

EIQTRN

eIQ Toolkit Release Notes

Rev.1.6 — February 1, 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.



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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	2.7.12
eIQ Model Tool	2.7.5
DeepView Converter	2.5.16
DeepView Converter (ONNX plug-in)	2.5.20
DeepView Converter (RTM plug-in)	2.5.24
DeepView Converter (TF Lite plug-in)	2.5.19
DeepView Converter (Arm Vela plug-in)	1.0.4
DeepView Datastore	2.5.19
DeepView Importer	2.1.20
DeepViewRT	2.4.46
DeepView Modelrunner	2.1.24
DeepView Trainer	2.5.11
DeepView Validator	2.5.7
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

- New profiler
 - Profiling has been reworked and now provides detailed information about performance and memory consumption of every layer. 2 types of graphs are displayed - optimized graph being run on the device and the original TF Lite graph. Only TF Lite is currently supported, but you may expect support for other formats and HW in future release of eIQ Toolkit.
- Arm Vela/i.MX93 support
 - i.MX93/Arm Vela profiler was added. It works offline (without a board) by running a simulation.
 - Model Tool/DeepView Converter support model conversion
- Tooltips for Weight Clustering and Pruning were added
- Fixed cases where importing a TFDS dataset caused eIQ Portal to get stuck on the importing popup
- Extended Extension Framework API (see eIQ Toolkit User's Guide)
 - Added ordering of menu entries
 - In the Menu, arguments can be passed to a command handler to inform it of the context
 - In the Menu, a tag can be chosen for the menu item container
 - Webviews were split into Webviews and Webview Workspaces. This change breaks compatibility with extensions used in previous versions of eIQ Toolkit.
 - Active trained model and model checkpoint can be retrieved.
 - Added model namespace for retrieving installed model plugins
 - Improved PythonRunner

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 2formats 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 2formats 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

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