



NPS-400 EZdk Installation Guide

Rev 2.3

Software Version 18.0400.00



NOTE:

THIS HARDWARE, SOFTWARE OR TEST SUITE PRODUCT ("PRODUCT(S)") AND ITS RELATED DOCUMENTATION ARE PROVIDED BY MELLANOX TECHNOLOGIES "AS-IS" WITH ALL FAULTS OF ANY KIND AND SOLELY FOR THE PURPOSE OF AIDING THE CUSTOMER IN TESTING APPLICATIONS THAT USE THE PRODUCTS IN DESIGNATED SOLUTIONS. THE CUSTOMER'S MANUFACTURING TEST ENVIRONMENT HAS NOT MET THE STANDARDS SET BY MELLANOX TECHNOLOGIES TO FULLY QUALIFY THE PRODUCT(S) AND/OR THE SYSTEM USING IT. THEREFORE, MELLANOX TECHNOLOGIES CANNOT AND DOES NOT GUARANTEE OR WARRANT THAT THE PRODUCTS WILL OPERATE WITH THE HIGHEST QUALITY. ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT ARE DISCLAIMED. IN NO EVENT SHALL MELLANOX BE LIABLE TO CUSTOMER OR ANY THIRD PARTIES FOR ANY DIRECT, INDIRECT, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES OF ANY KIND (INCLUDING, BUT NOT LIMITED TO, PAYMENT FOR PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY FROM THE USE OF THE PRODUCT(S) AND RELATED DOCUMENTATION EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.



Mellanox Technologies
350 Oakmead Parkway Suite 100
Sunnyvale, CA 94085
U.S.A.
www.mellanox.com
Tel: (408) 970-3400
Fax: (408) 970-3403

© Copyright 2017. Mellanox Technologies Ltd. All Rights Reserved.

Mellanox®, Mellanox logo, Accelio®, BridgeX®, CloudX logo, CompustorX®, Connect-IB®, ConnectX®, CoolBox®, CORE-Direct®, EZchip®, EZchip logo, EZappliance®, EZdesign®, EZdriver®, EZsystem®, GPUDirect®, InfiniHost®, InfiniBridge®, InfiniScale®, Kotura®, Kotura logo, Mellanox CloudRack®, Mellanox CloudXMellanox®, Mellanox Federal Systems®, Mellanox HostDirect®, Mellanox Multi-Host®, Mellanox Open Ethernet®, Mellanox OpenCloud®, Mellanox OpenCloud Logo®, Mellanox PeerDirect®, Mellanox ScalableHPC®, Mellanox StorageX®, Mellanox TuneX®, Mellanox Connect Accelerate Outperform logo, Mellanox Virtual Modular Switch®, MetroDX®, MetroX®, MLNX-OS®, NP-1c®, NP-2®, NP-3®, Open Ethernet logo, PhyX®, PlatformX®, PSIPHY®, SiPhy®, StoreX®, SwitchX®, Tiler®, Tiler logo, TestX®, TuneX®, The Generation of Open Ethernet logo, UFM®, Unbreakable Link®, Virtual Protocol Interconnect®, Voltaire® and Voltaire logo are registered trademarks of Mellanox Technologies, Ltd.

All other trademarks are property of their respective owners.

For the most updated list of Mellanox trademarks, visit <http://www.mellanox.com/page/trademarks>



Table of Contents

Table of Contents	3
Release Update History	4
Chapter 1 Introduction	5
Chapter 2 Folder Structure and Contents	6
Chapter 3 Documentation	7

Release Update History

Table 1 - Revision History Table

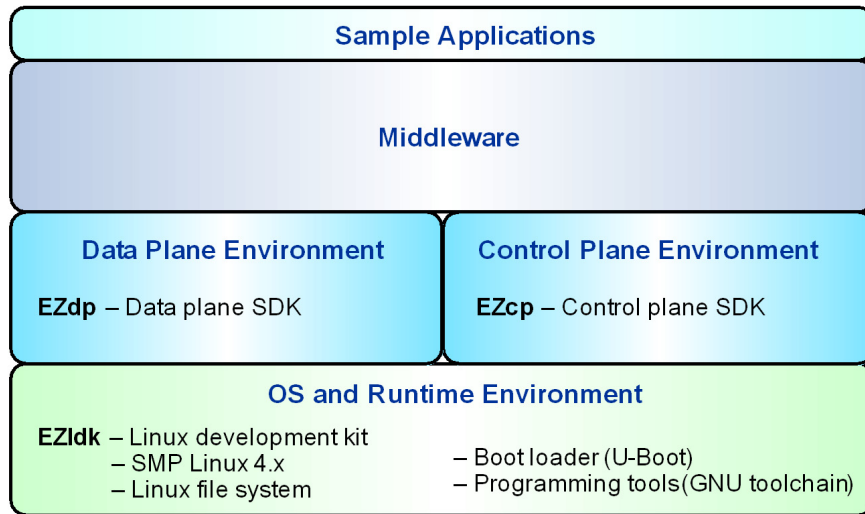
Release	Date	Description
Rev 2.3	Jan. 16, 2017	Relates to EZdk version 18.0400.00.
2.2	Sept. 5, 2016	Relates to EZdk version 18.0300.00. Listed below are changes since release 2.1a Open. “Folder Structure and Contents” on page 6 updated.
2.1 Open	July 7, 2016	Relates to EZdk version 2.1a Open.

1 Introduction

The EZdk software development kit is a comprehensive set of design and runtime tools developing both data-plane and control-plane applications for NPS devices.

Figure 1: EZdk Software Development Kit

EZdk – Software Development Kit for NPS



2 Folder Structure and Contents

Table 2 - Folder Structure and Contents

Folder	Contents
/EZdk	
/cpe	Control-plane environment libraries
/agt	Control-plane agent library
/cp	Control-plane application services library
/c2p	Config to Python library
/dev	Control-plane device access layer library
/env	Control-plane environment library
/jsonrpc-c	Jason-RPC server (used by agt library)
/libev	Event loop library (used by jsonrpc-c library)
/spy	Control-plane application spy library
/uio	User space IO Kernel driver for NPS device
/doc	Documentation
/dpe	Data-plane environment libraries
/dp	Data-plane application services library
/frame	Data-plane frame services library
/ldk	Linux Development Kit
/images	Pre-build Linux kernel image and root file-system for each target
/sources	Source packages used by Buildroot
/sysroot	Pre-built root file system, used by GDB for libraries when debugging.
/toolchain	Pre-built GNU toolchain (assembler, compiler, standard libraries, etc.)
/samples	Sample applications
/tools	Development tools
/EZcpPyLib	Python library for executing remote commands to control plane environment libraries.
/EZmodpost	Utility that assists in identifying EMEM mapped functions/variables used in fast path code
/EZware	Basic control plane application

3 Documentation

The following documentation can be found in the doc folder of the EZdk installation:

General

- *EZdk Release Notes* – provides additional information related to the release not contained in the product’s manuals.
- *EZdk Installation Guide* (this document) – provides information on EZdk installation procedure and contents.

Control Plane and Data Plane Environments

- *NPS-400 Developer’s Guide* – Describes each of the EZdk control plane libraries, data plane libraries and middleware and their respective APIs. Describes the various control plane library (EZcp) components and how they can be ported to various platforms and used to develop applications for NPS-based products.

It includes:

- EZcp – describes the Control Plane Service library (EZcp) and its related APIs. The EZcp library provides an application programming interface (API) for control-plane applications for the NPS network processor, abstracting the complexities of the underlying hardware.
- EZdev – describes the Device Access Layer library (EZdev) and its related APIs. The EZdev library defines and implements the services required for accessing NPS devices, such as detecting the devices on the PCI Express bus, mapping the devices to the CPU address space, performing memory accesses to the devices, and handling interrupt event notifications from the devices.
- EZc2p – describes the Config to Python library that allows users to export their control plane configuration into a Python file.
- EZenv – describes the Environment library (EZenv) and its related APIs. The EZenv library provides a shared runtime infrastructure for all Control Plane Environment (CPE) libraries.
- EZspy – describes the Spy tool and its related APIs.
- EZdp – describes the Data Plane Services library (EZdp) and its related APIs. The EZdp library provides an application programming interface (API) for data-plane applications running on NPS network processors, abstracting the complexities of the underlying CTOP core instruction set and various hardware accelerators.
- EZframe – provides detailed descriptions of the EZframe data plane library’s APIs.
- EZldk – provides information on configuring and building the OS runtime software for NPS targets using the Linux development kit.

Sample Applications

- *NPS-400 Demo Application* – sample data plane and control plane application designed to enable developers to quickly begin writing an application for an NPS-400 system.