Qliktag NFC Tools

User Guide V1.0

Last Updated 1st May 2023

QLIKTAG

Contents

1 Installation Notes
- 1.1 Preparation
  - 1.1.1 Install the driver
  - 1.1.1.1 MacOS X
  - 1.1.1.3 Linux:
  - 1.1.2 Verify driver
  - 1.1.2.1 MacOS X:
  - 1.1.2.2 Windows:
  - 1.1.2.3 Linux
- 1.2 Software Installation

2 Software Usage
- 2.1 HomePage
  - 2.1.1 Test Mode
  - 2.1.2 Counter
  - 2.1.3 Connect Device
  - 2.1.4 Uploading a CSV File with Digital Links to be Encoded
  - 2.1.5 Write NFC Tag / Run / Stop
- 2.2 File Operations
  - 2.2.1 Downloading Data for NFC Tags Written / Encoded
  - 2.2.2 Downloading Data for NFC Tags Not Written / Failed
- 2.3 Additional Settings
  - 2.3.1 Locking The NFC Tags

1 Installation Notes

1.1 Preparation

1.1.1 Install the driver

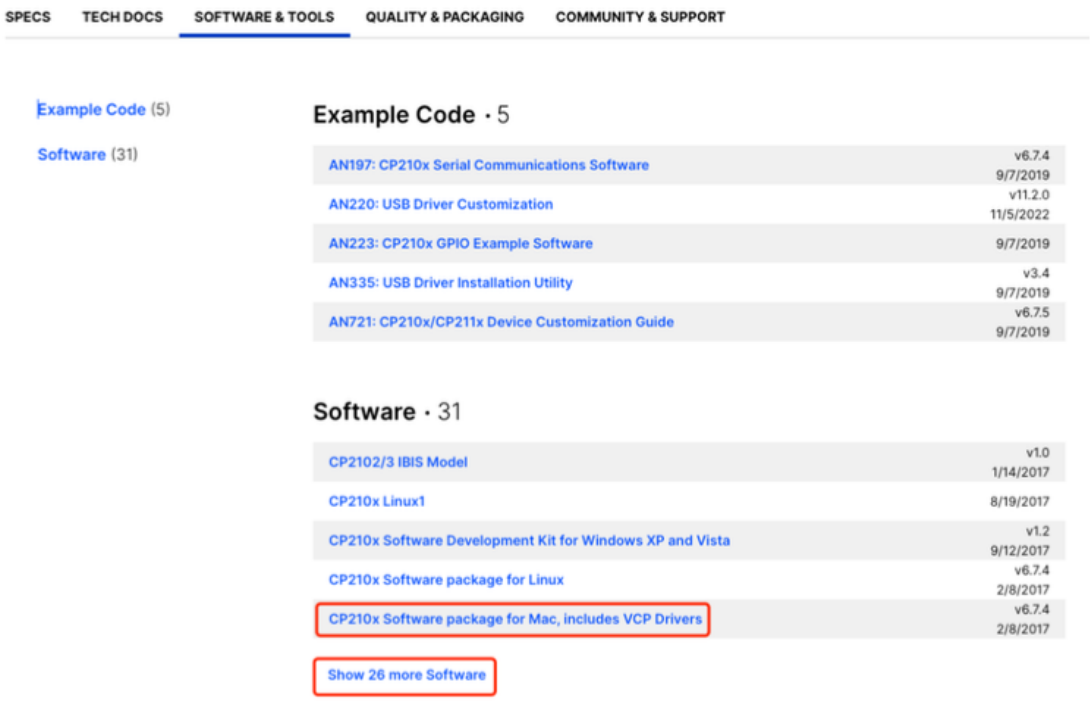
This software needs to be used with a driver, please get the appropriate version from this website according to the actual situation.

1.1.1.1 MacOS X

CP210x Software package for Mac, includes VCP Drivers

OR

CP210x VCP Mac OSX Driver



Linux 2.6.x VCP Driver	1/18/2017
Linux 2.6.x VCP Revision History	9/4/2020
Linux 3.x.x/4.x.x/5.x.x VCP Driver	v3.x.x/4.x.x/5.x.x 1/29/2021
VCP Driver for WinCE60	v2.1 9/4/2020
VCP Drivers for WinCE50	v2.1 9/4/2020
CP210x VCP Mac OSX Driver	v6.0.2 10/27/2021
USBXpress 4 SDK	v4.0.3 9/4/2020
USBXpress Dev Kit	v3.5.1 11/25/2021
USBXpress Host SDK - Mac	v6.7.7 5/14/2022

1.1.1.2 Windows:

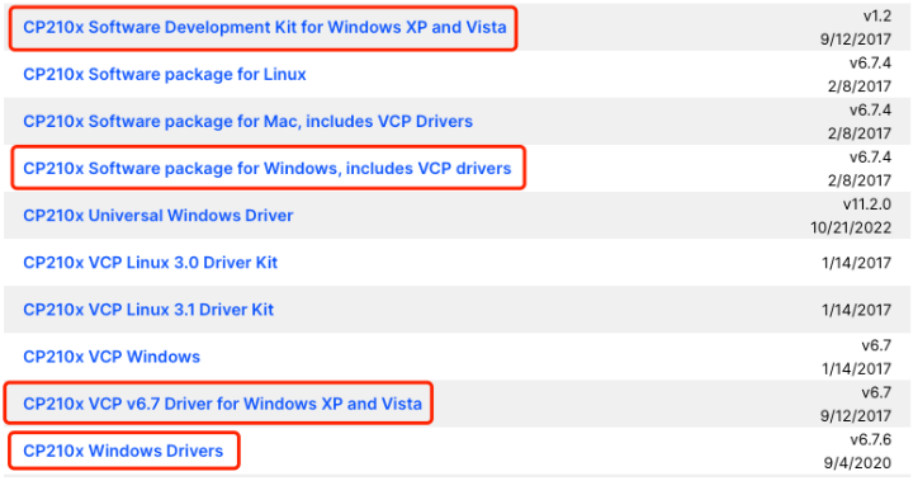
CP210x Software package for Windows, includes VCP drivers

OR

CP210x Universal Windows Driver

OR

CP210x VCP Windows



CP210x Software Development Kit for Windows XP and Vista	v1.2 9/12/2017
CP210x Software package for Linux	v6.7.4 2/8/2017
CP210x Software package for Mac, includes VCP Drivers	v6.7.4 2/8/2017
CP210x Software package for Windows, includes VCP drivers	v6.7.4 2/8/2017
CP210x Universal Windows Driver	v11.2.0 10/21/2022
CP210x VCP Linux 3.0 Driver Kit	1/14/2017
CP210x VCP Linux 3.1 Driver Kit	1/14/2017
CP210x VCP Windows	v6.7 1/14/2017
CP210x VCP v6.7 Driver for Windows XP and Vista	v6.7 9/12/2017
CP210x Windows Drivers	v6.7.6 9/4/2020

And so on.

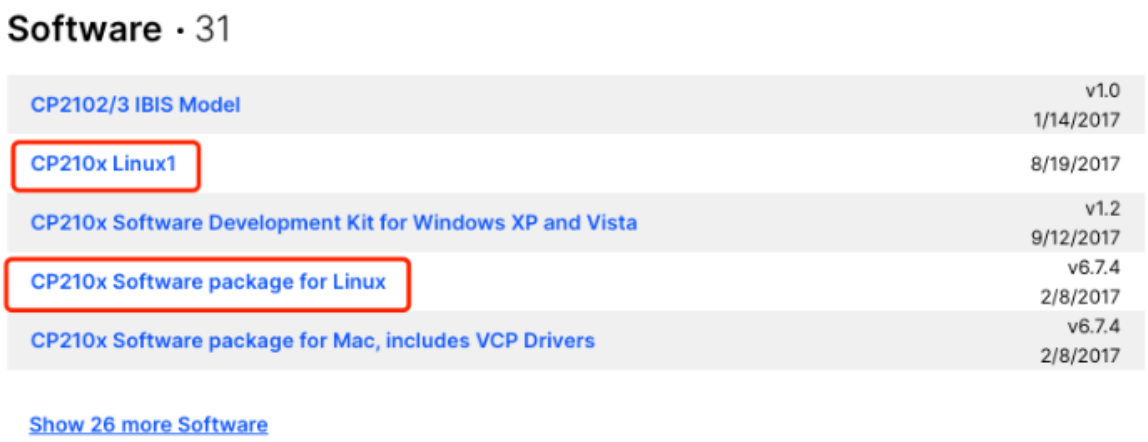
1.1.1.3 Linux:

In general, Linux comes with CP210x driver, the device can be recognized normally after connection; here is an example of Ubuntu (other versions are similar), according to the way in 1.1.2 can not be verified, then you need to install manually. Check the Linux version of Ubuntu by: `sudo uname -a`

Download the corresponding driver version from the official website according to your needs. After downloading and unpacking the .c file and make file file in the folder, open the terminal in the folder and execute the command: `sudo make` to compile the make file file.

After completion, the .ko file will appear in the folder.

Then execute: `sudo insmod cp210x.ko,` the driver installation is complete.



Ubuntu power-up automatically loads the driver module.
Copy cp210x.ko to `/lib/modules/.../kernel/drivers/usb/serial` folder; /kernel/drivers/usb/serial may be hidden, you can search for serial directly in the lib folder, where the dotted dots are your own system version. For example: `"5.15.0-56-generic"`, refer to the description of 1.1.2.

1.1.2 Verify driver

After the driver is successfully installed, connect the device and check whether the serial port is properly recognized.

1.1.2.1 MacOS X:

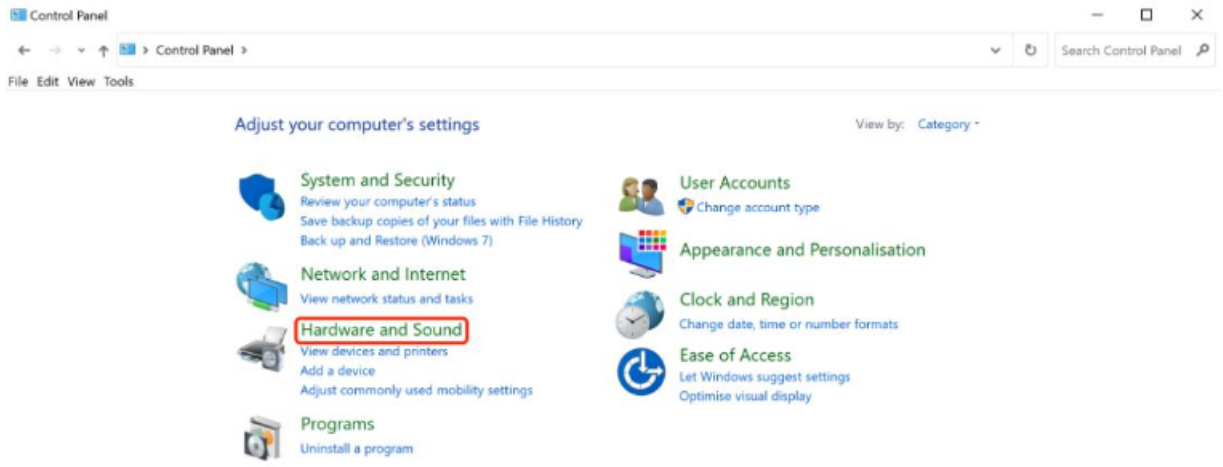
Open a terminal and enter the following command:
ls /dev/tty.*

/dev/tty.Bluetooth-Incoming-Port /dev/tty.SLAB_USBtoUART
/dev/tty.usbserial-0001

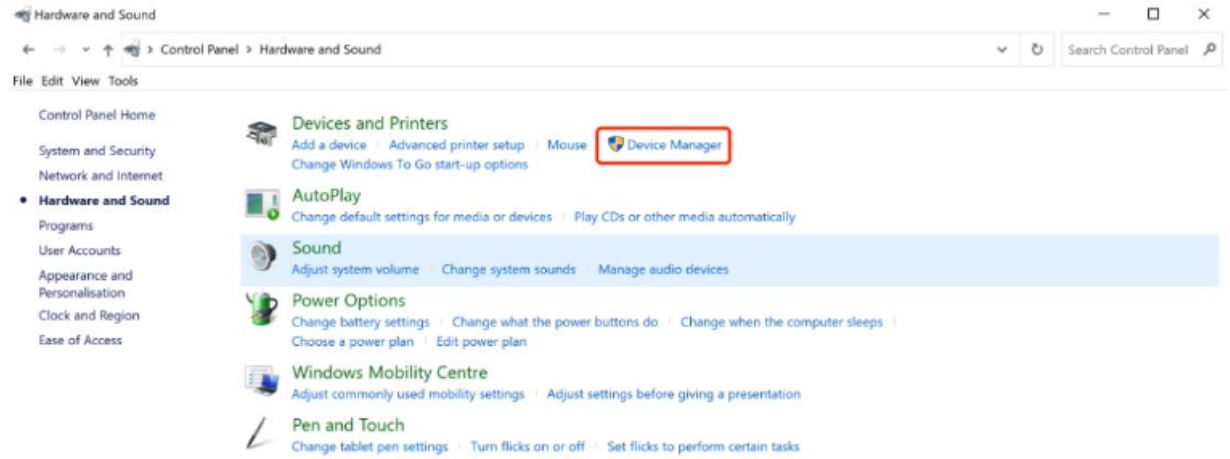
If you find tty.SLAB_USBtoUART, the driver is installed successfully, Congratulations.

1.1.2.2 Windows:

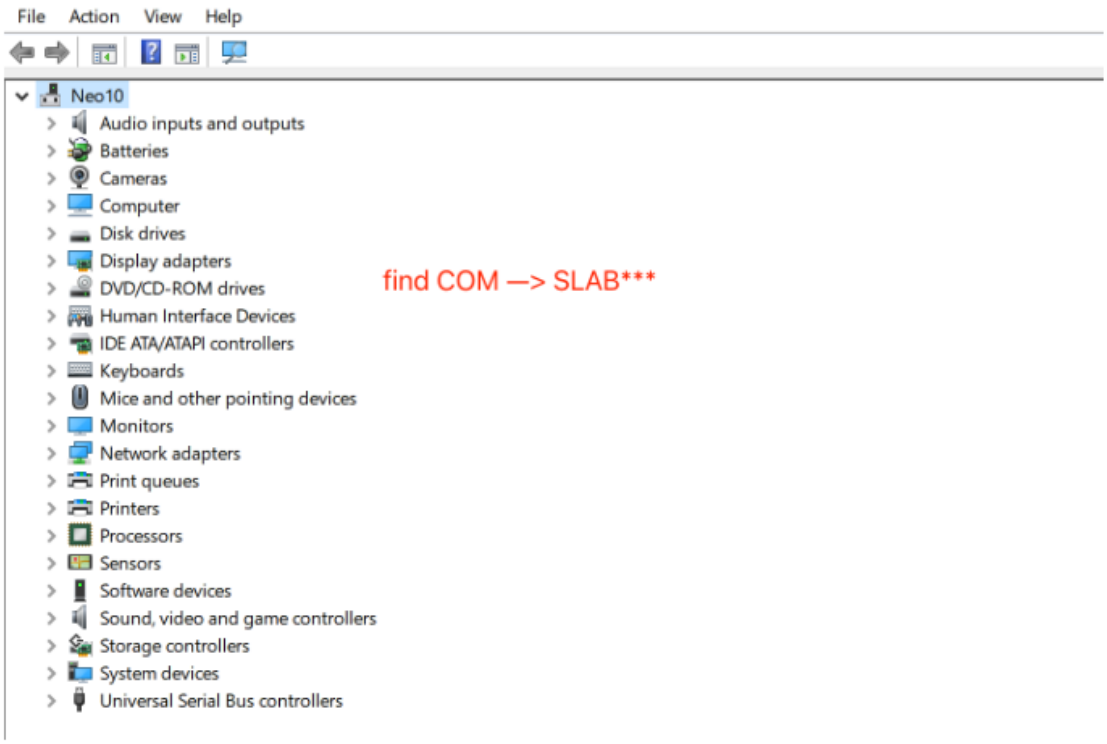
1.Control Panel --> Hardware and Sound



2.Device Manager



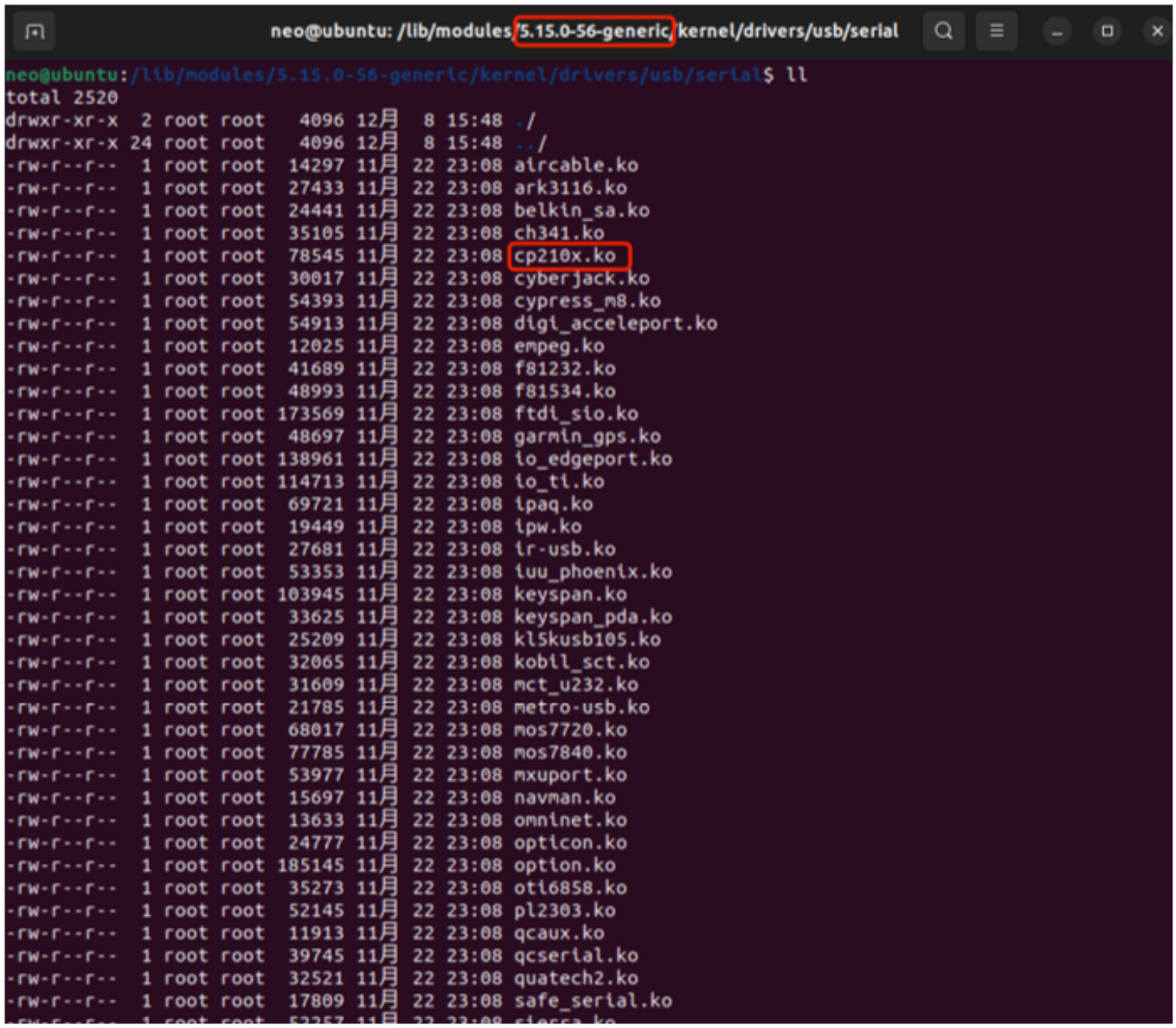
3. Find the COM



If you find the COM of SLAB, the driver is installed successfully, Congratulations.

1.1.2.3 Linux

This is an example of Ubuntu (other versions are similar) and can be found at the following paths: /lib/modules/5.15.0-56-generic/kernel/drivers/usb/serial (where "5.15.0-56-generic", you need to choose according to the actual situation of your system, do not copy this path directly), you can find: cp210x.ko; indicating that the system has installed this driver.



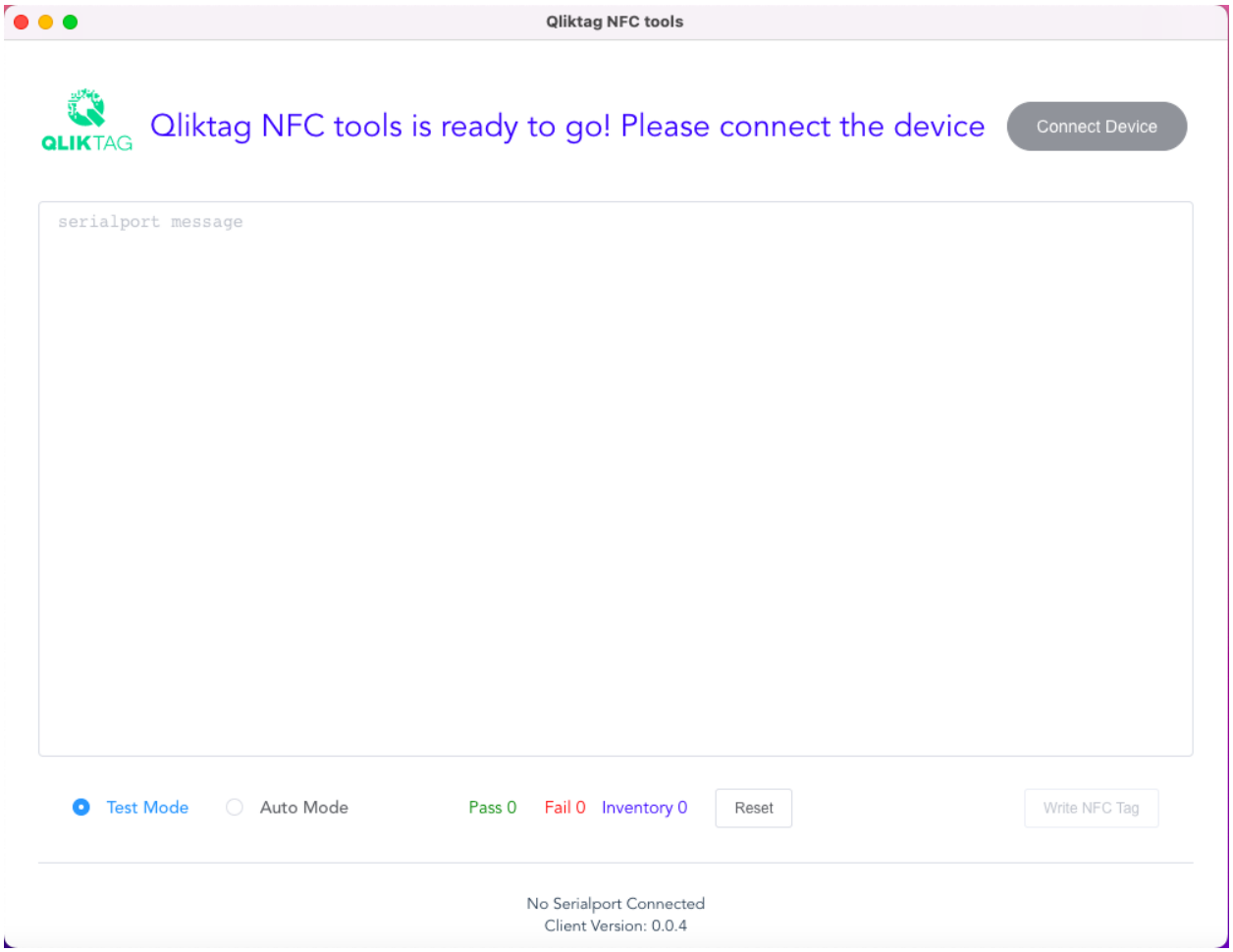
1.2 Software Installation

Click on the installation package and follow the instructions to install or unzip the package to open it.

2 Software Usage

This is illustrated here with the MacOS version as an example and the Windows version and Linux version are similar.

2.1 HomePage



2.1.1 Test Mode

1. Test Mode
The “Test Mode” is designed to allow you to write / encode a digital link URL from an upload sheet to the NFC tags one at a time. It requires you to click the “Write NFC Tag” button and then tap the NFC tag to the device each time you’re ready to write the next URL queued in the “Inventory”. This mode is ideal for writing and testing a few tags one by one.

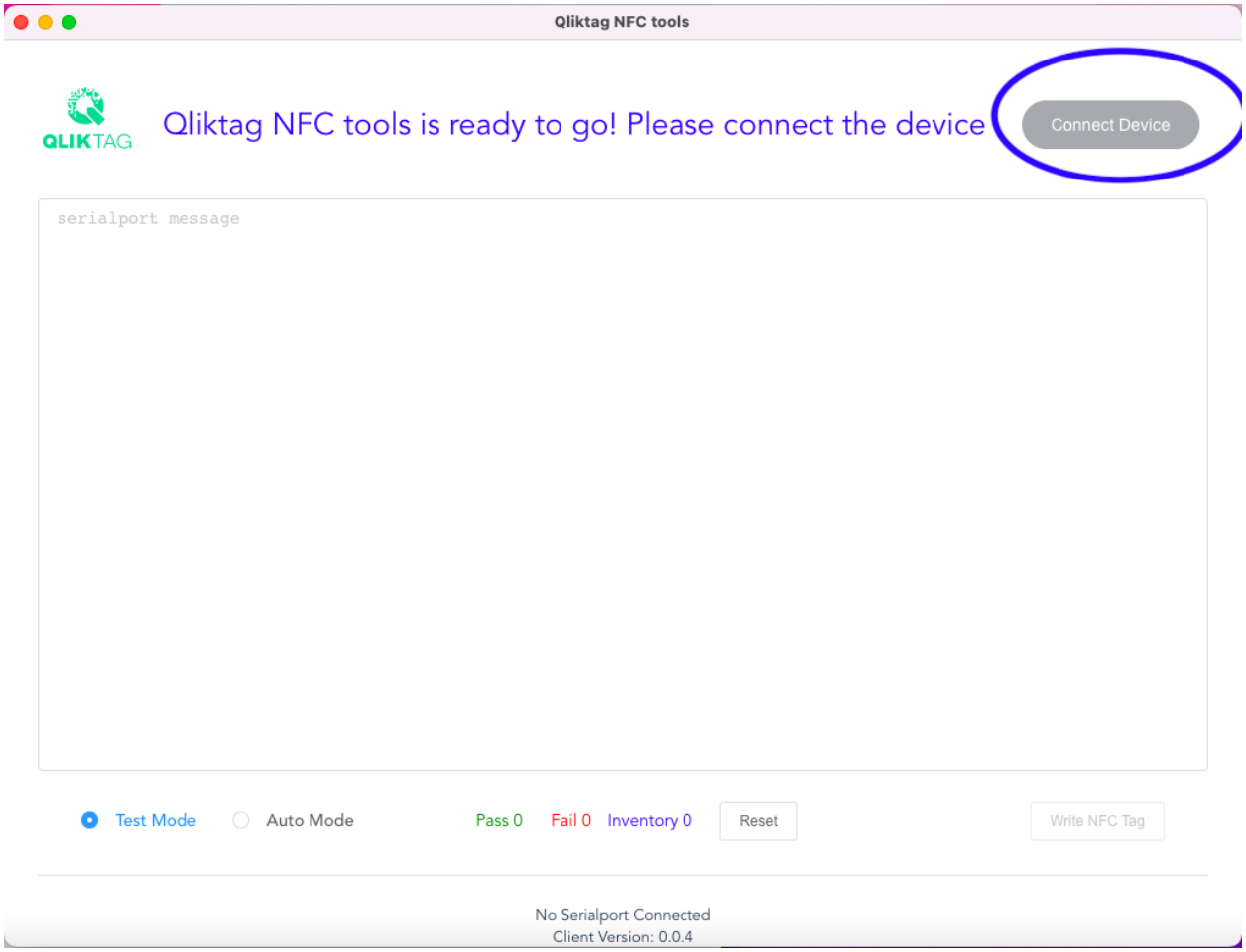
2. Auto Mode
The “Auto Mode” is designed to allow you to write / encode a larger number of digital link URLs to NFC tags in series. It can be used in conjunction with a label spooler or with the device placed near a conveyor belt where the NFC tags periodically come into contact with the device and sequentially encode the digital links queued in the “Inventory”. In this mode, the “Write NFC Tags” button only needs to be clicked once and NFC tags can be tapped on the device one after the next in sequence without having to click anything in between. This mode is ideal for manually bulk encoding multiple tags, to place on a production / packaging line or use with an automatic label spooler with an entire reel of NFC tags.

2.1.2 Counter

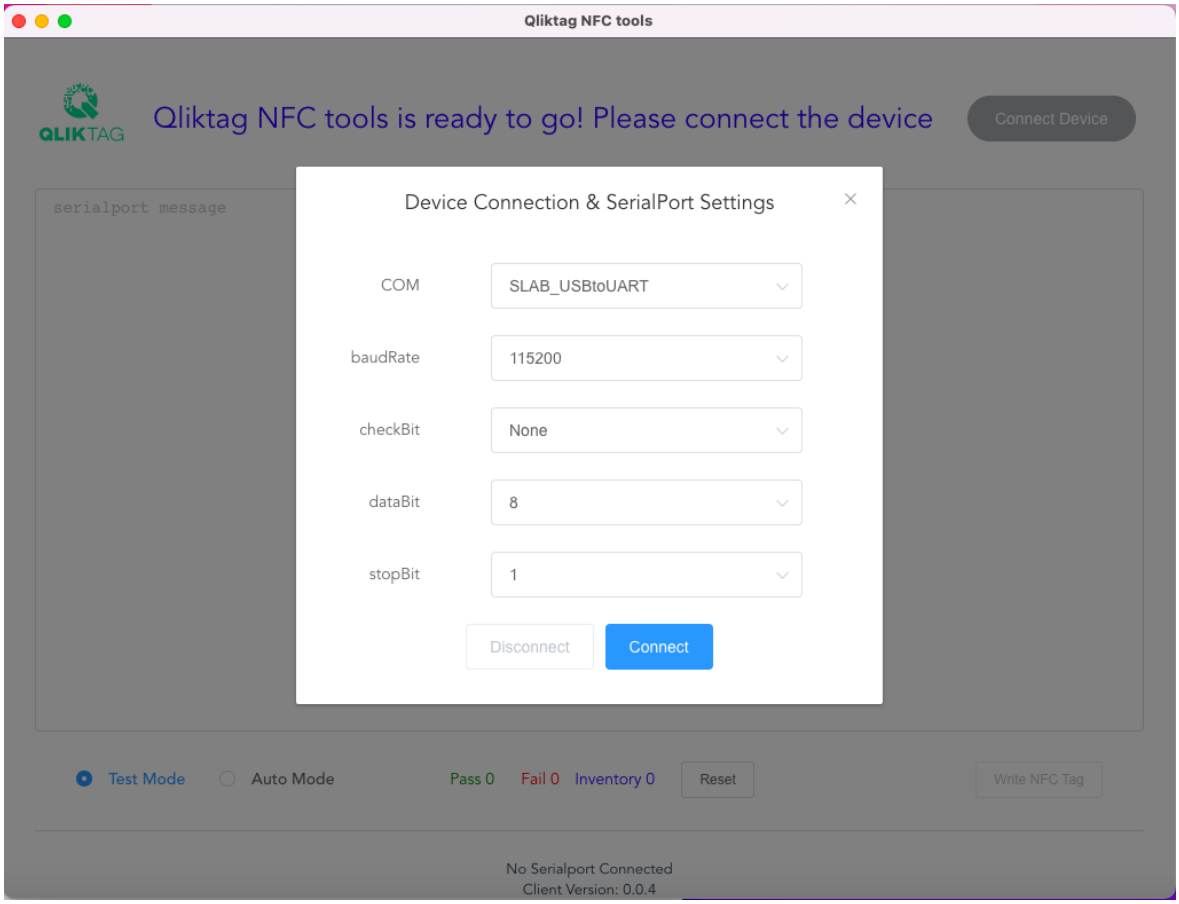
Cumulative Success / Failure Count.
You can click “Reset” to clear the counter.

2.1.3 Connect Device

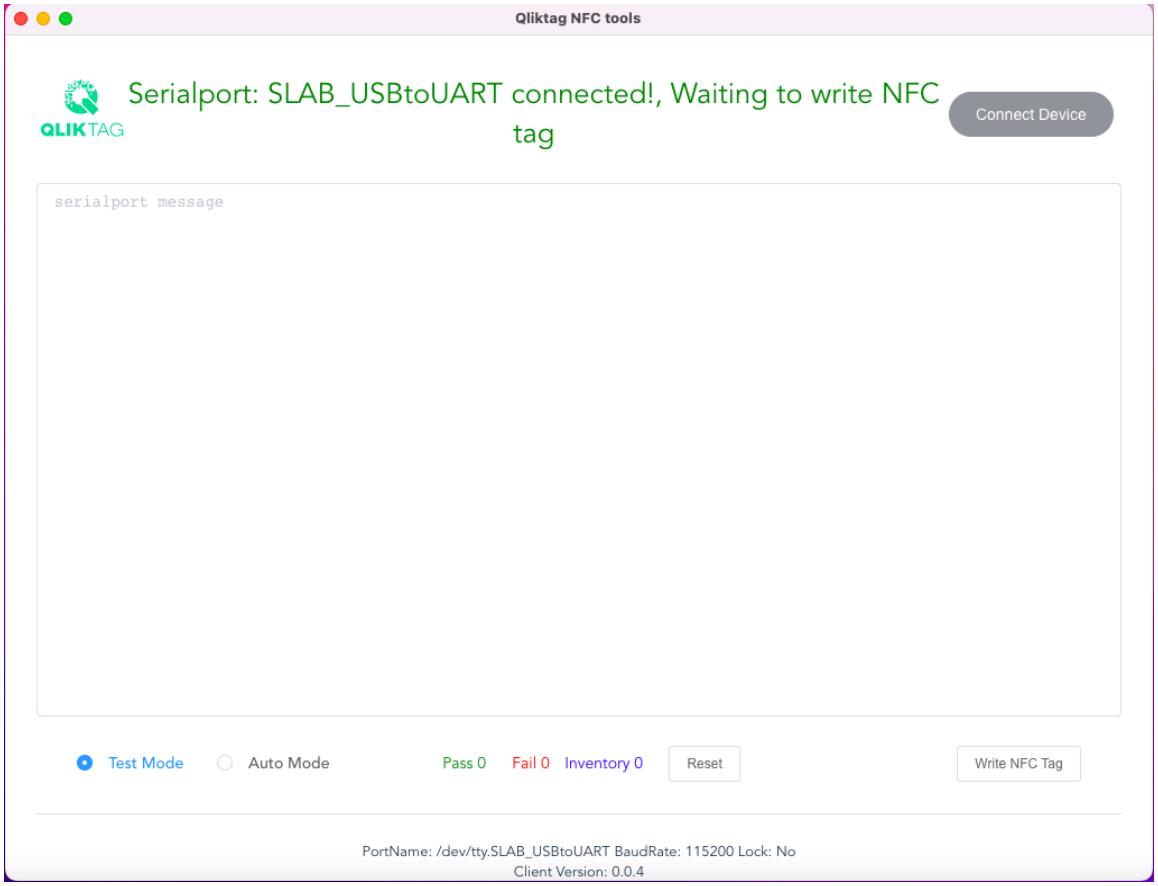
Ensure the device is plugged into the USB port and the drivers have been installed correctly. The Connect Device button can then be clicked to connect the device to the Qliktag NFC Tools software.



The “Device Controls & Serial Port Settings” window will pop up to confirm the connection settings. Check that within the “COM” dropdown, “SLAB_USBtoUART” is selected from the dropdown and the other settings match the settings in the screen diagram below. Then, click the “Connect” button.

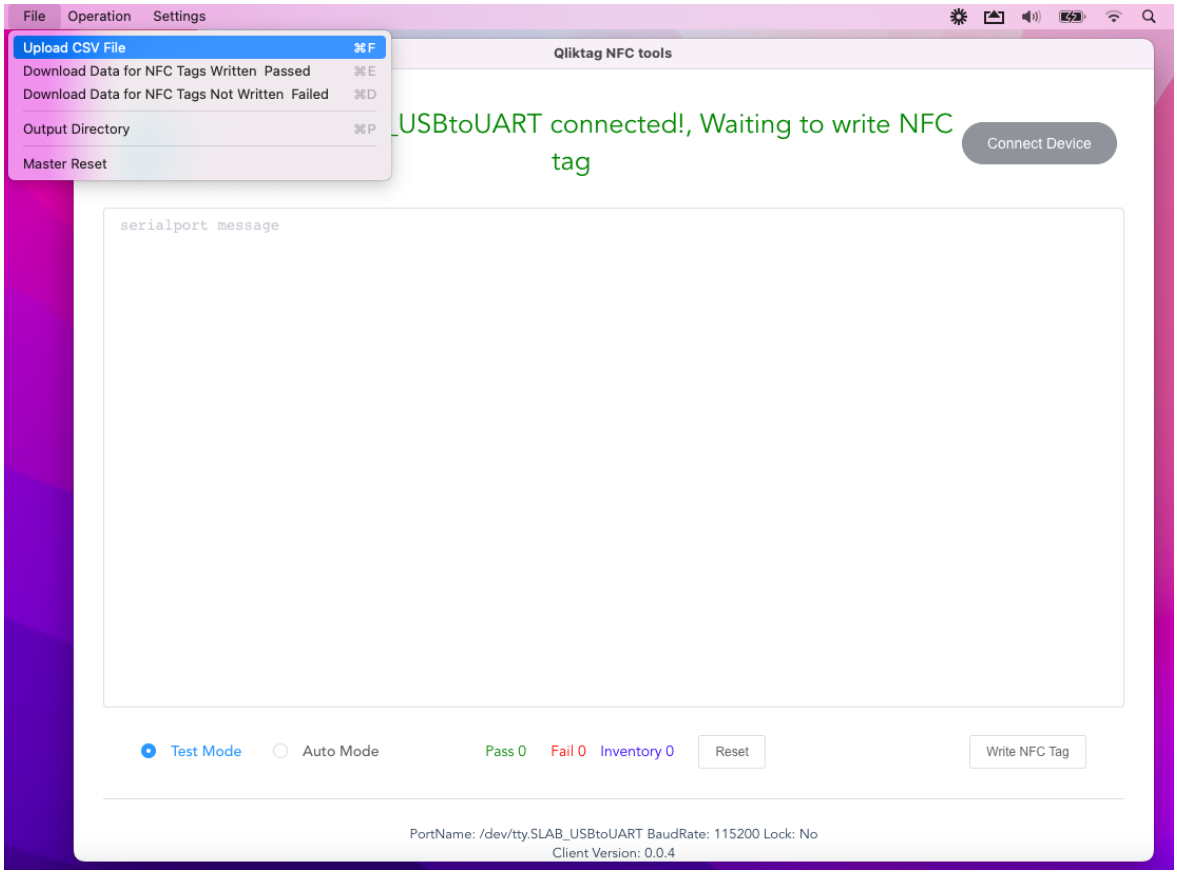


You should then see the message “Serialport: SLAB_USBtoUART connected!, Waiting to write NFC tag”. This indicates that the device has been successfully connected to the software and is now ready to write / encode NFC tags.



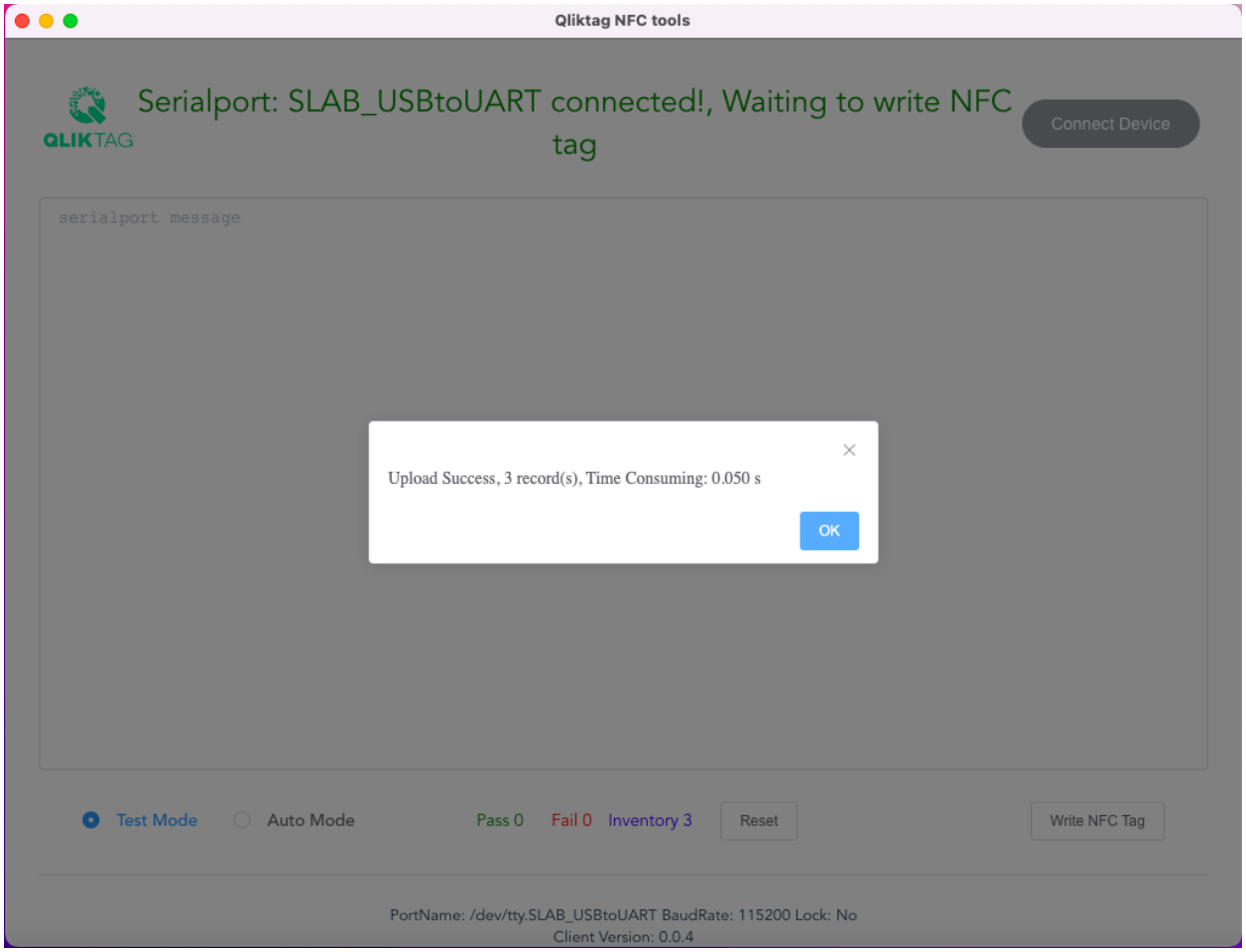
2.1.4 Uploading a CSV File with Digital Links to be Encoded

In the top menu bar, select the “File” menu option, and then click on “Upload CSV File”.

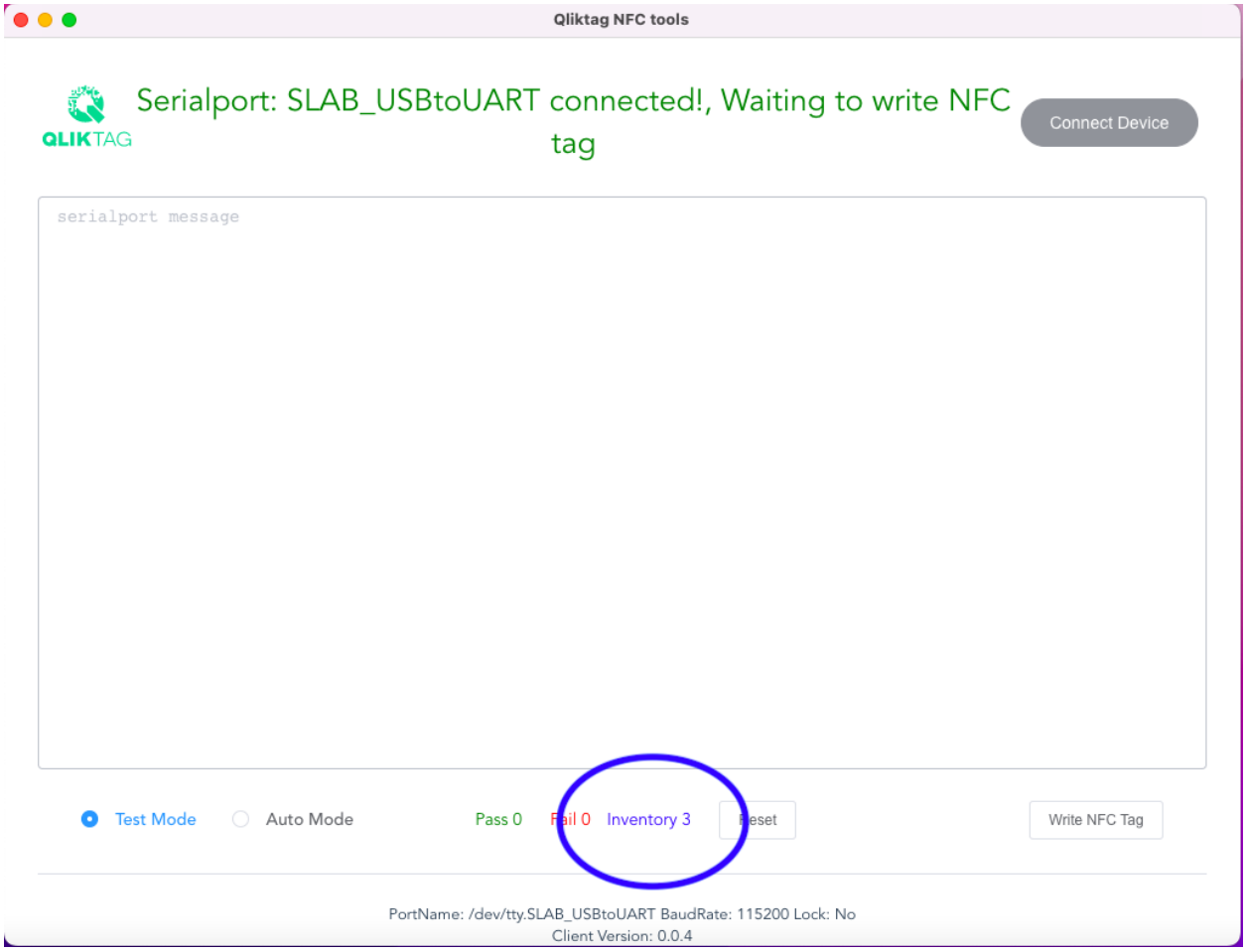


From the file browser / finder screen that comes up, locate and select your .CSV file which has the digital link URLs you need to encode into the NFC tags.

Once you have selected the CSV file and proceed, you should see a message indicating that the records with the URLs have been successfully uploaded. Click OK.



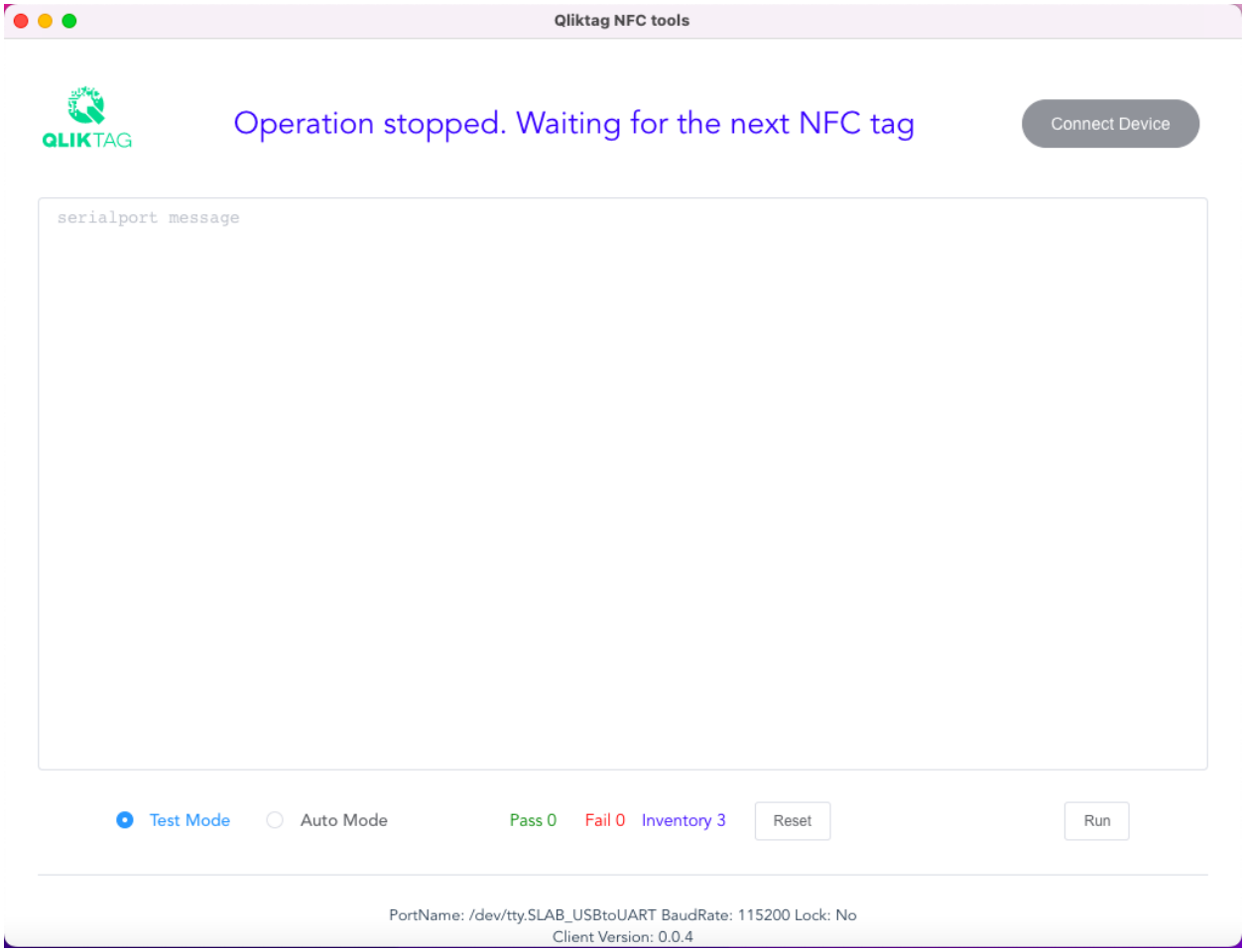
You should now be able to see a count of the records that have been uploaded and queued up in the “Inventory” that is ready to encode.



2.1.5 Write NFC Tag / Run / Stop

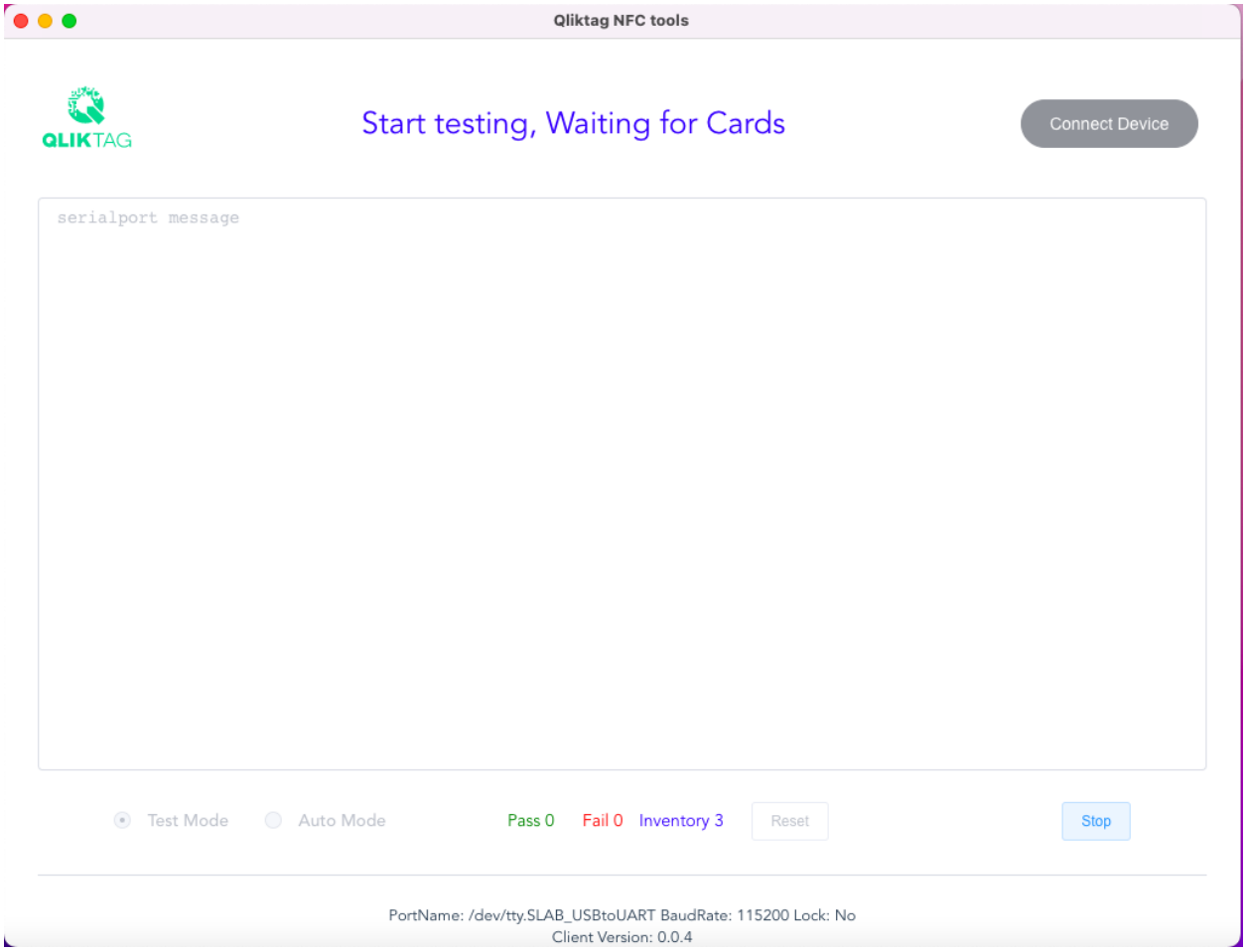
Click the “Write NFC Tag” button to run or stop the process of writing / encoding the digital link URLs to the NFC Tags.

In “Test Mode” the following screen will come up.

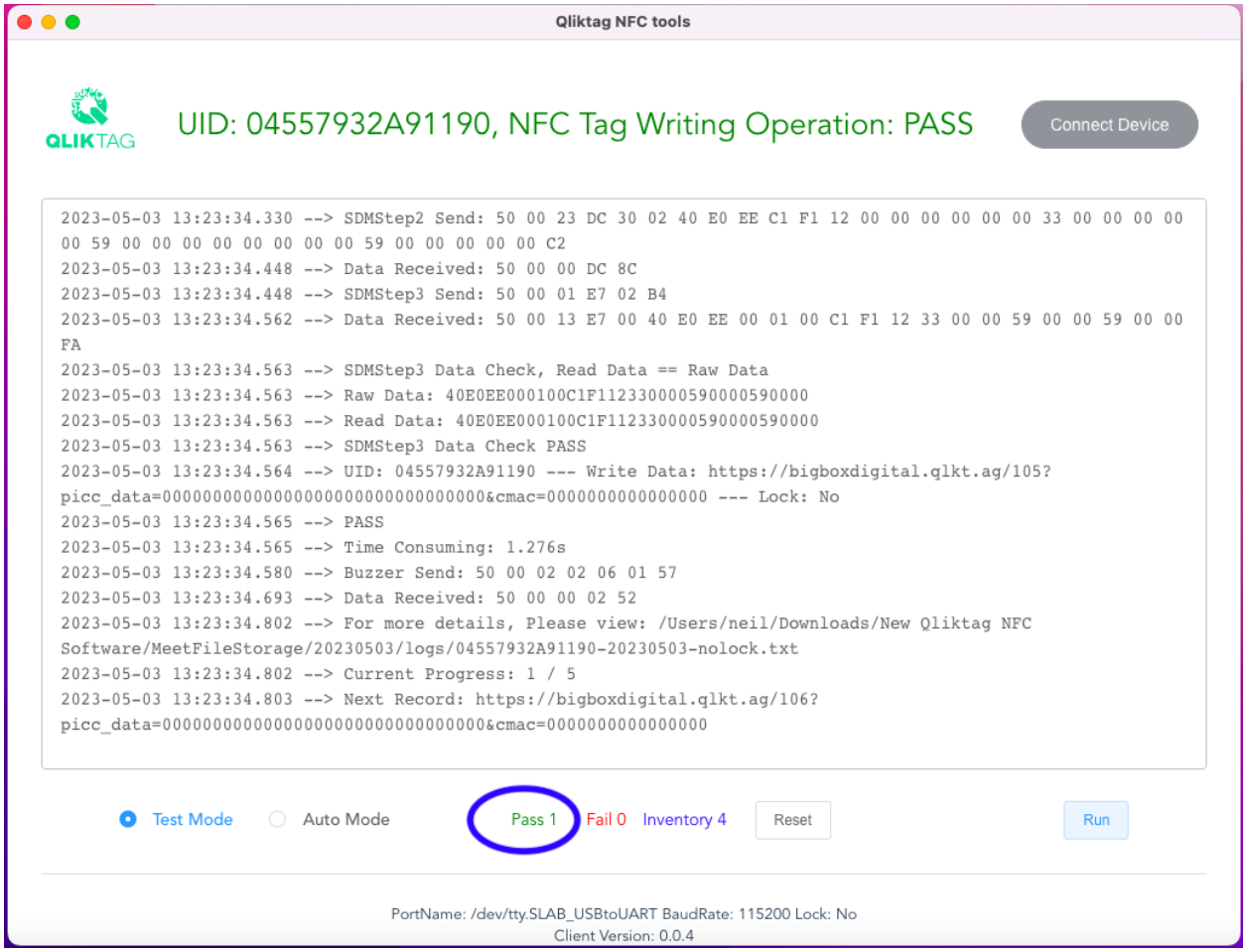


Click on “Run” to continue.

The following prompt will appear at the top ”Start testing, Waiting for Cards”. This indicates that the software & device are ready and now waiting for an NFC tag to be tapped on the device.



Proceed with taking a blank NFC tag and hold it over the device (the tag can touch the device or be brought within millimeters of the device) and hold there for about a second while it encodes.



The device will beep, display the data being encoded into the tag as in the screen above, the top message will display the UID of the tag followed by a message to confirm the tag encoding / writing operation has successfully been passed and the pass counter at the bottom of the screen should indicate that one NFC tag has successfully been written and passed.

To write the next NFC tag, click the “Run” button again and repeat the process. At that point, the Pass counter should display 2 NFC tags successfully written and passed.

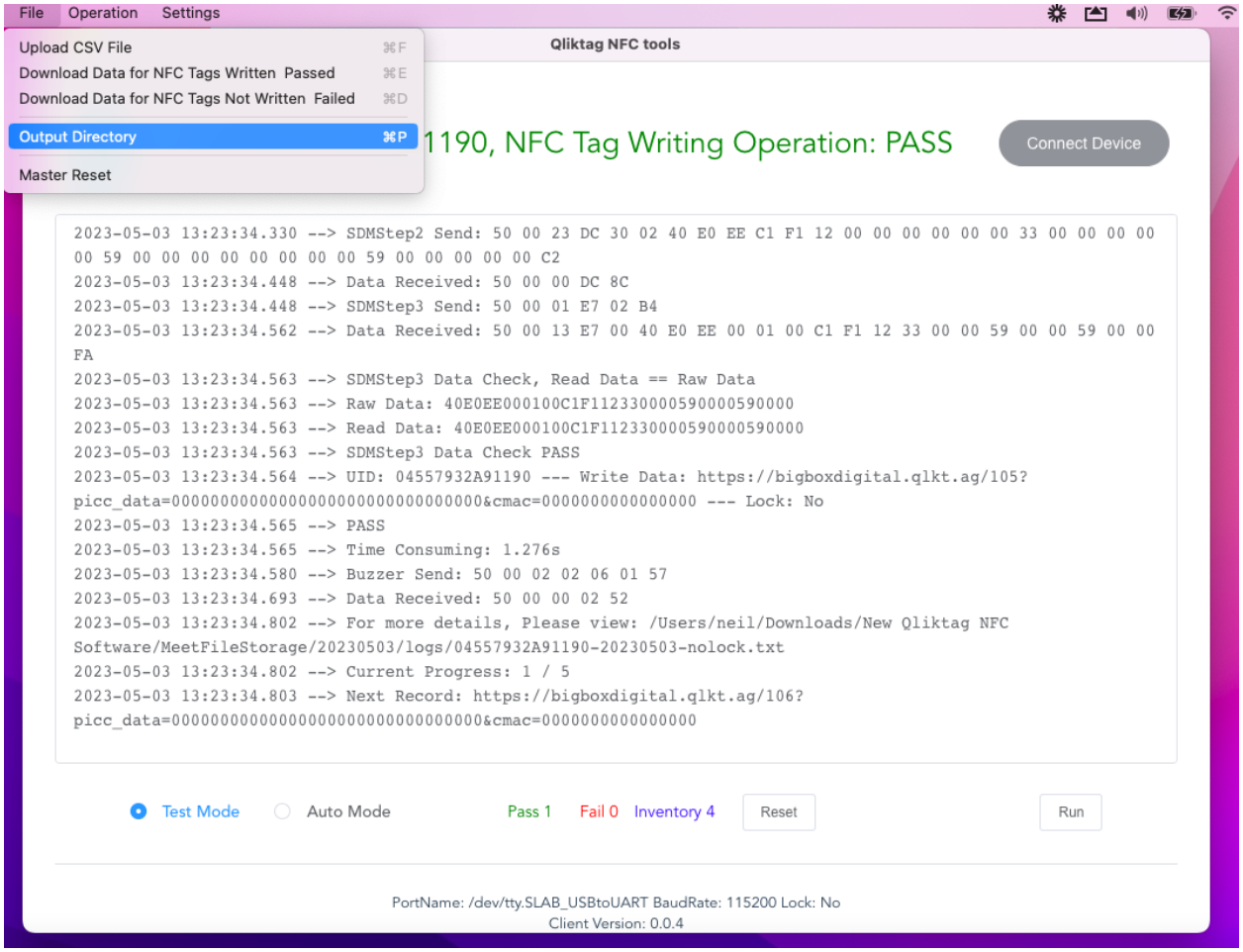
If you use “Auto Mode”, there is no need to hit the Run button multiple times. Once an NFC tag has been successfully written, it will indicate that it is ready for the next tag to be tapped one after the other till the Inventory has reached ‘0’ or the writing operation has been stopped.

2.2 File Operations

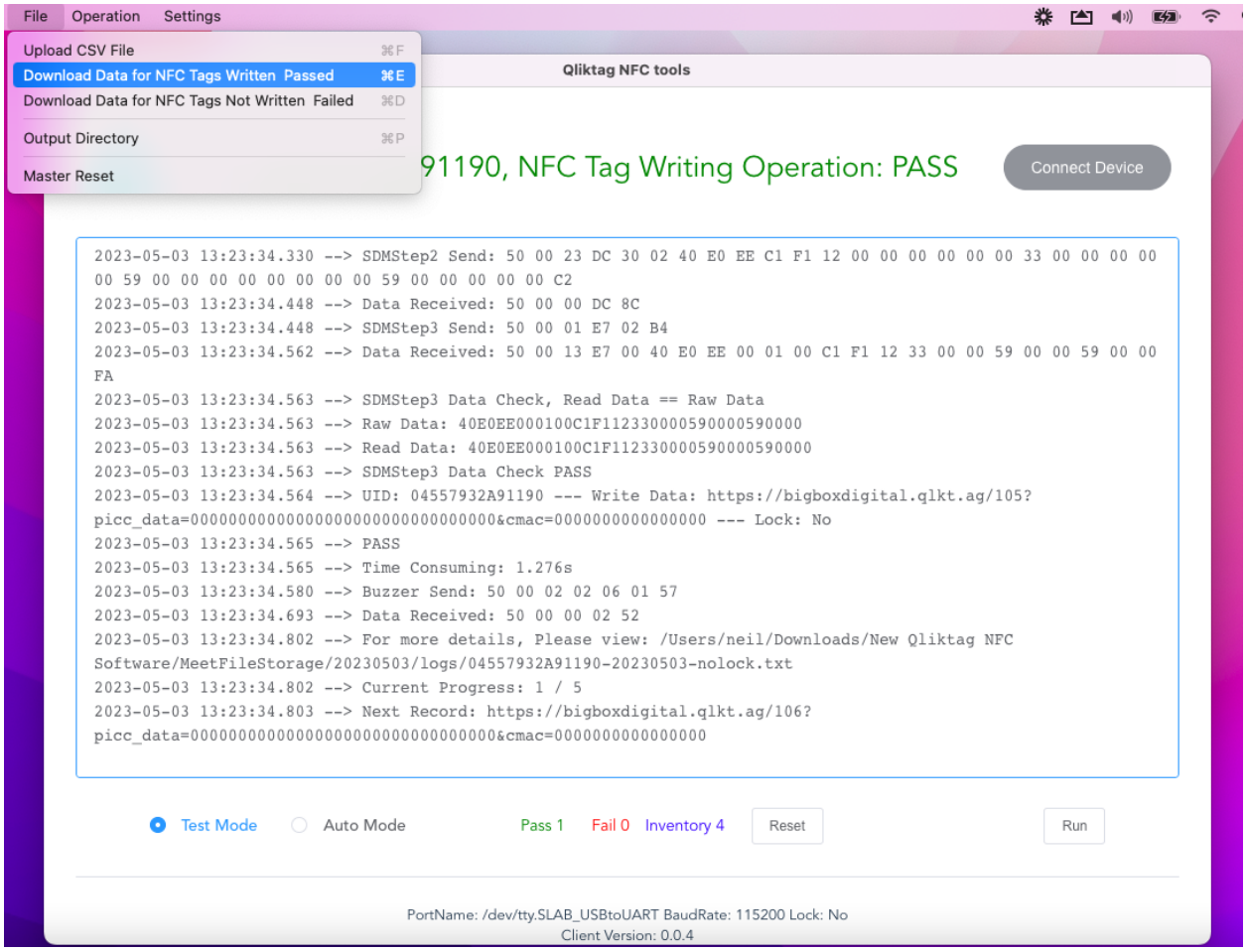
2.2.1 Downloading Data for NFC Tags Written / Encoded

The software maintains a log for the data successfully written and updated with the unique UID of each NFC tag the record was written to so that it can be downloaded and then imported within the Qliktag Platform so the UIDs are updated and registered within the system. Similarly, the software also maintains a log of the data records that have not yet been written to the NFC tags or, have failed the writing process and have not been written to the tags. This can be downloaded so that these records can be re-uploaded and tried to be written again at a later time.

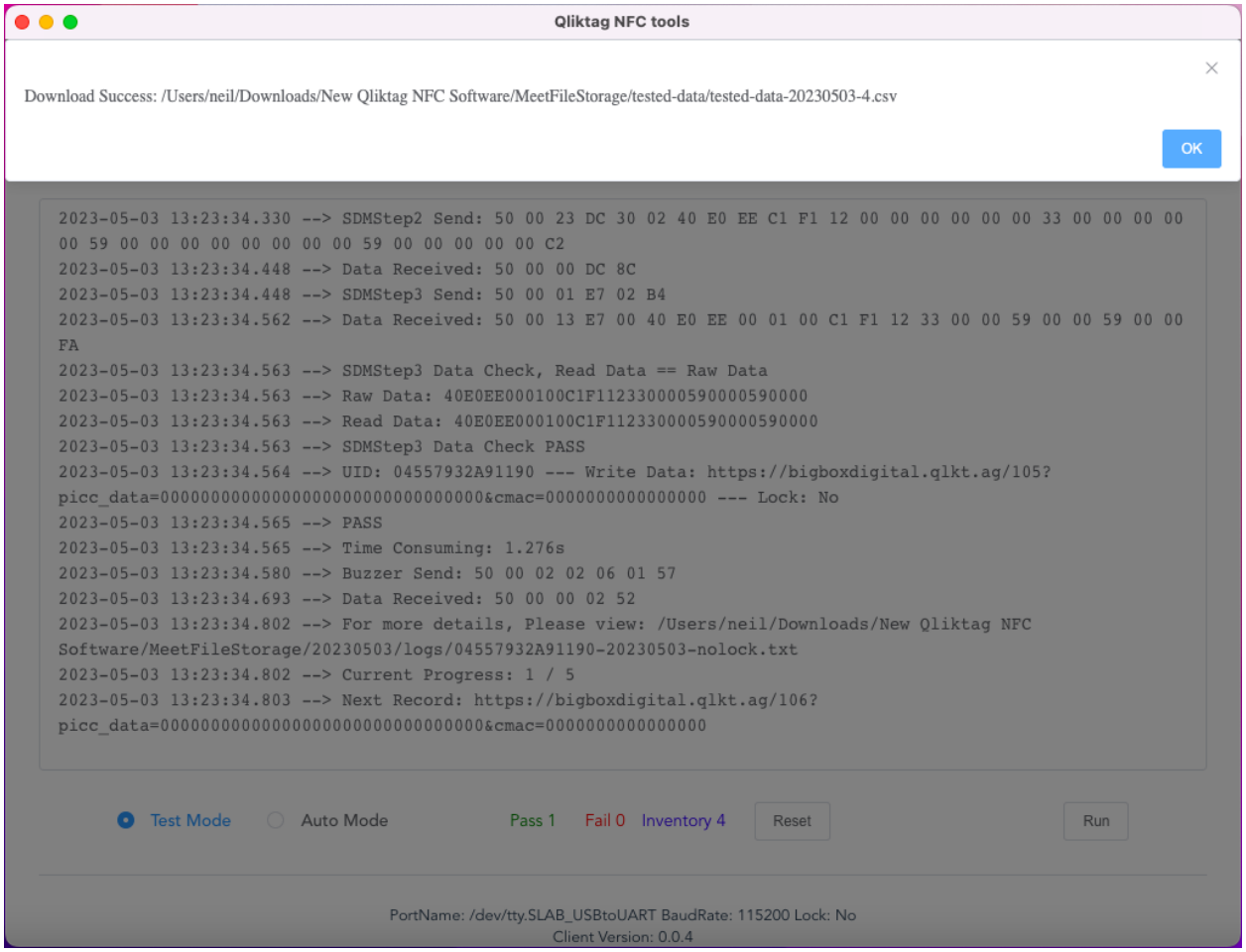
In order to perform these file operations, first click on the File option in the top main menu bar and select “Output Directory”. This will bring up your file browser and allow you to select the location where you want the downloaded data files to be downloaded to on your computer.



To download the data records of NFC tags successfully written or encoded, in the top main menu, select File->Download Data for NFC Tags Written Passed

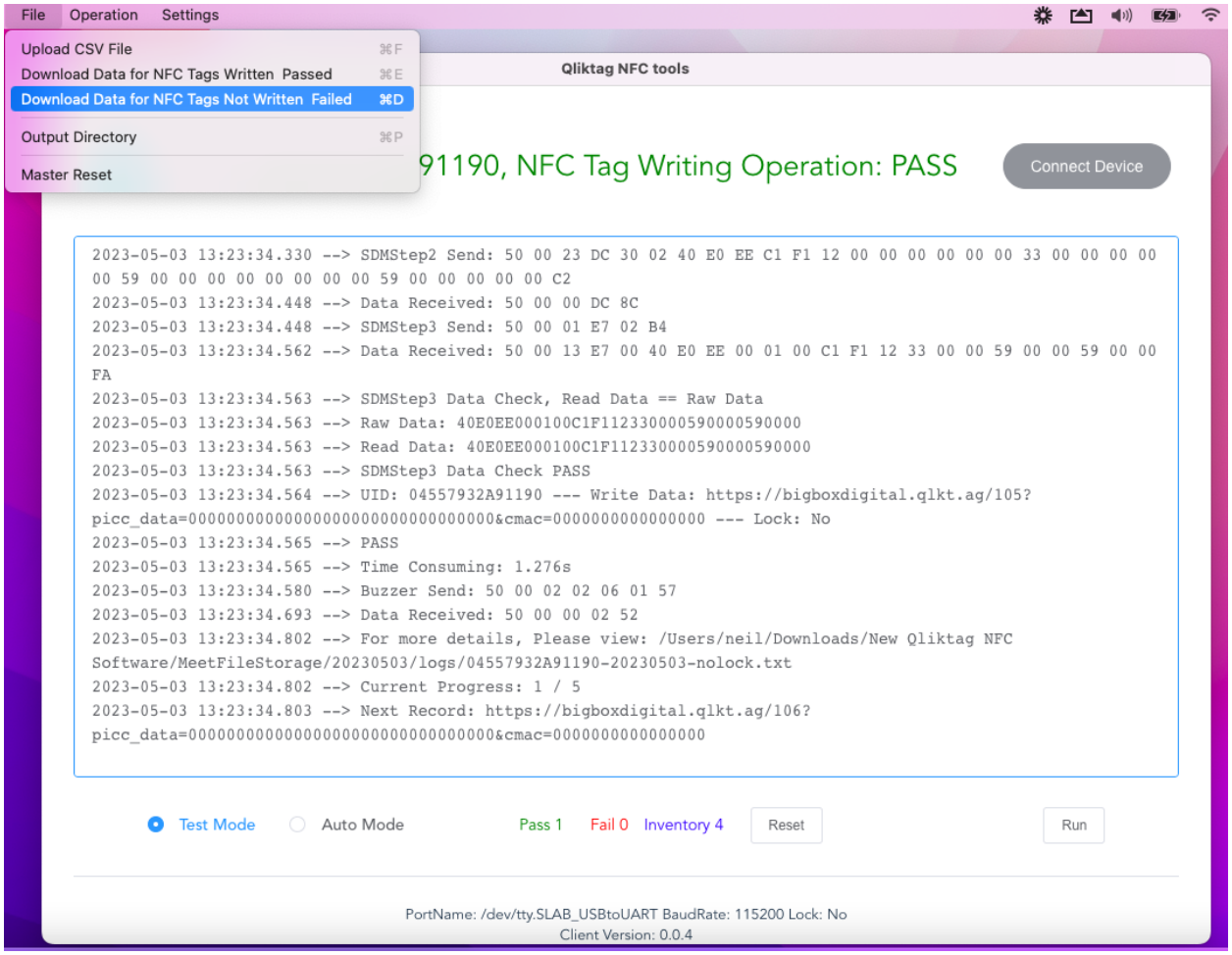


If the operation is successful, you should see a confirmation message as in the screen below to confirm the download is complete. Click “OK”.

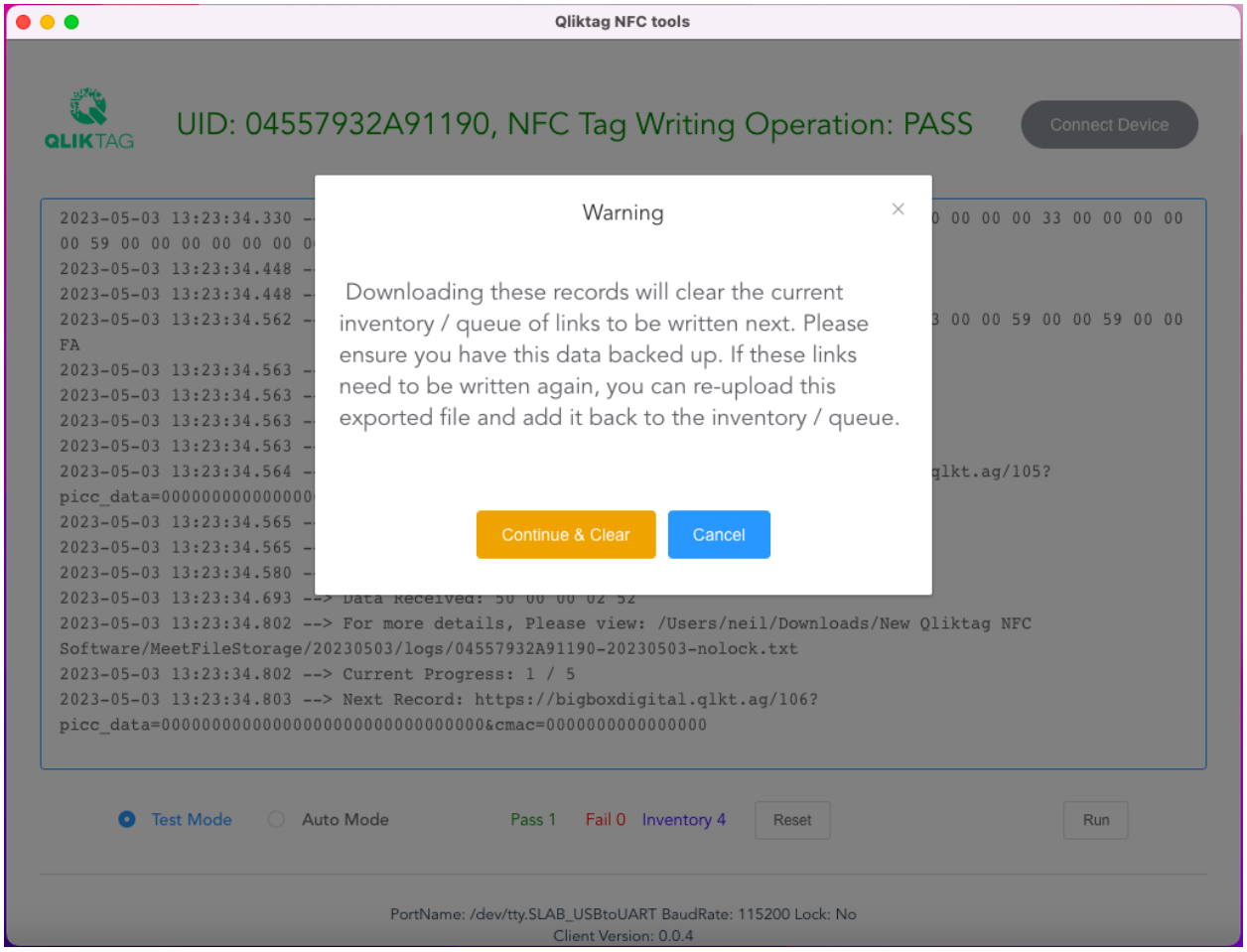


2.2.2 Downloading Data for NFC Tags Not Written / Failed

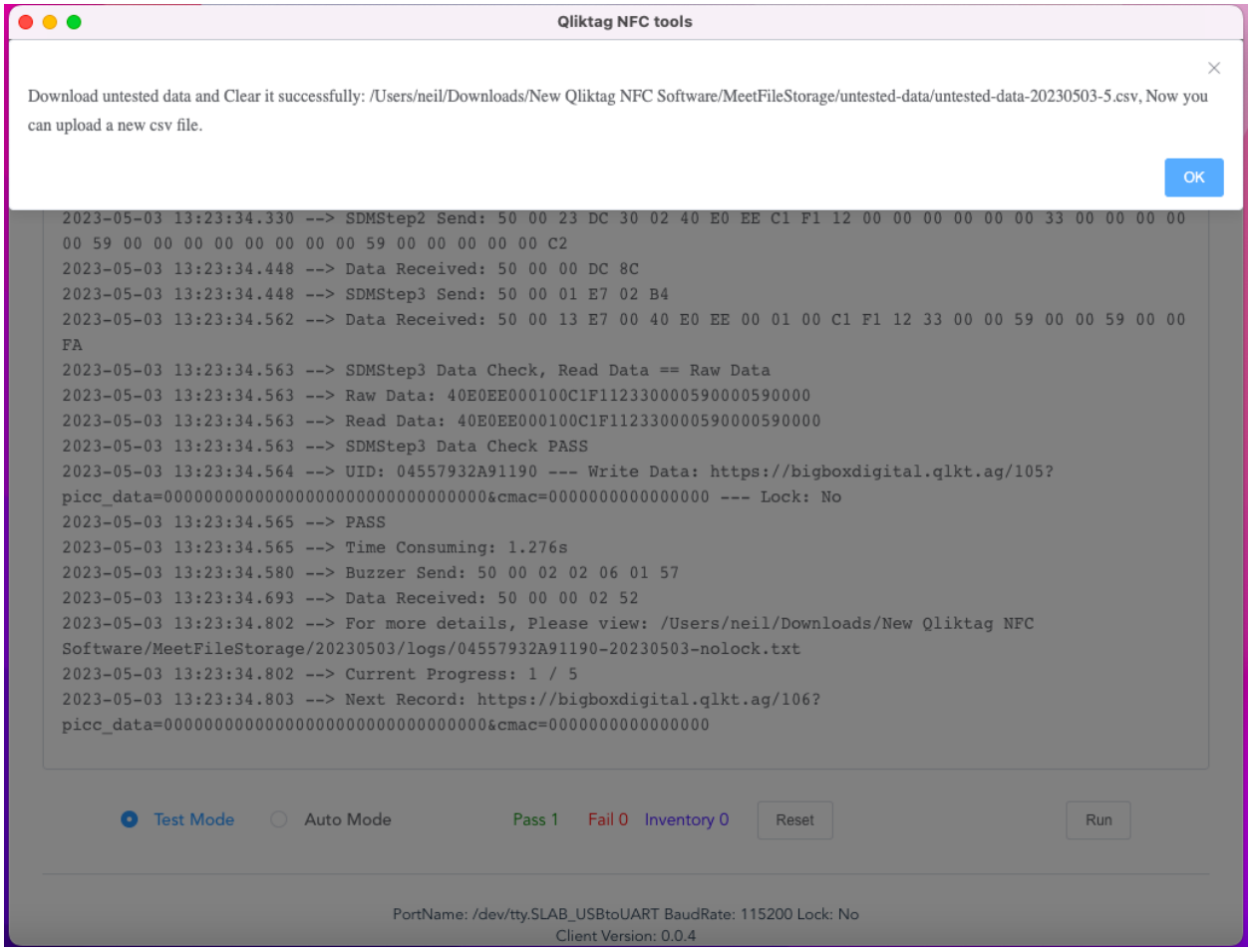
To download records that have either not been written to the NFC tags yet or failed the writing / encoding process, from the top main menu bar, select File->Download Data for NFC Tags Not Written Failed.



If the operation is successful, you should see a warning confirmation message as in the screen below to confirm the download is complete. Click “Continue & Clear”. This will download the unwritten or failed records however, it will also clear the “Inventory” of records queued and to be written. You can always re-upload the file you have downloaded to put them back in the inventory and attempt to write them again.



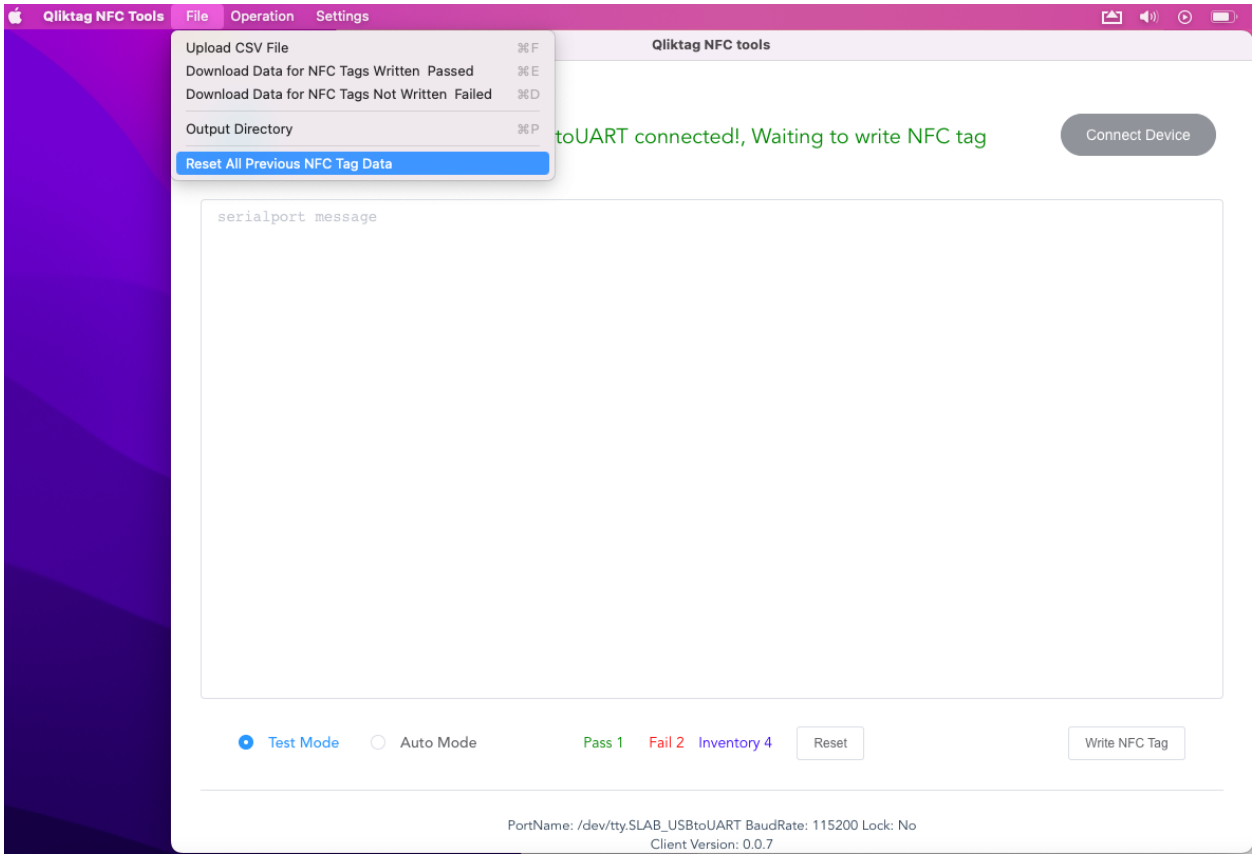
If the operation is successful, you should see a confirmation message as in the screen below to confirm the download is complete. Click “OK”.



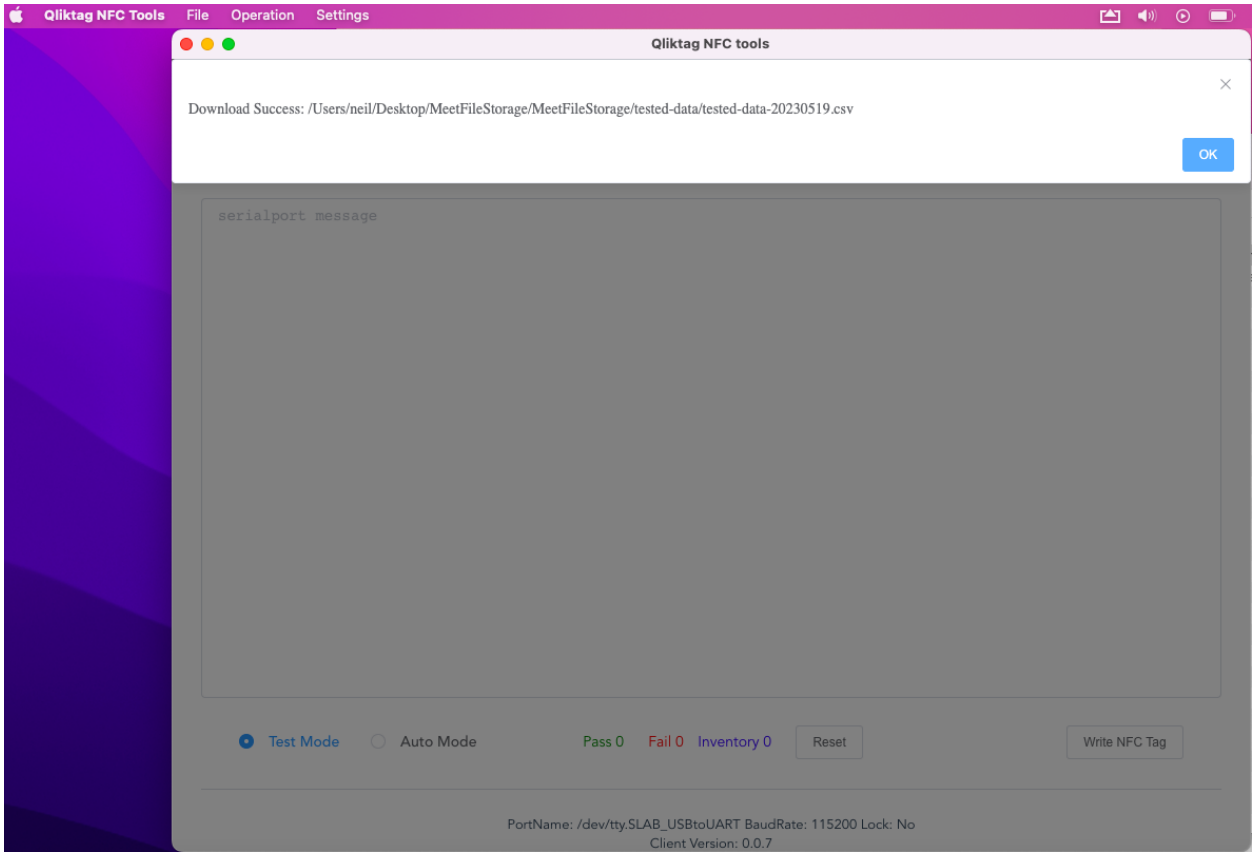
2.2.3 Reset All Previous NFC Tag Data

As you write the NFC tags, the software keeps a log of all previously written / unwritten link URL records as well as the Tag UIDs for all tags previously used. This is why if you attempt to overwrite a tag already written once, even though it hasn't been locked, the software will not overwrite that tag. However, with the "Reset All Previous NFC Tag Data" option, you can completely wipe out all previous logs if you choose to so that you can reuse or re-write previously used tags for testing.

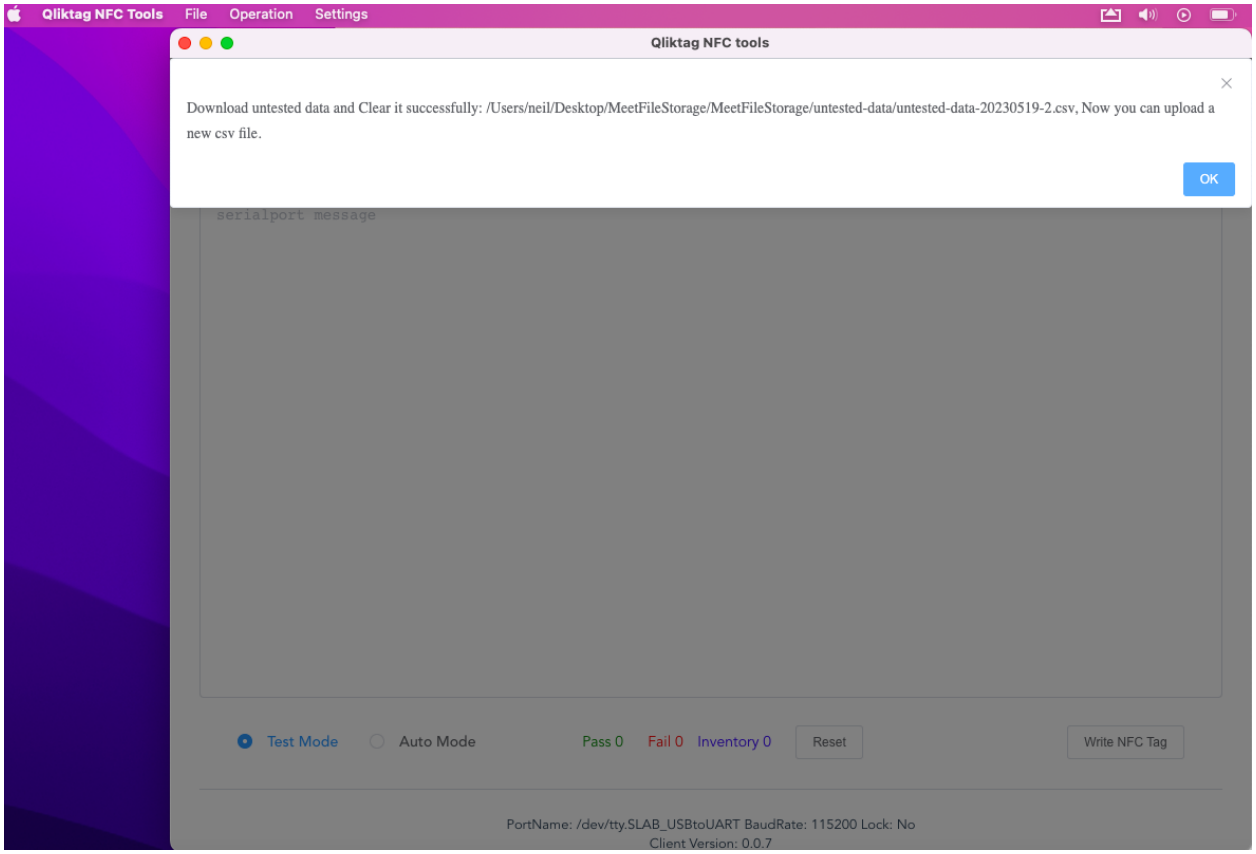
To do this, from the top main menu bar, select File->Reset All Previous NFC Tag Data.



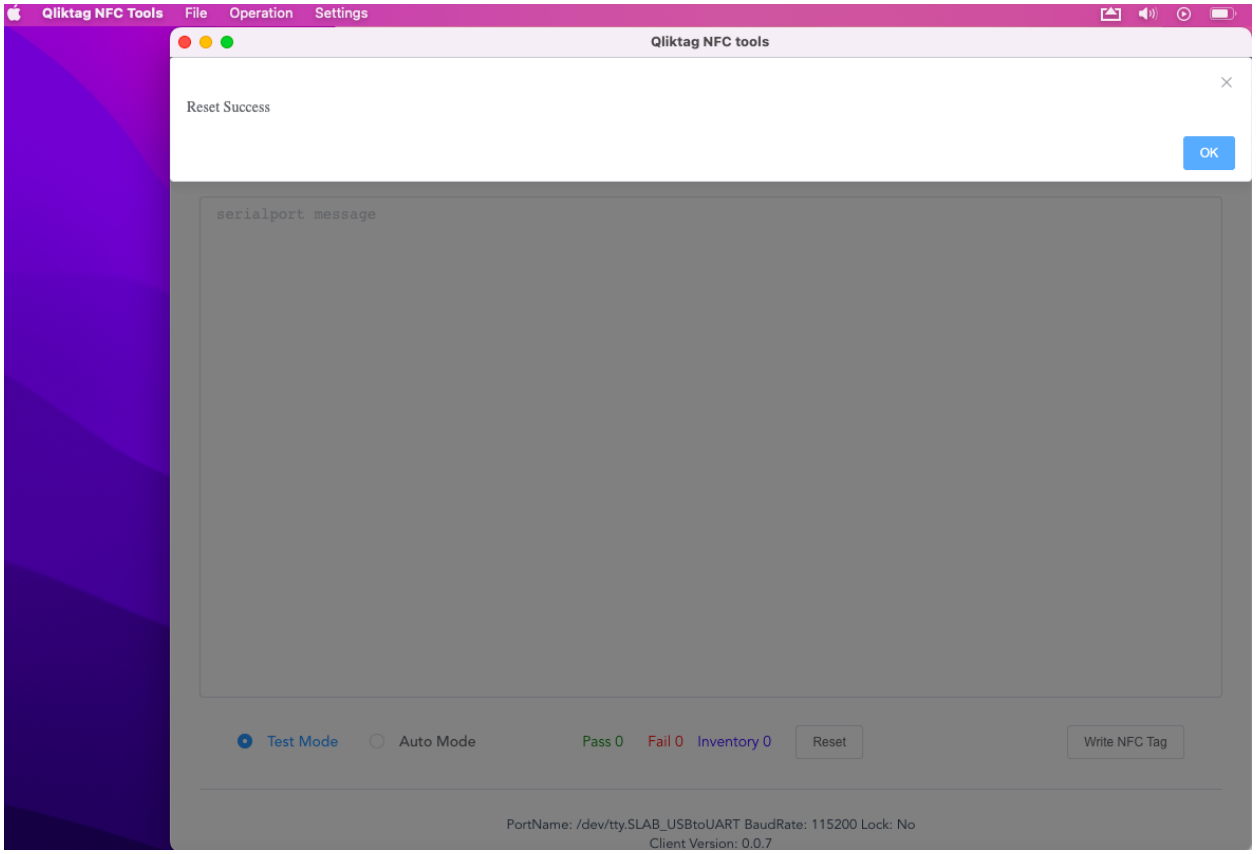
At this point, if you still have data logs for successfully written tags in the past or failed unwritten records for tags that did now previously write, the software will ask you to confirm downloading those logs first before proceeding. This will be mandatory to accept and download before moving ahead.


Qliktag NFC Tools
File
Operation
Settings
Qliktag NFC tools
Download Success: /Users/neil/Desktop/MeetFileStorage/MeetFileStorage/tested-data/tested-data-20230519.csv
OK
serialport message
Test Mode
Auto Mode
Pass 0
Fail 0
Inventory 0
Reset
Write NFC Tag
PortName: /dev/tty.SLAB_USBtoUART BaudRate: 115200 Lock: No
Client Version: 0.0.7

Click “OK”


Qliktag NFC Tools
File
Operation
Settings
Qliktag NFC tools
Download untested data and Clear it successfully: /Users/neil/Desktop/MeetFileStorage/MeetFileStorage/untested-data/untested-data-20230519-2.csv, Now you can upload a new csv file.
OK
serialport message
Test Mode
Auto Mode
Pass 0
Fail 0
Inventory 0
Reset
Write NFC Tag
PortName: /dev/tty.SLAB_USBtoUART BaudRate: 115200 Lock: No
Client Version: 0.0.7

Click “OK”



Click “OK”

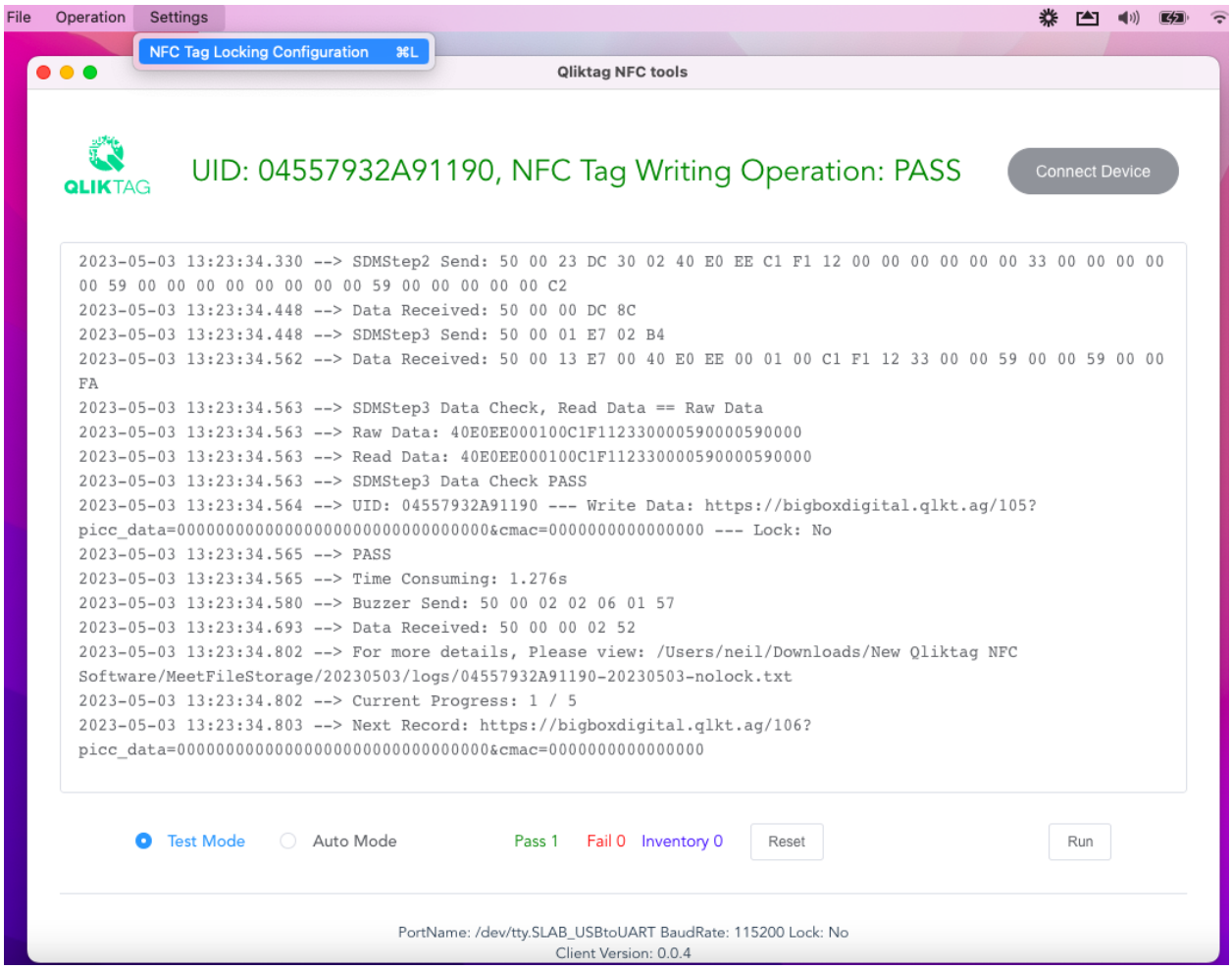
Once the reset has been completed, you can reuse or rewrite previously written NFC tags as long as they have not been “locked”.

2.3 Additional Settings

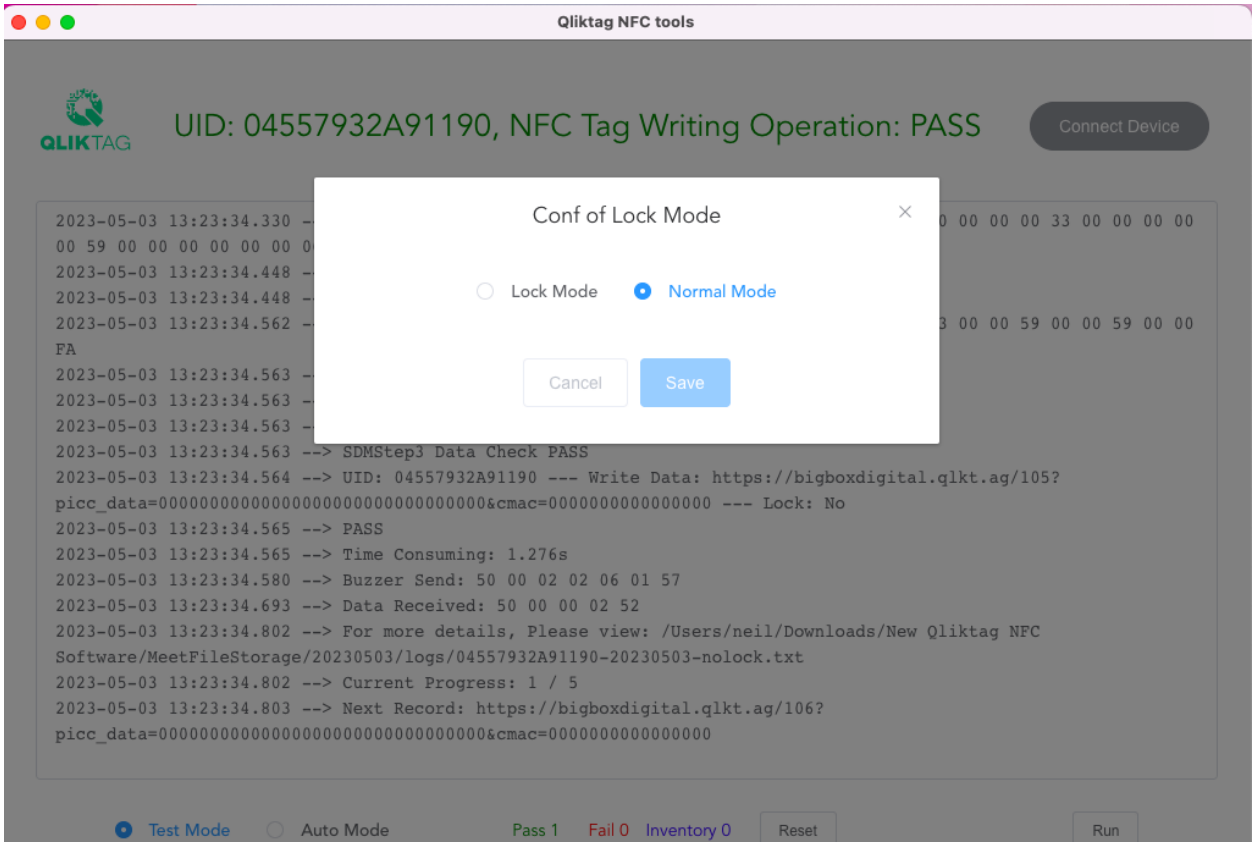
2.3.1 Locking The NFC Tags

The NFC tags can be “locked” or set to a restricted mode once encoded / written after which they can never be overwritten or edited in any way again. The software has a lock-mode which can be enabled to lock the tags once written so those tags can not be reused, tampered with or overwritten by anyone after the first write. It is important to note that this lock-mode is permanent and a tag can not be unlocked or made writable again once locked so if you’re testing with the tags and reusing them to encode different URLs, you may want to keep the settings on “Normal Mode”. However, if you are encoding your tags for final production purposes and do not want anyone in future to be able to change the contents of the tag or overwrite them, then the “Lock Mode” is preferable.

To set the configuration for locking NFC tags within the top menu options, select Settings->NFC Tag Locking Configuration.



This will bring up a pop up window with the Tag locking configuration. To enable the tags to be reused or overwritten after encoding / writing the tags, select the “Normal Mode” radio button option and click “Save”. To have the tags locked permanently so that they can not be overwritten once encoded / written, select the “Lock Mode” radio button option and click “Save”. If this option is selected, once the software writes to the tag, the tag lock settings will also be written to the tag and the NFC tag will no longer be writable or can not be edited by anyone going forward.


Qliktag NFC tools
QLIKTAG
UID: 04557932A91190, NFC Tag Writing Operation: PASS
Connect Device
Conf of Lock Mode
Lock Mode
Normal Mode
Cancel
Save
2023-05-03 13:23:34.563 --> SDMStep3 Data Check PASS
2023-05-03 13:23:34.564 --> UID: 04557932A91190 --- Write Data: https://bigboxdigital.qlkt.ag/105?
picc_data=00000000000000000000000000000000&cmac=0000000000000000 --- Lock: No
2023-05-03 13:23:34.565 --> PASS
2023-05-03 13:23:34.565 --> Time Consuming: 1.276s
2023-05-03 13:23:34.580 --> Buzzer Send: 50 00 02 02 06 01 57
2023-05-03 13:23:34.693 --> Data Received: 50 00 00 02 52
2023-05-03 13:23:34.802 --> For more details, Please view: /Users/neil/Downloads/New Qliktag NFC
Software/MeetFileStorage/20230503/logs/04557932A91190-20230503-nolock.txt
2023-05-03 13:23:34.802 --> Current Progress: 1 / 5
2023-05-03 13:23:34.803 --> Next Record: https://bigboxdigital.qlkt.ag/106?
picc_data=00000000000000000000000000000000&cmac=0000000000000000
Test Mode
Auto Mode
Pass 1
Fail 0
Inventory 0
Reset
Run