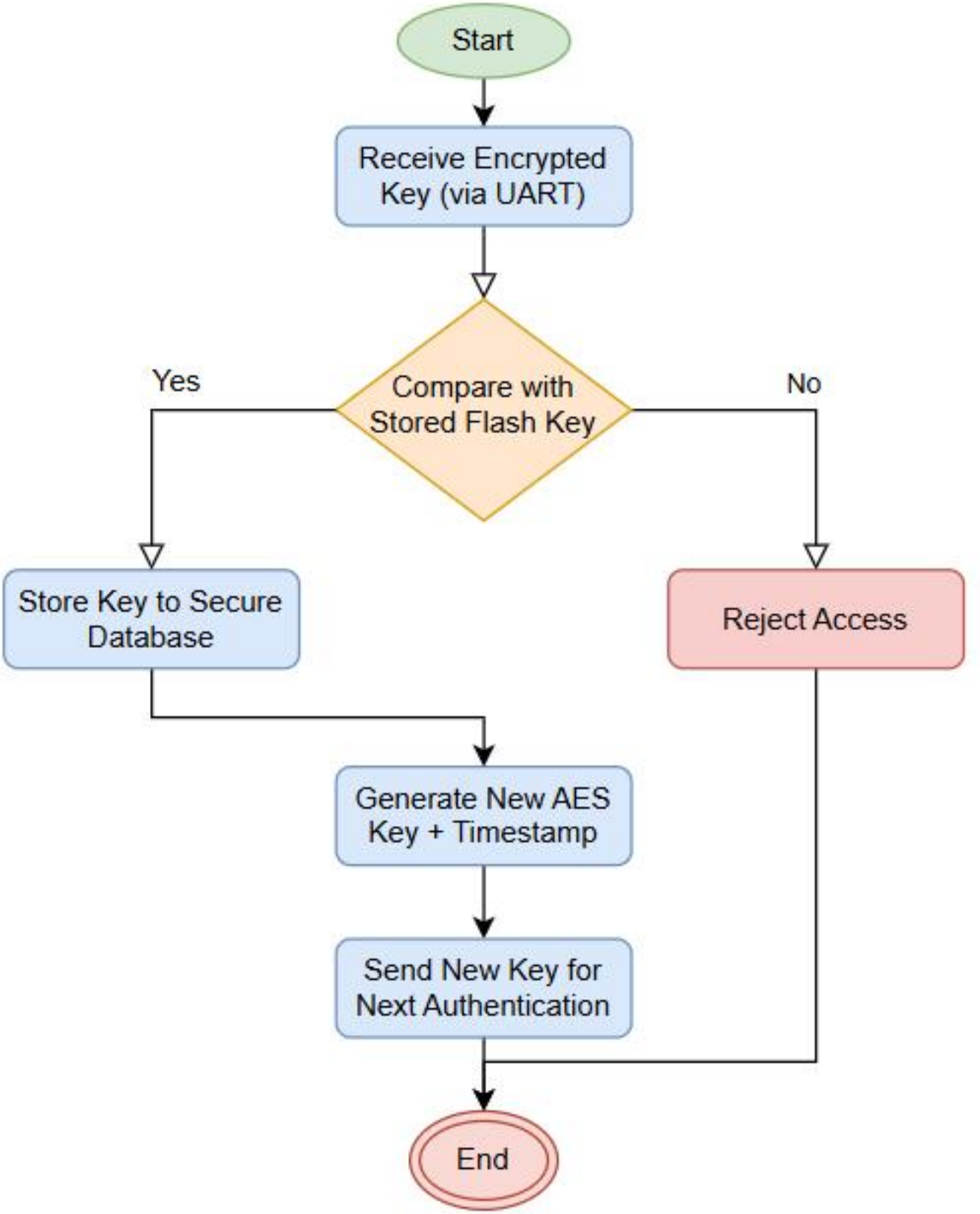
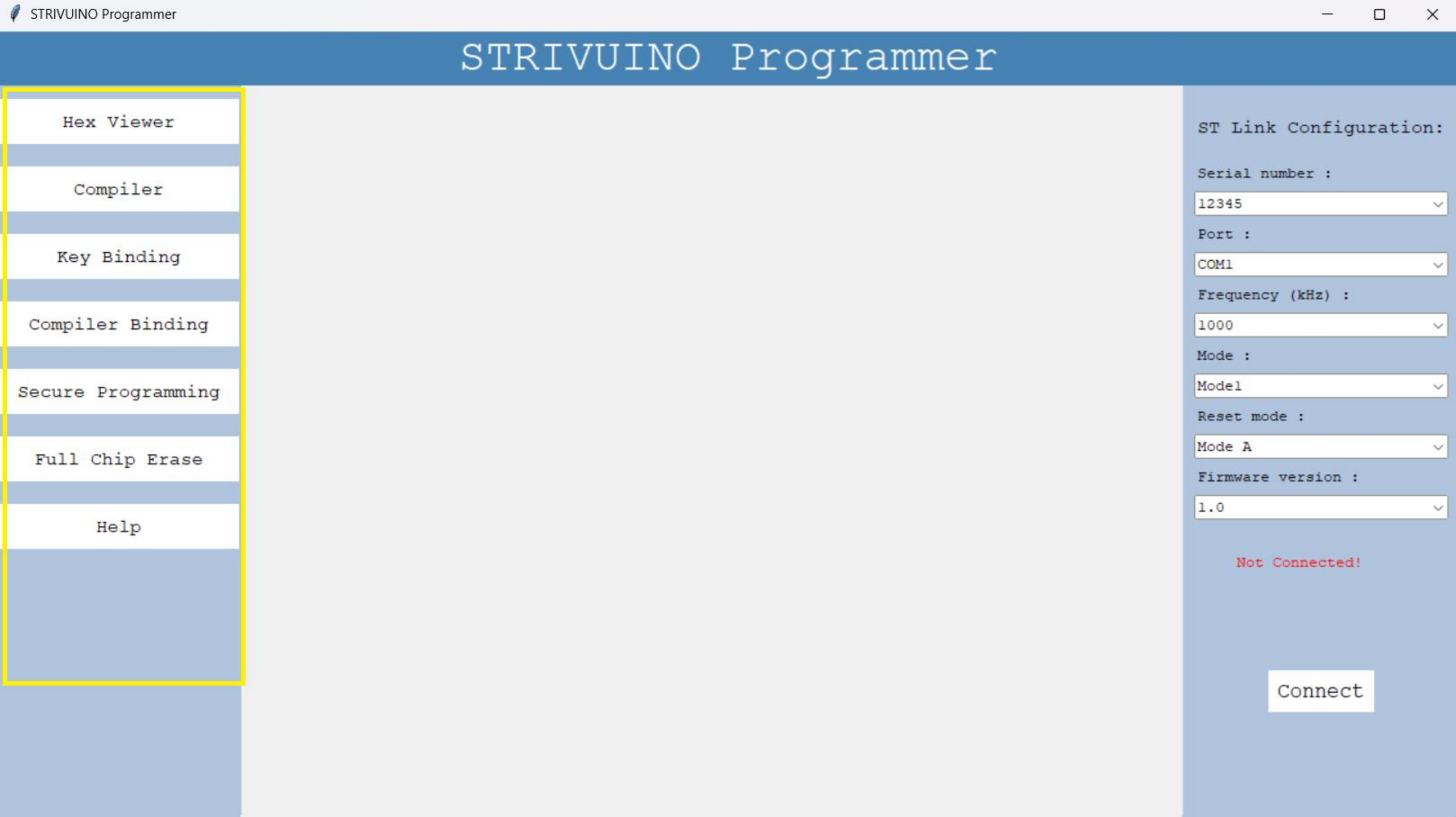

Start
Receive Encrypted Key (via UART)
Compare with Stored Flash Key
Yes
No
Store Key to Secure Database
Reject Access
Generate New AES Key + Timestamp
Send New Key for Next Authentication
End


STRIVUINO Programmer
STRIVUINO Programmer
Hex Viewer
Compiler
Key Binding
Compiler Binding
Secure Programming
Full Chip Erase
Help
ST Link Configuration:
Serial number :
12345
Port :
COM1
Frequency (kHz) :
1000
Mode :
Mode1
Reset mode :
Mode A
Firmware version :
1.0
Not Connected!
Connect

STRIVUINO Programmer

STRIVUINO Programmer

Compiler Binding

Hex Viewer

Secure Programming

Full Chip Erase

Help

Device Memory:

Address:

0x00000000

Size:

48-word

Data width:

32-bit

Browse

Log

```
130101FE
232E1100
232C8100
13040102
8B573412
2326F4FE
93070000
13850700
8320C101
03248101
13010102
67800000
```

Program

ST Link Configuration:

Serial number :

12345

Port :

COM1

Frequency (kHz) :

1000

Mode :

Mode1

Reset mode :

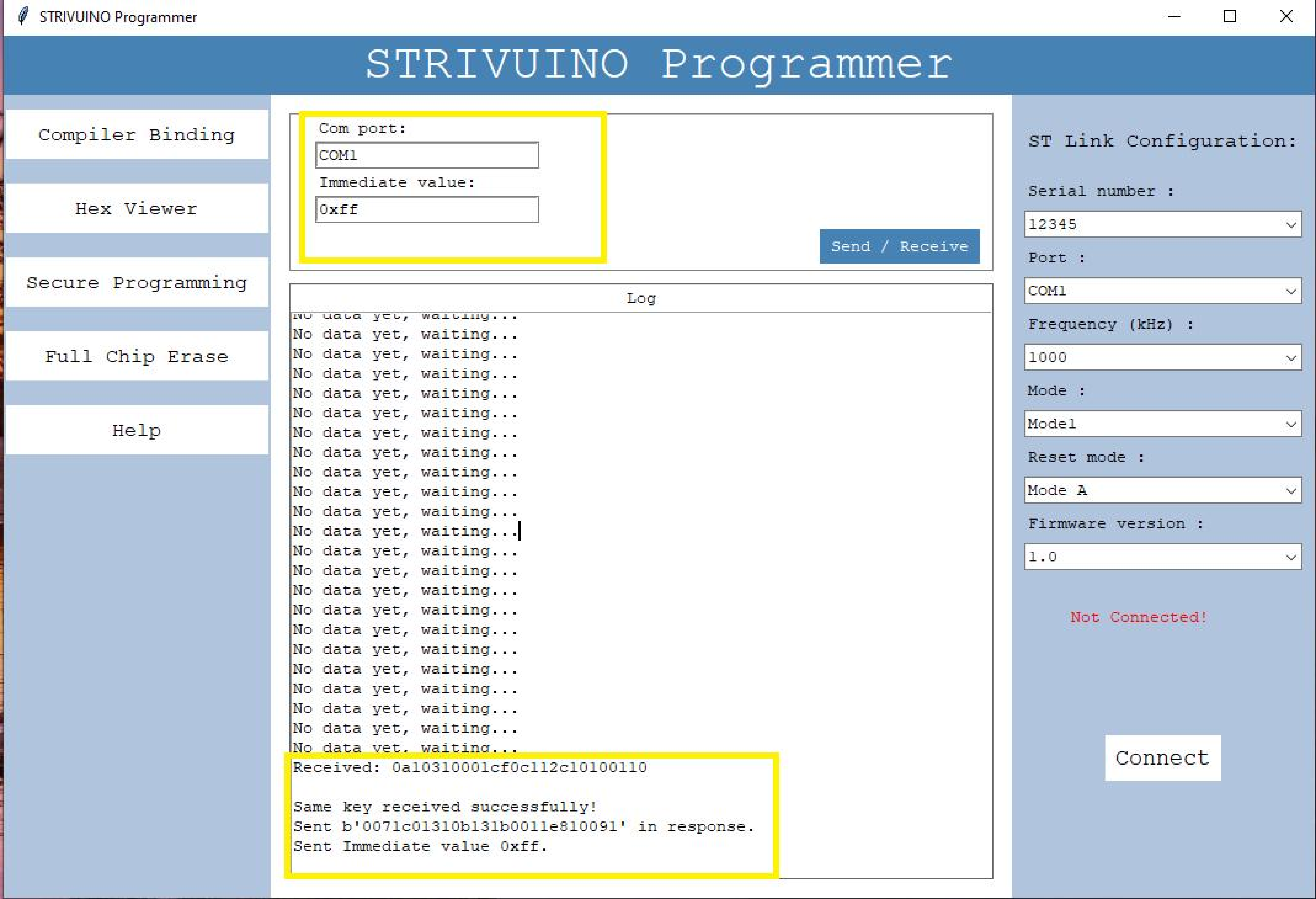
Mode A

Firmware version :

1.0

Not Connected!

Connect


STRIVUINO Programmer
STRIVUINO Programmer
Compiler Binding
Hex Viewer
Secure Programming
Full Chip Erase
Help
Com port:
COM1
Immediate value:
0xff
Send / Receive
Log
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
Received: 0a10310001cf0c112c10100110
Same key received successfully!
Sent b'0071c01310b131b0011e810091' in response.
Sent Immediate value 0xff.
ST Link Configuration:
Serial number :
12345
Port :
COM1
Frequency (kHz) :
1000
Mode :
Model
Reset mode :
Mode A
Firmware version :
1.0
Not Connected!
Connect

STRIVUINO Programmer

STRIVUINO Programmer

Compiler Binding

Hex Viewer

Secure Programming

Full Chip Erase

Help

Device Memory:

Address:

0x00000000

Size:

64-word

Data width:

32-bit

Browse

Log

```
1234578B
130101FE
232E1100
232C8100
13040102
8B573412
2326F4FE
93070000
13850700
8320C101
03248101
13010102
67800000
```

Program

ST Link Configuration:

Serial number :

12345

Port :

COM1

Frequency (kHz) :

1000

Mode :

Model

Reset mode :

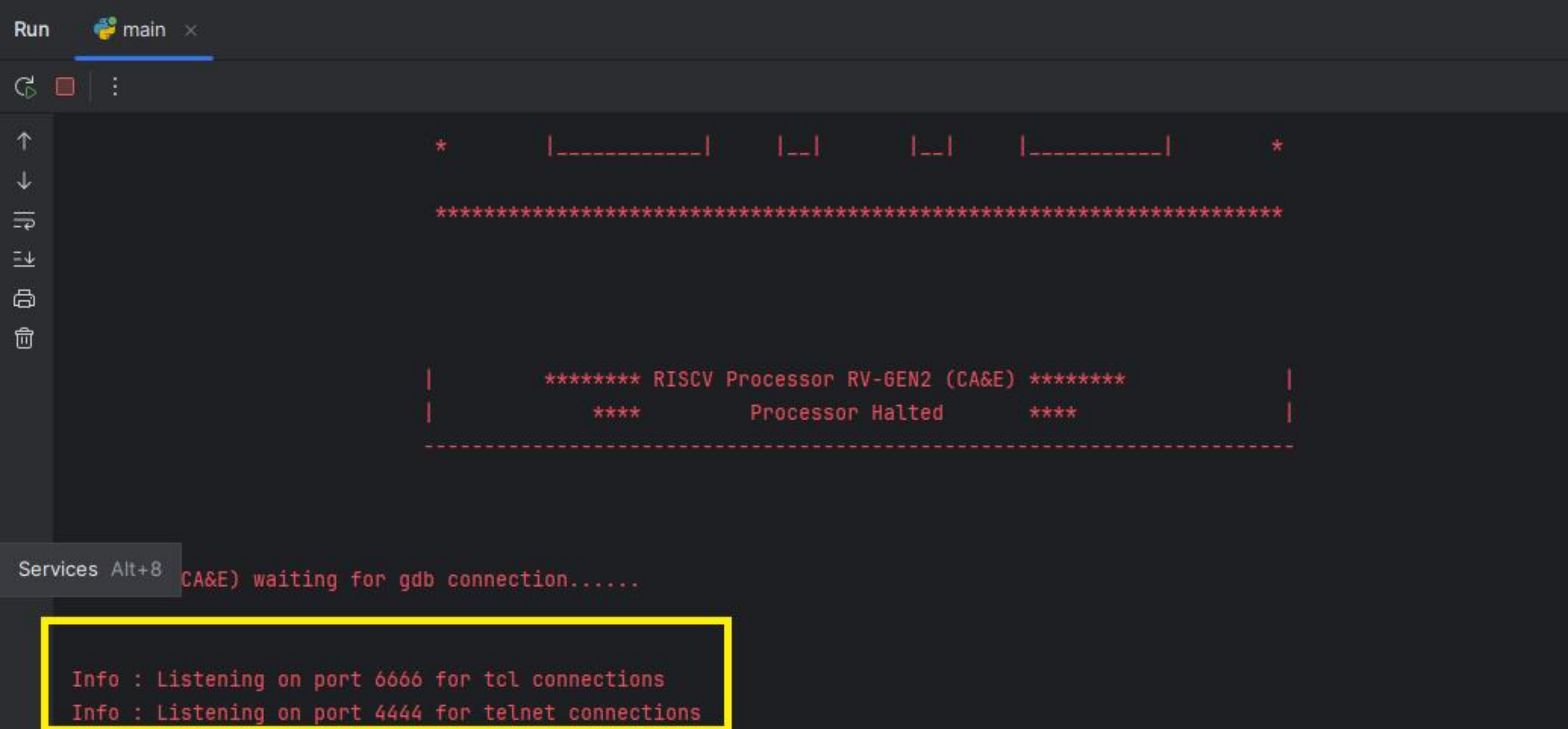
Mode A

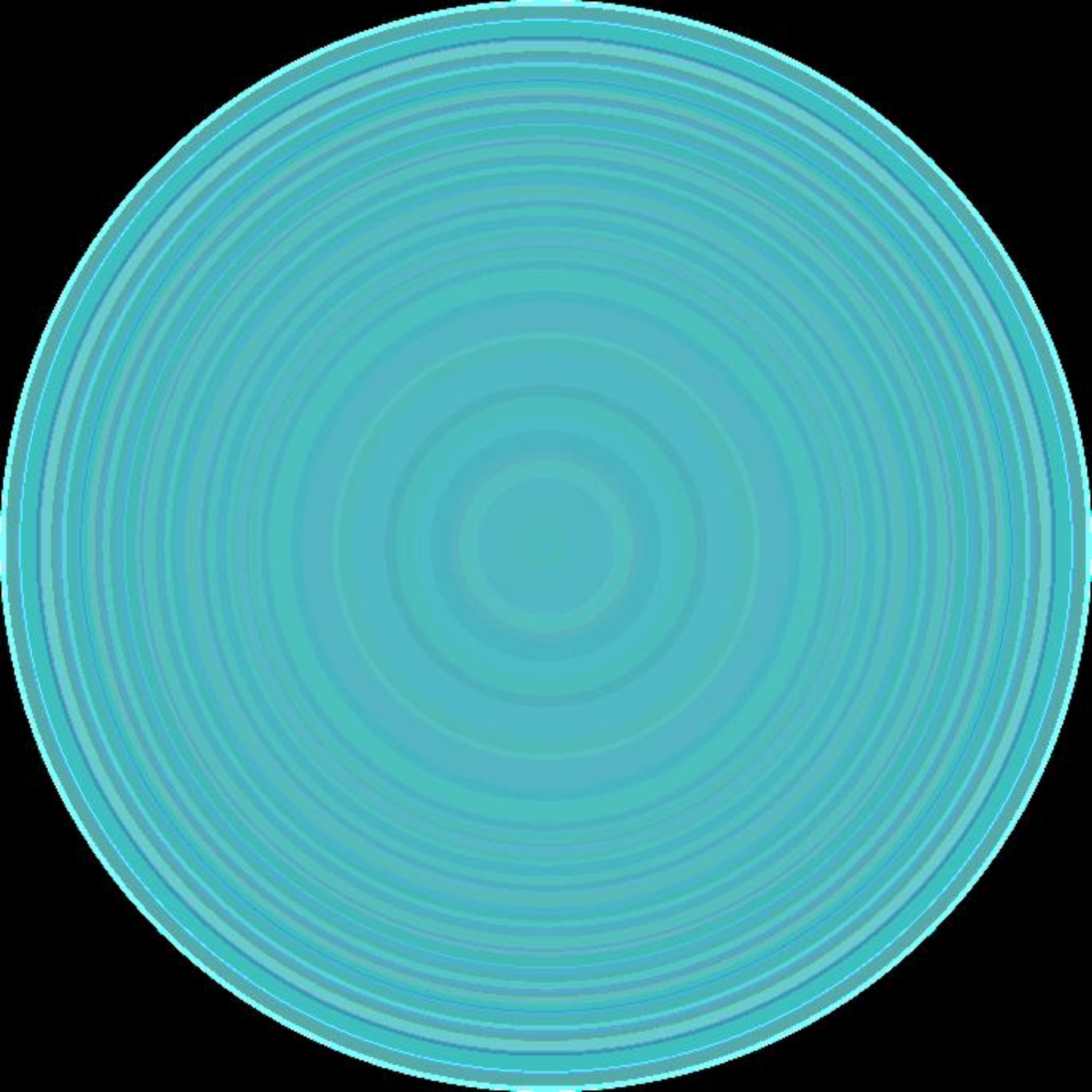
Firmware version :

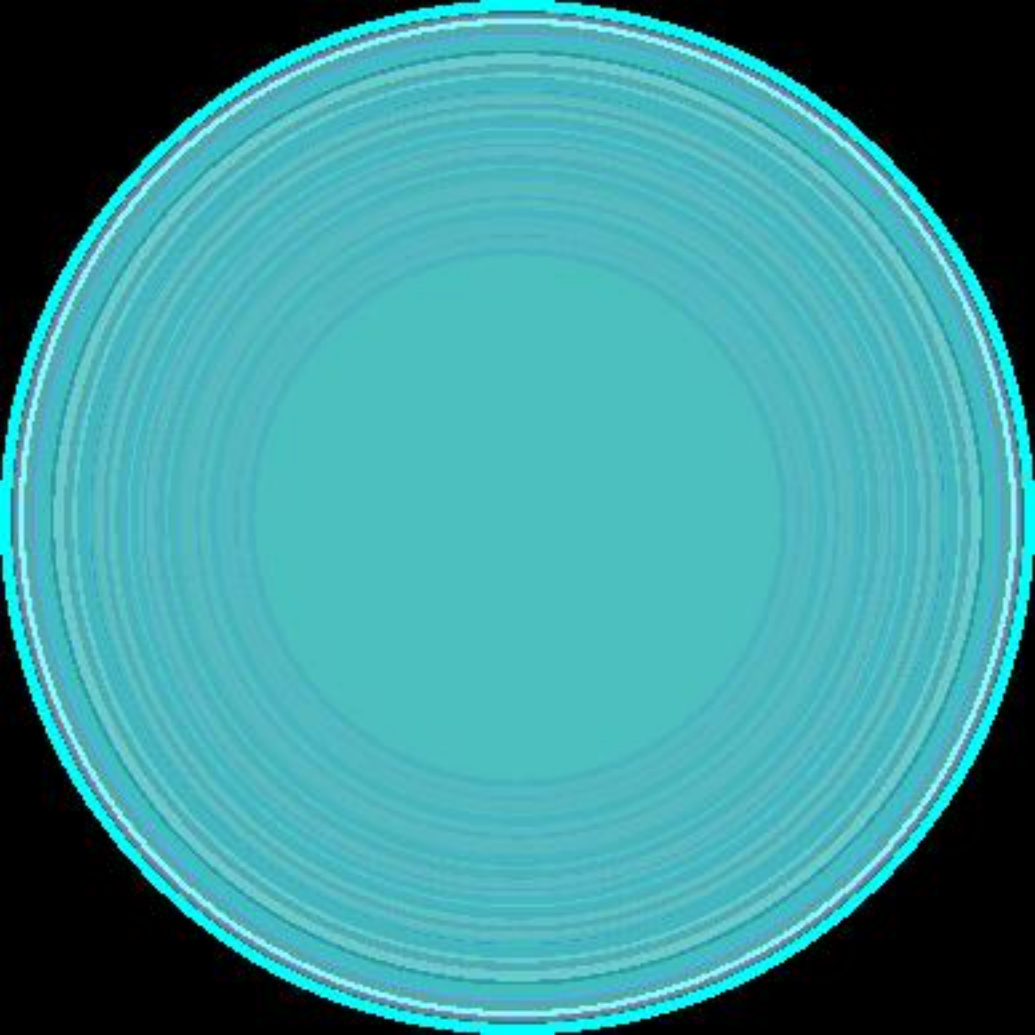
1.0

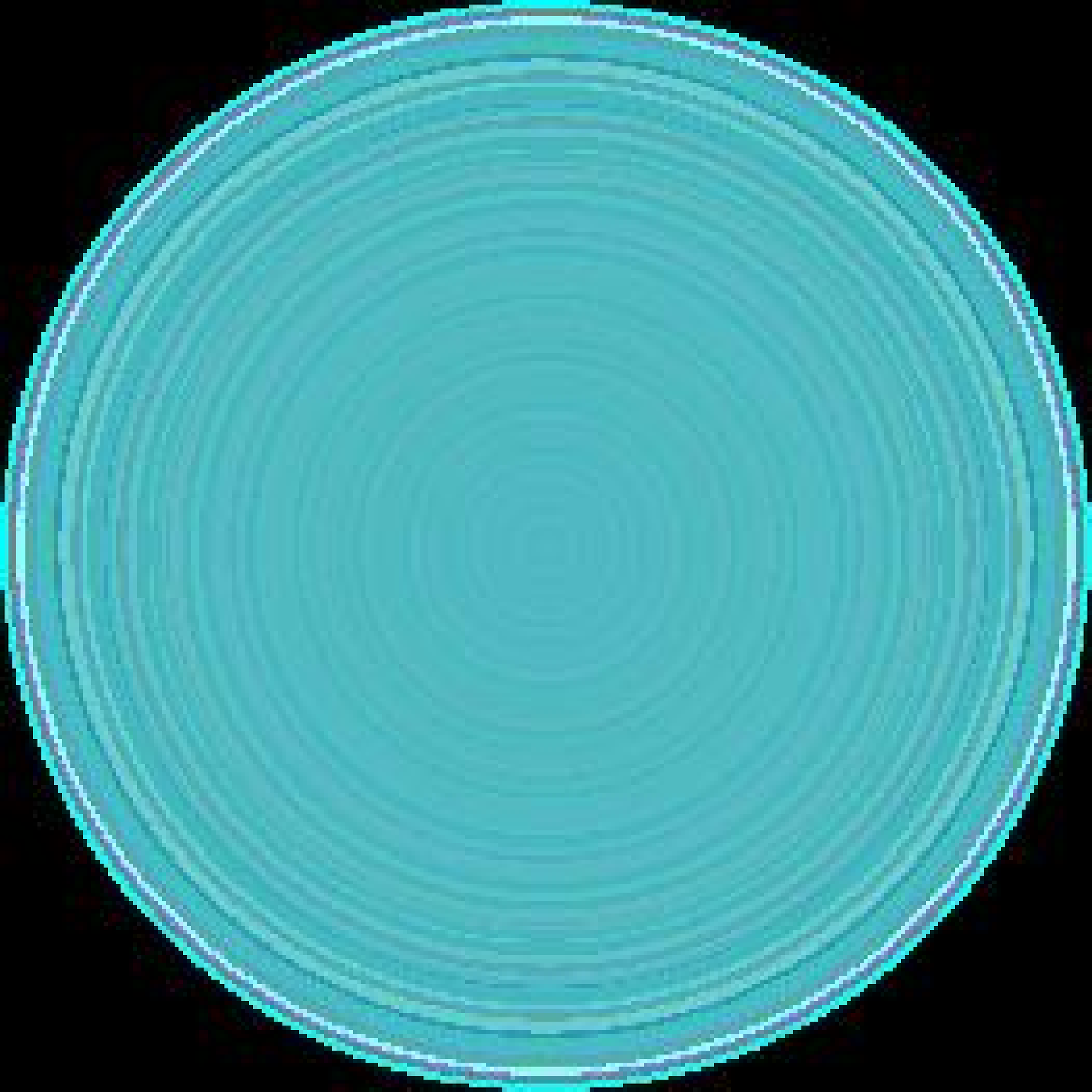
Not Connected!

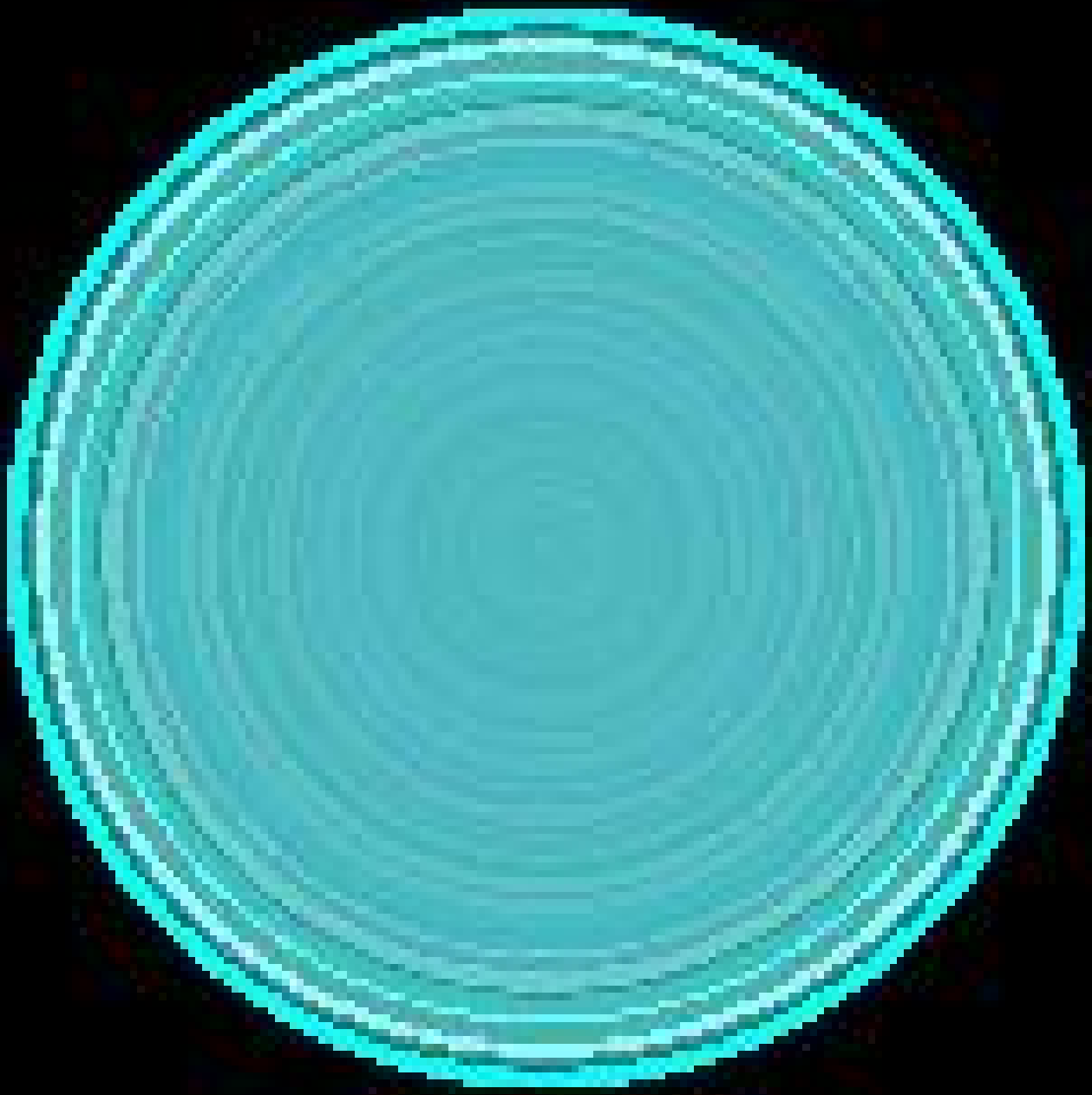
Connect


Run
main
*
|__|
|__|
********** RISCV Processor RV-GEN2 (CA&E) ********
**** Processor Halted ****
Services Alt+8
CA&E) waiting for gdb connection.....
Info : Listening on port 6666 for tcl connections
Info : Listening on port 4444 for telnet connections









```
AB@DESKTOP-MR23URH MINGW64 /mingw64/bin
$ file riscv64-unknown-elf-gcc

riscv64-unknown-elf-gcc: PE32+ executable for MS Windows 5.02 (console), x86-64, 19 sections
```

```
office@DESKTOP-6QMJQH9 MINGW64 ~/riscv-gnu-toolchain
$ /C/risc-mingw/bin/riscv64-unknown-elf-objdump -D basic | grep -n -A 20 "<main>:"
78:00000000000101d4 <main>:
79-   101d4:    1101                    addi    sp,sp,-32
80-   101d6:    ec06                    sd      ra,24(sp)
81-   101d8:    e822                    sd      s0,16(sp)
82-   101da:    1000                    addi    s0,sp,32
83-   101dc:    4795                    li      a5,5
84-   101de:    fef42623                sw      a5,-20(s0)
85-   101e2:    4789                    li      a5,2
86-   101e4:    fef42423                sw      a5,-24(s0)
87-   101e8:    fec42783                lw      a5,-20(s0)
88-   101ec:    fe842703                lw      a4,-24(s0)
89-   101f0:    02e7878b                eco     a5,a5,a4
90-   101f4:    fef42223                sw      a5,-28(s0)
91-   101f8:    fe442783                lw      a5,-28(s0)
92-   101fc:    0007871b                sext.w  a4,a5
93-   10200:    4785                    li      a5,1
94-   10202:    00f70963                beq     a4,a5,10214 <main+0x40>
95-   10206:    67c9                    lui     a5,0x12
96-   10208:    65078513                addi    a0,a5,1616 # 12650 <__errno+0x8>
97-   1020c:    392000ef                jal     1059e <puts>
98-   10210:    57fd                    li      a5,-1
```

```
AB@DESKTOP-MR23URH MINGW64 ~
$ /c/Users/Public/Documents/riscv-mingw/bin/riscv64-unknown-elf-gcc -o main.elf C:/Users/AB/Document
s/PlatformIO/Projects/Uart/src/main.c     -T C:/Users/AB/.platformio/packages/framework-wd-riscv-sdk
/board/nexys_a7_eh1/link.lds     -nostartfiles -Wl,-N -Wl,--gc-sections     -Wl,--wrap=malloc -Wl,--
wrap=free -Wl,--wrap=sbrk
C:/Users/Public/Documents/riscv-mingw/bin/../lib/gcc/riscv64-unknown-elf/14.2.0/../../../../riscv64-
unknown-elf/bin/ld.exe: warning: cannot find entry symbol _start; defaulting to 0000000000000000
```

STRIVUINO Programmer

STRIVUINO Programmer

Compiler Binding

Hex Viewer

Secure Programming

Full Chip Erase

Help

Username:

Password:

Login

ST Link Configuration:

Serial number :

12345

Port :

COM1

Frequency (kHz) :

1000

Mode :

Model

Reset mode :

Mode A

Firmware version :

1.0

Not Connected!

Connect

STRIVUINO Programmer

STRIVUINO Programmer

Compiler Binding

Hex Viewer

Secure Programming

Full Chip Erase

Help

Programmer

```
#include <stdio.h>

int main() {
    int result;

    asm volatile (
        "kc %[res], %[imm]\n\t"
        : [res] "=r" (result)  // Output operand
        : [imm] "i" (0x12345)  // Immediate operand (use "i" for const
ants)
    );
    return 0;
}
```

Console

```
Compilation successful!
Generate hex from elf successful!
```

Compile

Program

ST Link Configuration:

Serial number :

12345

Port :

COM1

Frequency (kHz) :

1000

Mode :

Model

Reset mode :

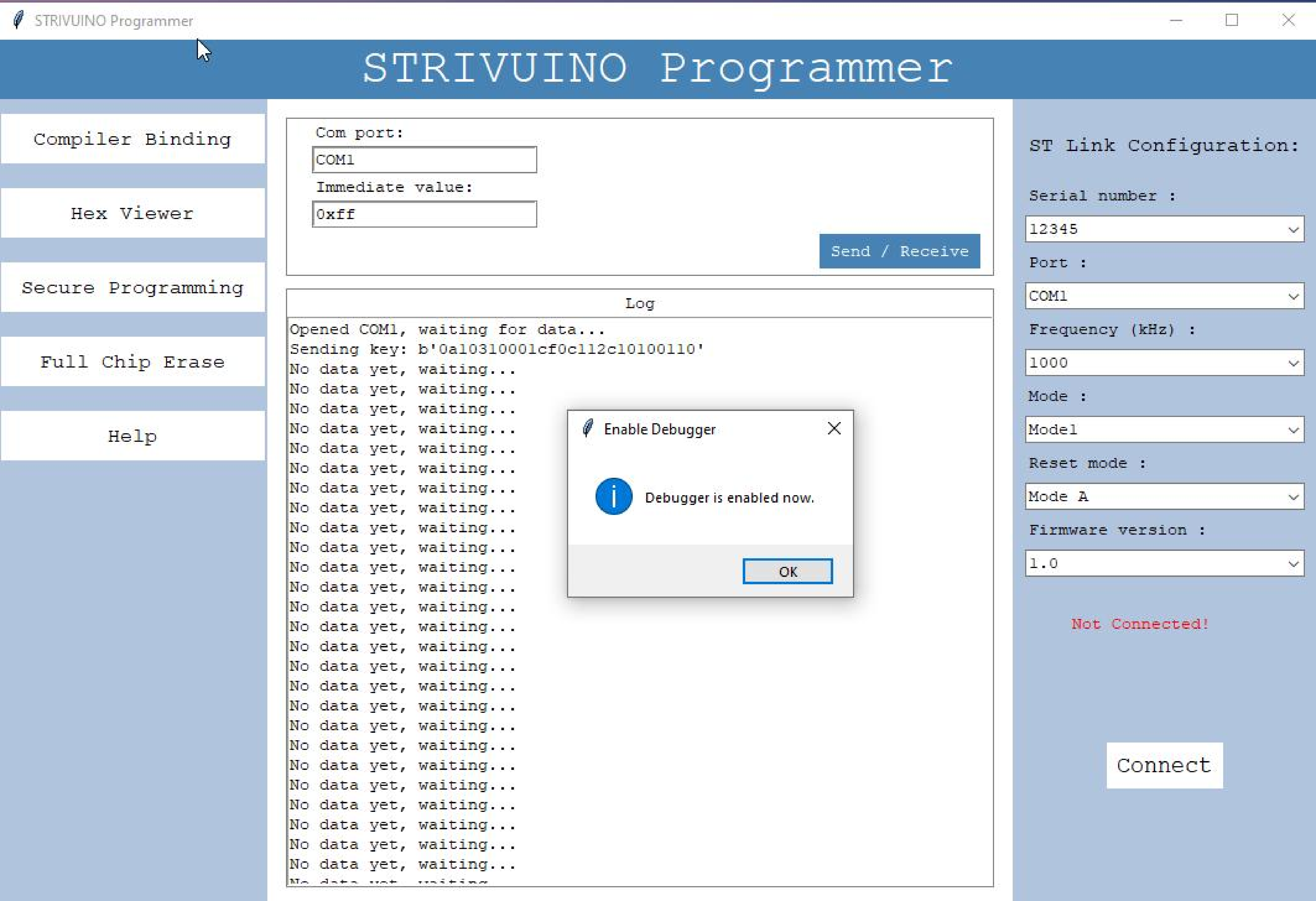
Mode A

Firmware version :

1.0

Not Connected!

Connect


STRIVUINO Programmer
STRIVUINO Programmer
Compiler Binding
Hex Viewer
Secure Programming
Full Chip Erase
Help
Com port:
COM1
Immediate value:
0xff
Send / Receive
Log
Opened COM1, waiting for data...
Sending key: b'0a1031000lcf0c112c10100110'
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
No data yet, waiting...
Enable Debugger
Debugger is enabled now.
OK
ST Link Configuration:
Serial number :
12345
Port :
COM1
Frequency (kHz) :
1000
Mode :
Mode1
Reset mode :
Mode A
Firmware version :
1.0
Not Connected!
Connect

STRIVUINO Programmer

STRIVUINO Programmer

Compiler Binding

Hex Viewer

Secure Programming

Full Chip Erase

Help

Programmer

```
#include <stdio.h>

int main() {
    int result;

    asm volatile (
        "kc %[res], %[imm]\n\t"
        : [res] "=r" (result)  // Output operand
        : [imm] "i" (0x12345)  // Immediate operand (use "i" for constants)
    );
    return 0;
}
```

Console

```
Compilation successful!
Generate hex from elf successful!
```

ST Link Configuration:

Serial number :

12345

Port :

COM1

Frequency (kHz) :

1000

Mode :

Mode3

Reset mode :

Mode C

Firmware version :

1.0

Connected Successfully!

Connect

Run main

```
RV-GEN2 (CA&E) waiting for gdb connection......


Info : Listening on port 6666 for tcl connections
Info : Listening on port 4444 for telnet connections
Connecting to localhost:4444...
Info : accepting 'telnet' connection on tcp/4444
Initial Output from Telnet:
Open On-Chip Debugger
>
Sending command: load_image C:/Users/office/Downloads/Programmer/PythonProject/firmware.elf
load_image C:/Users/office/Downloads/Programmer/PythonProject/firmware.elf

Sending command: reset halt
14776 bytes written at address 0x00000000
downloaded 14776 bytes in 3.697662s (3.902 KiB/s)

>
Sending command: resume
Info : JTAG tap: riscv.cpu tap/device found: 0x00000001 (mfg: 0x000 (<invalid>), part: 0x0000, ver: 0x0)
reset halt
JTAG tap: riscv.cpu tap/device found: 0x00000001 (mfg: 0x000 (<invalid>), part: 0x0000, ver: 0x0)
>
Telnet session still open. You can manually close it.
```