



NVIDIA DIGITS DEVBOX

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Release Notes for DIGITS DEVBOX



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Chapter 1.

ABSTRACT

The NVIDIA® DIGITS DevBox Software Image is tuned and optimized to deliver maximum performance of the deep learning frameworks on the DIGITS DevBox system, built and shipped by NVIDIA® Corporation.

Chapter 2.

UPDATES IN REFRESH 3 (MAY 2017)

This section lists the changes in the NVIDIA® DIGITS™ DevBox software, Refresh 3 (May 2017):

- ▶ NVIDIA DIGITS Software updated to version 5.0
- ▶ NVIDIA Linux Display Driver updated to version 375.26
- ▶ NVIDIA CUDA toolkit updated to CUDA 8.0.61
- ▶ NVIDIA cuDNN updated to cuDNN v5 (version 5.1.10)
- ▶ NVIDIA Caffe updated to version 0.15.13 <https://github.com/NVIDIA/caffe/releases/tag/v0.15.13>
- ▶ NVIDIA Torch7 is updated to version 0.9.99
- ▶ Theano is updated to version 0.9.0

See the [DIGITS DevBox Update Guide](#) for instructions on how to perform an over-the-network update.

Chapter 3.

UPDATES IN REFRESH 2 (FEB 2016)

This section lists the changes in the NVIDIA DIGITS DevBox software, Refresh 2 (Sept 2016):

- ▶ NVIDIA DIGITS Software updated to version 3.0.0-1
- ▶ NVIDIA cuDNN library updated to libcudnn v4 (version 4.0.7)
- ▶ NVIDIA Caffe updated to version 0.14.2-1 <https://github.com/NVIDIA/caffe/releases/tag/v0.14.2>
- ▶ NVIDIA Torch7 is updated to version 0.9.92

Chapter 4.

UPDATES IN REFRESH 1 (SEPT 2015)

This section lists the changes in the NVIDIA DIGITS DevBox software, Refresh 1 (Sept 2015):

- ▶ NVIDIA DIGITS Software updated to version 2.0
- ▶ NVIDIA Linux Display Driver updated to version 352.41
- ▶ NVIDIA CUDA toolkit updated to CUDA 7.5
- ▶ NVIDIA cuDNN updated to cuDNN v3 (version 7.0.64)
- ▶ Caffe updated to version 0.13.1 <https://github.com/NVIDIA/caffe/releases/tag/v0.13.1>
- ▶ Theano updated to version 0.7.1 <https://github.com/Theano/Theano/releases/tag/rel-0.7.1a1>
- ▶ Torch is updated: <https://github.com/torch/distro/tree/master/extra> and <https://github.com/torch/nn/tree/getParamsByDevice>, with cuDNN v3 integration from <https://github.com/soumith/cudnn.torch>

Chapter 5.

IN-THE-BOX SOFTWARE COMPONENTS

This section provides a list of all software components included in the in-the-box package with the associated installation locations:

- ▶ Ubuntu 14.04.2 <http://releases.ubuntu.com/14.04/> from Canonical Ltd. Ubuntu and Canonical are registered trademarks of Canonical Ltd.
- ▶ NVIDIA Linux Display Driver version 346.63.
- ▶ NVIDIA CUDA toolkit versions 7.0 and 6.5. Production toolkit release notes can be found at: <http://docs.nvidia.com/cuda/index.html> The CUDA toolkits are installed under /usr/local/cuda-7.0/ and /usr/local/cuda-6.5/ folders.
- ▶ NVIDIA cuDNN v2 production (version 6.5.48) GPU-accelerated library of primitives for deep neural networks.
- ▶ NVIDIA DIGITS which is an interactive environment for training, evaluating, and experimenting with neural networks. Version 1.0.3 is installed under /usr/share/digits, with a web interface accessible at <http://localhost>. The packaged version of DIGITS is from: <https://github.com/NVIDIA/DIGITS/releases/tag/v1.0.3>
- ▶ Caffe is installed under /usr/bin and the Caffe python interface is under /usr/lib/python2.7/dist-packages. This installation of Caffe is built from source at: <https://github.com/NVIDIA/caffe/releases/tag/v0.10.0>
- ▶ Torch is installed system-wide, with the Torch Lua modules under /usr/local. Torch is packaged from the following commit: <https://github.com/torch/distro/commit/e0c565120622f99ef6e1ca7fcca66cfe2da34fc>
- ▶ Theano 0.7.0 is installed under /usr/lib/python2.7/dist-packages. The packaged Theano is from <https://pypi.python.org/pypi/Theano/0.7.0>
- ▶ BIDMach version 1.0.0 is installed under /usr/share/bidmach and the 'bidmach' helper script is located in /usr/bin. The packaged BIDMach is from the 1.0.0 release tarball at: <http://bid2.berkeley.edu/bid-data-project/download/>

Chapter 6. KNOWN ISSUES

At the time of the release no known defects have been found that affect the use of this software.

Chapter 7.

ACKNOWLEDGEMENTS

MNIST DATA: The DIGITS tutorial uses the "MNIST" dataset from: <http://yann.lecun.com/exdb/mnist/>

The original MNIST dataset was transformed by computing $\text{pixel_value} = 255 - \text{pixel_value}$ to convert from black background to white background, and encoded in PNG format. During training in DIGITS, each pixel is normalized as follows: $\text{normalized_pixel} = (\text{original_pixel} - m) / 255$ where m is the global mean across all the pixels in the training set, and 255 is the range of pixel values.

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