

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)

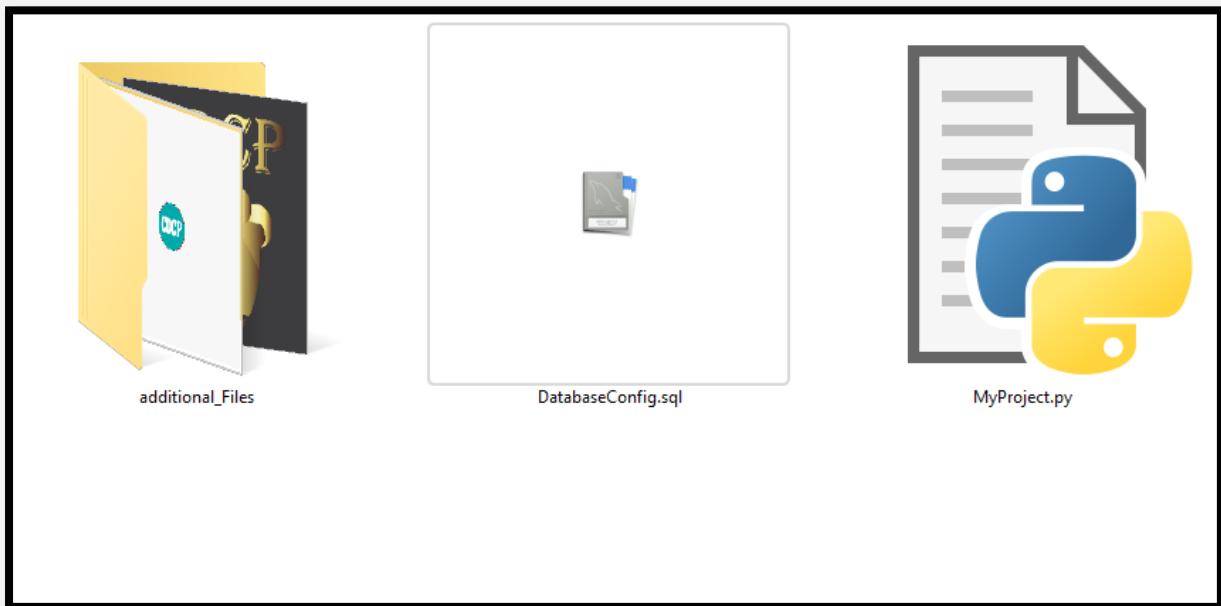
Then running the following commands in a CMD window sequentially:

- 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

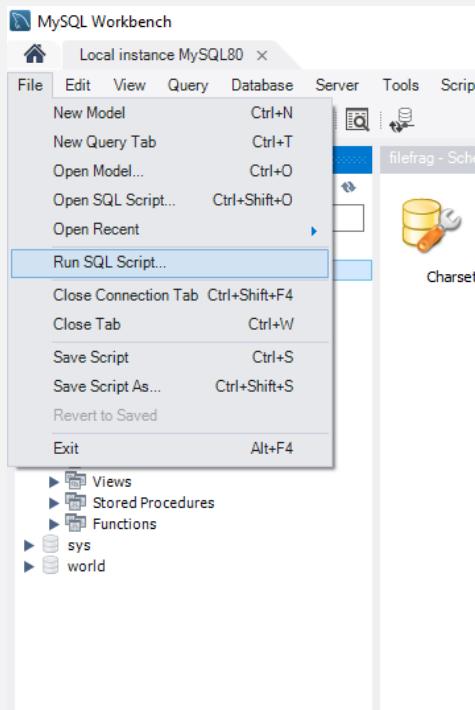
Step 1

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.



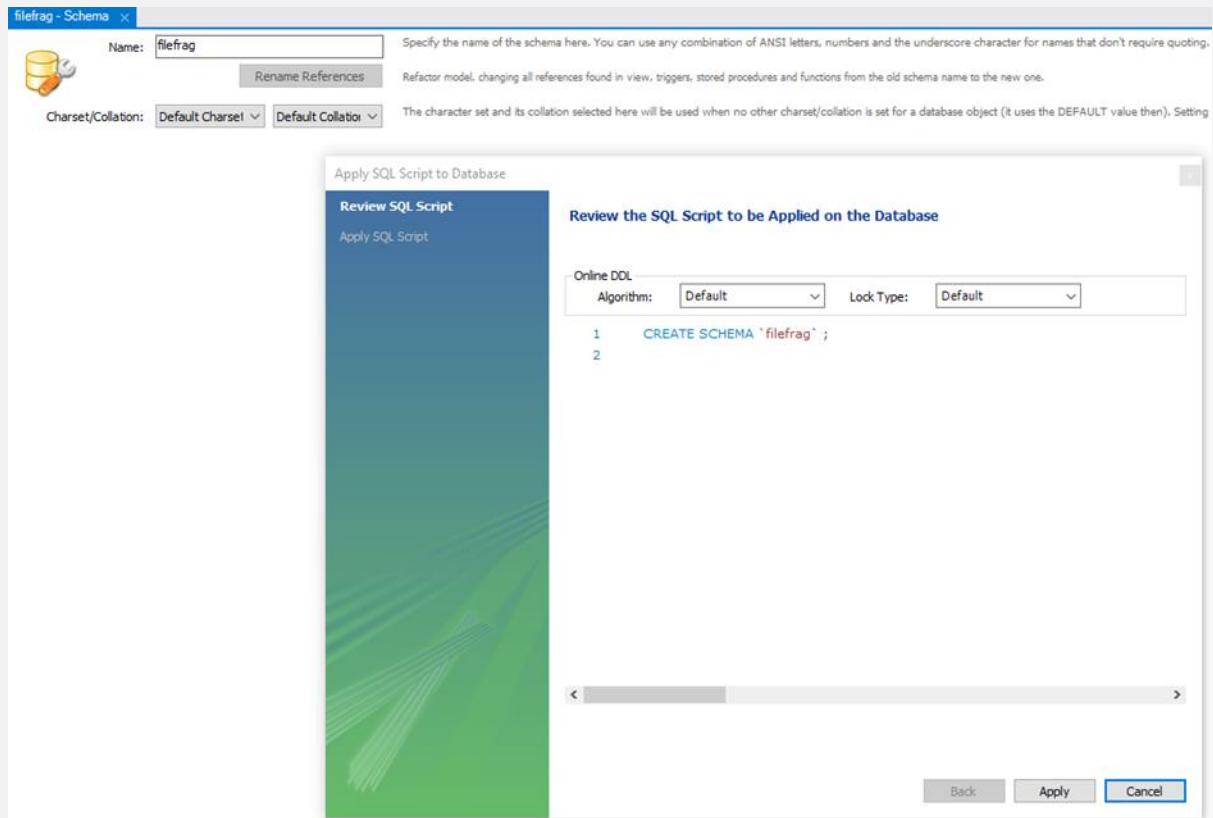
Step 2:

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



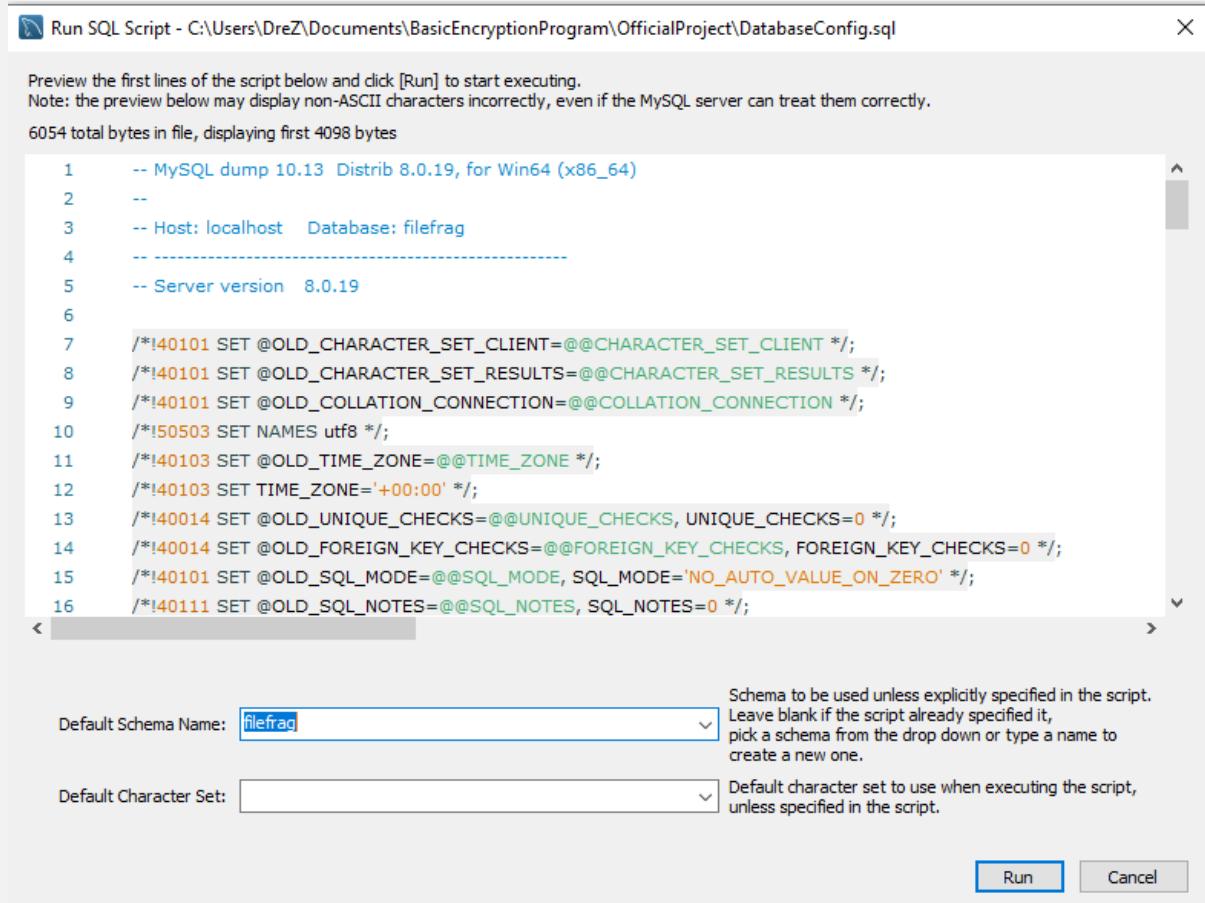
Step 3

Click Apply on the following window

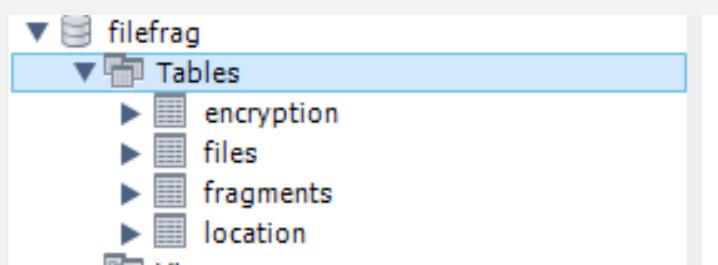


Step 4

Type in the ‘filefrag’ into the Default Schema name dropdown 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.

```
Use "rclone [command] --help" for more information about a command.
Use "rclone help flags" for to see the global flags.
Use "rclone help backends" for a list of supported services.

C:\Users\DreZ\Desktop\rclone\rclone-v1.50.2-windows-amd64>rclone listremotes
MEGA:
dropbox:
gdrive:
onedrive:
```

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.

```
C:\Users\DreZ\Desktop\rclone\rclone-v1.50.2-windows-amd64>rclone config
Current remotes:

Name          Type
====          ====
MEGA          mega
dropbox       dropbox
gdrive        drive
onedrive      onedrive

e) Edit existing remote
n) New remote
d) Delete remote
r) Rename remote
c) Copy remote
s) Set configuration password
q) Quit config
e/n/d/r/c/s/q>
```

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.

```
remote> 4
Enter new name for "onedrive" remote.
name> Microsoft_OneDrive
Current remotes:

Name          Type
====          ====
Dropbox        dropbox
Google_Drive   drive
MEGA          mega
Microsoft_OneDrive onedrive

e) Edit existing remote
n) New remote
d) Delete remote
r) Rename remote
c) Copy remote
s) Set configuration password
q) Quit config
e/n/d/r/c/s/q> n
name> JottaCloud
```

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.

```
name> JottaCloud
Type of storage to configure.
Enter a string value. Press Enter for the default ("").
Choose a number from below, or type in your own value
 1 / 1Fichier
    \ "fichier"
 2 / Alias for an existing remote
    \ "alias"
 3 / Amazon Drive
    \ "amazon cloud drive"
 4 / Amazon S3 Compliant Storage Provider (AWS, Alibaba, Ceph,
    \ "s3"
 5 / Backblaze B2
    \ "b2"
 6 / Box
    \ "box"
 7 / Cache a remote
    \ "cache"
 8 / Citrix Sharefile
    \ "sharefile"
 9 / Dropbox
    \ "dropbox"
10 / Encrypt/Decrypt a remote
    \ "crypt"
11 / FTP Connection
    \ "ftp"
12 / Google Cloud Storage (this is not Google Drive)
    \ "google cloud storage"
13 / Google Drive
    \ "drive"
14 / Google Photos
    \ "google photos"
15 / Hubic
    \ "hubic"
16 / JottaCloud
    \ "jottacloud"
17 / Koofr
    \ "koofr"
18 / Local Disk
    \ "local"
19 / Mail.ru Cloud
    \ "mailru"
20 / Mega
```

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.

```
32 / Yandex Disk
  \ "yandex"
33 / http Connection
  \ "http"
34 / premiumize.me
  \ "premiumizeme"
Storage> 16
** See help for jottacloud backend at: http://jottacloud.com

Edit advanced config? (y/n)
y) Yes
n) No
y/n> n
Remote config

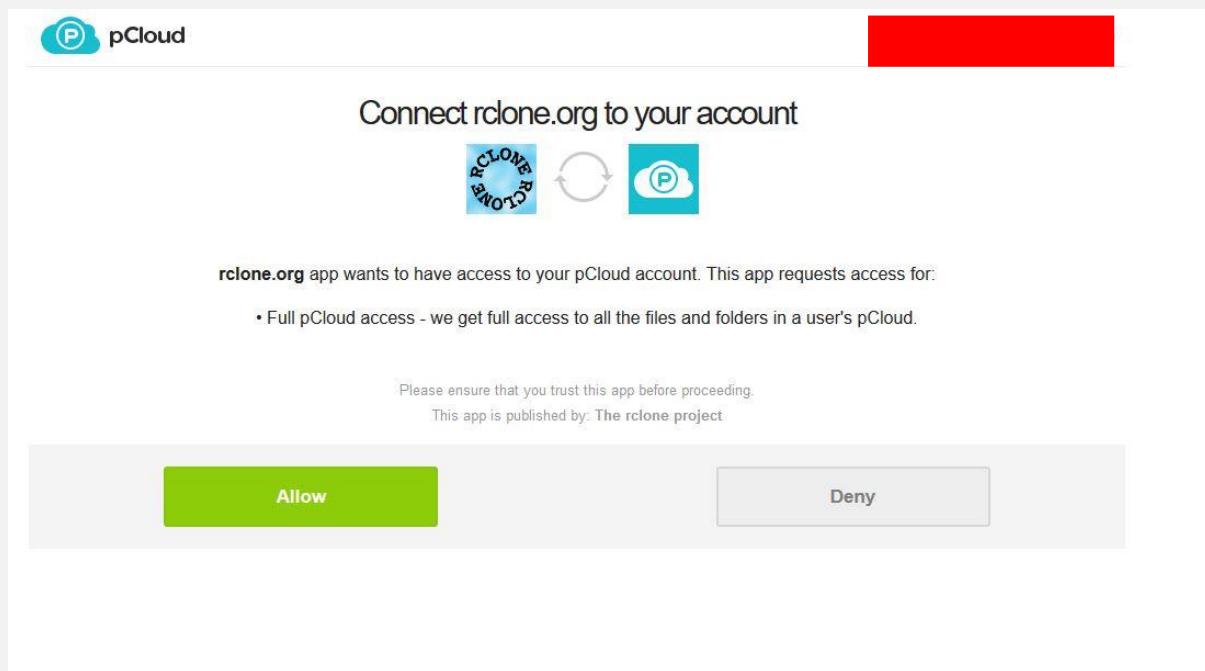
Do you want to create a machine specific API KEY?
Rclone has it's own Jottacloud API KEY which
these keys can NOT be shared between machines
y) Yes
n) No
y/n> n
Username>
```

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.

```
Do you want to use a non standard device/mountpoint e.g. for accessing files uploaded using the official Jottacloud client?  
y) Yes  
n) No  
y/n> n  
-----  
[JottaCloud]  
type = jottacloud  
token = {"access_token": "  
>  
-----  
y) Yes this is OK  
e) Edit this remote  
d) Delete this remote  
y/e/d> y
```

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:

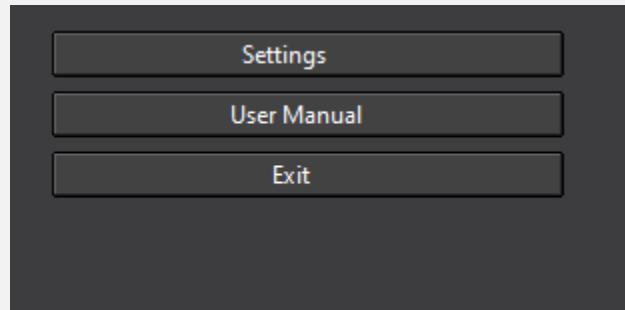
- Python MyProject.py

```
C:\Windows\System32\cmd.exe - python MyProject.py
Microsoft Windows [Version 10.0.18362.778]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\ DreZ\Documents\BasicEncryptionProgram\OfficialProject>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

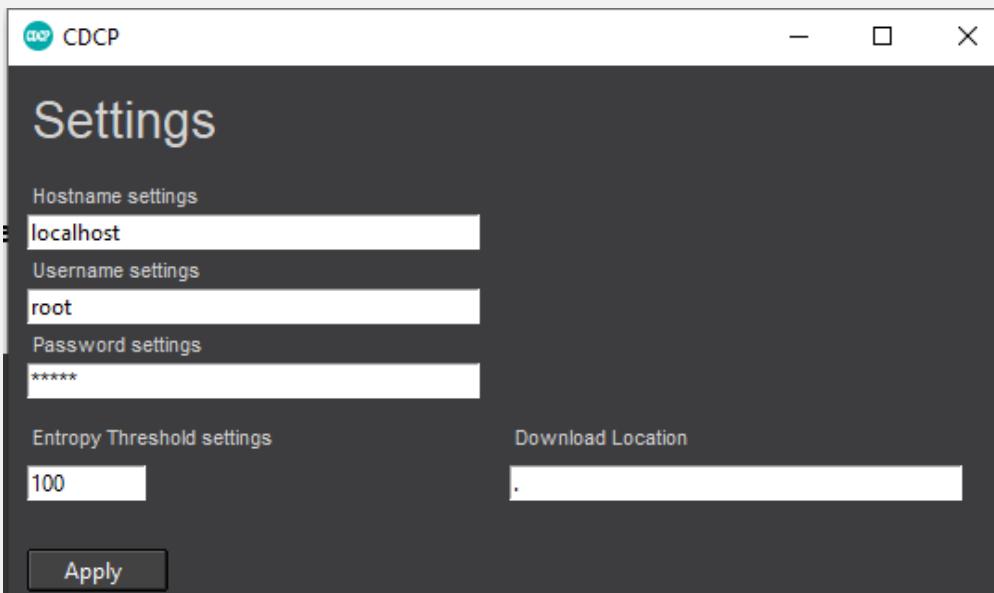
The settings window will appear. Here, it is necessary to change the hostname, username, and password settings to correspond to your MySQL workbench settings. This may differ depending on your MySQL credentials.

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

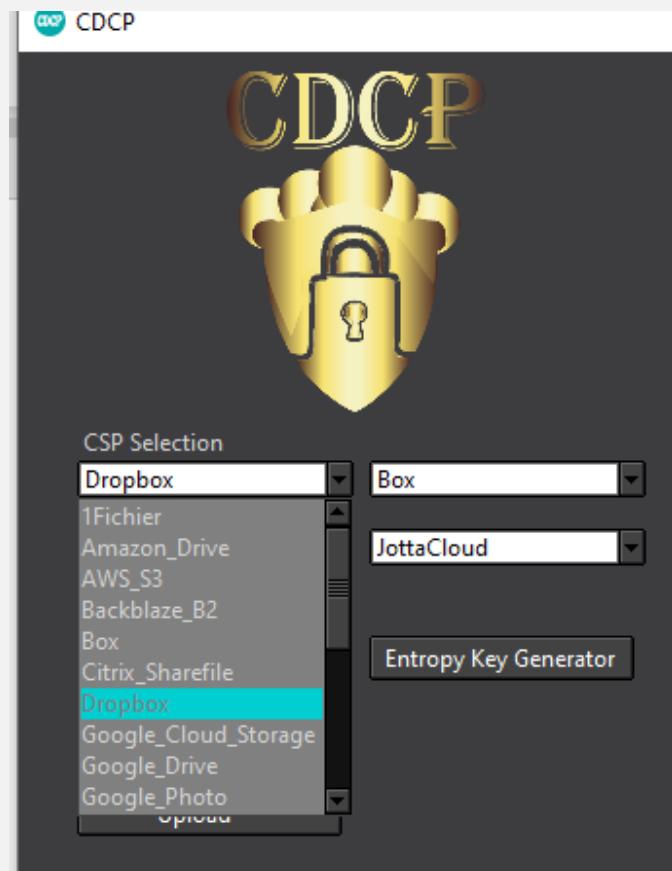
The Download location settings specify which folder you would like your downloaded files to be saved in. By default, it is set to your CDCP folder.



Uploading a File

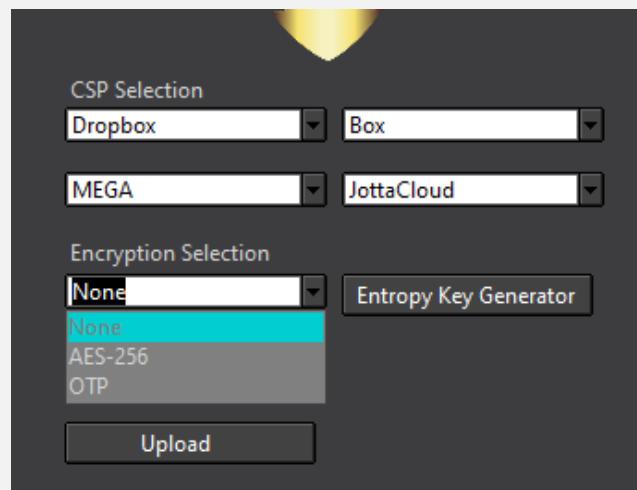
Step 1

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.



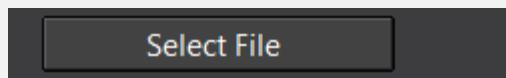
Step 2

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



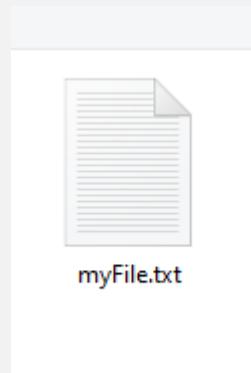
Step 3:

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



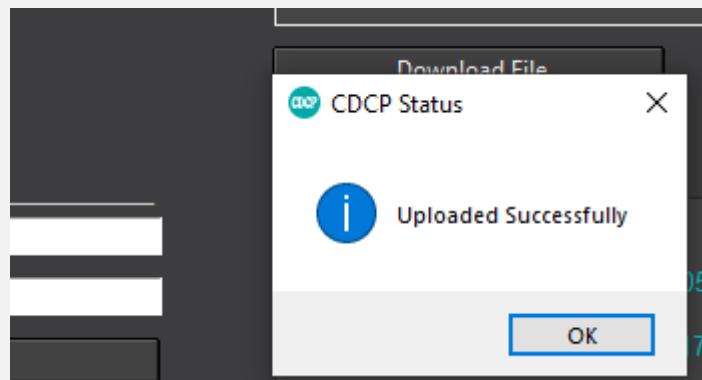
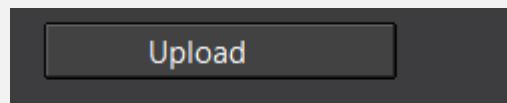
Step 4:

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.

Selected No encryption option at: 2020-05-25 14:08:54

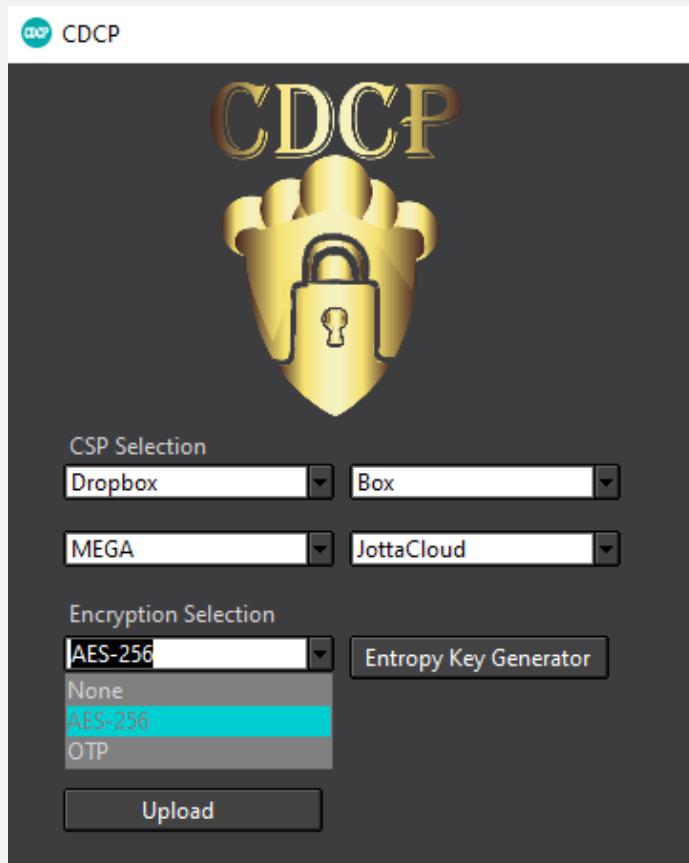
Time taken for completion: 38.1548382

Uploaded file Successfully at: 2020-05-25 14:08:54

Applying AES-Encryption

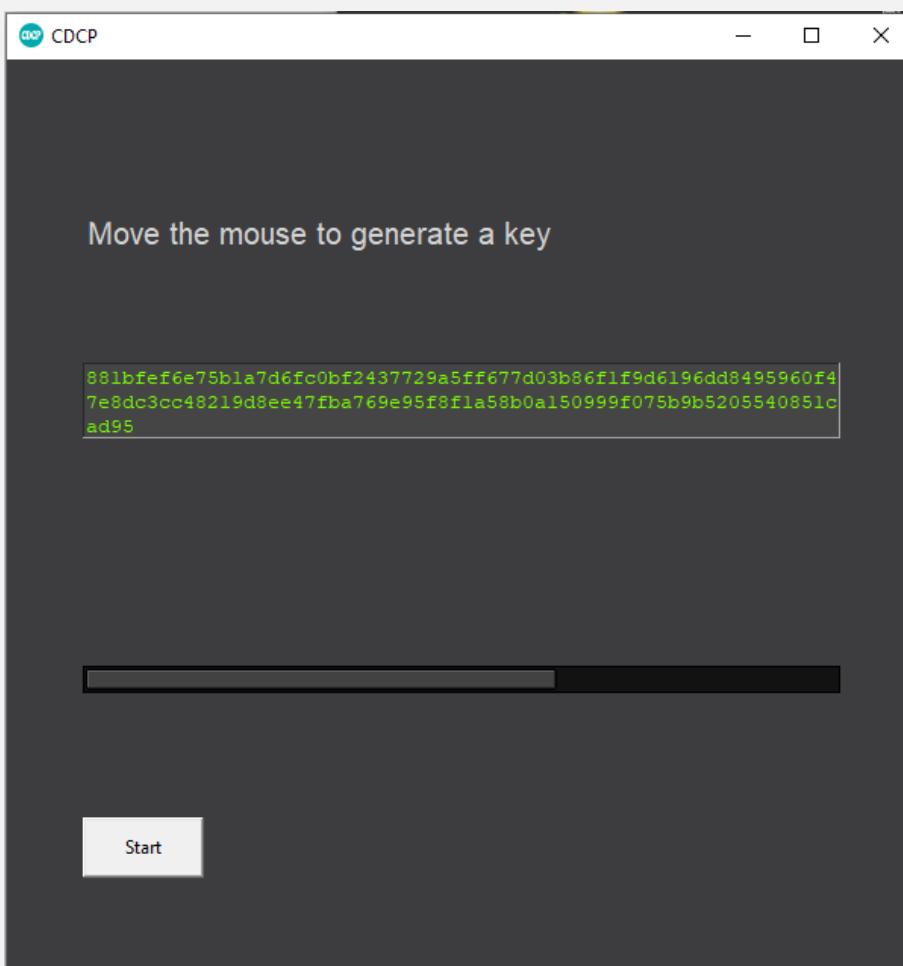
Step 1:

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’



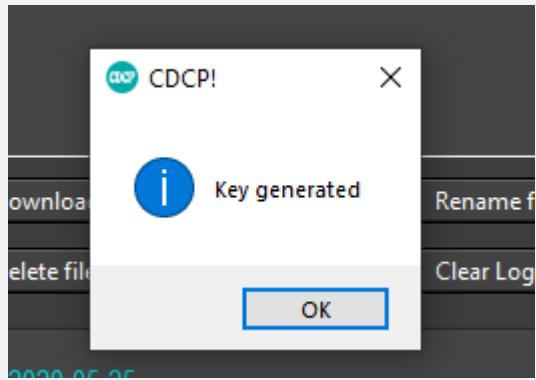
Step 2:

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:

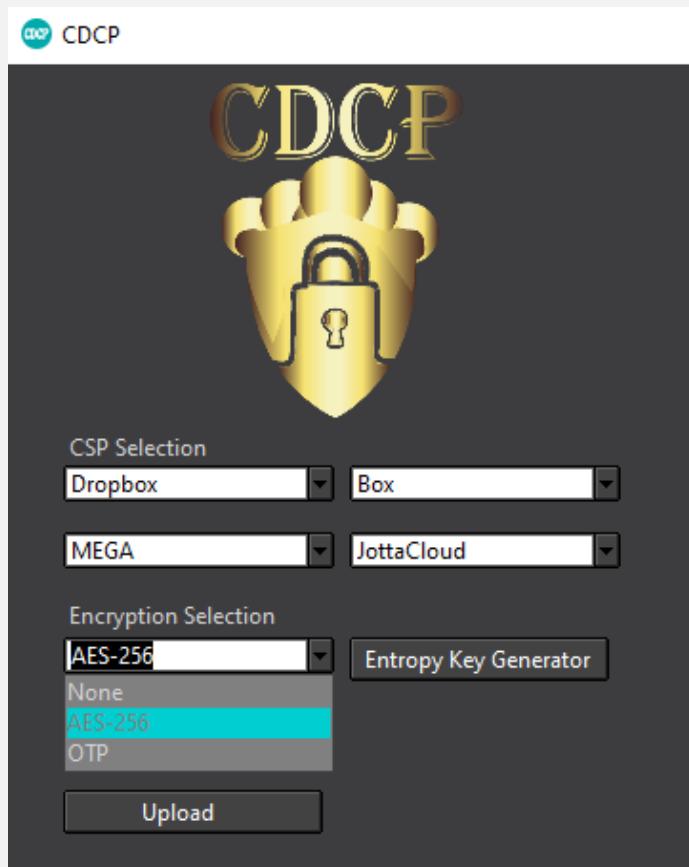
The key will be generated. Click OK. And then perform steps 3-5 from the previous section of page 20.



Applying OTP Encryption

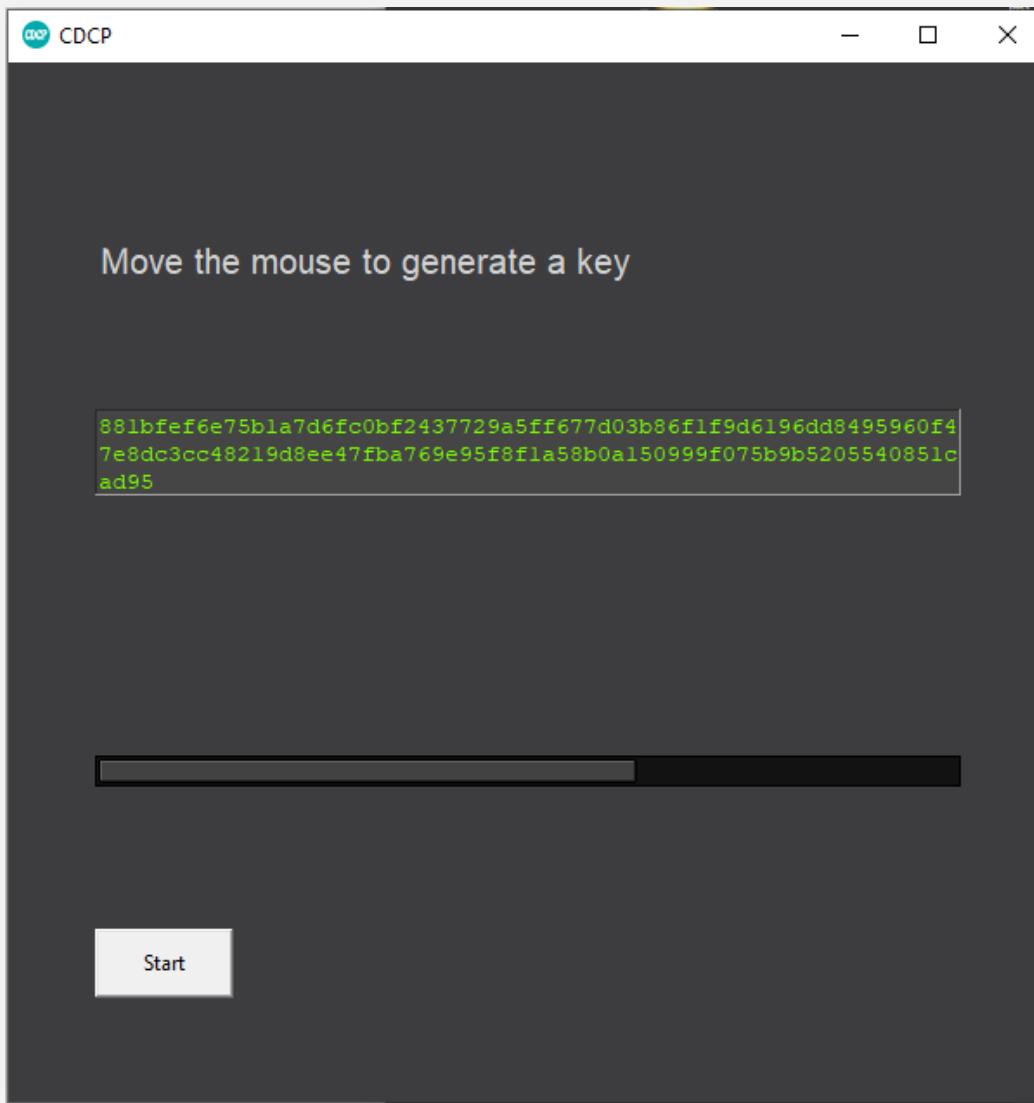
Step 1:

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



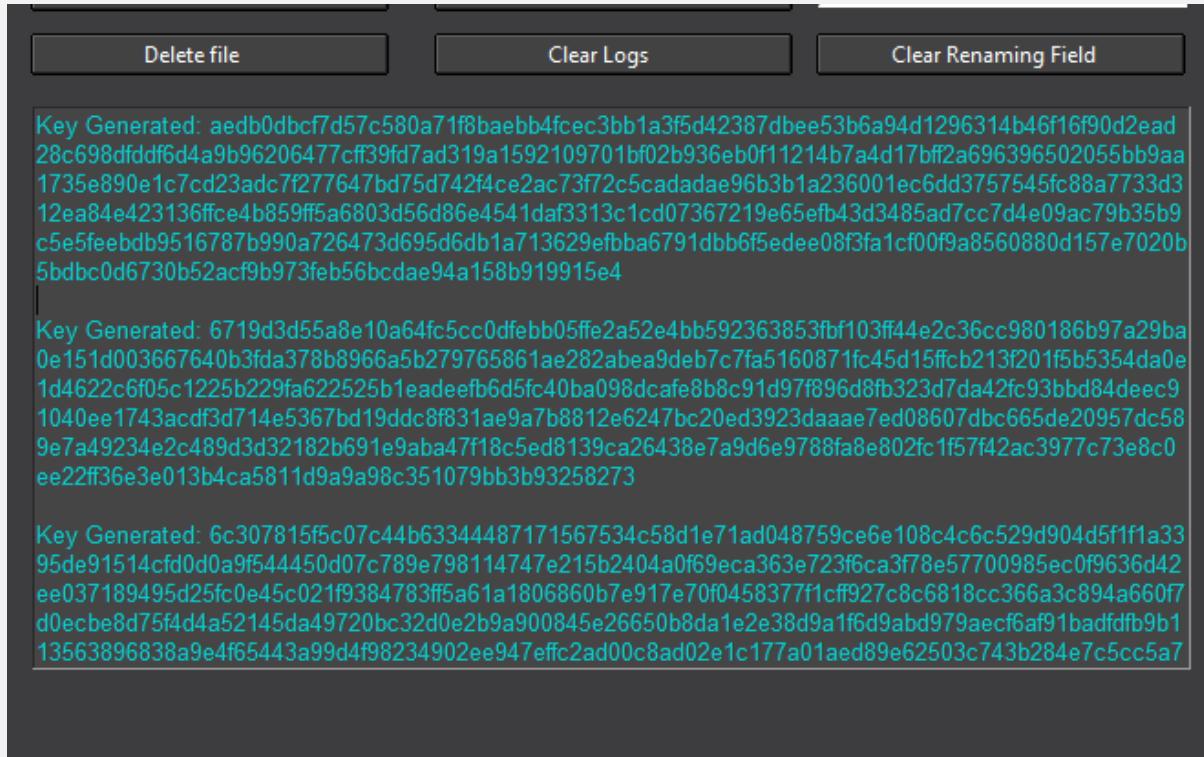
Step 2

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).



The screenshot shows a software window with a dark gray background. At the top, there are three buttons: "Delete file" on the left, "Clear Logs" in the middle, and "Clear Renaming Field" on the right. Below these buttons is a large text area containing three distinct lines of randomly generated alphanumeric strings, each labeled "Key Generated:" at the beginning.

```
Key Generated: aedb0dbcf7d57c580a71f8baebb4fc3bb1a3f5d42387db3b6a94d1296314b46f16f90d2ead  
28c698dfdd6d4a9b96206477cff39fd7ad319a1592109701bf02b936eb0f11214b7a4d17bff2a696396502055bb9aa  
1735e890e1c7cd23adc7f277647bd75d742f4ce2ac73f72c5cadadae96b3b1a236001ec6dd3757545fc88a773d3  
12ea84e423136fce4b859ff5a6803d56d86e4541daf3313c1cd07367219e65efb43d3485ad7cc7d4e09ac79b35b9  
c5e5feebdb9516787b990a726473d695d6db1a713629efbba6791dbb6f5edee08f3fa1cf00f9a8560880d157e7020b  
5bdbcb0d6730b52acf9b973feb56bcdae94a158b919915e4

Key Generated: 6719d3d55a8e10a64fc5cc0dfebb05ffe2a52e4bb592363853fb103ff44e2c36cc980186b97a29ba  
0e151d003667640b3fd378b8966a5b279765861ae282abea9deb7c7fa5160871fc45d15ffcb213f201f5b5354da0e  
1d4622c6f05c1225b229fa622525b1eadeefb6d5fc40ba098dcfe8b8c91d97f896d8fb323d7da42fc93bbd84deec9  
1040ee1743acdf3d714e5367bd19ddc8f831ae9a7b8812e6247bc20ed3923daaae7ed08607dbc665de20957dc58  
9e7a49234e2c489d3d32182b691e9aba47f18c5ed8139ca26438e7a9d6e9788fa8e802fc1f57f42ac3977c73e8c0  
ee22ff36e3e013b4ca5811d9a9a98c351079bb3b93258273

Key Generated: 6c307815f5c07c44b63344487171567534c58d1e71ad048759ce6e108c4c6c529d904d5f1f1a33  
95de91514cf0d0a9f544450d07c789e798114747e215b2404a0f69eca363e723f6ca3f78e57700985ec0f9636d42  
ee037189495d25fc0e45c021f9384783ff5a61a1806860b7e917e70f0458377f1cff927c8c6818cc366a3c894a660f7  
d0ecbe8d75f4d4a52145da49720bc32d0e2b9a900845e26650b8da1e2e38d9a1f6d9abd979aecf6af91badfdb9b1  
13563896838a9e4f65443a99d4f98234902ee947effc2ad00c8ad02e1c177a01aed89e62503c743b284e7c5cc5a7
```

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.

Upload

OTP Keys Specifier

cdae94a158b919915e4	c351079bb3b93258273
591d53a5bea9891b8b5f	e7a49234e2c489d3d321

Clear Keys

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

Filename	Filesize	Date Created	Encryption Type
PrivateNotes.txt	1.99KB	2020-05-15	None
OTPFILE.txt	1.99KB	2020-05-15	OTP
myFile.txt	1.99KB	2020-05-15	None
TheNewFile.txt	1.99KB	2020-05-15	None

CDCP Status

Uploaded Successfully

OK

Downloading a File

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

Filename	Filesize	Date Created	Encryption Type
PrivateNotes.txt	1.99KB	2020-05-15	None
OTPFILE.txt	1.99KB	2020-05-15	OTP
myFile.txt	1.99KB	2020-05-15	None
TheNewFile.txt	1.99KB	2020-05-15	None

Download File

Rename file

Delete file

Clear Logs

Clear Renaming Field

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.

Filename	Filesize	Date Created	Encryption Type
PrivateNotes.txt	1.99KB	2020-05-15	None
OTPPFILE.txt	1.99KB	2020-05-15	OTP
myFile.txt	1.99KB	2020-05-15	None
TheNewFile.txt	1.99KB	2020-05-15	None

Download File

Rename file

Delete file

Clear Logs

Clear Renaming Field