

EDGE X FOUNDRY™

## TSC Meeting

April 3rd, 2024



# Antitrust Policy Notice

- Linux Foundation meetings involve participation by industry competitors, and it is the intention of the Linux Foundation to conduct all of its activities in accordance with applicable antitrust and competition laws. It is therefore extremely important that attendees adhere to meeting agendas, and be aware of, and not participate in, any activities that are prohibited under applicable US state, federal or foreign antitrust and competition laws.
- Examples of types of actions that are prohibited at Linux Foundation meetings and in connection with Linux Foundation activities are described in the Linux Foundation Antitrust Policy available at <http://www.linuxfoundation.org/antitrust-policy>. If you have questions about these matters, please contact your company counsel, or if you are a member of the Linux Foundation, feel free to contact Andrew Updegrave of the firm of Gesmer Updegrave LLP, which provides legal counsel to the Linux Foundation.

# Meeting Logistics

Time: Wednesdays 8am- 9am Pacific Time (Alternate Weeks)

Join from PC, Mac, Linux, iOS or Android: <https://zoom.us/j/983155298>

Or iPhone one-tap (US Toll): +14086380968,983155298# or +16465588656,983155298#

Or Telephone:

Dial: +1 408 638 0968 (US Toll) or +1 646 558 8656 (US Toll)

+1 855 880 1246 (US Toll Free)

+1 877 369 0926 (US Toll Free)

Meeting ID: 983 155 298

International numbers available: <https://zoom.us/zoomconference?m=mkFexUxEcqHlvXHw53PqScTDRvS48PiQ>

\*\* TSC calls are recorded and added to Wiki post-call



# EdgeX TSC Members

## Working Group Chairs:

- |                          |  |                                   |
|--------------------------|--|-----------------------------------|
| • Cloud Tsai (IOTech)    | <a href="mailto:cloud@iotechsys.com">cloud@iotechsys.com</a>             | Core & Test/QA WG Chair           |
| • Lenny Goodell (Intel)  | <a href="mailto:leonard.goodell@intel.com">leonard.goodell@intel.com</a> | Applications & Analytics WG Chair |
| • Lindsey Cheng (IOTech) | <a href="mailto:lindsey@iotechsys.com">lindsey@iotechsys.com</a>         | Device Services WG Chair          |
| • Ernesto Ojeda (Intel)  | <a href="mailto:ernesto.ojeda@intel.com">ernesto.ojeda@intel.com</a>     | Dev Ops WG Chair                  |

## At Large Members:

- Farshid Tavakolizadeh (Canonical)
- Corey Mutter (Eaton)
- Elizabeth Lee (Intel)
- Melvin Sun (Intel)
- James Butcher (IOTech)
- Darryl Mocek (Oracle)

### Current quorum = 6 members

*Note: Quorum for TSC meetings requires at least fifty percent of all voting members of the TSC to be present. The TSC may continue to meet if quorum is not met, but will be prevented from making any decisions at the meeting. Except as provided in Section 7.c. and 8.a, decisions by vote at a meeting require a majority vote of those in attendance, provided quorum is met. Decisions made by electronic vote without a meeting require a majority vote of all voting members of the TSC.*



# Today's Agenda

- Working Group Updates
- Odessa Deliveries Summary





EDGE X FOUNDRY™

## Work Group Updates

Chairs

# Working Group Chair Updates

- Around the working groups:
  - **Product Manager** - Lenny Goodell
  - **Applications** - Lenny Goodell (co-chair Elizabeth Lee)
  - **Core** - Cloud Tsai (co-chair Melody Liu)
  - **Device Services** - Lindsey Cheng (co-chair Felix Ting)
  - **DevOps** - Ernesto Ojeda
  - **Release Czar** - Bill Mahoney
  - **Outreach and Marketing**
    - **Certification** - Rodney Hess
    - **China Updates** - Melvin Sun
    - **LF Edge TAC** - Brad Corrion





# Product Manager (03/06/24) - Odessa

[Cross Cutting Issues](#)

## Icebox (1)

- Lite Builds (no security features) via Build Tags

## Backlog (3)

- **URIs For Files**
  - C services - **TBD**
- **OpenBao**
- **Go 1.22 (Feb'24) and Alpine 3.19**
  - **Released!!**  
<https://tip.golang.org/doc/go1.22>

## In Progress (4)

- **Odessa Doc Refactoring**
  - Device Services
    - Device Commands - **DONE**
    - Device Definitions - **DONE**
    - Auto Events - **DONE**
    - BacNet - **TBD**
    - COAP - **TBD**
    - RFID LLRP - **TBD**
    - SNMP - **TBD**
    - Virtual - **TBD**
  - Refactor APIs Section - **TBD**
  - Refactor Security Section - **TBD**
  - Update EdgeX Diagram - **DONE**

- **Compiler flags to Strip Debug Info**
  - edgex-go - **DONE**
  - edgex-ui - **TBD**
  - App SDK and ASC - **DONE**
  - App LLRP & App Record Replay - **TBD**
  - Device SDK and Device Services used by TAF - **DONE**
  - Remaining Device Service - **TBD**
- **Zero Trust (OpenZiti)**
  - go-mod-core-contracts - **DONE**
  - go-mod-bootstrap - **WIP PR**
  - edgex-go - **WIP PR**
  - edgex-ui - **WIP PR**
  - ekuiper - **WIP PR**
  - edgex-compose - **TBD**
  - edgex-helm - **TBD?**
- **Core Keeper - WIP**
  - go-mod-core-contracts - **DONE**
  - go-mod-registry - **DONE**
  - go-mod-configuration - **DONE**
  - edgex-go - **TBD**
  - edgex-compose - **TBD**
  - docs - **TBD**

## Done (0)

- 





# Applications WG Update (02/21/24) - Odessa

Newly Completed (0)

Newly added (0)

WIP (0)

Done for Odessa (16)

Backlog (3) <https://github.com/orgs/edgexfoundry/projects/50/views/2>

ICE BOX (0)

Next

- Compiler flags to Strip Debug Info
- Document Commands via MessageBus for App Services

eKuiper

- Latest is 1.12.7
  - <https://github.com/lf-edge/ekuiper/releases/tag/1.12.7>
- 1.13.0 releasing this week.
  - <https://github.com/lf-edge/ekuiper/milestone/23>
  - zero-trust will land in patch of 1.13

**Project Board:** <https://github.com/orgs/edgexfoundry/projects/50/views/2>



# Application Services - Napa

## Functions (built into SDK)

- Add Tags
- Batch
- Compression (GZIP & ZLIB )
- Conversion (XML & JSON)
- EventWrapper
- Encryption (AES256)
- Export
  - MQTT
  - HTTP POST & PUT
- Filtering
  - By Profile Name
  - By Device Name
  - By Source Name
  - By Resource Name
- JSONLogic
- Set Response Data
- ToLineProtocol (transforms Metric DTO)

## Features

- Store and Forward
- Batch and Send
- Web Server
- Configurable App Service
- Vault Integration for Secrets
- MQTT Event triggers
- Filter by Topics
- Custom Triggers
- Publish Topics and URL Placeholders
- Structure Custom Configuration
- ~~Background Publishing~~
- Direct Publish to MessageBus
- Received Topic
- Context Storage
- Service Metrics
- Clients
  - Logging, Event
  - Command
  - Device, DeviceService
  - DeviceProfile
  - Notification
  - Subscription
  - Registry

## Reference/Example App Services

(built on top of SDK)

### Released Services

- App Service Configurable
- App RFID LLRP Inventory
- App Record and Replay

### Examples

- Simple Filter
- Simple Filter and MQTT Export
- Simple Filter and HTTP Export
- Simple CBOR
- Cloud Export

- Cloud Event Transformation
- Secret Retrieval
- JsonLogic
- Send Command
- Convert & Publish
- Custom Target Type
- IBM Watson IoT (ASC Profile)
- Custom Trigger
- Influx DB & Flege Exports
- Camera Management



# Core WG Update (Apr 3 2024)

[Core/QA Project Board](#)

- TAF - Performance test failed - core-data, core-command, and core-metadata image size are increased around 7MB image, and requires further investigation. Ref: [Performance metrics summary](#)
- Core/QA Progress
  - Two major PRs merged (list the major PR only)
    - Add openziti support [#440](#)
    - Add Core Keeper client [#111](#)
  - WIP
    - [Core Metadata] Add "parent" field to Device objects [#4769](#)
    - Add Keeper as a new security token type during bootstrap [#649](#)
- Note
  - [Discussion] How does consul perform health check when protected by OpenZiti
    - [Decision] Since Clint's new Health Check proxy service is under OpenZiti DockerHub repository and there is no effort EdgeX release, we decided to adopt it for now until we drop Consul
  - [Future Plan] Find the alternative to redisDB (major requirement: lightweight/ arm32-supported/ not limited to in-memory database)
    - Since redisDB is now changing their license in the way similar to HashiCorp, we have lots of dependencies on redisDB so need to find an alternative. – [This change will be in the next release](#)



# Common Vulnerabilities and Exposures (CVE) Update

Cloud Tsai's analysis:

1. cJSON package issue from USB Camera Device Service.

<https://security.snyk.io/vuln/SNYK-ALPINE318-CJSON-6156886>

Remediation: Upgrade Alpine:3.18 cJSON to version 1.7.17-r0 or higher.

2. openssl issue and happens in several docker images.

<https://security.snyk.io/vuln/SNYK-ALPINE318-OPENSSL-6191692>

However, I don't know why it happens, because there is no openssl installed to those Docker images.

<https://github.com/edgexfoundry/edgex-go/blob/64231a640c2d3928f8098b6641f84e2829903aa1/cmd/security-secretstore-setup/Dockerfile#L35>

Remediation: Upgrade Alpine:3.18 openssl to version 3.1.4-r5 or higher.

3. mbedtls package issue from USB Camera Device Service

<https://security.snyk.io/vuln/SNYK-ALPINE318-MBEDTLS-6208087>

Remediation: Upgrade Alpine:3.18 mbedtls to version 2.28.7-r0 or higher.

4. expat package issue from the Coap Device Service

<https://security.snyk.io/vuln/SNYK-ALPINE318-EXPAT-6241039>

Remediation: Upgrade Alpine:3.18 expat to version 2.6.0-r0 or higher.

**I just verified the container image will upgrade libssl3 to 3.1.4-r5, so all the security CVEs can be resolved after rebuilding the images.**

**We can schedule a 3.1.1 patch release**



# OpenBao Update

- OpenBao has been formally accepted as an official LF Edge project! This will be announced at the upcoming LF ONE Summit conference alongside its Alpha release...
- Alpha release available: <https://github.com/openbao/openbao/releases/tag/v2.0.0-alpha20240329>
- Next step is for us (EdgeX) to test OpenBao in place of Vault

- James acting as EdgeX contact for OpenBao and TSC member
- Nathan Phelps (IBM) voted as TSC Chair
- Project meetings are weekly (Thursday @ 8am Pacific Time for 30 mins)
- <https://wiki.lfedge.org/display/OH/Hashicorp+Vault+Replacement+Feature+Design+Candidate>



# Device Services WG Update (3 April 2024)

- **OpenZiti Support**

- device-virtual-go
  - feat: update device-sdk to pick up openziti support [#467](#) - done
- device-sdk-go
  - feat: add openziti support [#1569](#) - done

- **New OPC-UA device service**

- device-opc-ua [repo](#) moved to edgexfoundry
- edgex-docs draft [PR](#)

- **New Python Device SDK**

- Proposed by Jieke on the Device WG meeting(26/03/2024), plan to work on the ADR



# Device Services - current/coming (as of v3.1)

## Open Source connectors:

- Modbus (TCP + RTU) in Go
- Virtual Device in Go
- SNMP in Go
- MQTT in Go
- BACnet (IP + MSTP) in C
- ONVIF Cameras in Go
- USB Cameras in Go
- REST in Go
- CoAP in C
- LLRP / RFID in Go
- GPIO in Go

## Open Source connectors (Future):

- UART in Go
- Siemens S7 in Go

## IOTech commercial connectors:

- Modbus (TCP + RTU)
- BACnet (IP + MSTP)
- OPC-UA
- BLE
- Zigbee
- GPS
- CAN (+ J1939 Extensions)
- EtherCat
- EtherNet/IP
- Siemens S7
- PROFINET
- WebSockets
- MQTT
- REST
- ONVIF
- USB Cameras





# DevOps WG and Release Czar

- Cherry Wang and Ginny Guan from the IOTech team have been added to the DevOps related repositories
- Suggesting Cherry is officially named as the EdgeX Release Czar - TSC vote required

## Recent and Upcoming Releases

Napa (3.1)

- Release Date - 2023-11-15

Odessa (3.2)

- ~Spring 2024



# Outreach Update

Biweekly LF TAC meeting (ran just prior to this meeting)

- Update TBC



# EdgeX China Update

- Melvin and Alex (both Intel) continue to lead and promote EdgeX Foundry in China
- Successful “Hybrid AI” meetup on March 16th in Hangzhou, China, covers topics including EdgeX, OpenVINO and Large Language Models (LLM)

EdgeX China community channels:

- Website: <https://cn.edgexfoundry.org/>
- OSChina: <https://www.oschina.net/group/edgex-foundry>
- CSDN: <https://blog.csdn.net/edgexfoundry>
- Zhihu: <https://www.zhihu.com/people/edgex-foundry>
- Bilibili: <https://space.bilibili.com/550595847>



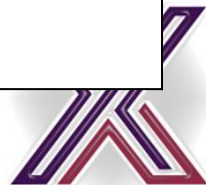


EDGE X FOUNDRY™

Other Topics

# Odessa Deliveries Summary

Theme / Title	In Scope	Priority	T-Shirt	Notes
Replace Hashicorp Consul with EdgeX-Core-Keeper <b>WIP</b>	✓	High	L	Work to update/review/approve core-edgex-keeper (code, docs, tests). Owner: IOTech and Eaton
Replace Hashicorp Vault with Open-Bao <b>Alpha available - now need to test and document</b>	✓	High	S	Liaise with Open-Bao group for delivery timing but expecting to be drop-in replacement. Only docker-compose changes needed
Zero Trust / Secure Distributed EdgeX (OpenZiti Integration) <b>WIP</b>	✓	High	M/L	ADR (now approved). Impl largely by Clint
Continue EdgeX Documentation redesign <b>WIP</b>	✓	High	M/L	Device Services, Security and API section
URI for Files - Parity for C Device Services SDK <b>Likely to slip</b>	✓	High	S	Implementation is clear. Owner: Felix. Assistance and reference impl from Elizabeth (Go)
Modelling & Relationships – Virtual Device Resources <b>Deprioritised by Eaton</b>	Now Out	Med	S	Limited to Device SDKs and Metadata. Owner: Eaton
Modelling & Relationships – Protocol Info in Device Definitions	✓ (UCR)	Med	S	UCR owner Oracle. ADR & Impl TBC
Modelling & Relationships – Device Functions	✓ (UCR)	Med	S	UCR owner Oracle. ADR & Impl TBC
Modelling & Relationships – Parent/Child Devices <b>Eaton</b>	✓ (STRETCH)	Low	S	Limited to Metadata. Owner: Eaton. Progress via attending Devices WG. Does a UCR need to be updated here?
Modelling & Relationships – Device Metadata in Provision Watchers	✓ (STRETCH)	Low	S/M	Limited to Device SDKs and Metadata. Owner: Eaton
NanoMQ – Add security to our NanoMQ option	✓ (STRETCH)	Low	S	Continue communication with EMQ team

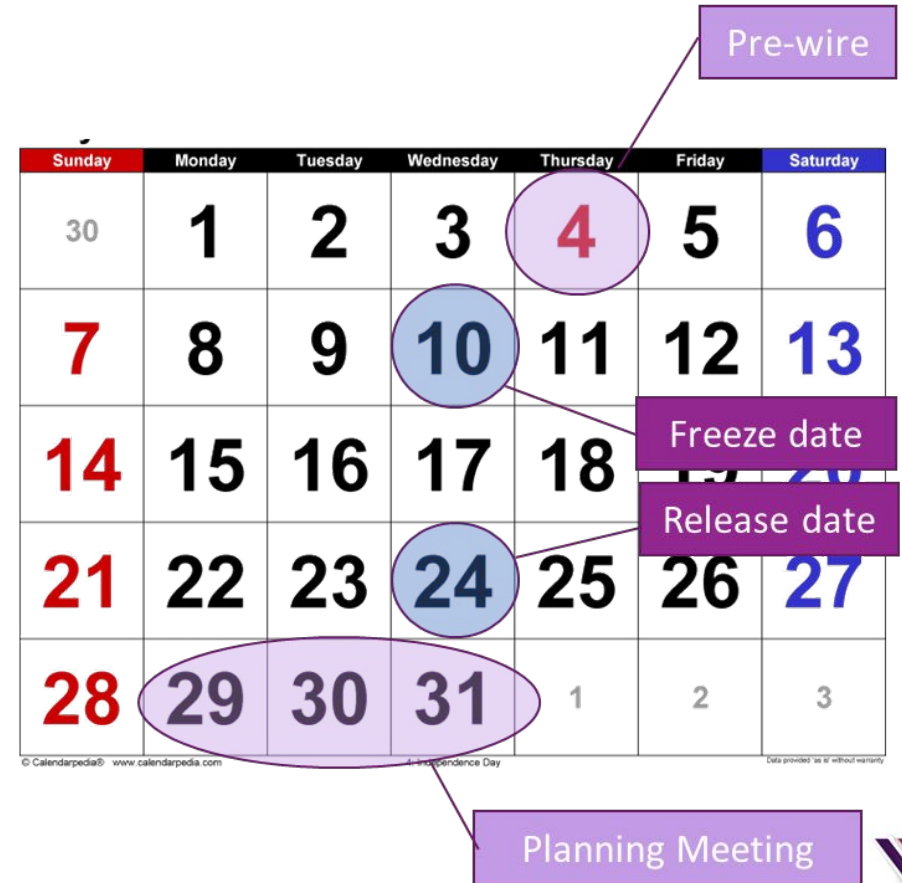


# 3.2 Odessa Release Planning

Example Calendar for Major/LTS Release



Example Calendar for Minor Release





# TSC Meeting Time

- Current meeting time of 8am Pacific / 4pm UK / Taiwan 11pm seems too difficult to include Cloud and Lindsey plus other team members (Core, Devices, DevOps)
- Propose to move to a Taiwan-friendly time, at least on alternate weeks
- <https://www.timeanddate.com/worldclock/meetingtime.html?iso=20240403&p1=136&p2=241&p3=207&p4=197>

UTC-time	London	Taipei	Raleigh	Phoenix
Tuesday, 2 April 2024, 16:00:00	Tue 17:00 *	Wed 00:00	Tue 12:00 *	Tue 09:00
Tuesday, 2 April 2024, 17:00:00	Tue 18:00 *	Wed 01:00	Tue 13:00 *	Tue 10:00
Tuesday, 2 April 2024, 18:00:00	Tue 19:00 *	Wed 02:00	Tue 14:00 *	Tue 11:00
Tuesday, 2 April 2024, 19:00:00	Tue 20:00 *	Wed 03:00	Tue 15:00 *	Tue 12:00
Tuesday, 2 April 2024, 20:00:00	Tue 21:00 *	Wed 04:00	Tue 16:00 *	Tue 13:00
Tuesday, 2 April 2024, 21:00:00	Tue 22:00 *	Wed 05:00	Tue 17:00 *	Tue 14:00
Tuesday, 2 April 2024, 22:00:00	Tue 23:00 *	Wed 06:00	Tue 18:00 *	Tue 15:00
Tuesday, 2 April 2024, 23:00:00	Wed 00:00 *	Wed 07:00	Tue 19:00 *	Tue 16:00
Wednesday, 3 April 2024, 00:00:00	Wed 01:00 *	Wed 08:00	Tue 20:00 *	Tue 17:00
Wednesday, 3 April 2024, 01:00:00	Wed 02:00 *	Wed 09:00	Tue 21:00 *	Tue 18:00
Wednesday, 3 April 2024, 02:00:00	Wed 03:00 *	Wed 10:00	Tue 22:00 *	Tue 19:00
Wednesday, 3 April 2024, 03:00:00	Wed 04:00 *	Wed 11:00	Tue 23:00 *	Tue 20:00
Wednesday, 3 April 2024, 04:00:00	Wed 05:00 *	Wed 12:00	Wed 00:00 *	Tue 21:00







EDGE X FOUNDRY™

Thank You