



Getting Started with pyAerial

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Pre-requisites

Running pyAerial requires its own container, which also contains machine learning tools commonly used together with pyAerial:

- [NVIDIA Sionna](#) (version 0.16.2)
- [NVIDIA TensorRT](#) (version 8.6.0)
- [TensorFlow](#) (version 2.15.0)

To create and launch the pyAerial container, the following are needed:

- NVIDIA Aerial CUDA-Accelerated RAN container
- [Docker](#) installation
- [hpccm](#) installation

Once the above pre-requisites are fulfilled, the pyAerial container is built using the following script:

```
AERIAL_BASE_IMAGE=nvcr.io/qhrjhjrjvlsbu/aerial-cuda-accelerated-ran:24-1-cubb  
$cuBB_SDK/pyaerial/container/build.sh
```

The container can then be launched using the following script:

```
$cuBB_SDK/pyaerial/container/run.sh
```

Testing the installation

To test that the installation works, the example Jupyter notebooks can be run as described below. Alternatively, the unit tests can be run as follows:

```
$cuBB_SDK/pyaerial/scripts/run_unit_tests.sh
```

Note : Unit tests are based on Aerial CUDA-Accelerated RAN test vectors. Those need to be mounted within the pyAerial container, and environment variable `TEST_VECTOR_DIR` set to point to the test vector directory. Refer to the Aerial CUDA-Accelerated RAN documentation on how to generate the test vectors.

One simple way to test the installation is to run (within the pyAerial container):

```
python3 -c "import aerial"
```

which should pass without errors.

Running the example Jupyter notebooks

NVIDIA pyAerial contains a number of example notebooks in Jupyter notebook format. The Jupyter notebooks can be run interactively within the pyAerial container using JupyterLab. This is done by starting a JupyterLab server as follows:

```
cd $cuBB_SDK/pyaerial/notebooks jupyter lab --ip=0.0.0.0
```

and then pointing the browser to the given address. Note that the Aerial Data Lake notebooks require require the example database to be created first. Refer to Aerial Data Lake documentation on how to start the clickhouse server and create the example database.

Pre-executed versions of the notebooks are found here: [Examples of Using pyAerial](#).

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