Today’s Presenters

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Agenda

- Introduction to Open Mainframe Project
- Zowe overview
- How to get involved
- Q&A
Open Source on Mainframe challenges

Disconnected, independent efforts; no shared “hub” of innovation

Community events are industry specific, not vendor agnostic

No place for students and academic institutions to engage

Enterprise level engagement with upstream projects limited
Thankfully, that’s where The Linux Foundation® comes in. For nearly two decades, The Linux Foundation has provided unparalleled support for open source communities through financial and intellectual resources, governance structure, IT infrastructure, services, events, and training.

Dedicated to building sustainable ecosystems around open source projects, The Linux Foundation is working with the global technology community to solve the world’s hardest problems through open source and creating the largest shared technology investment in history.

The Linux Foundation is the umbrella organization for more than 60 open source projects accelerating open technology development and commercial adoption. Some of the game-changing initiatives hosted by The Linux Foundation include:

- OPENCHAIN
- Let's Encrypt
- JS Foundation
- OPEN Container Initiative
- Cloud Native Computing Foundation
- Xen Project
- Core Infrastructure Initiative
- OPNFV
- Cloud Foundry
- node.js
- Yocto Project
## Open Mainframe Project community traction

- **3** years since launch
- **29** Supporting organizations
- **6** Hosted Mainframe centric Open Source Projects
- **100+** Students impacted through internships and academic programs

### Members

- AMC
- ADP
- Albany State University
- CA Technologies
- CLAC
- docker
- East Carolina University
- EMA
- EPSI
- Goethe Universität Frankfurt am Main
- GUIDE SHARE EUROPE un Regen
- GTSoftware
- Hochschule Coburg
- HoGent
- htl donaustadt
- IBM
- Universitat Leipzig
- MARIST
- North Carolina Agricultural and Technical State University
- Rocket
- SHARE
- SINE NOMINE ASSOCIATES
- SUSE
- ubuntu
- University of Bedfordshire
- University of Wolverhampton
- VCU
- VIEEM Infinity
- William Paterson University
Sustained mainframe support in the broad open source community through the Supported Projects program

<table>
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<tr>
<th>Infrastructure</th>
<th>Developer support</th>
<th>Market awareness</th>
<th>Governance/IP Home</th>
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<td><img src="image1.png" alt="Infrastructure" /></td>
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Participating Open Source Projects include

- debian
- alpine
- gentoo
- PostgreSQL
- fedora
Internship and academic engagement programs are putting mainframe in the hands of the next generation

**Summer Internship Program**

- 27 Interns sponsored
- 14 Supporting academic institutions
- 100+ Students impacted

**Blockchain Hackathon for EPSI University in France**

**VCU Capstone Partnership**
Telling the “mainframer” story

- Monthly interview series that highlights both new and old in mainframe
- Goal is to showcase why people have mainframe in their careers and their views of the technology and career field
- Read and listen at https://www.openmainframeproject.org/category/blog/i-am-a-mainframer
Learn more about the Open Mainframe Project

- Find out more and subscribe to our newsletter at www.openmainframeproject.org
- Organizational membership opportunities at https://www.openmainframeproject.org/about/join or email at membership@openmainframeproject.com
Agenda

- Introducing Zowe
- Quick Facts about Zowe
- Why Zowe?
- Zowe Vision Statement
- What’s in Zowe?
  - Zowe Application Framework
  - Zowe z/OS Services
  - Zowe API Mediation Layer
  - Zowe CLI
- “Demo”
- Try Zowe
Introducing Zowe

• An extensible framework for connecting applications and tools to mainframe data and applications.

• Aims to make the mainframe an integrated and agile platform within the changing IT architectural landscape.

• First open source project on z/OS. All code is licensed under the Eclipse Public License version 2.0
Quick Facts about Zowe

- First open source project on z/OS.
- Pronounced as “Zoe” – [zoh-ee] in English
  - Not an acronym – just a simple, fun and easy name
  - Using the spelling “Zowe” allowed us to trademark
- An open source project under the Open Mainframe Project (OMP), a collaborative project within the Linux Foundation
- IBM, Rocket Software and Broadcom are founding members
- Zowe Open Beta launched at SHARE on August 14th, 2018
- Zowe formally announced by the OMP at the Open Source Summit in Vancouver, Canada on August 28th, 2018
- Zowe 1.0.0 Available on Feb 8th, 2019 and announced at THINK SF 2019
  - 100% Open Source (EPL 2.0)
  - Defined extensions points
  - Framework ready for commercial exploitation
Why Zowe?

Information Technology is undergoing a revolution of changing architectures

Co-Existence With Other Cloud Models

Protecting Current and Future Investments

Simple and Familiar
Zowe Vision Statement

• Attract new people
  ✓ Demystify the Z platform
  ✓ Enhance integration and consumability
  ✓ Promote Open community of practice

• Reduce learning curve
  ✓ Improve productivity
  ✓ Modern, platform-neutral interfaces
  ✓ Cloud-like experience

• Simplify architecture
  ✓ Reduce operational overhead
  ✓ Improve co-existence
  ✓ Enable rich ecosystem of free and commercial solutions
What’s in Zowe?

Zowe Application Framework

API Mediation Layer
(Gateway, Discovery Service, Catalog)

z/OS Services

Zowe CLI
• Zowe Desktop is a virtual desktop system that offers a rich and open platform for a web-based mainframe user experience.

• **Zowe Desktop**
  - A web-based window manager that provides full screen interactive experience

• **Zowe Application Server**
  - Runs zLUX; uses Express.js as web service framework for communication between applications and z/OS services and components, pre-reqs Node.js for z/OS

• **ZSS Server**
  - Provides secured REST API services

• **Application plug-ins**
  - Dataservices, Configuration dataservice, URI broker, app-to-app communication, Error reporting UI, Logging utility

• **Explorers**
  - JES, MVS, USS explorers
  - Basic editing support for REXX and JCL
Industry standard REST interfaces to z/OS resources that are language and platform neutral, stateless and scalable

Foundational building blocks for system services

**Dataset APIs**
- Create, read, update, delete, and list data sets

**JES APIs**
- View the information and files of jobs, and submit and cancel job

**USS APIs**
- Create, read, update, and delete USS files

**System APIs**
- View information about PARMLIB, SYSPLEX, and USER
API Mediation Layer – Gateway to mainframe APIs

• Enables a single point of access to mainframe APIs with high-availability, scalability, dynamic API discovery, consistent security, “one-time” sign-on experience and unified standard API documentation (OpenAPI / Swagger)

• **Discovery Service**
  Discover APIs across many applications. Repository of active API services. Based on Netflix Eureka.

• **API Catalog**
  UI Catalog of available APIs with their Swagger doc and service status

• **Gateway**
  Single secure point of entry to an ecosystem of API services. Hides complexity. Highly available. Based on Netflix Zuul.
**Zowe CLI - Enables cloud-like access to mainframe**

- Enables app developer and DevOps engineers to interact with the mainframe easily through a CLI from any terminal on Windows, MacOS, Linux
- Easily integrates with IDEs, shell commands, bash scripts, and build tools; installs using NPM

  - **Interact with mainframe files**
    Create, edit, download, and upload mainframe files (data sets) directly
  
  - **Submit jobs**
    Submit JCL from data sets or local storage, monitor status, view and download output automatically

  - **Issue TSO and z/OS console commands**
    Issue TSO and console commands to the mainframe directly

  - **Integrate z/OS actions into scripts**
    Build local scripts that accomplish both mainframe and local tasks

  - **Produce responses as JSON documents**
    Return data in JSON format on request for consumption in other programming languages

  - **CLI Plug-Ins**
    Access to CICS and DB2
Where is Zowe Extensible? - Web UI

- **Zowe Application Framework**
  - z/OS Native Web UI for applications
  - Launch in context (i.e., right mouse click 3270 to web app)
  - App to app communication
  - Exploit graphic widgets planned for inclusion
Where is Zowe Extensible? - REST API

**z/OS Services**

- REST API enable your products
  - REST API for product controls/admin
  - Sharing of information

**API Mediation Layer**
(API Catalog, Discovery Service, Gateway)

- Opt in to API Mediation
- Participate in Single Sign On, High Availability and Status tracking capabilities
Where is Zowe Extensible? - CLI

Zowe CLI

- zos-files DS
- zos-files US
- zos-jobs
- TSO
- Console

"plug-ins"

Out of box commands

z/OSMF

REST APIs
- TSO, Console
- JES, MVS, USS

Custom Extensions

Your application, product, tool, …
Try Zowe

• Try the Zowe capabilities at zero cost, and with no installation required.

• Pre-configured, remote desktop environment

• Your trial environment comes loaded with tutorials that show you how to:
  • Get started with Zowe
  • Create and extend Zowe with new APIs
  • Create and extend Zowe Desktop with new web application
  • Create and extend Zowe CLI with new CLI commands

IBM Z software trials: https://www.ibm.com/it-infrastructure/z/resources/trial
How to get involved
Getting Involved

- We are building more than just technology; we are building a community

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<th>Extend</th>
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<td>Provide feedback, problems or recommendations to us on Slack or via email list</td>
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Get involved in the Zowe community

Join Open Source Community @
https://www.openmainframeproject.org/projects/zowe

Participate in and contribute to the Zowe developer community at zowe.org

Learn how your organization can become a steward and supporter of this project with Open Mainframe Project membership at openmainframeproject.org/about/join