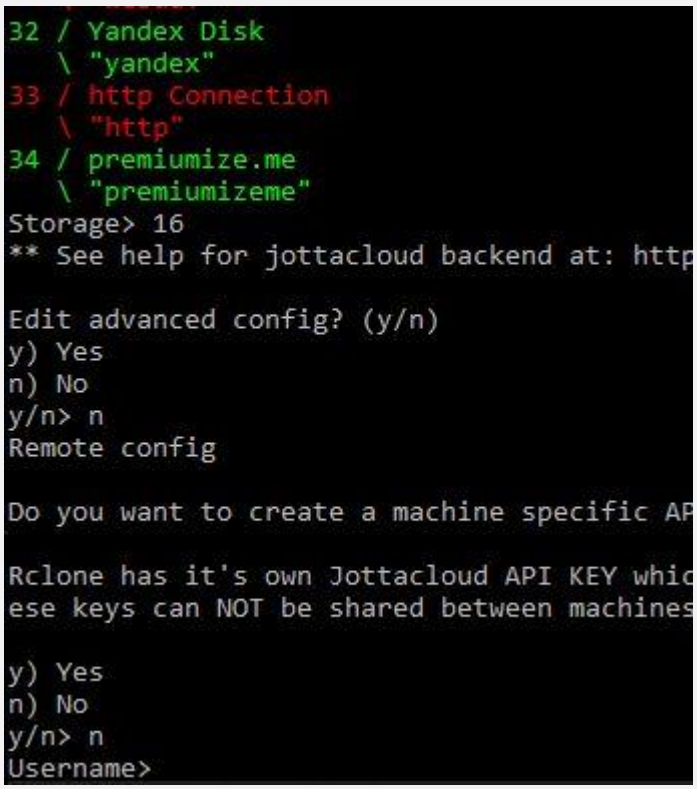
Step 4:

Then, another menu will be displayed to define which specific cloud provider you wish to set-up. Since ‘JottaCloud’ was setup in the previous step, choose the corresponding provider by typing its number. In this case, ‘16’ refers to JottaCloud therefore this will be the input needed.



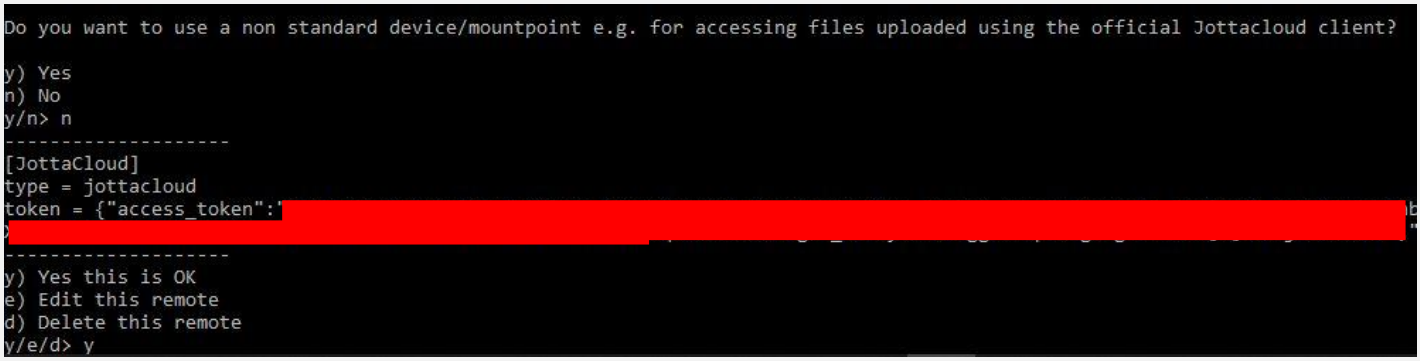
Step 5:

The final step for setting it up correctly is to specify yes on all given inputs. This refers to the default and should not be changed otherwise. Eventually, R-clone will ask for a username and password of the cloud provider. Input this.

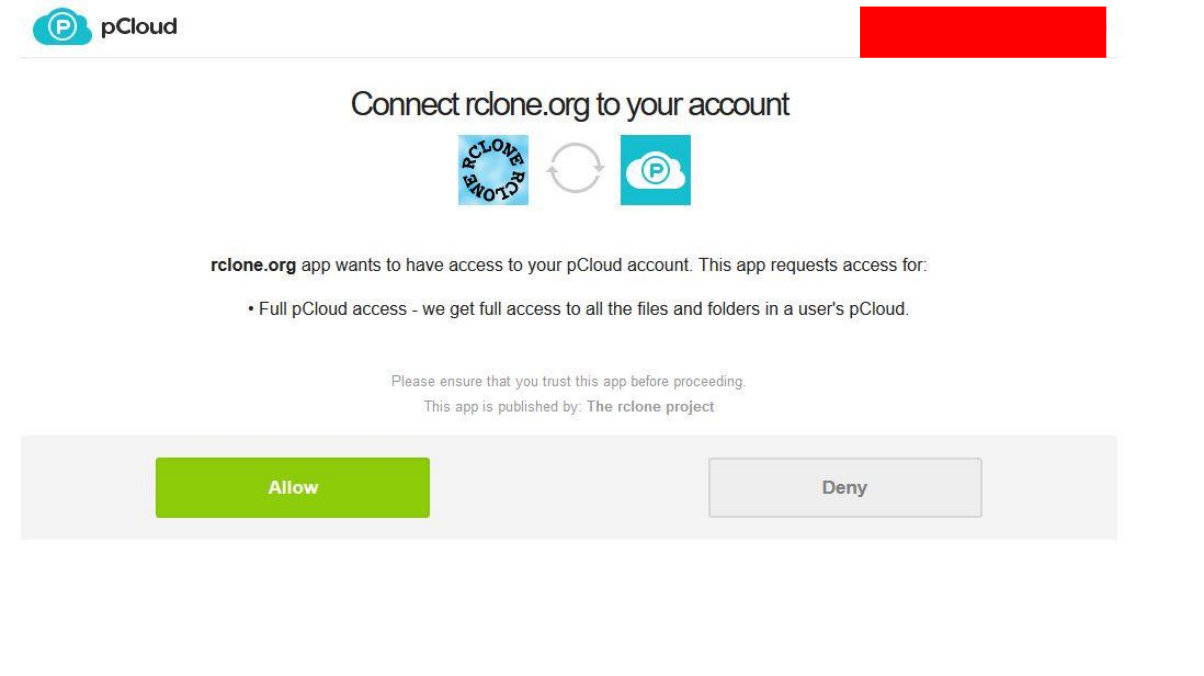


Step 5:

In the final step, R-clone will ask you if you would like to set-up a mountpoint, this is not required, therefore just type ‘n’ for no. Once done, R-clone will ask you to verify the details. Type ‘y’ for yes to complete the process.



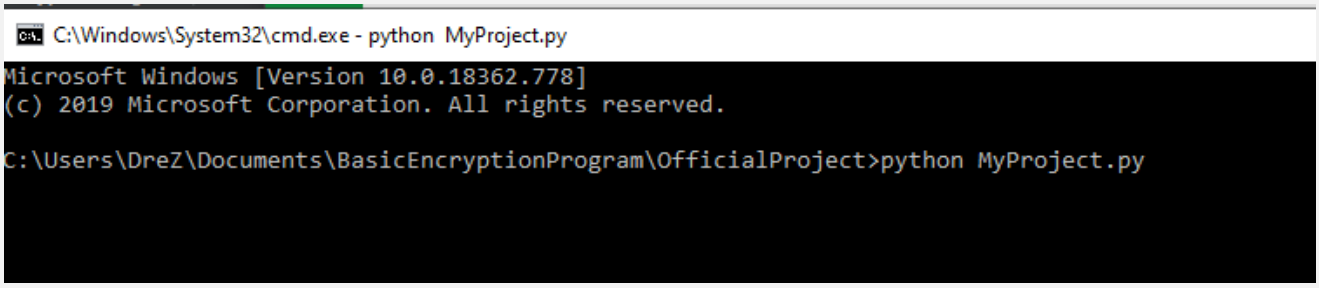
It is important to note that in some cases, some providers will require you to manually grant permissions for R-clone to access your account. Therefore, ensure that you are logged into your intend account to allow R-clone access it. Then, during the previous configuration steps, rlcone will automatically launch your browser for you to simply grant by clicking the ‘allow’ button.



Running the program

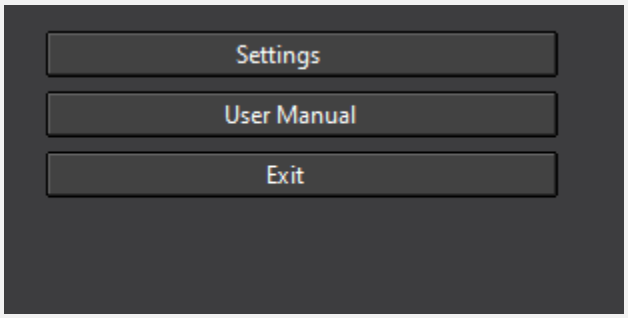
Once all prerequisites have been installed you can then run the program by simply opening a CMD terminal in the folder of CDCP and running the following:

- Python MyProject.py



Program Settings

Before using the program, it is important to apply its settings to configure to your needs. Click on the ‘Settings button’.



MySQL Settings in CDCP

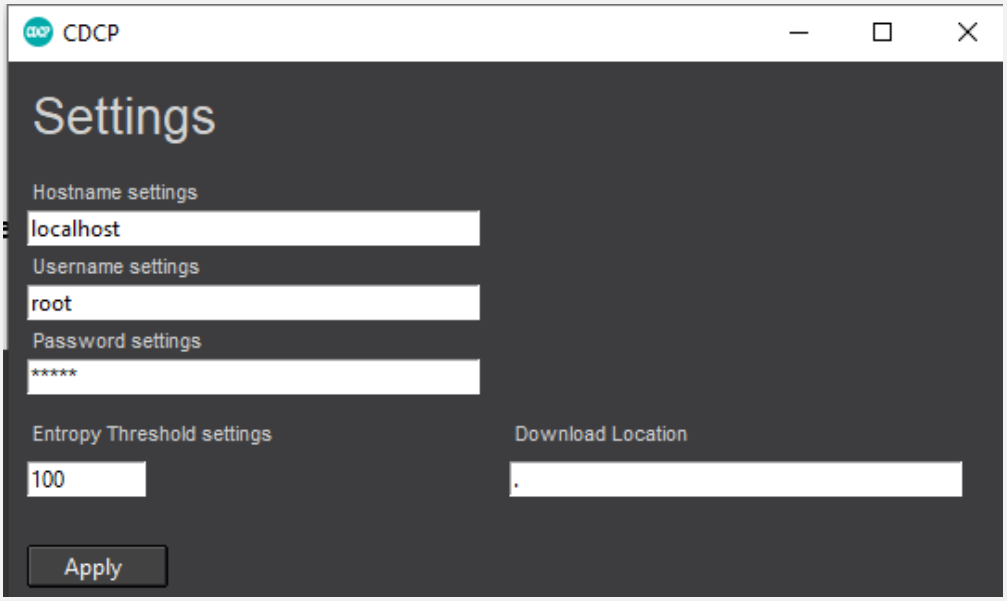
The settings window will appear. Here, it is necessary to change the hostname, username, and password settings to correspond to your MySQL workbench settings. This may differ depending on your MySQL credentials.

Entropy Settings in CDCP

The Entropy threshold settings refers to how strong you wish to make the properties of your generated keys. More specifically, it allows you to specify how many ‘x’ and ‘y’ coordinates are stored in a list. Therefore, adding a higher numerical value will increase the random properties of the key.

Download Location Settings

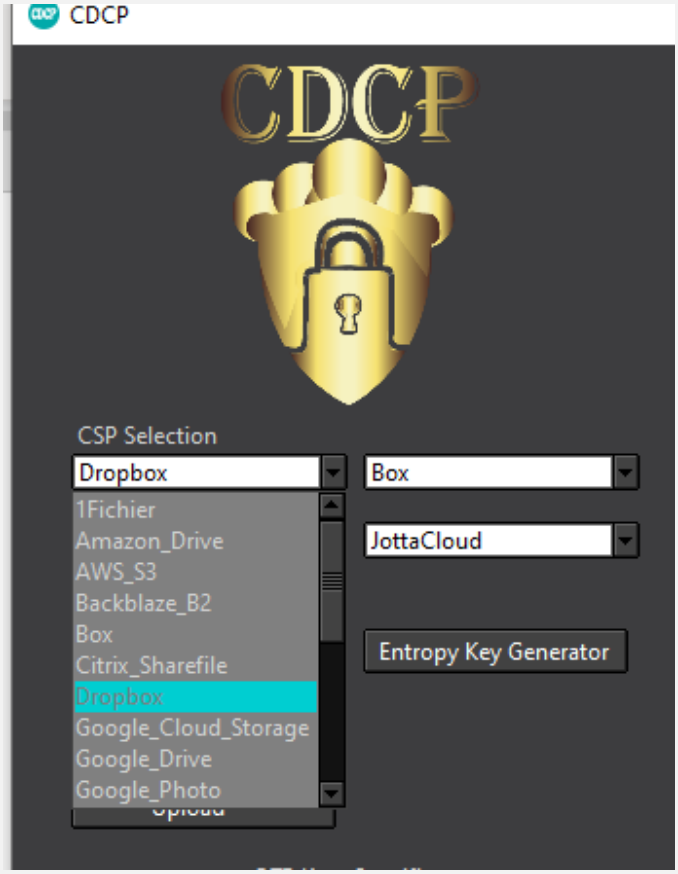
The Download location settings specify which folder you would like your downloaded files to be saved in. By default, it is set to your CDCP folder.



Uploading a File

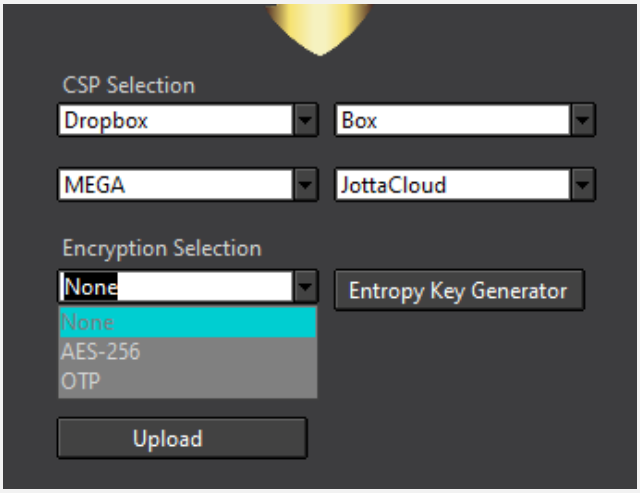
Step 1

First select a minimum of four cloud providers. Please note that these providers should already be set-up using the R-clone steps listed earlier.



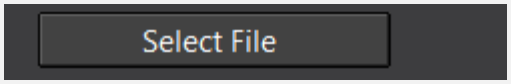
Step 2

Once your chosen cloud providers have been selected, select ‘None’ for no encryption.



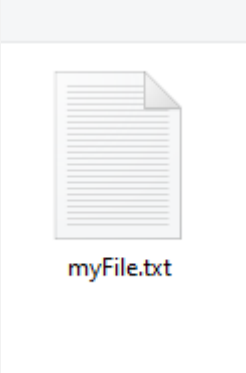
Step 3:

Then press the ‘select file’ button to launch the file selection window



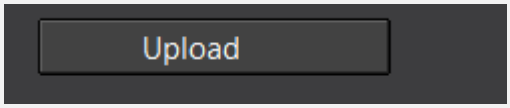
Step 4:

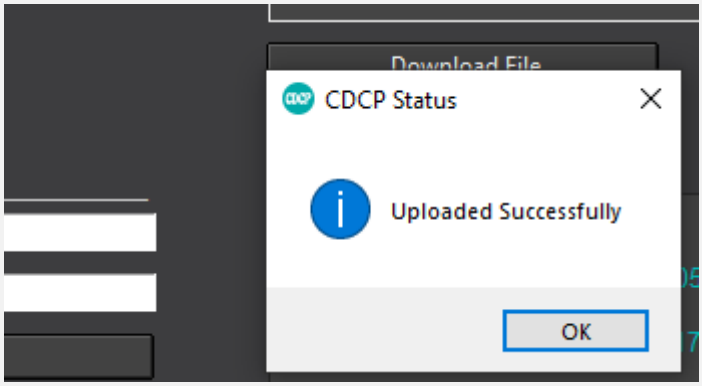
Select the file you wish to upload.



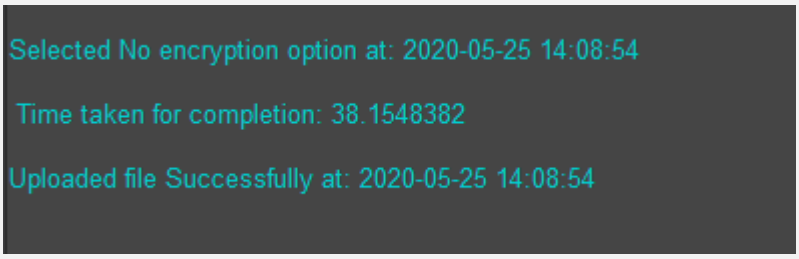
Step 5

Press the ‘Upload’ button to upload your file across multiple providers.





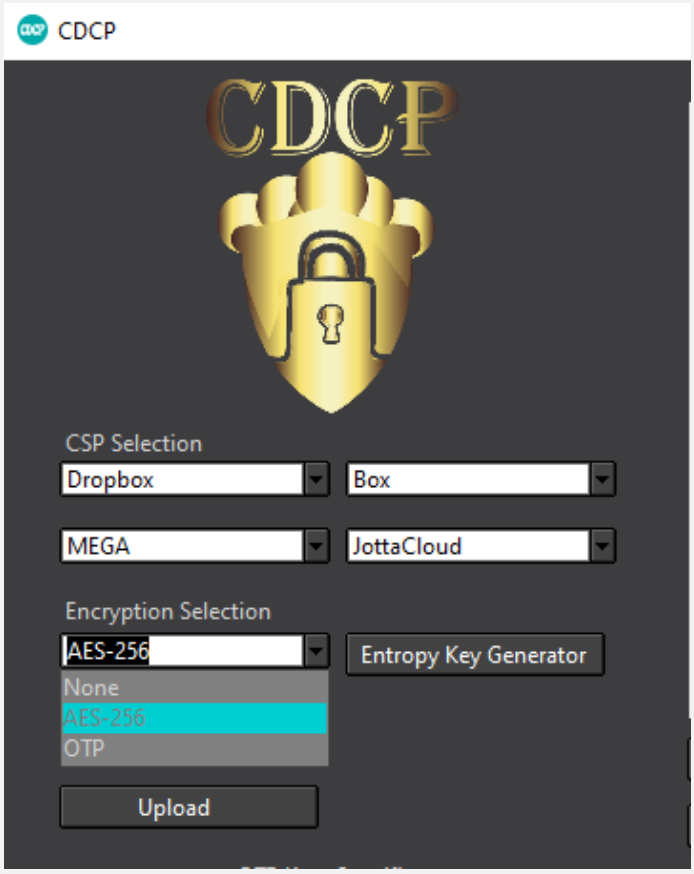
CDCP will tell you how long it took for you to upload your file.



Applying AES-Encryption

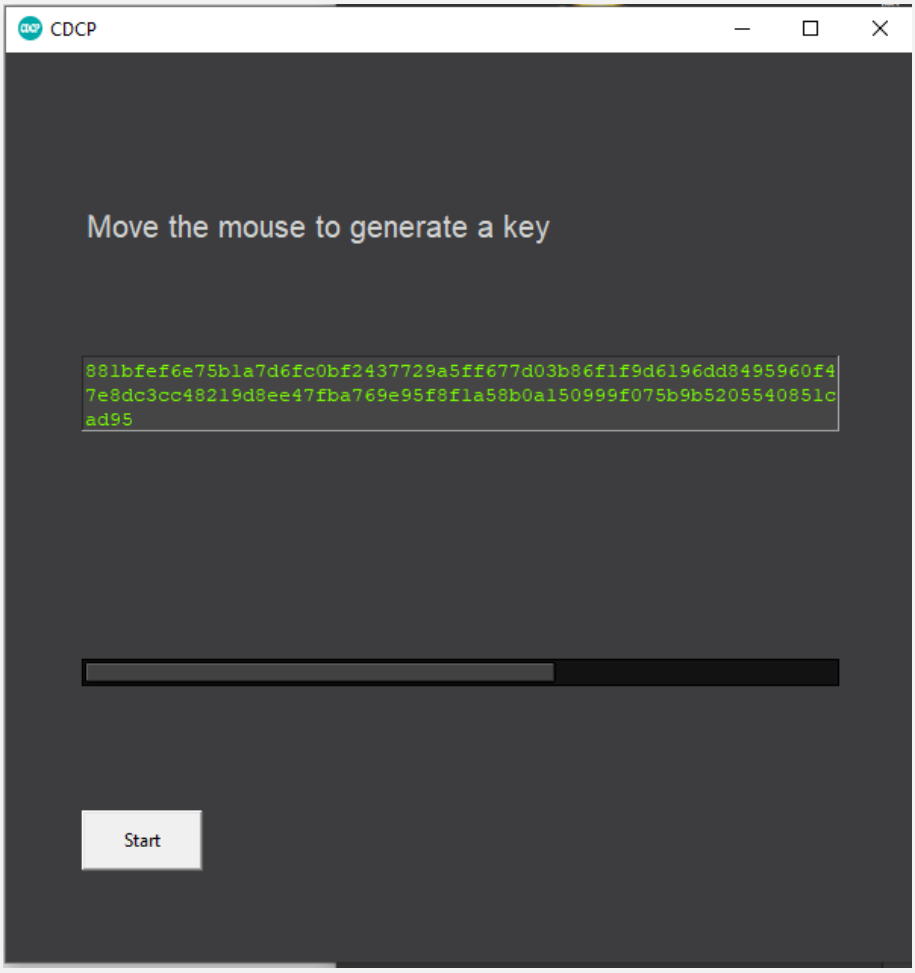
Step 1:

AES-256 encryption can add that additional layer of security to your uploaded file fragments. To apply this, select the ‘AES-256’ option instead. Then, press the ‘Entropy ’



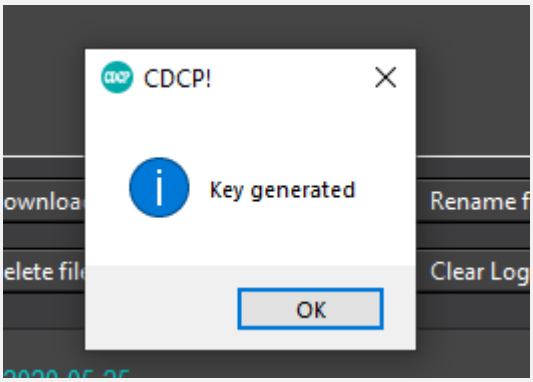
Step 2:

The entropy window will appear. Press the ‘Start’ button to begin the mouse tracking and begin moving the mouse in a random fashion across your screen. Try to ensure that you move it at least four times across the four corners of your screen to try to generate the highest quality of randomness.



Step 3:

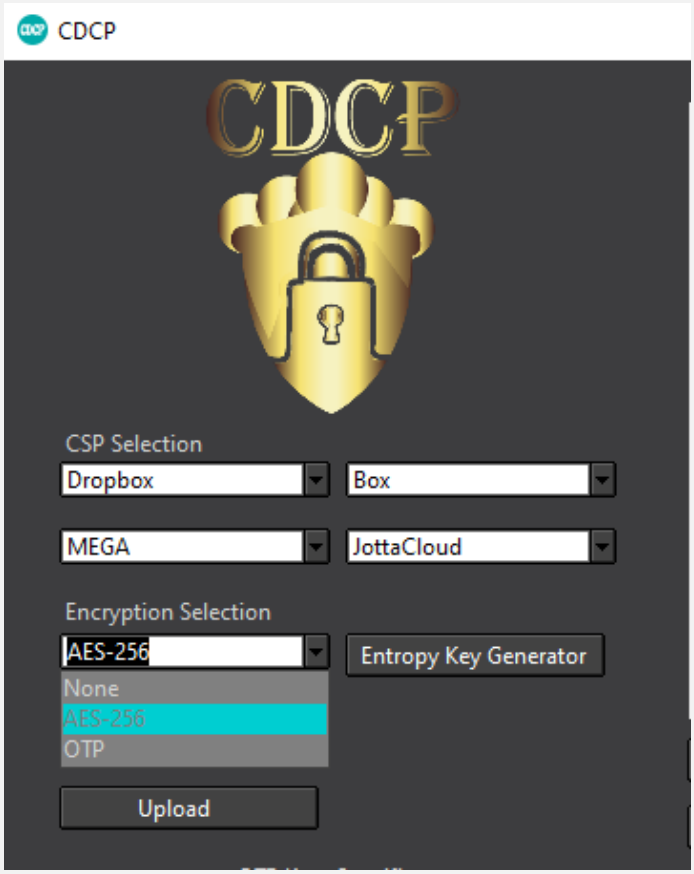
The key will be generated. Click OK. And then perform steps 3-5 from the previous section of page 20.



Applying OTP Encryption

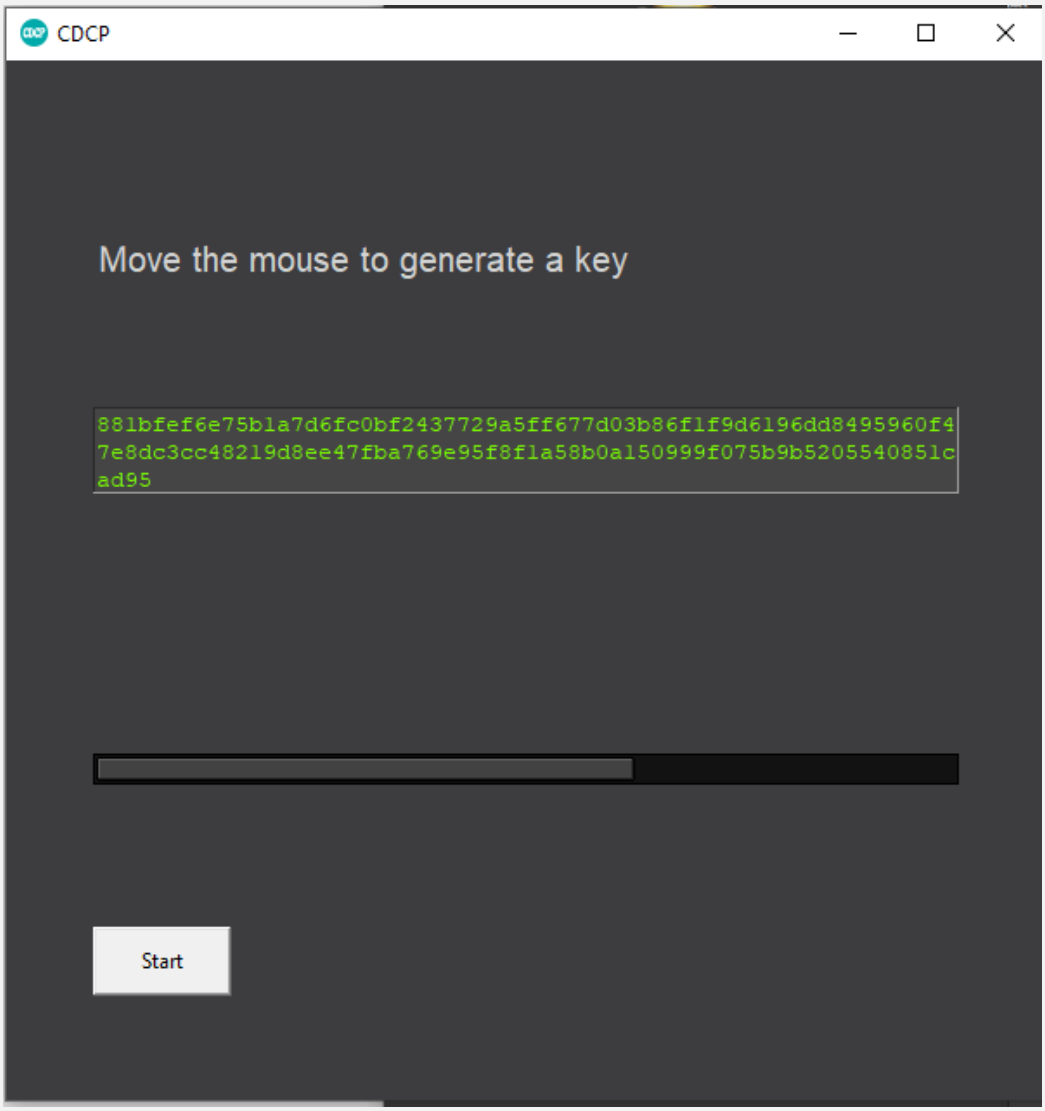
Step 1:

To apply OTP encryption, select the ‘OTP’ option from the encryption selection menu.



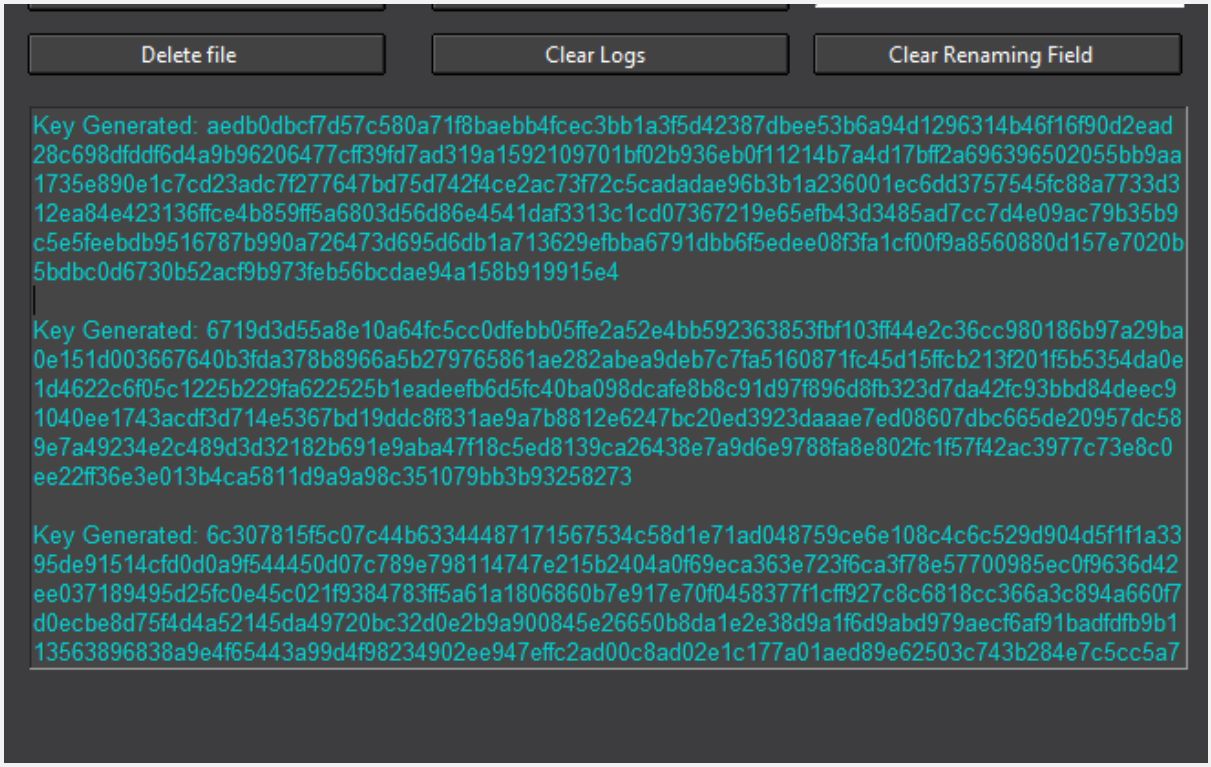
Step 2

The entropy window will appear. Press the ‘Start’ button to begin the mouse tracking and begin moving the mouse in a random fashion across your screen. Try to ensure that you move it at least four times across the four corners of your screen to try to generate the highest quality of randomness.



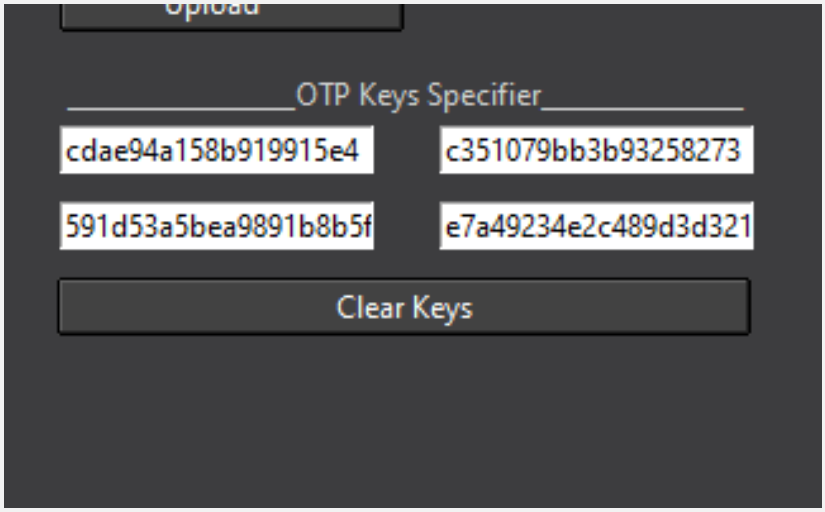
Step 3

As shown below, the generated keys will be outputted to the log window. Repeat Step 2 three more times to compile a list of 4 keys in total. Then copy each key (Ctrl + C).

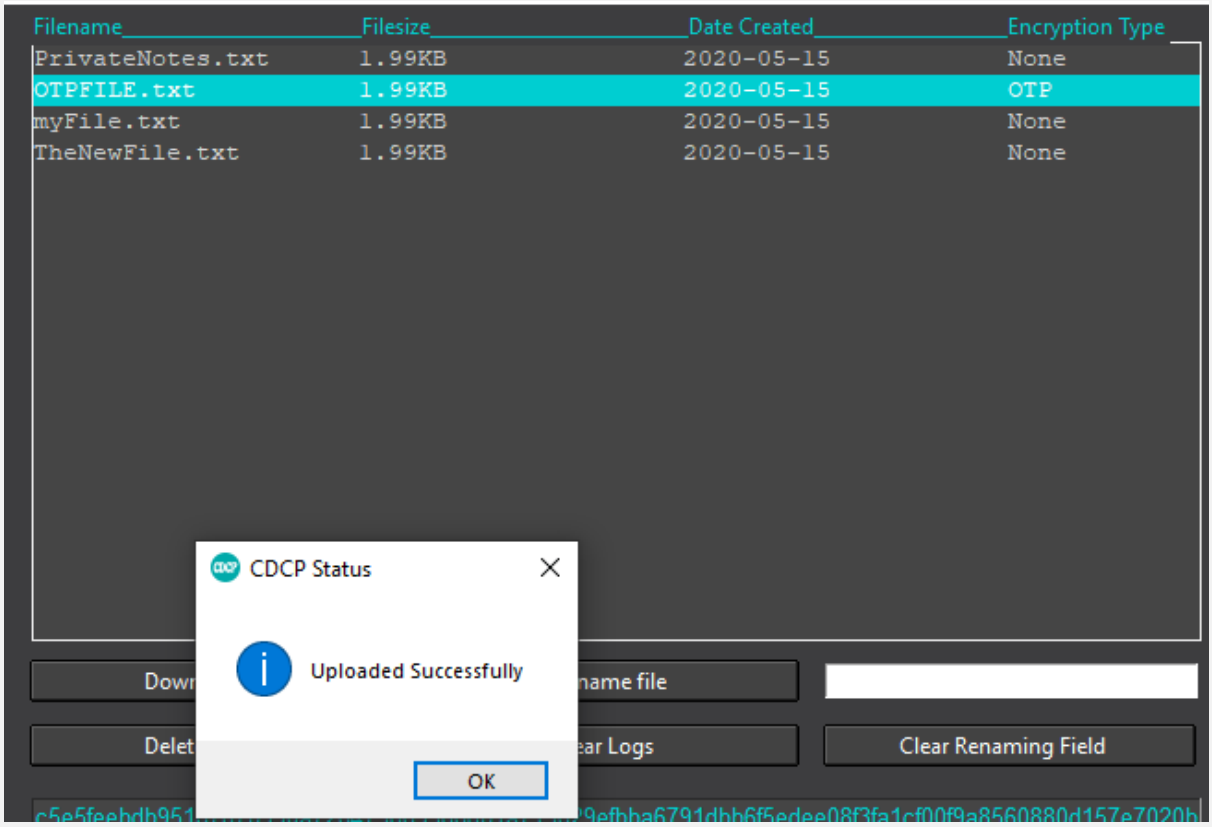


Step 4

Paste each sequentially into each field under the ‘OTP Keys specifier’ field shown below. You may press the ‘Clear Keys’ button if you make a mistake to clear the inputted keys. Then select the file and click the upload button.

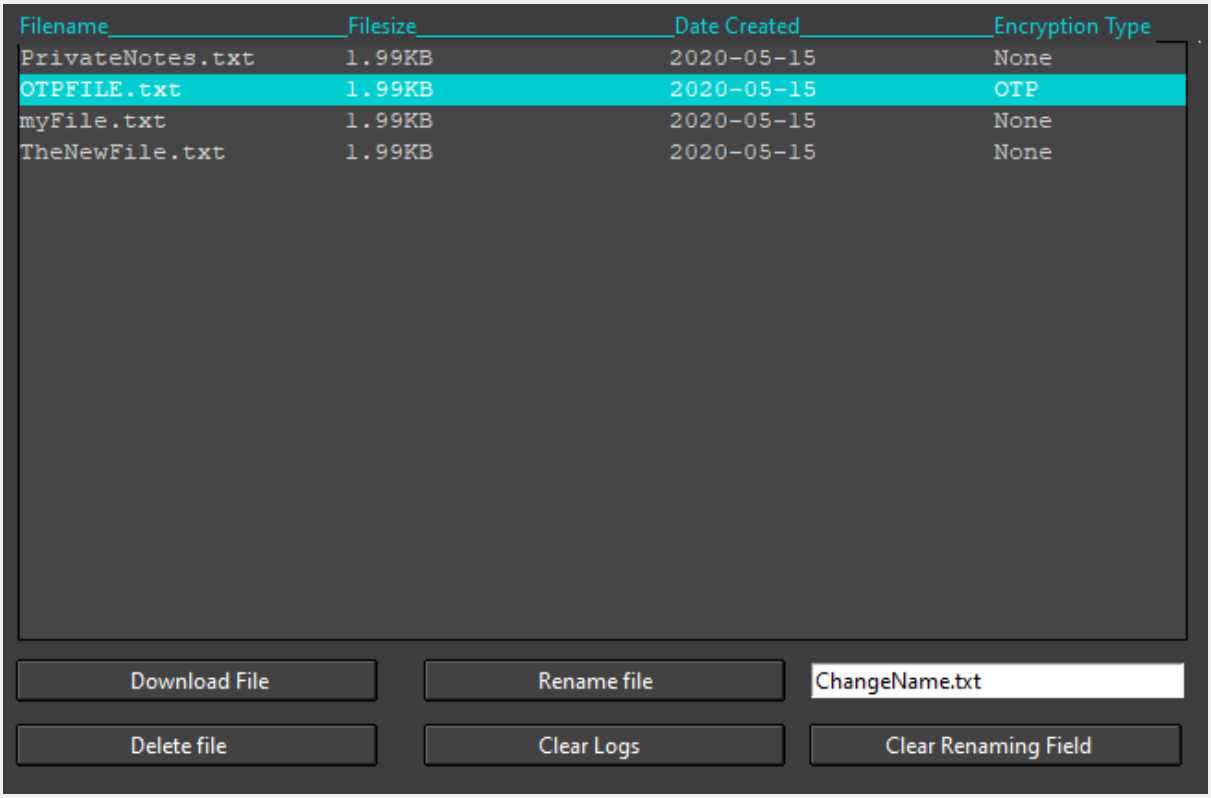


Consequently, all uploaded files will be uploaded to the file window.



Downloading a File

To download any file, simply select the filename of the file and click the ‘download file’ button shown below.



Deleting and Renaming Files

Deleting and renaming files is also relatively easy. For example, deleting files can be done by selecting the intended file and pressing the ‘delete button’. Moreover, renaming can be done by selectin the intended file and typing in the new name you wish you apply, before pressing the ‘rename file’ button.