# Software Manual

NVDLA has a full software ecosystem including support from compiling network to inference. Part of this ecosystem includes the on-device software stack, a part of the NVDLA (../glossary.html#term-1) open source release; additionally, NVIDIA will provide a full training infrastructure to build new models that incorporate Deep Learning, and to convert existing models to a form that is usable by NVDLA (../glossary.html#term-1) software. In general, the software associated with NVDLA (../glossary.html#term-1) is grouped into two parts: the Compiler library (compilation_tool.html#compiler-library) (model conversion), and the Runtime environment (runtime_environment.html#runtime-environment) (run-time software to load and execute compiled neural network on NVDLA (../glossary.html#term-1)). The general flow of this is as shown in the figure below;
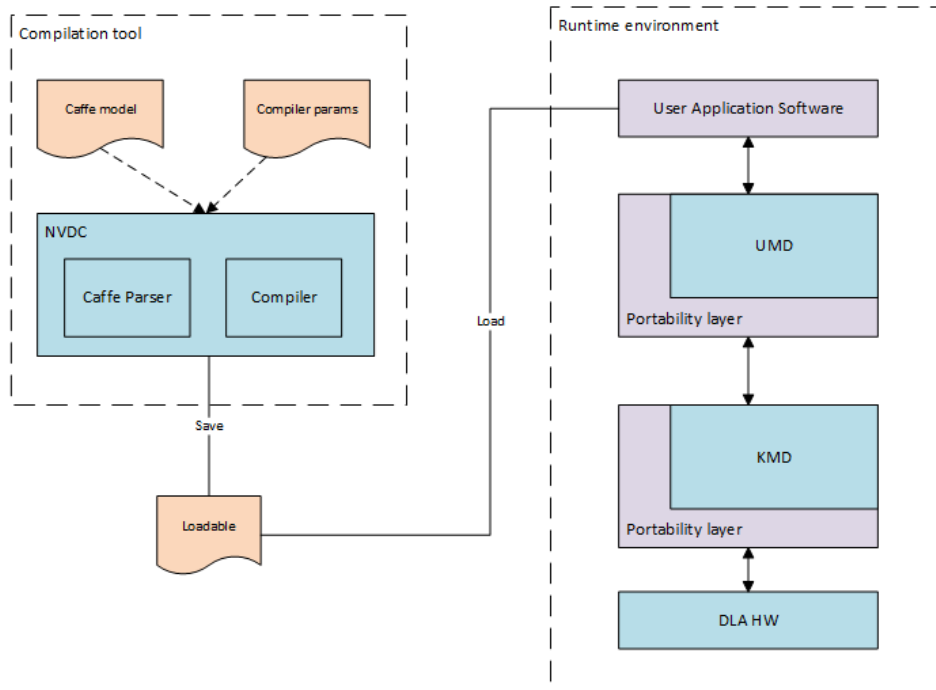
(.._/images/software_package.png)

- Compiler library (compilation_tool.html)
    - Parser (compilation_tool.html#parser)
    - Compiler (compilation_tool.html#compiler)
- Runtime environment (runtime_environment.html)
    - User Mode Driver (runtime_environment.html#user-mode-driver)
    - Kernel Mode Driver (runtime_environment.html#kernel-mode-driver)
- Test applications (test_application.html)
    - Compiler sample application (test_application.html#compiler-sample-application)
    - Runtime sample application (test_application.html#runtime-sample-application)

Browsing Source Code

- top (https://github.com/nvdla/sw (https://github.com/nvdla/sw))
    - umd: User Mode Driver (runtime_environment.html#user-mode-driver)
        - apps: Sample applications
            - **compiler:** Compiler sample application (test_application.html#compiler-test-app)
            - **runtime:** Runtime sample application (test_application.html#runtime-test-app)

- **core:** NVDLA specific implementation of user mode components
  - **runtime:** Runtime environment (runtime_environment.html#runtime-environment)
  - **compiler:** Compiler library (compilation_tool.html#compiler-library)
  - **include:** Application Programming Interface (runtime_environment.html#umd-api)
  - **common:** Implementation shared between runtime and compiler such as loadable and logging

- **external:** External modules used in UMD such as flatbuffers
- **make:** Make files
- **port:** Portability layer (runtime_environment.html#umd-layer)
  - **linux:** Portability layer for Linux

- **utils:** Utility functions

- **kmd: Kernel Mode Driver** (runtime_environment.html#kernel-mode-driver)
  - **Documentation:** Device tree bindings for NVDLA device
  - **firmware:** Core DLA hardware programming including HW layer scheduler
  - **include:** Core Engine Interface (runtime_environment.html#kmd-interface)
  - **port:** Portability layer (runtime_environment.html#kmd-layer)
    - **linux:** Portability layer for Linux

- **prebuilt: Prebuilt binaries**
- **regression: Test regression framework**
  - flatbufs: Pre-generated loadables for sanity tests
  - golden: Golden results
  - scripts: Scripts used for test execution
  - testplan: Test plans

- **scripts: General scripts**