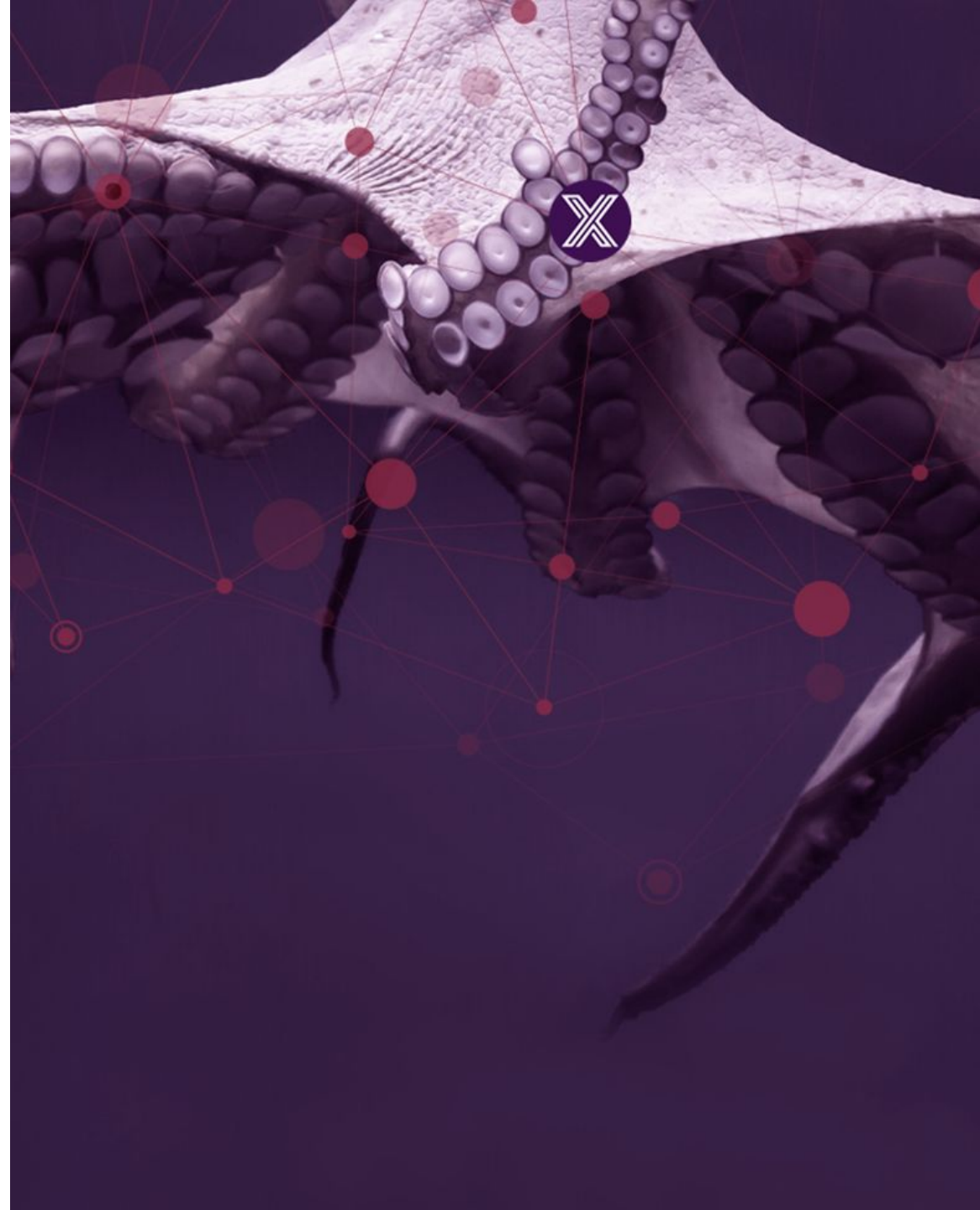


EDGE X FOUNDRY™

# TSC Meeting

November 13, 2019



# LF Antitrust Policy Notice

EdgeX Foundry 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 EdgeX Foundry 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 Updegrove of the firm of Gesmer Updegrove LLP, which provides legal counsel to the Linux Foundation.

# Meeting Logistics

Time: Wednesdays 7am PDT – 8am PDT

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)

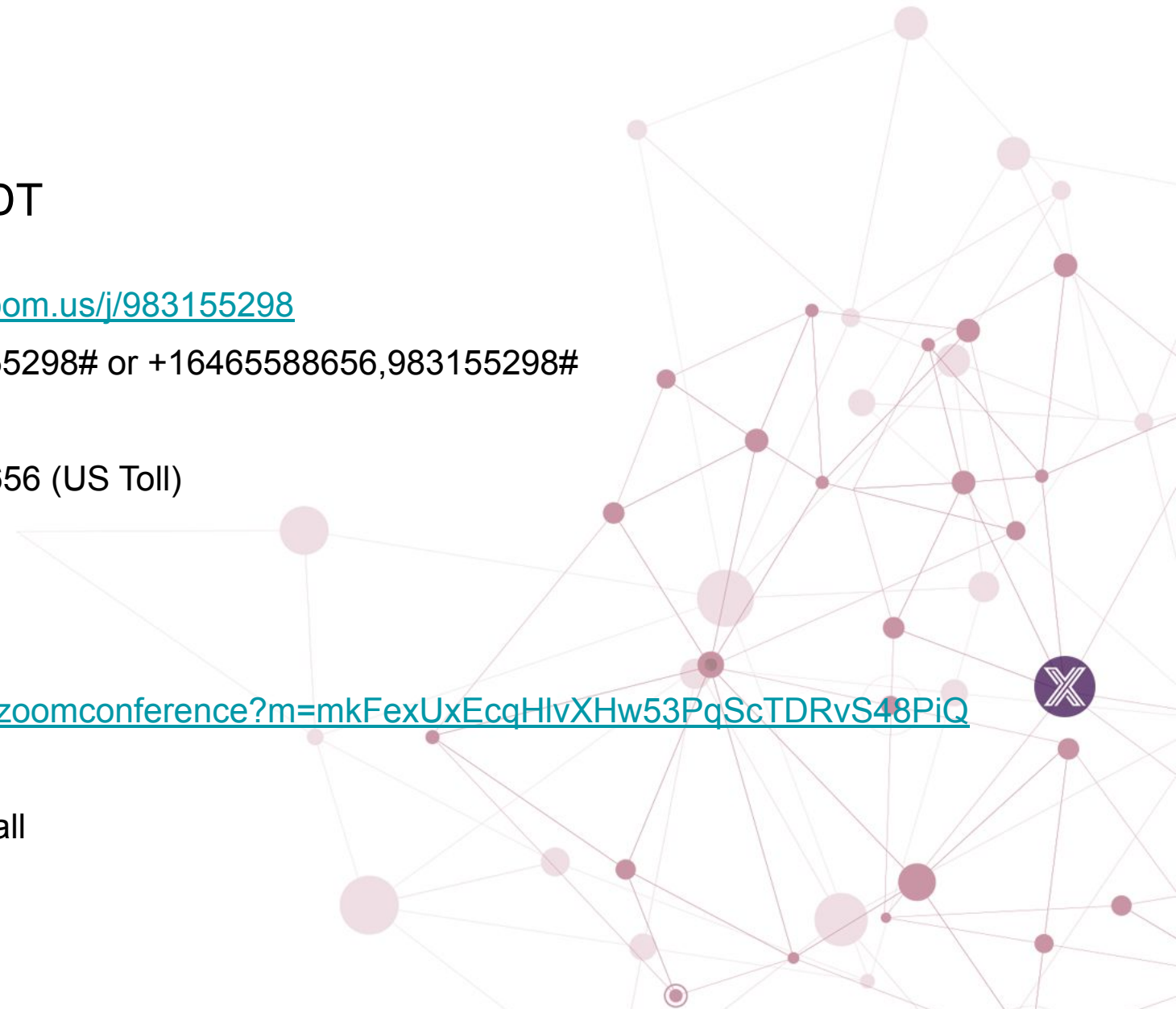
+1 855 880 1246 (US Toll Free)

+1 877 369 0926 (US Toll Free)

Meeting ID: 983 155 298

International numbers available: <https://zoom.us/join?j=983155298>

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



# TSC – Members Present Today

<u>Company</u>	<u>Name</u>	<u>Email</u>
Intel	Brad Corrion	<a href="mailto:bradley.w.corrion@intel.com">bradley.w.corrion@intel.com</a>
IOTech	Iain Anderson	<a href="mailto:iain@iotechsys.com">iain@iotechsys.com</a>
Intel	James Gregg	<a href="mailto:james.r.gregg@intel.com">james.r.gregg@intel.com</a>
Dell	Jim White (TSC Vice Chair)	<a href="mailto:james.white2@dell.com">james.white2@dell.com</a>
IBM	Joe Pearson	<a href="mailto:joe.pearson@us.ibm.com">joe.pearson@us.ibm.com</a>
IOTech	Keith Steele (TSC Chair)	<a href="mailto:keith@iotechsys.com">keith@iotechsys.com</a>
VMware	Malini Bhandaru	<a href="mailto:mbhandaru@vmware.com">mbhandaru@vmware.com</a>
Intel	Mike Johanson	<a href="mailto:michael.johanson@intel.com">michael.johanson@intel.com</a>
IOTech	Robin Chattergee	<a href="mailto:robin@iotechsys.com">robin@iotechsys.com</a>
Beechwoods	Rodney Hess	<a href="mailto:rodney@beechwoods.com">rodney@beechwoods.com</a>
RSA	Tingyu Zeng	<a href="mailto:tingyu.zeng@rsa.com">tingyu.zeng@rsa.com</a>
Canonical	Tony Espy	<a href="mailto:espy@canonical.com">espy@canonical.com</a>
Dell	Trevor Conn	<a href="mailto:Trevor.Conn@dell.com">Trevor.Conn@dell.com</a>

Current quorum = 7 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

- WG Updates
- Fuji release
- Geneva Scope & Architectural Decisions
- Upcoming Events
- AOB



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# Work Group Updates

Chairs

# Working Group Chair Updates

- Around the horn
  - Core/Supporting - Trevor Conn
  - Applications - Mike Johanson
  - Device Services - Iain Anderson
  - Test/QA - Robin Chatterjee
  - DevOps - James Gregg
  - Security - Malini Bhandaru and Tingyu Zeng
  - System Management - Jim
  - Certification - Rodney Hess
  - Vertical Solutions - Brad Corrin
  - Updates from Release Czar - Lisa
  - Updates from Dev Advocate - Michael



# Core Working Group (13-Nov-19)

- FUJI -- Addressing last minute straggling issues since F2F
  - Several small items people have reported via testing / Slack.
  - No blockers
- Security WG Topic Proposal
  - Several PRs applied to Fuji branch but not master
  - Need to discuss backport of these changes
- Widespread refactoring in master branch to remove global variables from services
  - Following from new service bootstrap via DI container
- Forward-looking topics to discuss in tomorrow's Core WG
  - 10 AM Central



# Applications WG Update (12-November 19)

- **Done**

- Vault integration for Database credentials
- Compose files updated for ASC to replace Export Srvs for Rules engine.
- Snap created for Fuji with ASC replacing Export Srvs for Rules engine
- Consolidate SDK Examples into new **app-service-examples** repo in holding
- Replaced docker profiles with env var overrides for App Service Configurable
- App Services Training at PHX F2F
- Geneva Planning at PHX F2F
- Tagged SDK & App Service Configurable as release 1.0.0

- **In Progress**

- Creating issues for Geneva item for project tracking

- **Next Up (post fuji release)**

- TAF tests for Store and Forward
- Review Documentation
- Consolidate Cloud Export examples into **app-service-examples** repo in holding

# Application Services

## Functions (built into SDK)

Current/Complete:

### Fuji

- AES Encryption
- GZIP Compression
- ZLIB Compression
- MarkAsPushed
- PushToCore

EXPERIMENTAL

### Edinburgh

- Device Name Filter
- Value Descriptor Filter
- XML Conversion
- JSON Conversion
- MQTT(S) Export
- HTTP(S) POST Export

## Features

- Store and Forward
- Web Server
- Configurable AppService

## Reference/Example App Services (Fuji)

(built on top of SDK)

- Azure IoT Hub (Fuji)
- Amazon IoT Core (Fuji)

AVAILABLE

WIP

# Device Services WG Update (13-November-19)

- Fuji release
  - One late bugfix landed
  - Some doc/example updates including Attribution files
- Creating issues, project for Geneva agreed scope
- REST device service under review
- No WG meeting next week

# Device Services - current/coming

## Open Source connectors (Current):

- Modbus (TCP/RTU)
- Virtual Device
- Random
- Grove C - ARM only
- SNMP
- MQTT
- BACnet (IP & MSTP)
- ONVIF Cameras

## Commercial connectors (Current):

- GPS
- MEMS
- Zigbee
- Bluetooth

## Open Source connectors (Future):

- OPC-UA (Dec)
- GPS (Dec)
- Bluetooth (Dec)
- REST (Dec)
- BLE in Go for Thingy 52 (Ian Johnson)

## Commercial connectors (Future):

- CAN SocketCAN, CANopen
- EtherNet/IP
- EtherCat
- PROFINET
- Siemens s5/s7

# Test/QA WG Update (13-11-19)

- Blackbox Test
  - Fixed issue [#302](#), [#305](#), [#313](#)
  - Merged PR [#308](#), [#310](#), [#311](#), [#315](#), [#317](#), [#319](#), [#320](#), [#321](#), [#323](#), [#324](#), [#325](#), [#326](#), [#327](#), [#328](#), [#330](#), [#331](#)
  - Still investigating on arm64 job issue
- New Blackbox Test
  - Open PR [#12](#), [#14](#) on edgex-taf and [#7](#) on edgex-taf-common under review
  - Open PR [#516](#) on ci-management under view
  - Above PRs are for running device-virtual and device-modbus on LF Jenkins
- RAML -> Swagger conversion (No update)
  - API docs are pushed to [edgex-api-docs](#) repository
  - API can be synced from swaggerhub to github, but not from github to swaggerhub. We are looking for an alternative solution
- Certification Support
  - Developing test script for device service
    - Finished testcases: 43 (All completed)
    - Passed testcases : 39, Failed testcases: 4
    - Opened issue [#390](#), [#400](#), for failed testcases.

# DevOps WG Update (11-13-19)

Lisa filling in for James

## Geneva F2F

- DevOps will focus on Jenkins Transformation to Pipelines
- Review of the training material covered in the F2F

## CommunityBridge - Advanced Snyk Reporting

- Need New Contact from LF

Next Meeting 11/14/19 @9:00 PST

# System Management WG Update (11-13-19)

- Fuji Release Items Completed
- Michael to assume control of system management WG chair
- Nominations for new WG Chair through Nov 17th
  - Michael already nominated
  - voting the last weeks of November if necessary



# Security WG Update (11-13-19)

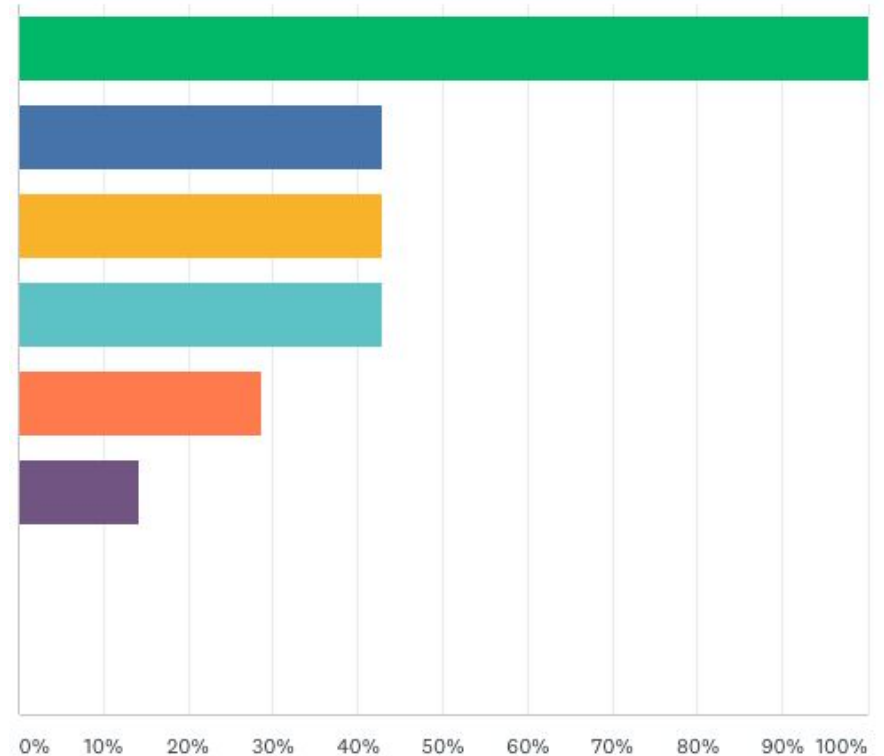
- Target Fuji release items completed
  - Security features in Edinburgh with code integration into edgeX-go
  - Increased unit test coverage
  - Unique certs, by way of generation at run time vs build time
  - 3rd-party cert import
  - Credential generation for MongoDB
  - EdgeX client consuming credentials from secret store
  - Dependence check
  - Integration testing with docker-edgex-mongo & edgex-core-secret
  - Black Box security testing on x86
- Security testing cases on ARM can not be processed due to platform limitation

# Certification WG Update (11-11-19)

- No meeting this week
- Phoenix F2F fallout: Regrouping the certification effort around what needs to be in place for a certification process to succeed
  - API cleanup, inclusive of V2
  - Robot Framework/TAF based tests
  - LTS
- Next meeting Monday, November 18th, time TBD to accommodate Taipei-based folks

# Vertical Solutions WG Update

- Next meeting: Oct 29 10AM PST
- Please fill out the survey!
  - <https://www.surveymonkey.com/r/LGSGFGV>
  - Real graph shown, labels removed to protect the innocent.
  - Already creating some great talking points for the TSC presentation



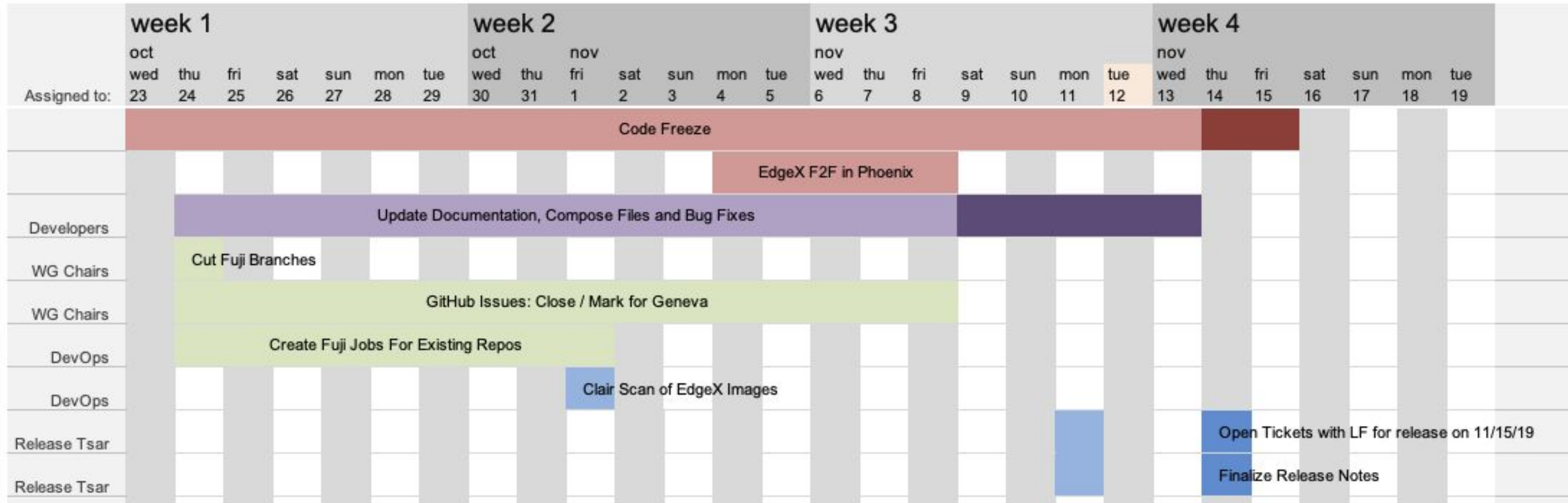


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Fuji Release

# Fuji Release dates

Start Date: 10/23/19 (with extension)



# Fuji Release Progress

- Release pre-work from DevOps is complete.
- Device SDKs are released.
- Application SDK and app-service-configurable are released.

Currently targeting 11/15/19 for the overall release.

Fuji Release Retrospective Board: <https://github.com/orgs/edgexfoundry/projects/33>

Please add your input we will be reviewing this in the DevOps WG on Nov 21st

# Fuji Release Pain Points (so far)

- Confusion about the Device SDK and when they will be tagged. It was brought up that we need to tag these earlier to update dependencies. **MINOR**
  - Device SDKs released early for dependency updates
- Snap builds need to be updated to support a different branching strategy. **MINOR**
  - Order of operations matters in the release. We released app-service-configurable early to include it in the snap.
- Blackbox testing is unstable and failing during execution of the test script **MAJOR**
  - Blackbox testing has been unstable since ~Oct 23rd for ARM executions
  - We are now seeing some stability issues in the x86 executions as well



# Fuji Deliverables at risk or not going to be delivered

## At Risk

- ?

## Not Gonna Happen

- Query parameters whose names start with "ds-" will be allowed. They should not be and they will be blocked in future versions.
- overwrite flag (re-upload text-based config to the registry) is not implemented.
- The OnChange option for AutoEvents is not effective on Binary data. So in the case where two successive Binary readings are identical, both will be sent to core-data regardless of the OnChange setting.
- Device services will not unregister from Consul when they shut down.

Current Release page with Lisa's tracking document:

<https://wiki.edgexfoundry.org/display/FA/Fuji>



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Phoenix F2F meeting

Geneva Release Planning

# Registration now open

## EdgeX TSC Face-to-Face meeting (semi-annual)

- Capacity of 90. Currently 47 registered.
- Nov 4-7th
  - Nov 4th - Architects' topics must be a contributor (have at least one Git contribution) or have invitation of WG chair
  - Nov 5th - Training Day/Biz Topics
  - Located @ Galvanize Phoenix at 515 E Grant St, Phoenix, AZ
  - Hotel and other logistical info available on the [Wiki](#)
- Register now at <http://www.cvent.com/d/b6qcr0>

# Phoenix F2F

Great meeting

Thanks Intel for hosting and the logistics

Thanks to all participants

Welcome feedback and ideas for the next meeting via email  
([jim@iotechsys.com](mailto:jim@iotechsys.com))

# Geneva Scope

See: [scope deck](#)

- Version 2.0 (i.e. there are planned non-backward compatible changes)
- Major themes
  - Improved Security
  - Interoperability testing
  - User guidance on platform needs
    - More performance statistics
    - # of devices/per recommendations
  - Dynamic device provisioning/on-boarding
  - Alternate messaging support (to 0MQ)
  - Archive of Export Services
  - DevOps Jenkins Pipelines

# Scope

*Not showing stretch scope*

## General

Move to Go 1.13

Redis as default DB

0MQ Alternate between core and app services

Configuration simplifications where possible

Separate the configuration and registry APIs

Create and separate Request and Response types for API endpoints

Type the data in the event/reading

Establish a document template for API information

## Core

Use of Dependency Injection in Go services found in edgex-go

Combine/reduce UIs

Blacklist/whitelist of devices

# Scope 2

## Applications

Export Service archive/deprecation

Application services should provide for batch and send modes

Rules Engine Replacement

## Device Services

Device Profile cleanup

Device services (and the SDK) will include automatic/dynamic device provisioning capability

Data filter design between DS and Core Data



# Scope 3

## System Management

All system management (SMA) APIs to be made asynchronous

Start/stop/restart all done by the executor to include stop/restart of SMA

CLI improvements

Open Horizon “Walk” Phase

## Security

Create a hardware secret storage design

Create and use a per service Vault token in the security services

Service token revocation and rotation

Ensuring the services running are those expected and authorized

Blackbox tests of APIs through the API gateway

ARM test platform support

# Scope 4

## Test/QA

Device Service testing – complete testing for current set of EdgeX Device Service

New blackbox tests to support Geneva API changes on new Robot-based Test Automation Framework

Documentation – move all API definitions to Swagger

System integration / interoperability tests

Performance testing

## DevOps

Move to Jenkins Pipeline

Apply Synk scan to other services and images

## Certification

Still working toward self assessment

# Architectural Decisions/Action Items Summary

Trevor to provide draft Geneva API refactor design by Christmas

“Train leaves station on time” approach to start meeting release cycle deadlines

Use feature flag to allow for new feature to be worked on but not yet incorporated into a release formally (allowing a feature to span multiple release cycles) – Mike J going to provide doc on how-tos

Use Github drafts to allow people to review larger PRs earlier

PR template being defined (Mike) and used going forward

Use PRs to move things out of holding - and to track issues and comments

In order to move repo from holding, we agreed to following process: WG must approve and send out notice of move; week later TSC holds meeting, announces vote, and must hold vote via email (Jim to update the Wiki)

James to do research on tool for how to provide commit message check in build

# Architectural Decisions/Action Items Summary 2

Jim to press on WG to provide WG Meeting Minutes – outlining significant actions/decisions

Use Github Tracker to track release work. Each WG chair to anoint a secretary to enter and update the items in the tracker tool (Lisa to work with secretaries to keep things up to date)

James to work with LF to put in appropriate branch protections

Event/Readings will include arrays of simple types (int, float, etc.)

Arrays of simple types (int, float, etc.)

Open Horizon will be a sub-project (under sys mgmt) for next year towards LF Edge project incubation

VMWare UI will be the single open source UI

LTS criteria was established

# Architectural Decisions/Action Items Summary 3

Certification still important/relevant - working toward self cert with some dependencies in place

Cloud supporting Application Services will be documented (but not put in code)

App services will be set up to subscribe to multiple topics/queues

Architectural issues and major work group decisions will be summarized for each TSC meeting

# Spring 2020 F2F Venue

April 27-30

Limerick Ireland (Dell IOT Center host)



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## Upcoming Events



# Upcoming External Events

Full list of LF events available at:  
<https://events.linuxfoundation.org/>

Additional LF Edge events available at:  
<https://www.lfedge.org/events/>

- IIC Quarterly meeting, Nov 18th, Sydney AUS: Salim AbiEzzi to provide EdgeX update at that meeting
- [Embedded World](#): 25-27 February - Nuremberg, Germany
  - Jim White: **Extending EdgeX Foundry– How to Build an IoT Solution from an open source, platform independent framework**
- [Industry of Things World](#): Mar 12-13 - San Diego CA
- [IoT Tech](#): Mar 17-18 - London, UK
- [IoT World](#): Apr 6-9 - San Jose, CA

# Upcoming CFP Due Dates

>



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AOB / Reminders

# AOB/Cadence

- Meeting Cadence Reminder
  - Currently held weekly at 7am PDT on Wednesday's
  - Calls without TSC quorum will still be used to review issues
  
- **Next Meeting: June 26, 2019**

# Marketing

- **CTA:** If your company will be presenting EdgeX at an upcoming event/webinar/other, please email [pr@lfedge.org](mailto:pr@lfedge.org) so that we can help promote

# EdgeX in Market

- Page showcases momentum in the project, including solutions already available
- <https://www.edgexfoundry.org/edgex-in-market/>
- Email [info@edgexfoundry.org](mailto:info@edgexfoundry.org) if you have any additions

# Project Contributions Welcome!

- Our objective is to make EdgeX use & deployment pervasive!
- EdgeX success is 100% dependent on the vibrancy of a proactive community
- Getting Involved
  - Project membership growing - want to join contact Mike Woster at LF ([mwoster@linuxfoundation.org](mailto:mwoster@linuxfoundation.org))
  - First Priority is the MVP - potential contributors please contact [keith@iotechsys.com](mailto:keith@iotechsys.com) (people, equipment, technology)
  - If interested in adding new projects please contact the relevant working group chair

# Project Resources

Quick links to most commonly used Community Resources

- Code: <https://github.com/edgexfoundry>
- Documentation: <https://wiki.edgexfoundry.org/>
- Discussion: <https://slack.edgexfoundry.org/>
- Mail Lists: <https://lists.edgexfoundry.org/mailman/listinfo>
- Twitter: <https://twitter.com/EdgeXFoundry>
- LinkedIn: <https://www.linkedin.com/company/22298339/>
- YouTube: <https://www.youtube.com/c/EdgeXFoundry>



# EdgeX - Where to learn more

- EdgeX Foundry Wiki

<https://wiki.edgexfoundry.org/display/FA/EdgeX+Foundry+Project+Wiki>

- EdgeX Foundry Slack

<https://slack.edgexfoundry.org/>

- [Weekly EXF Technical Spin up calls](#)

30 minute deep-dive topics followed by 30 minute open Q&A

Call recordings are available on the [Wiki](#)

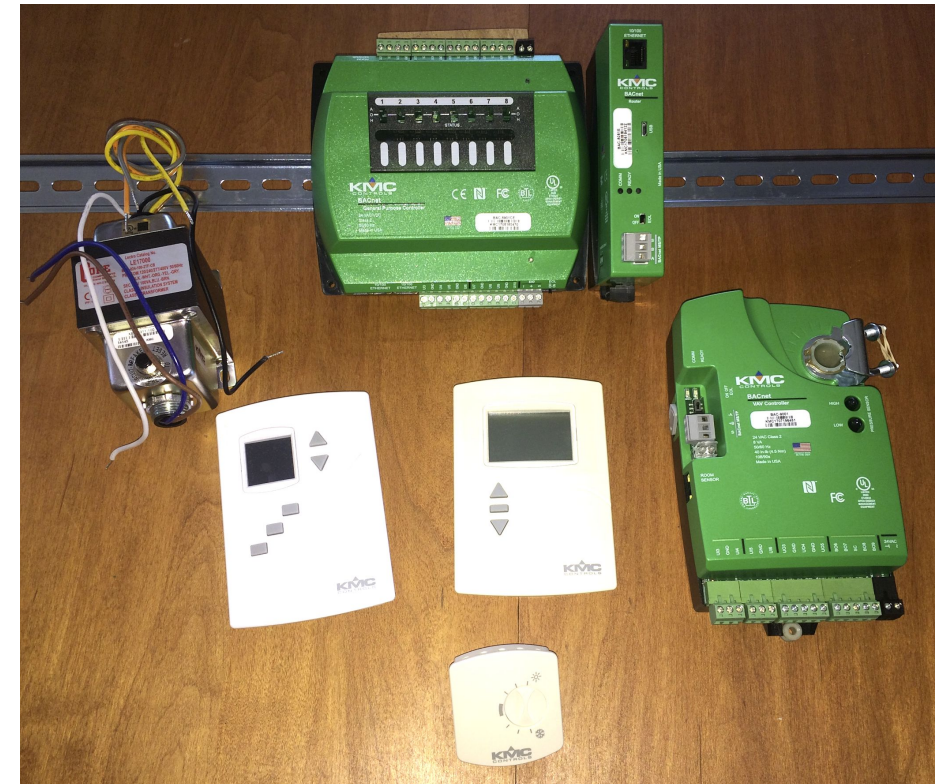
# What is the Device Exchange?

- A great way to put your products in the hands of other members so they can help build a better EdgeX!

• <https://wiki.edgexfoundry.org/display/FA/Device+Exchange>



Special thanks to [Dave Bohlman](#) and [KMC Controls](#) for making this awesome kit and how-to guide available to members!!



# Meetups

- Help us grow awareness!
- Present, and Tag, EdgeX in your local IoT Meetups
- <https://www.meetup.com/topics/edgex/>
- Email [info@edgexfoundry.org](mailto:info@edgexfoundry.org) for assistance

**Related topics**

New Technology Open Source Interoperability Smart Home Internet of Things

Open Standards Mobile Development Internet of Everything EdgeX

## EdgeX ▾

Find out what's happening in EdgeX Meetup groups around the world and start meeting up with the ones near you.

Related topics:



# Meetups: Reimbursement Program

- <https://wiki.edgexfoundry.org/pages/viewpage.action?pageId=7602724>
- Wiki page built for the community to leverage
- Encourage community to begin introducing EdgeX in your local Meetup groups
- EdgeX Foundry will fund/sponsor the talk in which EdgeX is scheduled to be presented
  - Up to \$250 for F&B, once per Meetup group, per quarter
- Let us help drive traffic to your event! Email [pr@lfedge.org](mailto:pr@lfedge.org) once Meetup has been scheduled
- Post-event, please consider doing a blog about the event

# Hackathons: How can you help?

- <https://wiki.edgexfoundry.org/display/FA/Hackathons>
- Provide any local volunteers onsite to help with technical work, potentially help judge, etc. (see list below of known hackathons coming up and locations)
- Sponsor breakfast/lunch/dinner for the participants (usually things like donuts/coffee, pizza lunch or cater sandwiches)
- Sponsor \$ rewards (incentives) for teams that successfully implement projects (these could even be projects that particular sponsors want to see accomplished - we just need them scoped appropriately so as to be something that can be accomplished in a 2 day period)
- Help provide or resource hackathon winner prizes
- Sponsor or provide any swag (t-shirts, mugs, etc.)
- Provide marketing assistance



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Thank You