z/OS Open-Source Ports and Programs

This document summarizes the market and answers some Frequently Asked Questions (FAQ) for open source on IBM® z/OS®. This includes ports of well-known open-source products to run on z/OS and the relatively new open-source project, Zowe™, part of which runs on z/OS.

Definitions

Zowe

Zowe is a relatively new (2019) open-source project conceived from the outset to operate on z/OS. As such, no porting work was or is required for Zowe to operate on z/OS.

z/OS Open-Source Ports

z/OS Open-Source Ports refer to well-known open-source products (e.g., cURL) originally developed to run on non-Z platforms by an open-source community (e.g., https://curl.se/), and then modified (e.g., by Rocket Software) to operate on the z/OS operating system. All z/OS open-source ports are open-source products that operate on z/OS and have versions that operate on Linux, Windows, and OSX.

Open Source on z/OS

Both Zowe and z/OS Open-Source Ports are examples of open source on z/OS. Open source on Z mainframe architecture is a larger scope that also includes Linux on Z and zCX containers. The scope of this document is open-source products for the z/OS operating system only. When you run open source on Linux on Z, you are running on the mainframe, but you are not running on z/OS. Similarly, when running open source inside of a Docker container, which requires purchase of zCX, the open source is not running directly on z/OS. With both Linux on Z and zCX options, open-source programs do not have direct access to z/OS data and are effectively running on a different (virtual) machine and must interact with z/OS via TCP/IP network calls and must transfer files machine-to-machine to work with z/OS data in much the same way as if the open source was running on a different physical machine, like a Windows PC. Running open source natively on z/OS provides for direct access from open-source programs to z/OS data. This is done on Unix System Services (USS) which is a part of and tightly integrated with the rest of z/OS.

FAQ

Who develops and maintains z/OS Open-Source Ports?

According to publicly available information, only four companies self-identify as being in the business of porting and maintaining open-source programs for z/OS.

The following is a list of those companies and with the programs they maintain for z/OS:

- Rocket Software: Apache Ant; Bash; bzip2; conda; cURL; Diffutils; Git; Gzip; Libssh2; Make; mktemp; openSSL; PHP; Perl; Python*; sed; sudo; Unzip; Vim; which; zlib; zip
- IBM: Apache Spark; Python*
- Hostbridge: Redis
- DovetailedTechnologies: SFTP (depends on IBM OpenSSH which is not open source)

*IBM z/OS Python is developed and maintained by IBM with paid support available from both IBM and from Rocket Software via a reseller agreement. Rocket Software independently developed a port of Python to z/OS, however Rocket's z/OS Python is no longer maintained for version currency and support is no longer available for purchase.

Why don't open-source communities directly develop and maintain z/OS ports?

In addition to expertise in z/OS, which is a rare commodity, the work of developing, testing, and maintaining a z/OS port requires access to a z/OS system. To date, none of the communities that created and maintain any of the above listed ports have gotten access to mainframes, and most are not interested in supporting z/OS ports due to the cost and complexity of acquiring access to mainframes, and because the mainframe user base is so small relative to Linux, Windows, and OSX.

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