INP3000 Programmer Board

The INP3000 programmer board provides a programming interface for Talaria TWO modules. It can be used with scripts found in the Talaria TWO SDK.

# Prerequisites

1. Talaria TWO SDK
2. PC with Windows 10 or higher
3. Eclipse build environment setup
4. libusbK driver for Windows

# Generating the Application Image

This section describes generating an application image (.img) and its virtual image (.img.vm) using the ELF.

## In Windows

An application image and its virtual image must be generated over command line for programming the application over JTAG/SWD. From the SDK directory, execute the following steps to generate the application image:

|  |
| --- |
| python .\script\boot.py --output app.img <path to the generated elf> <boot argument 1> <boot argument 2> |

For Example:

|  |
| --- |
| python .\script\boot.py --output app.img .\examples\http\_client\bin\http\_client.elf host=httpbin.org path=/json port=443 secured=1 method=get ca\_cert=/data/httpbin\_ca.pem ssid=InnoPhase\_AE\_AP passphrase=innophaseae |

This command generates the app.img and app.img.vm in the current directory.

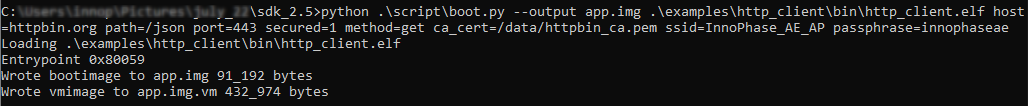


Figure 4: Generating the application image – Windows

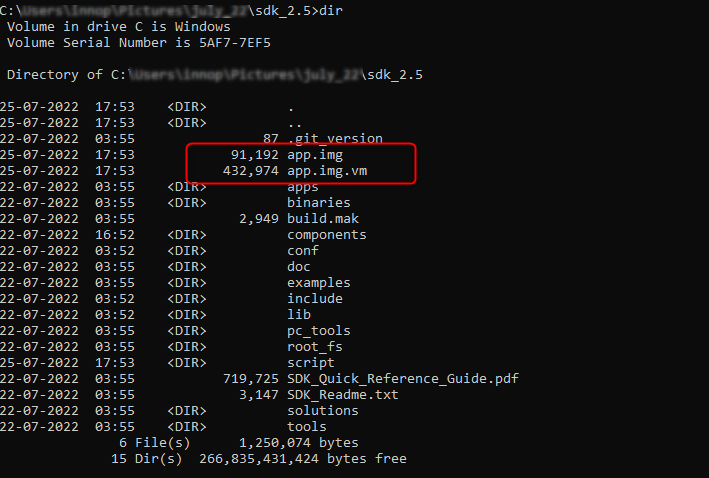


Figure 5: Application image and its VM image – Windows

## In Linux

To generate the application image in Linux, execute the following command from the SDK directory

|  |
| --- |
| sudo python3 ./script/boot.py --output <application image name> <path of the application> |

For example:

|  |
| --- |
| sudo python3 ./script/boot.py --output app.img ./examples/http\_client/bin/http\_client.elf host=httpbin.org path=/json port=443 secured=1 method=get ca\_cert=/data/httpbin\_ca.pem ssid=InnoPhase\_AE\_AP passphrase=innophaseae |

This command generates the app.img and app.img.vm in the current directory.

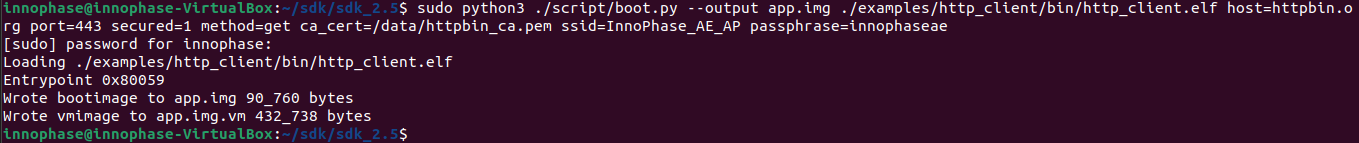


Figure 6: Generating the application image – Linux

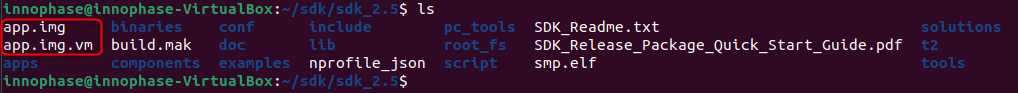


Figure 7: Application image and its VM image – Linux

# Generating the Data FS Image

Data image is a user file system which is a .img format. Data FS contains user defined configurations or application specific information, such as network configuration file, certificates, user data and so on. This image should be written over DATA partition which starts from sector 256. The data partition has a total of 240 sectors to write user data files.

This section describes generating the data image with certificates.

## In Windows

This section describes generating the file system image and loading it onto the Talaria TWO module file system.

In this example, the data FS is generated using certificates. The certificate is used to authenticate the server for HTTP/MQTT connection.

Copy the required files or certificates to the directory data, and execute the following instruction which generates an image file which needs to be flashed to Talaria TWO:

For generating data.img in Windows, execute the following command from the SDK directory:

|  |
| --- |
| .\tools\mklittlefs\mklittlefs -s 40000 -c < path to the data folder which needs to be updated > .\< path to store the generated data.img>\data.img |

**Note:** For example, the http\_client application needs a certificate to connect to the server. Copy the files to the data directory and execute this instruction to create a data.img:

|  |
| --- |
| .\tools\mklittlefs\mklittlefs.exe -s 0x40000 -c .\examples\http\_client\cert\data .\data.img |

This command generates data.img in the current directory.



Figure 8: Generating the data image - Windows

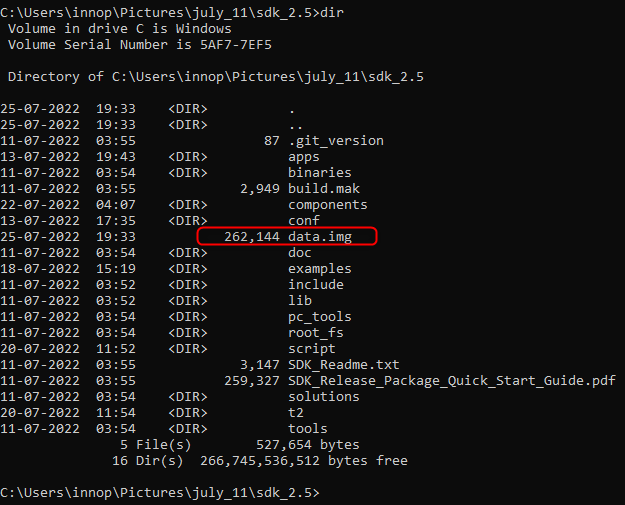


Figure 9: Generated data image – Windows

## In Linux

For generating data.img in Linux, execute the following command from the SDK directory:

|  |
| --- |
| ./tools/mklittlefs/mklittlefs -s 40000 -c < path to the data folder which needs to be updated > < path to store the generated data.img> |

**Note:** For example, the http\_client application needs a certificate to connect to the server. Copy the files to the data directory and execute this instruction to create a data.img:

|  |
| --- |
| ./tools/mklittlefs/mklittlefs -s 40000 -c ./examples/http\_client/cert/data/ ./data.img |

This command generates data.img in the current directory.



Figure 10: Generating the data image - Linux

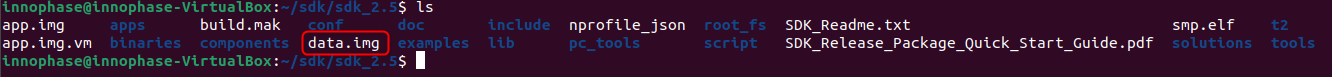


Figure 11: Generated data image -Linux

# Programming Talaria TWO over UART

# Programming Talaria TWO over JTAG

# Programming Talaria TWO over SWD