Release Notes

IBM® Software Development Toolkit for Linux on Power™ 1.10.0

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Chapter 1

Introduction

The IBM SDK for Linux on Power is a free, Eclipse-based Integrated Development Environment (IDE). It integrates C/C++ source development with the Advance Toolchain and IBM XL C/C++ Community Edition Compiler. In addiction it also integrates classic Linux debugging and performance analysis tools.

This release includes materials licensed to IBM under ILAN (International License Agreement for Non-Warranted Programs). The full licensing text can be found in the licenses folder under the installation directory.

Further documentation may be found at IBM SDK for Linux on Power website.

Chapter 2

Features

- Advance Toolchain 9.0, version 9.0-5 or greater.
- Advance Toolchain 10.0, version 10.0-0 or greater.
- FDPR (Feedback Directed Program Restructuring), version 5.6.3-0.
- Pthread monitoring tool for Linux on Power, version 0.5.11-1.
- IBM Eclipse SDK, version 4.6.0.
- C/C++ Development Tools (CDT), version 9.1.0
- Eclipse Parallel Tools (PTP), version 9.1.1
- Eclipse Linux Tools, version 5.1:
  - Autotools plugin.
  - Libhover plugin.
  - ChangeLog plugin.
  - Man Page plugin.
  - Valgrind plugin.
  - OProfile plugin.
  - Perf plugin.
  - Gprof plugin.
  - Gcov plugin.
- IBM SDK plugins:
  - XL C/C++ Community Edition plugin, version 1.10.0.

  - FDPR plugin, version 1.10.0.
  - Documentation plugin, version 1.10.0.
  - Source Code Advisor plugin, version 1.10.0.
  - Trace Analyzer plugin, version 1.10.0.
  - Advance Toolchainplugin, version 1.10.0.
  - Advance ToolchainRemote plugin, version 1.10.0.
  - Migration Advisor plugin, version 1.10.0.
  - Integrated Bug Report plugin, version 1.10.0.
  - CPI Breakdown plugin, version 1.10.0.
  - Coding Assistant plugin, version 1.10.0.
  - Remote Setup Wizard plugin, version 1.10.0.
  - IBM Power Systems Performance Advisor plugin, version 1.10.0.
  - Build Advisor plugin, version 1.10.0.
  - QEMU User-Mode plugin, version 1.10.0.
  - IBM POWER Functional Simulator plugin, version 1.10.0.
  - Welcome plugin, version 1.10.0.
  - SDK Core plugin, version 1.10.0.
- IBM SDK, Java™ Technology Edition, version 8.0-3.11.
- IBM Runtime Environment, Java™ Technology Edition, 8.0-3.11.

Chapter 3

What's New on SDK 1.10.0

3.1 Built on Eclipse Neon

The SDK leverages the latest stable version of Eclipse Neon (4.6.0) provided by the IBM Eclipse SDK (IES) team.

3.2 Updated Eclipse Components

The SDK bundles the latest stable versions of Eclipse CDT, Eclipse PTP and Eclipse Linux Tools.

3.3 Support for ppc64, ppc64le and x86_64/amd64

Updated support for the three supported architectures and its main operating systems.

3.4 New Migration Wizard

The new Migration Wizard simplifies the migration process by automatically locating issues within a project, such as source code that might produce different results when run on Power. The wizard also provides an issues report and may fixes potential migration problems automatically.

3.5 New Integration with IBM POWER9 Functional Simulator

The SDK provides support for the simulator of the next generation of IBM's processor. The simulator is designed to provide enough POWER9 processor complex functionality to allow the entire software stack to execute, including loading, booting and running big and little endian Linux environments.

3.6 New Integration with Advance Toolchain 10.0

The new Advance Toolchain 10 provides a set of updates on GCC, Glibc, Binutils and includes support for IBM Power 9 processor.

3.7 New Integration with IBM XL C/C++ Community Edition Compiler

IBM™ XL C and C++ compilers offer advanced compiler and optimization technologies. The SDK now includes native support for the new Community Edition version of IBM XL C/C++ Compiler.

3.8 New Docker Management Tooling

The new Docker Tooling plug-in allow users to manage Docker Images and Containers locate in a remote machine using the client SDK running on your laptop.

3.9 New Suggestions on Build Advisor

The Build Advisor plugin now offers suggestions on the main set of flags for Advance Toolchain and IBM XL C/C++ Community Edition Compiler.

3.10 New Quick-fixes on Source Code Advisor

Two new quick-fixes in the Source Code Advisor plugin for "TOC store in loop optimization" and "Killed registers" events.

3.11 Increased built-in detection on Migration Advisor

In this new release, we have added support for more two hundred SSE built-in, making the MA 1.10 capable of detecting and migrate automatically about four hundred Intel intrinsic to altivec.

3.12 Updated Installation Resources

The simplified installation procedure with a single script to download and perform the installation of the SDK, Advance Toolchain, and IBM Power Tools repository was updated to include the IBM XL C/C++ Community Edition Compiler. Get it now!

3.13 New visualization graphics and drill down on IBM Power Systems Performance Advisor

The Performance Advisor plugin easy the profiling results visualization by using bar charts. In addiction it includes a new drill down feature which allows visualizing the source code line which might be problematic.

3.14 New resources on Cheat Sheets

The Cheat sheets provide a quick help inside the Eclipse IDE (*Help* > *Cheat Sheets*). Each cheat sheet is designed to help completing a specific task, listing the sequence of steps required to achieve that goal. The cheat sheets now provide links to the User Guide, pointing directly to the section of interest.

3.15 Bug Fixes

This version of the SDK provides several fixes that increases its usability and stability.

Chapter 4

Supported Linux Distributions

The IBM SDK for Linux on Power 1.10.0 has been tested with the Linux distributions listed below:

1. ppc64
   (a) Red Hat Enterprise Linux 7.2 and later
2. ppc64le
   (a) Red Hat Enterprise Linux 7.2 and later
   (b) SUSE Linux Enterprise Server 12 SP1
   (c) Fedora 22
   (d) Ubuntu 14.04 LTS
   (e) Ubuntu 16.04 LTS
   (f) CentOS 7
3. x86_64
   (a) Red Hat Enterprise Linux 7.2 and later
   (b) SUSE Linux Enterprise Server 12
   (c) Fedora 22
   (d) Ubuntu 14.04 LTS
   (e) Ubuntu 16.04 LTS
   (f) CentOS 7

Chapter 5

Documentation

The most recent release notes, a complete user guide and further documentation may be found at IBM SDK for Linux on Power website.

Documentation for each component of the IBM SDK for Linux on Power can be found at:

- Advance Toolchain:
  1. How to use IBM Advance Toolchain Linux on Power
  2. Performance improvements leveraging the IBM Advance Toolchain Linux on Power
- QEMU user-mode emulation
  1. Developing C/C++ cross-compiled applications for Linux on Power systems
- FDPR:
  1. Feedback Directed Program Restructuring
  2. SCA (Source Code Advisor) plugin documentation: launch the IDE and then open the Help menu. Select Help Contents, then FDPR Optimization Tools Documentation.
- Trace Analyzer:
  1. Trace Analyzer plugin documentation: launch the IDE and then open the Help menu. Select Help Contents, then Trace Analyzer User Guide.

- Eclipse Linux Tools Project:
    1. Project Site.
    2. User Guides.
- Other plugins of the IDE:
    1. Launch the IDE and thus open the Help menu. Select Help Contents, and browse through plugins documentation.