

CloudEvents SDK - Agenda/Design Doc

Overall Status/Info

- **Calls:** Every other Thursday at 1 pm ET / 10 am PT (or as soon as the CE call ends)
- **Video Conf:**
<https://zoom.us/my/cncfserverlesswg?pwd=YjNqYzhOdjRRd01YWfkzS1IHbDZqUT09>
 - Passcode: 77777
- Java SDK: <https://github.com/cloudevents/sdk-java>
- Golang SDK: <https://github.com/cloudevents/sdk-go>
- Python SDK: <https://github.com/cloudevents/sdk-python>
- Javascript SDK: <https://github.com/cloudevents/sdk-javascript>
- CSharp SDK: <https://github.com/cloudevents/sdk-csharp>
- Ruby SDK: <https://github.com/cloudevents/sdk-ruby>
- Rust SDK: <https://github.com/cloudevents/sdk-rust/>

Future Topics:

- ...

Outstanding Action Items:

- **Doug:** template header for each repo's README + License + contributing document - for consistency
- **Scott:** conformance work
- **Scott:** look at Github Actions for how to deal with secrets needed for builds
- **Doug:** draft a proposal for SDK QoS/SLA/Periodic Reviews to ensure SDKs are alive
- **Doug:** Set up a security email address - investigate
- **Grant:** Can someone merge this SDK PR? Please comment if there is an issue.
 - <https://github.com/cloudevents/sdk-python/pull/149>

Agenda - Mar 3, 2022

- Topic?

Agenda - Feb 17, 2022

- Michael Gasch
 - Validation of context attributes in SDKs
 - **Michael:** open an issue for go-lang SDK
 - **Doug:** open an issue or PR for SDK.md to RECOMMEND/SHOULD do attribute validation - [Done](#)

Agenda - May 27, 2021

- Jem - offline
 - If you have an SDK call today i wonder if you would be willing to bring up the subject of instrumentation/tracing as per a question in #cloudeventssdk... Having all the SDKs instrumented with OpenTelemetry would seem to provide a great deal of value.
 - I believe by default these SDKs have a “null implementation pattern” so it doesn’t force all users to actually install a tracing system.
 - Jon: would prefer not having extra dependencies
 - Would be ok with choosing O.T. as the preferred impl choice IF it something in this space is implemented
 - Daniel: what would we be instrumenting?
 - Lance: is this distinct from the distributed tracing extensions we define?
 - David: wasn't it merged into O.T.?
 - Does this make sense if the SDK doesn't do any of the networking management?
 - Not all SDKs manage the network stuff
 - Golang does but others don't seem to
 - **Scott: Jem - what kind of metrics are you interested in ?**
-

Agenda - Feb 11, 2021

- Attendees
 - John Mitchell, Lucas, Matthieu, Daniel, David, Klaus, Lance, Slinky, Tommy, Doug
- Agenda
 - Matthieu Bernardin: Data ordering guarantees in SDKs

Agenda - Jan 28, 2021

- Attendees
 - ...
- Agenda
 - Slinky: [GSOC](#) or [LFX Mentorship](#) (was [Community Bridge](#))
 - Due Jan 31 for Spring
 - April or March for next one
 - Possible ideas:
 - New SDK for a new lang
 - Conformance testing framework
 - No volunteers at this time for CE

- Tihomir might do it for Workflow
-

Agenda - Jan 14, 2021

- Attendees
 - ...
- Agenda
 - John Laswell: PHP SDK support and needs

Agenda - December 3, 2020

- Attendees
 - Doug, Lance, Bryan, Clemens, Daniel, David, Jem ,John, Klaus, Lu, Lukas, Remi, Slinky, Scott, Tommy
- Agenda
 - **Lance:** Distributed tracing extensions in the SDK - what is actually required?

Agenda - November 12, 2020

- Attendees
 - Anish, Remi, Doug, Slinky, Grant, Lance, Manuel, Matthieu, Tihomir, Tommy
- Agenda
 - **Slinkydeveloper:** Some announcements:
 - Sdk-rust 0.3 release
<https://github.com/cloudevents/sdk-rust/releases/tag/0.3.0> , working stabilizing and getting new contributors. Next release will feature mqtt and no_std (CloudEvents on microcontrollers ftw)
 - Sdk-java 2.0.0-milestone4 released
<https://github.com/cloudevents/sdk-java/releases/tag/2.0.0-milestone4> , most important known questions are solved. Will try the final rush before xmas to release 2.0.0 GA. Need some help with reviews and implementation of other event formats (protobuf, avro)
 - **Anish:** Consistent API Model for sdks
 - **Remi:** Javascript Emitter paradigm
 - **Remi:** Javascript Discovery / Subscription services

Agenda - October 29, 2020 - Canceled - No Agenda

- Attendees
 - ...

- Agenda
 - ...

Agenda - October 1, 2020

- Attendees
 - Doug, Clemens, Grant T, Daniel, Lance, Lucas, Manuel, Randy, Scott, Tihomir, Tommy
- Agenda
 - Handling binary data with datacontenttype of application/json in SDKs
 - Grant: I'm trying to get a set of copy-pastable samples of receiving CloudEvents in different programming languages so folks can quickly get started. Ideally, a developer can just pick a language and try the sample. Some languages have full samples in the repo README.md, like JavaScript, Ruby, Python, and some don't like Java and Go. Do we want to consistently have a sample in the README?
 - Example issue discussion for Go
 - <https://github.com/cloudevents/sdk-go/issues/562>
 - Clemens: governance w.r.t. C# ownership

Agenda - Sep 17, 2020 - No call - No Agenda Items

- Attendees
 - ...
- Agenda
 - ...

Agenda - Sep 3, 2020

- Attendees
 - Doug
 - Jem
 - Scott
 - Anish
 - Bryan
 - David
 - Erik
 - Klaus
 - Lance
 - Lucas
 - Nirmal
 - Tihomir
 - Tommy

- Zbynek
- Agenda
 - [slinkydeveloper] Announcement: CloudEvents sdk-java 2.0.0-milestone2 released! <https://github.com/cloudevents/sdk-java/releases/tag/2.0.0-milestone2>

Agenda - Aug 20, 2020

- Attendees
 - Doug
 - Lance
 - Bryan
 - Daniel
 - Grant
 - Klaus
 - Lucas
 - Nacho
 - Remi
 - Scott
 - Tommy
- Agenda
 - Discussion regarding network transport bindings in SDKs [Lance]
 - https://docs.google.com/document/d/1G2n1o_dS6hLMDO2YnnKPQBh0JMyHLm_dN6Ja9ai2QwJo/edit

Agenda - Aug 6, 2020

- Attendees
 - Doug
 - Hongqi
 - Bryan
 - Daniel
 - Grant
 - Lance
 - Lucas
 - Nick
 - Remi
 - Sam
 - Scott
 - Slinky
 - Tommy
 - Vlad
- Agenda

- Announcement: sdk-rust 0.2 released!
<https://github.com/cloudevents/sdk-rust/releases/tag/0.2>
- New Maintainer PR - do we want this or not?
 - <https://github.com/cloudevents/spec/pull/665>
 - **We'll review/edit during the next week**
 - **Warn people on slack to review and it'll apply to all SDKs**
- [EDIT: I think many of these are being fixed] Grant: Node SDK
 - **Summary:** There's been some great amazing progress with the Node SDK, however, I still can't use it at Google because of some issues that block integration.
 - **Issue 1:** The SDK over-validates the CloudEvent
 - The HTTP receiver threw an error for a valid Google CloudEvent
<https://github.com/cloudevents/sdk-javascript/issues/258>
 - In general, the SDK should not fail for valid (or invalid) messages.
 - <https://github.com/cloudevents/spec/blob/master/SDK.md#technical-requirements>
 - **Issue 2:** The SDK does not provide an idiomatic Node experience
 - JavaScript is a functional language and we should be able to expect idiomatic Node functions rather than classes or multiple functions being needed to be chained together.
 - Example: <https://github.com/cloudevents/sdk-javascript/issues/273>
 - ~~■ **Issue 3:** Current maintainers can be really snarky in a way that does not reflect developer empathy or understanding that we're trying to solve this together. I'm really trying to use the community SDK rather than Google's own CE handlers.~~
 - **Other note:** I'm not able to force others on what should be worked on, but receiving CloudEvents should be a really common use-case, right? Perhaps we could improve the testing?
 - For comparison, ruby has a working, idiomatic SDK ~~with 17 commits that took ~2 weeks of eng time.~~
 - ~~JS has 615 commits but is not idiomatic and has taken months and multiple PRs changing the existing codebase.~~
 - **Impact:** I built a demo last week and recorded a video for Google's yearly Cloud conference. I wasn't able to use the SDK because it said Google CloudEvents were invalid. The package hasn't been published in two months despite large changes.
- Envision final devX in a doc
 - Example BinaryReceiver vs Receiver

Agenda - July 23, 2020

- Attendees

- ...
- Agenda
 - Doug: Use cncfcloudevents@gmail.com for our security email?
 - +SDK-NAME
 - Scott: will ping slack folks for samples for kubecon
 - Scott: CLI repo?
 - Will ping the slack channel - if no objection then we'll create the repo

Agenda - July 9, 2020

- Attendees
 - Bryan
 - Doug
 - Daniel
 - Hamid
 - Hongqi
 - Jem
 - John M
 - Klaus
 - Lance
 - Lucas
 - Mark
 - Remi
 - Tommy
- Agenda
 - Lance: Requesting a vote on "Proposal to change npm module name to 'cloudevents' (#242)" <https://github.com/cloudevents/sdk-javascript/issues/242>
 - Daniel: Group account(s) for package managers
 - Mainly for Ruby
 - **AI Doug**: check to see if there are any CNCF tools to help with managing ID/passwords for our tooling, etc
 - Doug: still want weekly?
 - Lance: every other week
 - **AI Doug**: ask on Slack

Agenda - July 2, 2020

- Attendees
 - ...
- Agenda
 - Remi: Discovery PR
 -

Agenda - June 25, 2020

- Attendees
 - ...
- Agenda
 - **AI Doug:** CoC - use CNCF's - put in CE repo, point to it from each repo
 - **AI Doug:** Set up a security email address - investigate
 - PR: [SDK governance draft](#)
 - PR: [docs: add common processes for SDK maintainers and contributors](#)
 - Will start 1 week voting once all changes are done
 - Java SDK - "milestone"
 - Each SDK might have their own way each artifact (milestone, rc, release...) is "published" (e.g .syntax, naming...)
 - But common artifact types, processes, etc...
 - **AI Oleg/Sergei:** write-up a proposal - cross SDK stuff so CE repo PR (in /governance dir which isn't there yet but will be soon)

Agenda - June 18, 2020

- Attendees
 - ...
- Agenda
 - Github teams for each SDK?
 - Go: Scott, slinky, Mark Peek,
 - Javascript: Lance, Dan Bevenius, Grant, Fabio, Helio, Lucas Holmquist,
 - Java: Fabio, Slinky,
 - C#: Clemens, Jon Skeet
 - Python: Denis Makogon, Dustin Ingram
 - Rust: Slinky, Lazzaretti, Linus Basig
 - PHP: None
 - Remove?
 - Austen, Timfsw, Karol Stepniewski, Tenczar, Fabian Mersch, Alan, Matthias
 - Add rule about how to add/remove new maintainers?
 - 50+% of existing maintainers ?
 - At least X PRs ? Except in the case of no activity and need a new owner
 - Perhaps company and end-users?
 - Other metrics besides PRs? Reviews, Issues, "contributions"
 - Max per company?
 - Multi-level: Reviewer (anyone can become one, just ask) and Maintainer (knativ'e process) ?

- **AI: Sergei** will take a stab as a proposal
- Governance across SDKs
 - **AI Lance:** PR for proposed common process
 - **AI Doug:** “SDK” dir in “spec” repo
- Any action on SDK QoS/SLA/Periodic Reviews to ensure SDKs are alive?
 - **AI Slinky** will take this one over

Agenda - June 11, 2020 - No call - no agenda items

- Attendees
 - ...
- Agenda
 - ...

Agenda - June 4, 2020

- Attendees
 - Jem
 - John
 - Doug
 - Klaus
 - Lance
 - Remi
 - Ryan
 - Scott
 - Slinky
 - Tommy
- Agenda
 - Jem: how can I verify my protobuf work? How to add a new protocol/format to the SDKs?
 - Ping Francesco
 - What about Reactive?
 -

Agenda - May 28, 2020

- Attendees
 - ...
- Agenda
 - Typescript Repo
 - Last of TS repo was transferred to a GitHub issue in the JS repo
 - **AI Doug:** delete the repo!

- JS & Go SDKs - v2 released!
- Python SDK
 - Issue about not being pythonic
 - Changing the interface to be nicer
 - v1 is incompatible with the spec

Agenda - May 21, 2020

- Attendees
 - ...
- Agenda
 - Francesco: SDK Rust Demo
 - Typescript SDK - new repo or part of Javascript
 - See last week's discussion for more information about this proposal.
 - In the last week, we were not able to make a decision to move to TS in the JS repo.
 - Repo init: <https://github.com/cloudevents/sdk-typescript/pull/1>
 - Define idiomatic CloudEvent interface - <https://github.com/cloudevents/sdk-java/pull/143>
 - Need to make a decision
 - Accept suggestions (both from PR discussion as well as debate on this call few weeks ago) to:
 - provide ability to iterate through attributes (I believe @Clemens made a convincing case and shared C# API example)
 - introduce the concept of Encoders as suggested in PR (@markfisher) for [version encoding](#)

Agenda - April 30, 2020

- Attendees
 - Oleg Z
 - Sergei Egorov
 - John Mitchell
 - Clemens
 - Daniel Azuma
 - Dustin Ingreem
 - Fran Mendez
 - Grant
 - Ian
 - Javier
 - Jem
 - Jon Skeet

- Klaus
- Lance
- Manuel
- Ryan
- Francesco
- Scott
- Thomas Weingartner
- Tommy
- Vlad
- Doug
- James Ward
- Agenda/Minutes
 - Discuss java CloudEvent interface, its purpose, value and usage within the scope of the following PR - <https://github.com/cloudevents/sdk-java/pull/143>
 - Discuss - [CloudEvents sdk-java V2](#)
 - Discuss processes for landing pull requests.
 - Should this process be standardized across repositories
 - Strawman proposal for Node.js
<https://github.com/cloudevents/sdk-javascript/issues/86#issue-609234642>

Agenda - April 16, 2020

- Attendees
 - Doug
 - Clemens
 - Dustin
 - Klaus
 - Lance
 - Mark
 - Francesco
 - Scott
 - Tommy
 - Doug M
- Agenda/Minutes
 - [slinkydeveloper] SDK-Rust soon will have its first release!
<https://github.com/cloudevents/sdk-rust/projects/1>
 - [slinkydeveloper] Progress on reworking the sdk-java, how do I progress incrementally? <https://github.com/cloudevents/sdk-java/pull/108>
 - [di] Python SDK
 - CI is broken, switch to Github Actions?
<https://github.com/cloudevents/sdk-python/pull/29>

- Dustin is now an SDK maintainer
 - Feedback on <https://github.com/cloudevents/sdk-python/issues/26?>
- [lance] JavaScript SDK

Agenda - April 2, 2020

- Attendees
 - Doug
 - Clemens
 - Scott
 - Dustin
 - Erik
 - Klaus
 - Lance
 - Mike
 - Doug M
 - Tommy
 - Thomas Schena
 - Francesco
- Agenda/Minutes
 - Go SDK
 - Preview 8 is ready and pretty close to final - RC1 coming soon
 - Added pub/sub back
 - nats streaming is in
 - Proposed rework of Java SDK APIs
 - <https://github.com/cloudevents/sdk-java/pull/108>
 - Scott to look at Github Actions to handle our “secrets” issue
 - Periodic reviews of SDKs - threat of archiving
 - Define some kind of QoS/SLA for issues/PRs that needs to be met
 - Enforce require support for v1.0 and recommend v0.3
 - Needs to keep up with CVEs

Agenda - March 19, 2020

- Attendees
 - Doug
 - Mike H
 - Clemens
 - Jojo
 - Klaus
 - Mark
 - Sergei Egorov
 - Scott

- Tommy
- Agenda/Minutes
 - Code signing - .Net needs this
 - Look at using CNCF's CI/CD system
 - Java will have the same issue
 - Clemens will look into this
 - Mailing list: <https://lists.cncf.io/g/cncf-cloudevents-sdk/topics>
 - TCK?
 - Scott is working on: <https://github.com/cloudevents/conformance>
 - Mike Helmick: Proposed Elixir SDK (Work in progress)
 - <https://github.com/mikehelmick/sdk-elixir>

Agenda - March 5, 2020

- Attendees
 - Doug
 - Clemens
 - Falko
 - Klaus
 - Francesco
 - Scott
 - Tommy
 - Vlad
- Agenda/Minutes
 - Scott: Golang SDK drive to v2
 - Looking to offer the data in a variety of ways/formats - each comes with a different set of control
 - Will be an API breaking change - hence v2
 - Doug: Do we really want the 2nd AI? Or should we just mention in the README that people should open an issue if they have a question?
 - Look at Python SDK - check its status
 - PR: [Add some clarity around SDK milestones](#)
 - Work on wording of "release candidate"
 - Footnote - recommended that you support 0.3 - * on "major release"

Agenda - Feb 27, 2020

- Attendees
 - Doug
 - Klaus
 - Manuel
 - Francesco

- Scott
- Isuru
- Falko
- Jonatas
- Tommy
- Agenda/Minutes
 - Francesco: Feedback on usability of Java SDK APIs (tldr are generics really useful?)
 - Fábio's comments: I have plans to rewrite the core of java SDK, removing external dependencies, non-interoperable types (ZonedDateTime for example), move the json stuff to another module responsible for json stuff. I think generics are useful if we people want to create strongly typed data and because this is the original purpose of java sdk. I totally agree to discuss that purpose to align java sdk with other ones.
 - Francesco: WIP Rust SDK
 - Fabio: Kafka headers value are just array of bytes. If we use any type system, it must work with any language in any platform. In java sdk we employ string to make things interoperable.
 - Fabio's comments: At first look, I prefer to use string, just like http headers that uses [canonical strings](#). Maybe a PR could explicit IT in the spec...
 - Francesco: Opened an issue to temporarily fix this <https://github.com/cloudevents/spec/pull/572>
 - Francesco: should we consider a Multipart-Mime HTTP encoding?
 - Will open an issue to force the discussion

Agenda - Feb 6, 2020

- Attendees
 - Doug
 - John
 - Clemens
 - Hamza
 - Jem
 - Lukas
 - Mark
 - Scott
 - Vlad
 - Linus
- Minutes
 - Scott:
 - wants to break out the sdk-go client

- sdk-go: V2 migration underway - hoping for Kubecon
- **AI Doug**: template header for each repo's README - for consistency

Agenda - Jan 23, 2020

- Attendees
 - Klaus
 - Lukas
 - Scott
 - Ville
 - Vlad
 - Doug M
 - Doug D
- Scott: golang SDK v1.0 release soon - next week?
 - Clean-up API a bit
 - Strict semver
 - Want to lock it down for KubeCon
 - Then migrate everything to the v2.0 impl
 - In v2.0 the original transport stuff will be dropped in favor of the bindings
 - V2.0 in about 6 months
 - Will document the v2.0 arch
- **AI Doug**: let's document the leads for each SDK in the repos

Agenda - Jan 9, 2020

- Attendees
 - Clemens
 - Scott
 - Tim
 - Ville
 - Vlad
 - Mark
 - Klaus
 - John M
- Tim: when will the SDKs be stable?
 - Go:
 - In transition to v2 so APIs might change. ETA for stability? Fairly stable today
 - **AI Scott**: open an issue to track stability
 - V1 is stable
 - Supports CE v1.0
 - C#:

- Supports CE v1.0 and is stable
 - Will look into adding **all** transports
- Java: supports CE v1.0
- Javascript: supports CE v1.0
- Ruby: might not support CE v1.0 yet
- Python: might not support CE v1.0 yet
- **AI Doug**: poke bottom 4 owners
- Scott:

Agenda - Nov 7, 2019

- Attendees
 - Alan
 - Tim
 - Jem
 - Clemens
 - Klaus
 - Ruben
 - Mark
 - Tapani
 - Scott
 - Doug
 - Vladimir
- Tim: Should we encourage SDK authors to not allow edits to events?
 - Should SDK doc say something about this?
 - Maybe have SDKs provide an immutable version of the event
- Alan: Would like to see a sender/receiver type of API in the SDKs

Agenda - Oct 24, 2019

- Java SDK
 - ETA for v1.0 support? Ping Fabio
- GoLang
 - 1.0 compatible
 - Will work on CE Kafka binding next
- Conformance tests
 - Supports v1.0 CE now

Agenda - Sept 12, 2019

- Attendees
 - Clemens

- Doug
 - Scott
 - Javier
 - Mark
 - Jem
- Scott's [counter-PR](#) to Clemens' [PR](#)
 - **Please review!**
- Possible SDK work from Google
 - Scott: Still investigating
- Conformance Testing
 - Still WIP

Agenda - Aug 29, 2019

- Attendees
 - Doug
 - Clemens
 - Tapani
 - Vlad
 - Scott
 - John M
- Status of Scott's action item - edits to Clemens' [PR](#)
 - Will open an alternative PR - today
- Conformance Testing
 - Looking for help

Agenda - Aug 15, 2019

- Attendees:
 - Doug
 - Clemens
 - Fabio
 - Klaus
 - Mark
 - Neil
 - Scott
- Neil
 - Kafka binding
 - How/where will it be implemented?
- Scott
 - Status of his action item - edits to Clemens' [PR](#)
 - Sent an email

- Looking for some help from other Googlers

Agenda - Aug 1, 2019

- Attendees
 - Mark
 - Doug
 - Scott
 - Vlad
 - Vladimir
 - Daniel Peterson
- Scott
 - Some Googlers want to bring all SDKs to the same level
 - Mark: would be good to have high-level guidance for what we want across all SDKs - what are the consistency aspects we're looking for?
 - So heads up!
 - Did some thinking about the conformance testing
 -

Agenda - Jun 20, 2019

- Attendees
 - Klaus
 - Scott
 - Mark
 - Doug
 - Javier
 - Jem
 - Tapani
- Clemens: [SDK object model structure guidelines](#)
- Klaus: I just wonder, if the recent changes regarding string representation in v.03 create some confusion. Or if the requirement to % encode strings is correctly implemented everywhere
 - As HTTP headers they used to be json encoded, now they're strings
 - We need testing to make sure all SDKs behave the same way
 - In particular around Maps
 - <https://github.com/cloudevents/spec/issues/381>
 - Test
 - Create a client library/tester that can point to a running service and then we need to verify that the receiver processed the events correctly.
 - Every SDK would need to provide some kind of "service" we could point at to check the results.

- **Als:** Scott: will take a first pass - “conformance” - Doug: new repo
 - Collect list of sample events for testing
- Scott: responses to events
 -

Agenda - Mar 28, 2019

- Attendees
 - Mark
 - Doug
 - Scott
 - Clemens
 - Heinz
- No SDK interop demo for KubeCon EU - perhaps KubeCon NA
- Knative will be using our SDK for v0.5.0

Agenda - Mar 14, 2019

- Attendees
 - Scott
 - Mark
 - Doug
- **AI Doug:** poke people to join next call

Agenda - Feb 14, 2019

- Attendees
 - Doug
 - Scott
 - Clemens
- Old Als:
 - **AI Austen/Doug:** overall status/plan doc - if not this one
 - **AI Doug:** to reach out to ChrisA about code signing - asked...
 - **AI Doug:** create governance docs, include CoC
- Agenda/Notes
 - SDK Status - anything noteworthy to mention?
 - [Java](#) - Matthias Wessendorf - @matzew
 - [Golang](#) - Matthias Wessendorf - @matzew, Nick
 - [Python](#) - Denis Makogon - @denismakogon
 - [Javascript](#) - Fabio José - @fabiojose
 - [CSharp](#) - Clemens Vasters
 - [Ruby](#) - Fabian Mersch

- Clemens: Should the SDK do the (de)serialization for the app or not?
 - **AI Clemens:** write-up this guidance into the SDK.md file & for binary mode - added to CE agenda doc
- Golang SDK - where are we on the harmonization talks?
 - Scott talked with Nick yesterday
- Extension Serialization - has this been fixed?
- Compliance testing?
- AOB?

Agenda - Jan 31, 2019

- Attendees
 - Doug
 - Nick
 - Clemens
 - Scott
- Old AIs:
 - **AI Austen/Doug:** overall status/plan doc - if not this one
 - **AI Doug:** to reach out to ChrisA about code signing - asked...
 - **AI Doug:** create governance docs, include CoC
- Agenda/Notes
 - SDK Status - anything noteworthy to mention?
 - [Java](#) - Matthias Wessendorf - @matzew
 - [Golang](#) - Matthias Wessendorf - @matzew, Nick
 - [Python](#) - Denis Makogon - @denismakogon
 - [Javascript](#) - Fabio José - @fabiojose
 - [CSharp](#) - Clemens Vasters
 - [Ruby](#) - Fabian Mersch
 - Clemens: Should the SDK do the (de)serialization for the app or not?
 - **AI Clemens:** write-up this guidance into the SDK.md file & for binary mode - added to CE agenda doc
 - Scott: any update on the concerns with using the SDK golang?
 - Nick: Tests are in the v01 and v02 packages
 - Were issues opened? Nick and Scott will chat off-line
 - Nick will fix the serialization of map issue that Evan mentioned
 - Extension Serialization
 - Compliance testing?
 - AOB?

Agenda - Jan 17, 2019

- Attendees
 - Doug Davis
 - Fabio José

- Scott Nichols
- Mark Peek
- Old Als:
 - **AI Austen/Doug**: overall status/plan doc - if not this one
 - **AI Doug**: to reach out to ChrisA about code signing - asked...
 - **AI Doug**: create governance docs, include CoC
- Agenda/Notes
 - SDK Status - anything noteworthy to mention?
 - [Java](#) - Matthias Wessendorf - @matzew
 - [Golang](#) - Matthias Wessendorf - @matzew, Nick
 - Scott: Knative is not using this SDK (our sdk is older than this one)
 - Not enough testing
 - Different design choices w.r.t. how applications are composed and consume the event.
 - Will open issue so we can have discussions
 - [Python](#) - Denis Makogon - @denismakogon
 - [Javascript](#) - Fabio José - @fabiojose
 - [CSharp](#) - Clemens Vasters -
 - [Ruby](#) - Fabian Mersch
 - getEventType vs getType
 - Mark: should align with the spec as much as possible
 - Is “Type” alone (which might be a reserved word) an issue?
 - Proposal: remove “Event”
 - **AI Doug**: send to the CE list with the proposal
 - SDK demo/interop?
 - Perhaps something for Barcelona?
 - New demo idea(scott): make some kind of app that simulates what a real business would do, for example: a factory makes a widget and sends an event, the inventory system updates, some consumer makes a delivery request, the warehouse ships it out and tells the inventory system, and then the package tracking system tracks the package to delivery. OR SOMETHING LIKE THAT... So each party could be assigned a role in this consumer chain. The cloud event is what binds the chain together and updates state. So rather than each party does the same code, they write the solution for their little job.
 - AOB?

Agenda - Dec 4, 2018

- Attendees
 - Clemens
 - Doug
 - Nick
 - Jem

- Vladimir
- Old AIs:
 - **AI Austen/Doug:** overall status/plan doc -if not this one
 - **AI Doug:** send a note to see if/when we want weekly calls after KubeCon
 - **AI Doug:** to reach out to ChrisA about code signing - asked...
 - ~~**AI Doug:** modify KubeCon slides for latest SDK status~~
 - **AI Doug:** create governance docs, include CoC
 - ~~**AI Denis:** Will take a first pass [done](#)~~
 - ~~**AI Doug:** to send a note on versioning of SDKs [done](#)~~
- Agenda/Notes
 - Doug: We need governance docs
 - Proposal: develop one set that we can dup into each. Possible just have a single governance.md doc stored in the spec repo and point to it from each SDK. But each SDK have its own OWNERS file. This ensure consistency across all w/o high maintenance.
 - Allow for SDKs to extend the base rules
 - SDKs Status:
 - Java - Matthias Wessendorf - @matzew
 - Golang - Matthias Wessendorf - @matzew
 - Nick: Updates coming for v0.2 soon
 - Python - Denis Makogon - @denismakogon
 - Javascript - Fabio José - @fabiojose
 - CSharp - Clemens Vasters - @clemensv
 - V0.2 already supported
 - Clemens: samples
 - Is it ok for samples to be platform specific?
 - Ok, as long as it's clear that other platform-specific samples are welcome
 - Plans for KubeCon Seattle
 - Need to update slides
 - AI Doug: send slack msg when ready for review
 - Alpha - ok to mention
- Future looking topics/ideas
 - Tutorial on using the SDK
 - SDK interop event + new demo

Agenda - Nov 27, 2018

- Attendees
 - Doug
 - Clemens
 - Rukhsar Ahmad

- Nick
- Jem
- Matthias
- Denys
- Vladimir
- Old Als:
 - **AI Austen/Doug:** overall status/plan doc -if not this one
 - **AI Doug:** send a note to see if/when we want weekly calls after KubeCon
- Agenda/Notes
 - SDKs Status:
 - Java - Matthias Wessendorf - @matzew
 - Golang - Matthias Wessendorf - @matzew
 - Python - Denis Makogon - @denismakogon
 - Javascript - Fabio José - @fabiojose
 - CSharp - Clemens Vasters - @clemensv
 - Plans for KubeCon Seattle
 - Announce alpha level (for some) during sessions?
 - Need agreement from each SDK owner
 - Would need to modify slides
- **AI Doug:** to reach out to ChrisA about code signing - asked...
- Denis: We should list the requirements for new SDKs
 - **AI Denis:** Will take a first pass - [done](#)
 - PR for the spec repo
- Jem: open issues/PRs now or wait until things are more stable?
 - All: “bring it on” :-)
- Alpha announce at KubeCon? All: ok
- **AI Doug:** write-up a proposal for how to deal with versions for spec & SDK
- Versioning of SDKs - same version # of spec?
 - Keep them independent
 - **AI Doug:** to send a note on this - done
- Vladimir: tutorial on using SDK? Sounds good to group
- SDK Interop event + new demo

Agenda - Nov 20, 2018

- Attendees
 - Doug
 - Heinz
 - Jem
 - Nick
 - Clemens
 - Mark

- Ruksar Ahmad
- Old AIs:
 - **AI Austen/Doug:** overall status/plan doc -if not this one
- Agenda/Notes
 - SDKs Status:
 - Java - Matthias Wessendorf - @matzew
 - Golang - Matthias Wessendorf - @matzew
 - Nick to make some UX updates
 - Python - Denis Makogon - @denismakogon
 - Javascript - Fabio José - @fabiojose
 - CSharp - Clemens Vasters - @clemensv
 - Plans for KubeCon Seattle
 - Announce alpha level (for some) during sessions
 - Need agreement from each SDK owner
- **AI Doug:** send a note to see if/when we want weekly calls after KubeCon

Agenda - Nov 6, 2018

- Attendees
 - Doug
 - Clemens
 - Matthias
 - Rukhsar Admad
 - Jem
 - Erica
- Status
 - Added folks to sdk-maintainers (clemens, matthias)
 - Matthias will review and merge his PR for Java SDK
 - Clemens will start CSharp SDK next week - might be after Shanghai
 - Should we have an overall design doc? Not at this time
 - Should we strive for consistency on naming? Perhaps later, let's get code first
 - Transports
 - http(s) at a minimum
 - Pluggable transports?
 - Yes
 - Golang just does http for now
 - Handlers
 - X
 - SDKs should not get in the way of the transport or of the app doing its job
- Plans

- Java
- CSharp - AI: Clemens will try to find someone
- Golang
- ? Javascript - interest but no activity yet
- ? Python - hunt down the name of the person
- **AI Austen/Doug:** overall status/plan doc -if not this one
- Weekly calls?
 - Yes for now. Still shooting for an alpha of some SDK for KubeCon NA

Agenda - September 18, 2018

- Review Priorities & Versions
- Check in on ongoing work with the SDK.
- Discuss getting Github repos in Github
- Discuss CloudEvents Spec & SDK mismatch issue and how we will resolve this
- Discuss CloudEvents Spec & Transport/Binding Spec mismatch issues and how we will resolve this.
- Discuss how extensions will work within the SDKs.
- Discuss whether we need to do a recurring call (e.g. weekly or every other week).

Next Steps

- Address: <https://github.com/cloudevents/spec/issues/177>
- Open an issue in the cloudevents/spec repo around the versioning issues.
- Push initial work to the CloudEvents Github org.
- Clemens has proposed some solutions in #322.

Initiatives (Prioritized)

1. Instantiating CloudEvents easily in code per the current CloudEvents specification version.
 - a. Define APIs.
 - b. Getters & Setters for CloudEvent instances.

- c. Mocking of CloudEvents for testing.
 - d. Design a system which can handle different versions of the CloudEvents specification (e.g. SDK can report which versions it uses).
- 2. Assembling CloudEvents from various transports and encodings (adhering to their specifications).
 - a. HTTP
 - b. AMQP
 - c. NATS
 - d. Webhook
 - e. MQTT
- 3. Instantiating CloudEvents easily via event schemas (i.e. schema of the data within the CloudEvents "data" attribute).
 - a. Gives you easy defaults.
 - b. Validating CloudEvents by including a schema.
 - c. Could this work w/ JSON Schema?
 - d. Generating mock events from a CloudEvent schema.
- 4. Transforming existing events into CloudEvents via transformation mappings.
 - a. Transforming lower-level events to higher-order events automatically (e.g. Microsoft.Blobstorage.Object.Created > Storage.Object.Created)
- 5. CloudEvents Extension SDK add-ons/modules.
 - a. Configuration/Extension for adding middleware the SDK can use to publish Events.

Roadmap

CloudEvents SDK Version 0.1

Priorities

- Supporting at least three languages.
- Instantiating CloudEvents easily in code per the current CloudEvents specification version.
 - Define APIs, including getters & setters for CloudEvent instances.
 - Mocking of CloudEvents for testing.
- Determine how to handle versioning across the SDK, Spec, Transport Spec and Extensions.
- Support for Extensions:
 - We've decided that extensions should not only be custom properties in the Event Envelope, but also be middleware/hook functionality that can be added into the CloudEvents SDK, which optionally adds extension metadata.
 - Some example use-cases for this are:
 - Enforcing organizational policies
 - Setting defaults for an app, team or org
 - Publishing events via different transport methods
 - Encoding
 - Adding support for different vendor solutions
 - Transformations

CloudEvents SDK Version 0.2

- Assembling CloudEvents from various transports and encodings (adhering to their specifications).
 - HTTP
 - AMQP
 - NATS
 - Webhook
 - MQTT
- Instantiating CloudEvents easily via event schemas.

- Gives you easy defaults.
- Validating CloudEvents by including a schema.
- Could this work w/ JSON Schema?
- Generating mock events from a CloudEvents schema.

Temporary Notes for Serverless WG Call

Versioning

- CloudEvents Specification
- CloudEvents Transport Specifications
- CloudEvents Extensions
- CloudEvents SDK

Questions:

- Will the transport specifications continue to be versioned separately from the core spec?
 - There is a [PR](#) to discuss this.
 - We're considering versioning these things together.
 - How to handle subscribers using an SDK that does not support the latest version of CloudEvents.
- If so, how will we recognize a version of a transport specification?

Project Structure

- One repo for all SDKs
 - cloudevents/sdks
- Separate repos for each SDK + language (preferred approach)
 - cloudevents/sdk-javascript
 - cloudevents/sdk-go

- Discuss core SDK design in the CloudEvents repo.

Volunteers

- Java - (Red Hat - Matthias)
- Go - (VMware/Dispatch - Mark, Karol, Doug)
- Javascript - (Serverless Inc. - Austen)
- Python - (William Hogman, Jesse Butler)
- C Sharp - (Microsoft)

Proposals

Scenarios for sdk and protocol/spec versioning

- Generating and delivering events directly to an http endpoint where i know what version of the protocol the endpoint supports.
- Generating and delivering events directly to an http endpoint where i DON'T know what version of the protocol the endpoint supports.
- Delivering events to multiple endpoints each running different versions of the protocol
- Receiving and marshalling events of different spec versions
- Receiving and marshalling an event of a higher spec version than the SDK is aware of
- Receiving and marshalling an event of a lower spec version than the SDK supports
- Upgrading an event to match a protocol version
- Downgrading an event to match a protocol version
- are protocol version and event spec version are decoupled?

Austen Collins:

The initial SDK experience should be designed around crafting CloudEvents via class instantiation and simple getters and setters.

Here is an example of the CloudEvents SDK in Javascript:

```
class CloudEvent {

  constructor() {
    this.eventType = null
    this.eventVersion = 0.1
    ...
  }

  // Set type
  type(type) {
    if (type) this.eventType = type
    return this.eventType
  }

  // Set version
  version(version) {
    if (version) this.eventVersion = version
    return this.eventVersion
  }

  // Set data
  data(data) {
    if (data) this.data = data
    return this.data
  }

  // Publish event
  send() {
    // When initializing the CloudEvents SDK, you should be able to override the `emit()`
    function, so that it is middleware specific. Since the EG SDK wraps the CloudEvents, we
    can bake this in.
  }
}
```

```
module.export = CloudEvent
```

Here is the user experience of the SDK in Javascript:

```
const CE = require('cloudevents-sdk')

// Global config rules
CE.config({
  // Set middleware used to publish event here (e.g. Event Grid, Event Gateway, NATS)
  middleware:
})

// Create new CloudEvent
var cloudevent = new CE.CloudEvent()

// The new instance comes with sane defaults built in
// Simple getter and setter methods allow developers to customize the event
cloudevent.type('myapp.user.created')
cloudevent.version('0.3')
cloudevent.data({
  email: jeff@lebowski.com
})

// Publish the event using the middleware pre-configured above
cloudevent.send()
```

Matthias Wessendorf:

Here is a Java proposal for an initial API

```
public interface CloudEvent<T> {

  // required fields
  String getEventType();
  String getCloudEventsVersion();
  ...

  // optional fields
  Optional<URI> getSchemaURL();
  Optional<T> getData();
}
```

```
....  
}
```

As well, as a Builder (and a default implementation of the Interface).

Here is the user experience of the SDK:

```
// given:  
final Map<String, String> keyValueStore = Map.of("key1", "value1", "key2", "val2");  
final String eventId = UUID.randomUUID().toString();  
final URI src = URI.create("/trigger");  
final String eventType = "My.Cloud.Event.Type";  
  
// when  
final CloudEvent<Map<String, String>> simpleKeyValueEvent = new  
CloudEventBuilder()  
    .data(keyValueStore)  
    .eventType(eventType)  
    .eventId(eventId)  
    .source(src)  
    .build();  
  
// then  
simpleKeyValueEvent.getData().ifPresent(data -> {  
    assertThat(data).isNotNull();  
    assertThat(data).containsKeys("key1", "key2");  
    assertThat(data).containsValues("value1", "val2");  
});  
assertThat(simpleKeyValueEvent.getCloudEventsVersion()).isEqualTo("0.1");  
....
```

API draft is here:

<https://github.com/project-streamzi/io.cloudevents#java-api>

Transport addons for 'publishing' (e.g. Event Grid, Event Gateway,...) can be packaged in different submodules:

- Cloudevents-http (e.g. using OkHttp)
- Cloudevents-amqp (leveraging proton-j)
- Cloudevents-...
 - These modules could offer 'helper' features, implementing details from the different 'transport' specs

Notes

September 18, 2018

We synced on initiatives and priorities. No changes were suggested to the priorities. Though, at this time, we feel each SDK implementation can

July 18, 2018

We reviewed the initial implementations of the CloudEvents SDKs by each stakeholder and raised issues. The potential issues we found were:

- CloudEvents Spec & SDK mismatch will cause problems
- CloudEvents Spec & Transport/Binding Spec mismatches might cause problems
- The extensions experience should allow for custom modules to extend the SDK (along with the CloudEvents envelope) and this should be considered early on.

We adjusted the scope for CloudEvents SDK 0.1 to add support for extensions and we need to raise the versioning issues within the broader working group.

We also decided to publish our initial implementations to the cloudevents github repo. Doug is setting up a monolithic Github repo within the CloudEvents org and will share details about this on the next Serverless WG Call.

June 25, 2018

We drafted use-cases/features/goals, ranked them by priority, organized them into SDK versions and found volunteers for implementations across various languages.

Next steps are to present these use-cases and priorities to the CNCF Serverless Working Group on June 28, 2018 for feedback. We also need to clarify the scope of each initiative. After receiving feedback from the working group, we'll coordinate another call.

Previous Agendas

July 18, 2018

- Check-in and review progress
 - Karol: Go - VMware Dispatch
 - <https://github.com/dispatchframework/cloudevents-go-sdk>
 - Just supports JSON for now, binary & structured HTTP modes
 - Works in “Dispatch”
 - Location of extensions could be a big change in the interface design
 - Questions around extensions for validation, auth, etc. Sounds like a middleware need?
 - Simon (RedHat): Java impl
 - Looking at using a ‘map’ for storing the data to allow for easy future expansion
 - Adding new fields shouldn’t be a big issue, but removing them would be a breaking change
 - 2 impls:
 - <https://github.com/project-streamzi/jcloudevents>
 - <https://github.com/project-streamzi/io.cloudevents>
 - Heptio EventRouter. The events are “odd”.
 - <https://github.com/sjwoodman/heptio-cloud-event-source>
 - Austen
 - Similar extensions experience across SDK languages
 - Focused on publishing/exporting, haven’t yet focused on consuming/ingesting.

- Identify areas where we need clarity & alignment
 - Extensions
 - Attributes to CloudEvents
 - Properties and actions in the SDKs
 - Versioning
 - CloudEvents Spec & SDK mismatch will cause problems
 - CloudEvents Spec & Transport/Binding Spec mismatches might cause problems
- Discuss publishing current work in the CloudEvents repo