EIQTRN

eIQ Toolkit Release Notes

Rev.1.7 — April 17, 2023 Release notes

Document information

Information	Content
Keywords	Machine Learning, AI, TensorFlow, Neural Networks, eIQ, Computer Vision
Abstract	This document contains information about the content, new features, and limitations of the eIQ Toolkit package. eIQ Toolkit is a machine learning environment which enables its users to train and run machine learning models as efficiently as possible on NXP hardware.

Contents:

1 Overview

This document contains information about the content, new features, and limitations of the eIQ Toolkit package. eIQ Toolkit is a machine learning environment which enables its users to train and run machine learning models as efficiently as possible on NXP hardware.

Table 1.1: Component overview

Component	Version
eIQ Portal	2.8.4
Model Tool	2.8.2
DeepViewRT/ModelRunner	2.4.44
DeepViewRT Examples	1.6
DeepView Converter	2.6.0
DeepView Converter (ONNX plug-in)	2.6.0
DeepView Converter (RTM plug-in)	2.6.0
DeepView Converter (TF Lite plug-in)	2.6.2
DeepView Converter (Arm Vela plug-in)	1.0.4
DeepView Datastore	2.2.0
DeepView Importer	2.2.0
DeepViewRT	2.4.46
Modelrunner	2.2.0
Modelrunner Client	0.0.4
DeepView Trainer	2.6.1
DeepView Validator	2.6.0
DeepView Python	2.6.1
Python	3.8.10
Python – Tensorflow	2.8.0
Python – ONNX	1.11.0

Table 1.2: Third-party optional dependencies

Component	Version
CUDA	11.2 or 11.4
cuDNN	8.1.0 for CUDA 11.2 or 8.2.4 for 11.4

2 References

This release includes the following references and additional information:

- *eIQ Toolkit User's Guide* (document EIQTUG) - provides the information about the eIQToolkit.
- *eIQ Toolkit Release Notes* (document EIQTRN) - provides the release information.
- *DeepViewRT User's Manual* - provides the information about DeepViewRT inference engine.
- *Datastore User's Manual* - provides the information about Datastore API for dataset management.
- *Custom Models Note* - provides the information about creating custom models for image-classification and object-detection problems.

3 New features and fixes

- Profiling in Model Tool:
  - All eIQ Toolkit components that communicated directly with modelrunner now communicate with it through modelrunner-client.
  - Added support for profiling RTM models with OpenVX
  - Added support for profiling TFLite and RTM model on CPU
  - Added support for command line into modelrunner-client
  - Fixed display of model retrieved during profiling. Some layers had a self-loop and were disconnected from other parts of model.
- Conversion in Model Tool:
  - Fixed “No file found” error when converting model into TFLite with deepview-converter-tflite plugin
  - Fixed “conversion not supported” error message when converting model into tflite.
  - Fixed conversion from saved model to tflite.
- Extensions are now included in the installer and can be optionally installed.
- The following extensions are available:
  - Arm Vela - enables i.MX93 support
  - Watermarking - security feature to prove theft of a dataset
  - Vision Pipeline - runs the GStreamer/NNStreamer pipeline on a remote SoC
  - Explainability - analyzes predictions from a trained model
- Other fixes
  - eIQ Portal - Extension Framework
    - Fixed disposing of webview workspace
  - eIQ Portal - Remote Devices
    - Remote Devices screen did not properly show which devices were online and which were not

4 Known issues and workarounds

The following list specifies the current known issues (which may impact the user experience) and workarounds:

- Do not use Batch Sizes of less than 4 in eIQ Portal.
- Validation may not work when Proxy Settings are enabled.
- Issues observed for ONNX to TFLite conversions due to differences between the 2 formats and third-party library usage, but since the last version they were significantly improved. Specifically this applies to models originating from PyTorch.
- Issues observed for H5/TF Lite to ONNX conversions due to differences between the 2 formats and third-party library usage.
- Issues observed in quantized conversions from the TF SavedModel format.
- Unable to quantize LSTM layer in TF Lite.
- Missing icon for Model Tool on Linux.
- Conversion from ONNX to TF Lite has performance issues due NHWC/NCHW layout change and addition of Transpose layers

5 Revision history

Table 5.1: Revision history

Revision number	Date	Substantive changes
0	15 June 2021	Initial release of eIQ Toolkit 1.0.3
1	24 June 2021	Updated release of eIQ Toolkit 1.0.5
2	19 October 2021	Updated release of eIQ Toolkit 1.1.8
3	18 January 2022	Updated release of eIQ Toolkit 1.2.5
4	31 March 2022	Updated release of eIQ Toolkit 1.3.4
5	8 July 2022	Updated release of eIQ Toolkit 1.4.5
6	3 October 2022	Updated release of eIQ Toolkit 1.5.2
7	1 February 2023	Updated release of eIQ Toolkit 1.6
8	17 April 2023	Updated release of eIQ Toolkit 1.7

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Date of release: April 17, 2023