

GUI GUIDE

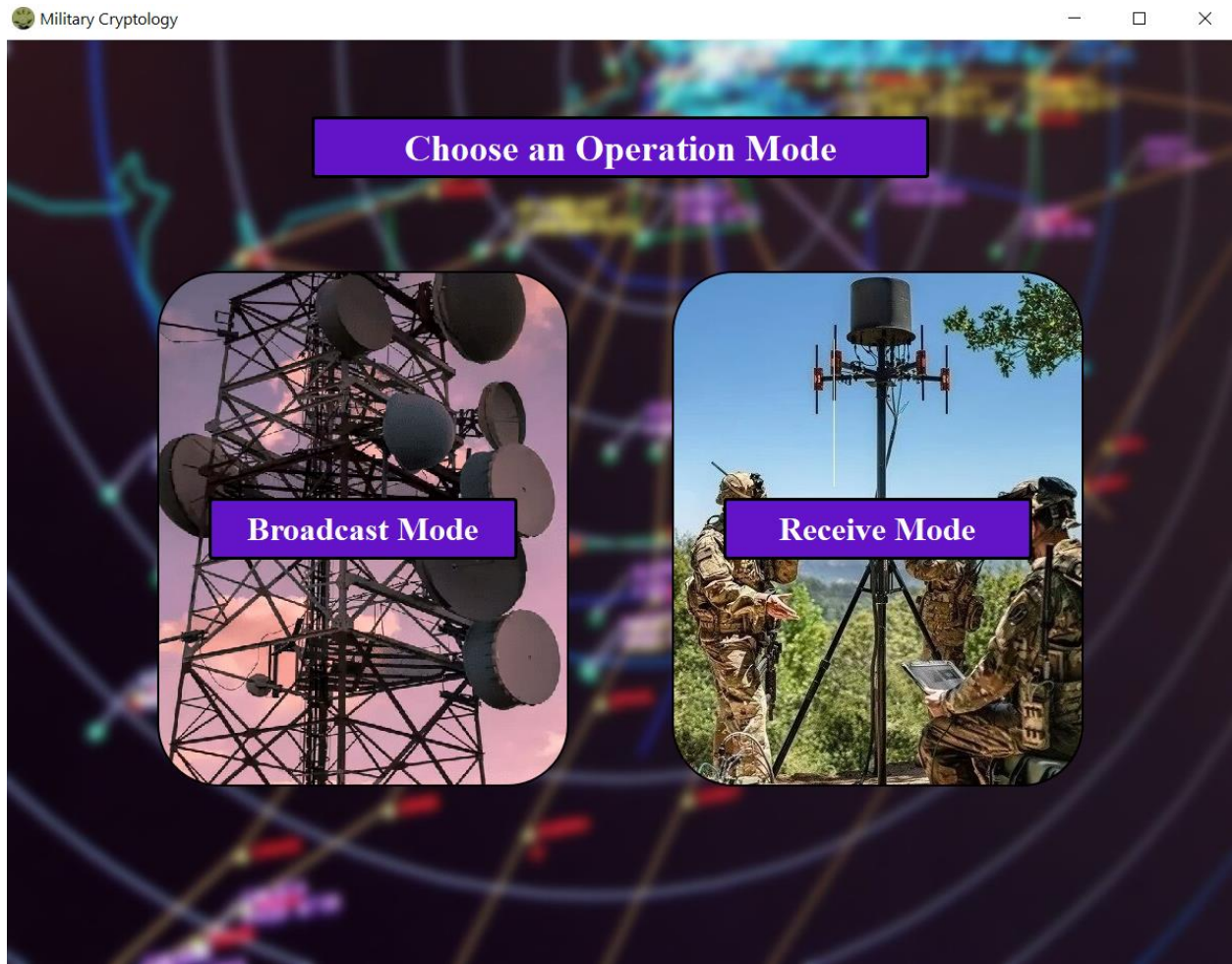


Figure 1: Startup Window

“Broadcast Mode” is where the keys are generated and written, and the plaintext is encrypted to ciphertext broadcasted.

“Receive Mode” is where the keys are read and, and the ciphertext fetched and is decrypted to plaintext.

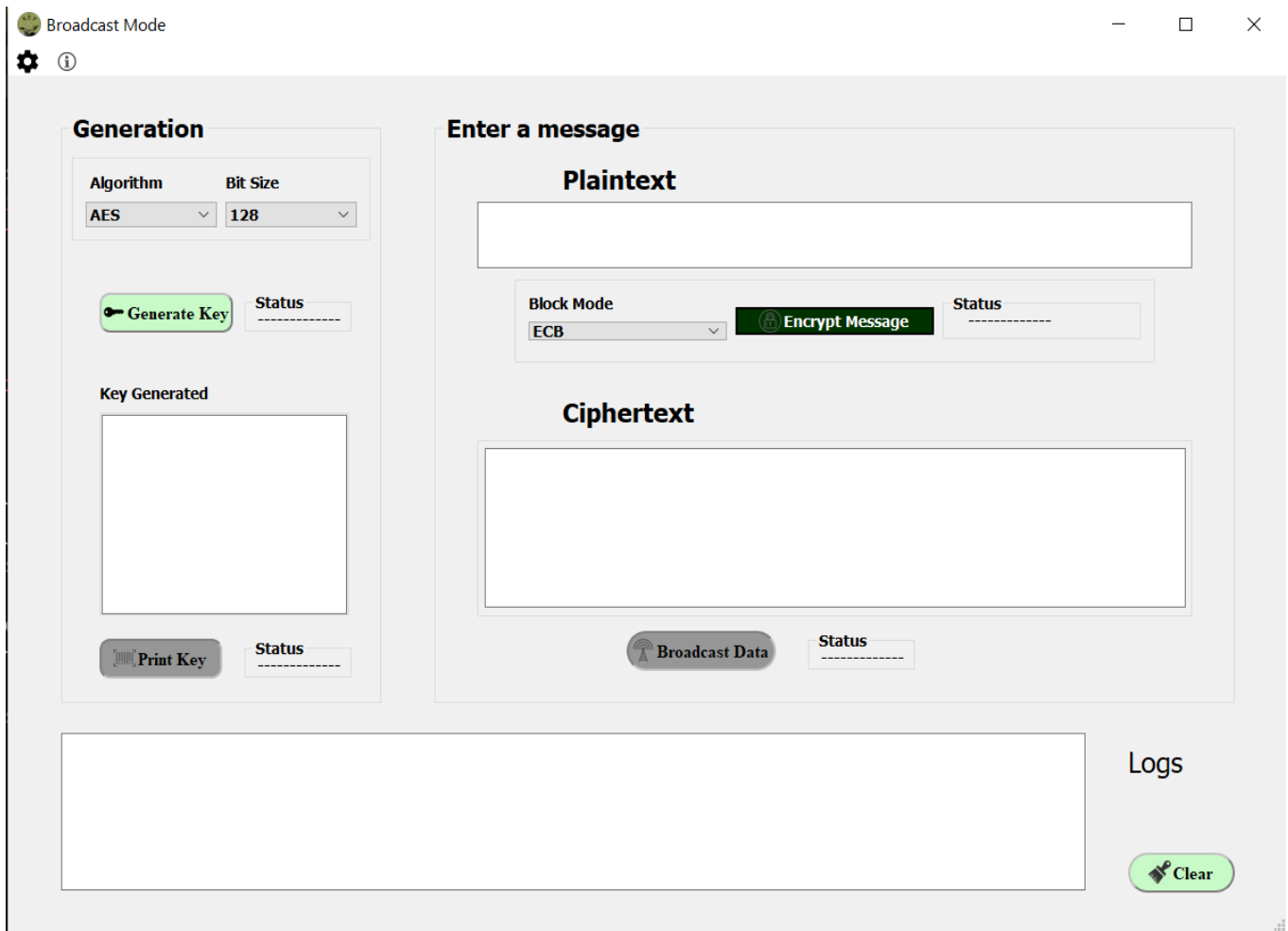


Figure 2: Broadcast Mode Window

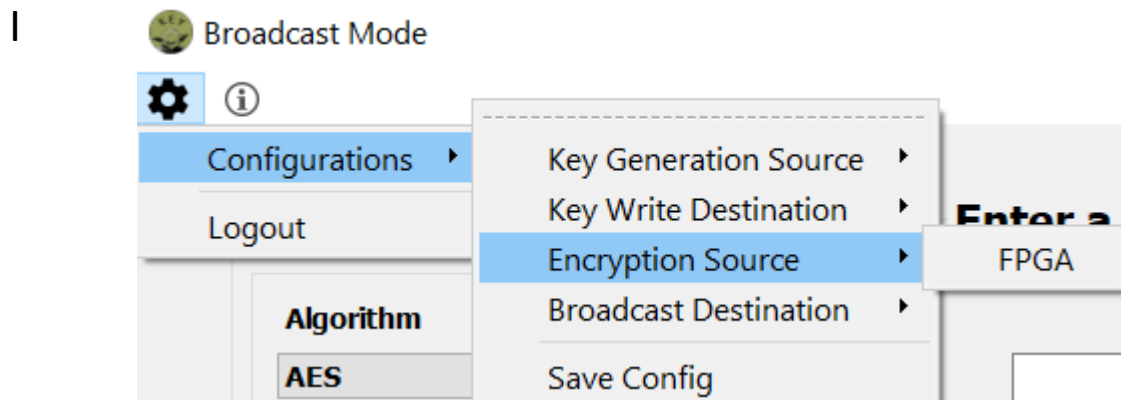


Figure 3: Broadcast Mode Settings Section

In the generation section you are to choose one of available algorithms to generate the appropriate key with the bit available bit sizes.

The screenshot displays a web interface for key generation. On the left, the 'Generation' section features a form with two dropdown menus: 'Algorithm' set to 'AES' and 'Bit Size' set to '256'. Below these is a green 'Generate Key' button with a key icon. To the right of this button, the 'Status' is shown as 'Keys Generated' in green text. Underneath, the 'Key Generated' section displays the alphanumeric string 'aueojfbtvfrmiwv' in a large text box. Below the text box is a green 'Print Key' button with a printer icon, and a 'Status' field showing '-----'. On the right side of the interface, partially visible, is the 'Enter a message' section with a 'Play' button and a 'Block Mode' dropdown set to 'ECB'. At the bottom left, a status message reads: 'Key Generated: aueojfbtvfrmiwv' and 'Key Generation Success'.

Algorithm	Bit Size
AES	128
	128
	192
	256

Generate Key **Status**
Keys Generated

Key Generated

aueojfbtvfrmiwv

Print Key **Status**

Key Generated: aueojfbtvfrmiwv
Key Generation Success

Figure 4: Successful Key Generation

Once generated you can print the Key either to as key.txt in “Key” folder in the project directory, or onto an RFID tag if available by configuring the “Key Write Destination”.

The screenshot shows a web application interface with two main sections: "Generation" and "Enter a message".

Generation Section:

- Algorithm:** AES (selected)
- Bit Size:** 128 (selected)
- Generate Key:** A green button with a key icon.
- Status:** Keys Generated
- Key Generated:** auyeojfbtvfrmiww
- Print Key:** A green button with a printer icon.
- Status:** Key Saved

Enter a message Section:

- Plaintext:** A large empty text input field.
- Block Mode:** ECB (selected)
- Encrypt Message:** A green button with a lock icon.
- Status:** -----
- Ciphertext:** A large empty text input field.
- Broadcast Data:** A button with a radio tower icon.
- Status:** -----

Logs Section:

- Logs:** A list of log messages.
- Clear:** A green button with a trash can icon.

Log Messages:

```
Successfully wrote D:\Users\Mshnwq\Desktop\Encryption\TEST\Cryptography-KAU\Key\auyeojfbtvfrmiww.txt
Save Key Success
(str) saved: auyeojfbtvfrmiww
(int) saved: 129545076531673336021629380328673605239
(hex) saved: 0x617579656f6a6662747666726d697677
(bin) saved:
0b1100001011101010111001011001010110111101101010011001100110001001110100011101100110011001110010011011010110100101
11011001110111
```

Figure 5: Successful write key.txt onto folder

Notice the logs indicating the path.

Also notice now the Encrypt Button is enabled.

Now you can enter the plaintext of your chose and choose a block mode.

Enter a message

Plaintext

HI GUIDE in AES 128 bit ECB

Block Mode

ECB
ECB
CBC

Encrypt Message

Status
Success

Ciphertext

b34b64029a5be84cad4f69734579aec12bd1993672796b4670b989393366490a

Broadcast Data

Status

Figure 6: Successful Encrypt

You can even change the encryption source from the settings if the chosen algorithm has an implementation in an FPGA.

Finally, you can broadcast the cipher either by the cloud implemented in the program, or by saving it onto .txt file in “Data” folder in project directory, and broadcasting by your method of choice.

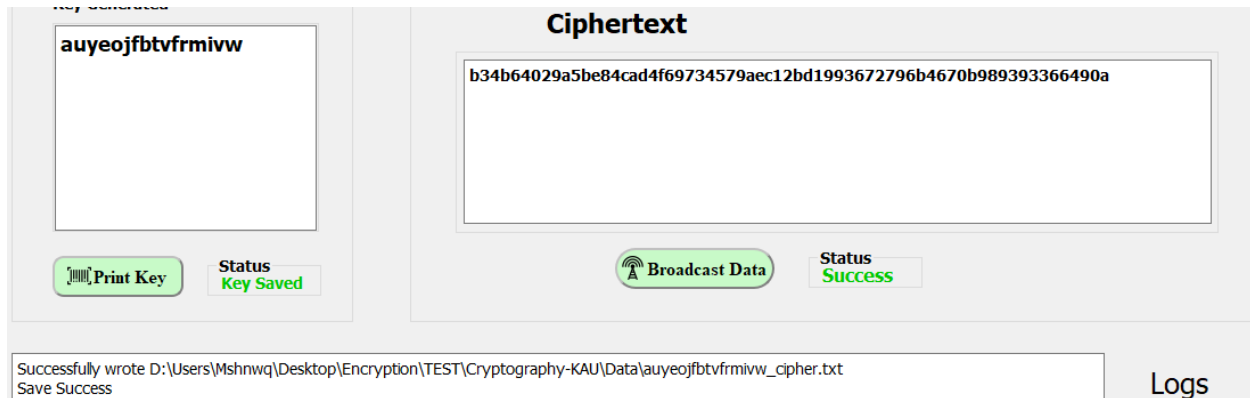


Figure 7: Saving Cipher.txt onto a folder.

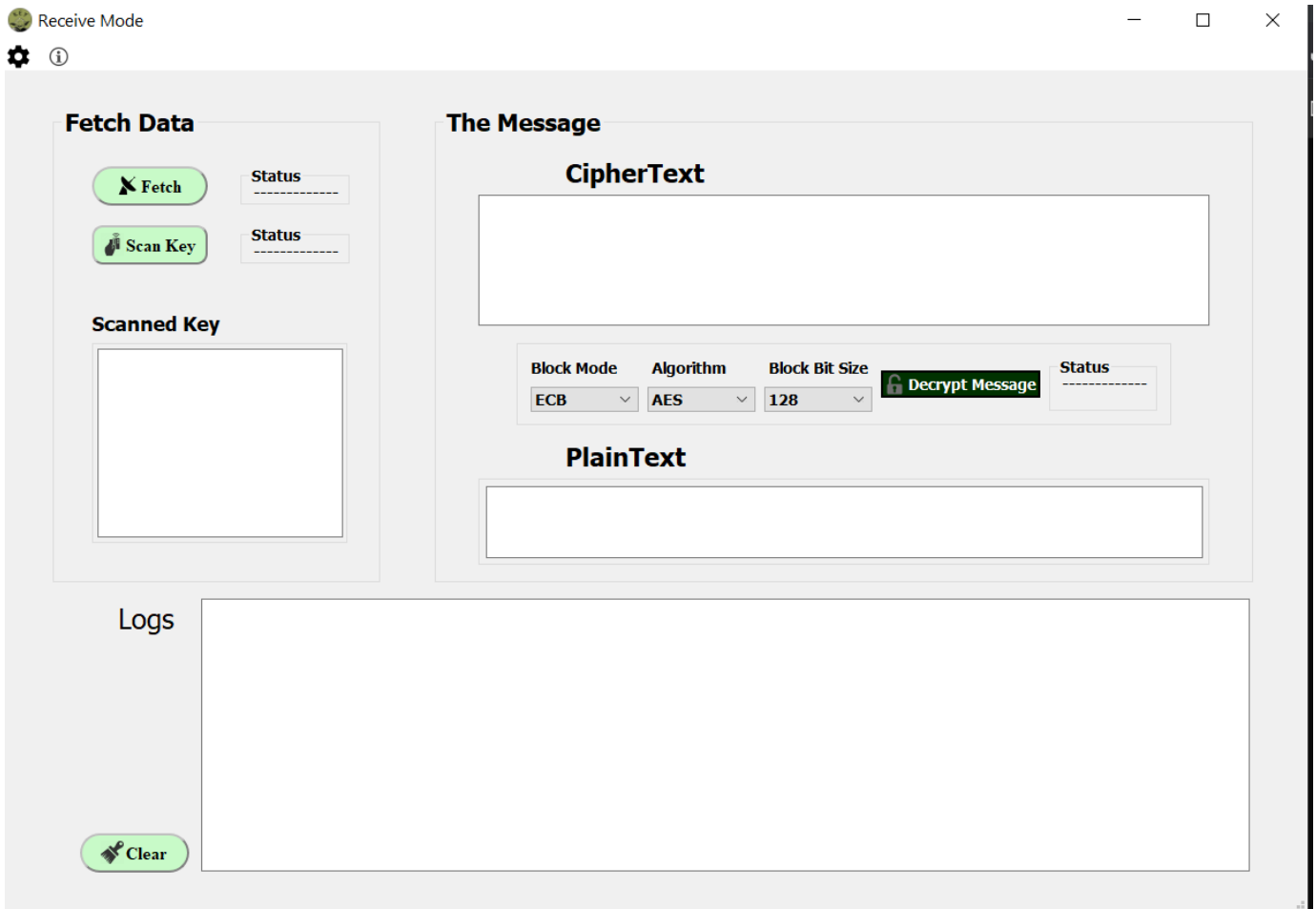


Figure 8: Receive Mode Window

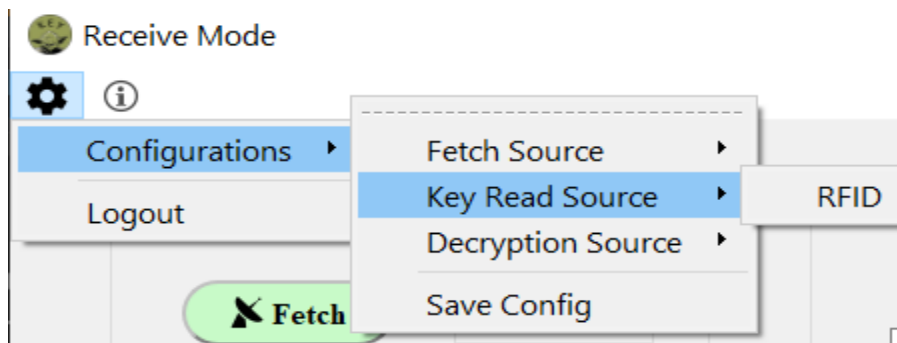


Figure 9: Receive Mode Settings Section

Configure your settings here to reflect the broadcast settings.

Now you are to gather the required inputs depending on your method of broadcast.

Fetch Data

Fetch

Status
Success

Scan Key

Status
Success

Scanned Key

aueyojfbtvfrmiww

The Message

CipherText

b34b64029a5be84cad4f69734579aec12bd1993672796b4670b989393366490a

Block Mode
ECB

Algorithm
AES

Block Bit Size
128

Decrypt Message

Status

PlainText

Logs

Fetch Success
Read Key.txt Success
(str) read: aueyojfbtvfrmiww
(int) read: 129545076531673336021629380328673605239
(hex) read: 0x617579656f6a6662747666726d697677
(bin) read:
0b1100001011101010111100101100101011011110110101001100110011000100111010001110110011001100111001001101101010100101110
11001110111

Figure 10: Gathering Success

Finally choose the block mode, block bit size, and algorithm of decryption

Block Mode
ECB

Algorithm
AES

Block Bit Size
128

Decrypt Message

Status
Success

PlainText

HI GUIDE in AES 128 bit ECB