



**TRUST**  
Over **IP**  
FOUNDATION

# Semantics Group (*ISWG-S*) Weekly Meeting

5 January 2021

 THE **LINUX** FOUNDATION

## 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.

## Membership Advisory

- › For the protection of all Members, active participation in working groups, meetings and events is limited to members, including their employees, of the Trust over IP Foundation who have signed the membership documents (including Trust over IP membership agreement as well as relevant working group charters) and thus agreed to the intellectual property rules governing participation.
- › If you or your employer are not a member, we ask that you not participate in meetings by verbal contribution or otherwise take any action beyond observing.

# Agenda

- › 1. Welcome (Paul—2.5 mins)
- › 2. Newcomer Introductions (Paul—2.5 mins)
- › 3. Task Force Updates (WG—5 mins)
- › 4. New group: *Inputs Domain Group* (Paul/Robert—10 mins)
- › 5. New task force: *Storage and Portability TF* (Paul/Christoph—10 mins)
- › 6. Evolution of OCA (*cont.*) (Open discussion led by Paul—20 mins)
- › 7. Human-readable schema specifications (Steven—5 mins)
- › 8. Logistics and miscellaneous (Paul—5 mins)
  - › a. News from the Operations Team
  - › b. Leadership positions
  - › c. Meeting schedule



# Newcomer Introductions

## (30 seconds!)

1. Name
2. Location / time zone
3. Affiliation(s)
4. One-sentence summary of your interest in Semantics (or **one particular semantics-related** issue you personally want to see solved)

# Task Force/Focus Group Updates (5 mins)

- Medical Information TF (Scott)
- ✓ FHIR FG (John/Mukund)
- Notice & Consent TF (Mark)
- Privacy & Risk TF (Jan)

New group:  
*Inputs Domain Group*  
(10 mins)

Presented by: P.Knowles/R.Mitwicky

<https://wiki.trustoverip.org/display/HOME/Inputs+Domain+Group>

# Inputs Domain Group

The mission of the *Inputs group* (ISWG-I) is to define a decentralized key management infrastructure that provides self-certifying identifier issuance underpinned by cryptographic one-way functions for Internet-scale deployment.

The scope of this sub-group is to define specifications and best practices that bring cohesion to data entry processes and other *Inputs standards* throughout the ToIP stack, whether these standards are hosted at the Linux Foundation or external to it.

<https://wiki.trustoverip.org/display/HOME/Inputs+Domain+Group>

## Inputs Domain Group

Created by Paul Knowles, last modified on Dec 20, 2020

- Introduction
- Scope
- Chairs / Leads
- Core Inputs Concepts
  - Key Event Receipt Infrastructure (KERI)
- Deliverables

### Introduction

*Data entry* is defined as the process of inputting data into a computer using devices such as a keyboard, scanner, disk, sensor, or voice. In a balanced network model, data entry requires a signing key in order to establish that inputted data has come from an authenticable source. In the *Model of Identifier States*, characteristics of data entry are depicted in the northern hemispherical *Inputs domain*.

**Inputs domain** [active] / what is put in, taken in, or operated on by any process or system

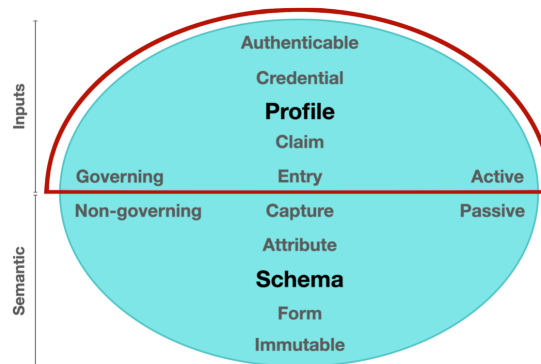


Figure 1. Model of Identifier States (Active state). A component diagram highlighting the Inputs domain within a balanced network model.

New task force:  
*Storage and Portability TF*  
(10 mins)

Presented by: P.Knowles/C.Fabianek

<https://wiki.trustoverip.org/display/HOME/Storage+and+Portability+Task+Force>



# Storage and Portability Task Force

The mission of the *Storage & Portability Task Force* (SPTF) is to facilitate the creation of specifications and best practices for the interoperability of decentralized storage and portability components within the context of end-to-end Dynamic Data Economy (DDE) data flows.

The scope of the SPTF will include all storage and portability component solutions (including data stores, hubs, containers and VCs) that are hosted at the Linux Foundation or external to it.

<https://wiki.trustoverip.org/display/HOME/Storage+and+Portability+Task+Force>

## Storage and Portability Task Force

Created by Paul Knowles, last modified on Dec 29, 2020

### Industry sector-agnostic

- [Overview](#)
- [Mission and Scope](#)
- [Intellectual Property Rights \(Copyright, Patent, Source Code\)](#)
- [Conveners](#)
- [Chairs](#)
- [Interested Members \(add your name and organization if you may be interested in joining this TF\)](#)
- [Objectives](#)
- [Technical components](#)
- [Example use case](#)
- [Deliverables](#)
- [Proposed schedule](#)
- [Shared documents and links](#)

### Overview

Permanent and transient data stores will become an integral part of the *Dynamic Data Economy* (DDE), fostering user-cent access and safe and secure data sharing. In many instances, [Verifiable Credentials](#) (VCs) will be the payload authentication within transient containers. There will also be licensing and certification instances where VCs will be the only component re payloads. With storage and portability solutions being developed within a number of open communities, there is a need to solutions are interoperable across a decentralized network.

### Mission and Scope

The mission of the *Storage & Portability Task Force* (SPTF) is to facilitate the creation of specifications and best practices storage and portability components within the context of end-to-end Dynamic Data Economy (DDE) data flows. The scope portability component solutions (including data stores, hubs, containers and VCs) that are hosted at the Linux Foundation activities will include creating template Requests for Proposal (RFPs) and additional guidance to utility and service provide capacity. The SPTF may organize Focus Groups to escalate the development of certain storage and portability component the *Inputs and Semantics Working Group* (ISWG) members and in line with the overall mission of the ToIP Foundation..

### Intellectual Property Rights (Copyright, Patent, Source Code)

This TF uses the same IPR licensing selections as the Inputs and Semantics WG:

- Copyright mode: [Creative Commons Attribution 4.0](#).
- Patent mode: [W3C Mode](#) (based on the [W3C Patent Policy](#)).

# Evolution of OCA (*cont.*) (20 mins)

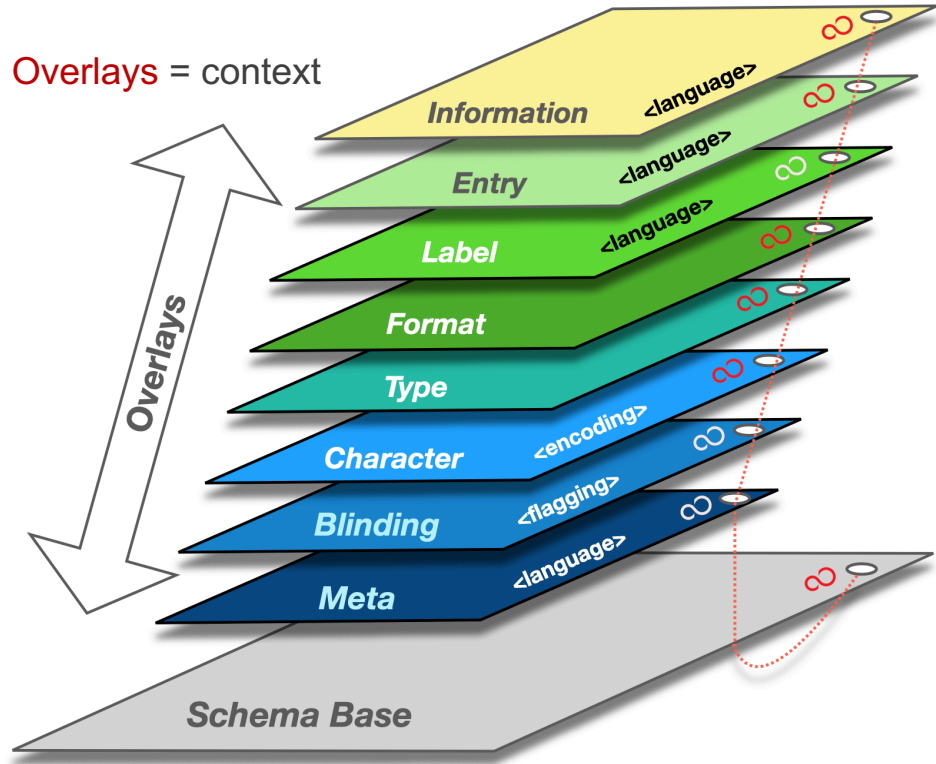
Open discussion led by: P.Knowles

<https://humancolossus.foundation/blog/cjzegoi58xgpfzwxyrqlroy48dihwz>

# Evolution of OCA

What might the next-gen version of OCA look like?

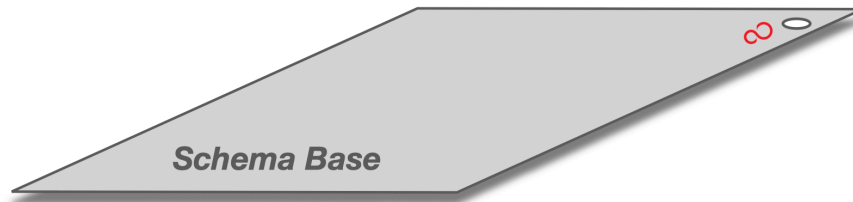
Schema Base = shell



# Schema Base

```
{  
  "@context": "https://oca.tech/v1",  
  "type": "spec/schema_base/1.0",  
  "classification": "GICS:35202010",  
  "issued_by": "did:example:ebfeb1f712ebc6f1c276e12ec21",  
  "attributes": [  
    "_attr-1_",  
    "_attr-2_",  
    "_attr-3_",  
    "_attr-4_",  
    "_attr-5_",  
    "_attr-6_"  
  ]  
}
```

Normalised attribute names



# Data collection, data storage, data exchange

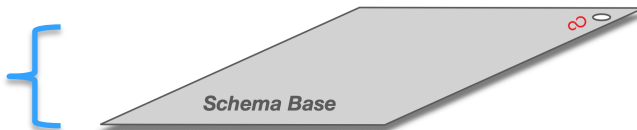
**Ingestion** is the art of collecting data and storing it.

- 1.) **Collection** representation  
(*data inputs*)

**Formatting** is converting a date, time, number, message or other object from its internal representation into a string.

**Digestion** is the art of processing data into a format that value can be extracted from.

- 2.) **Storage** representation  
(*data capture*)

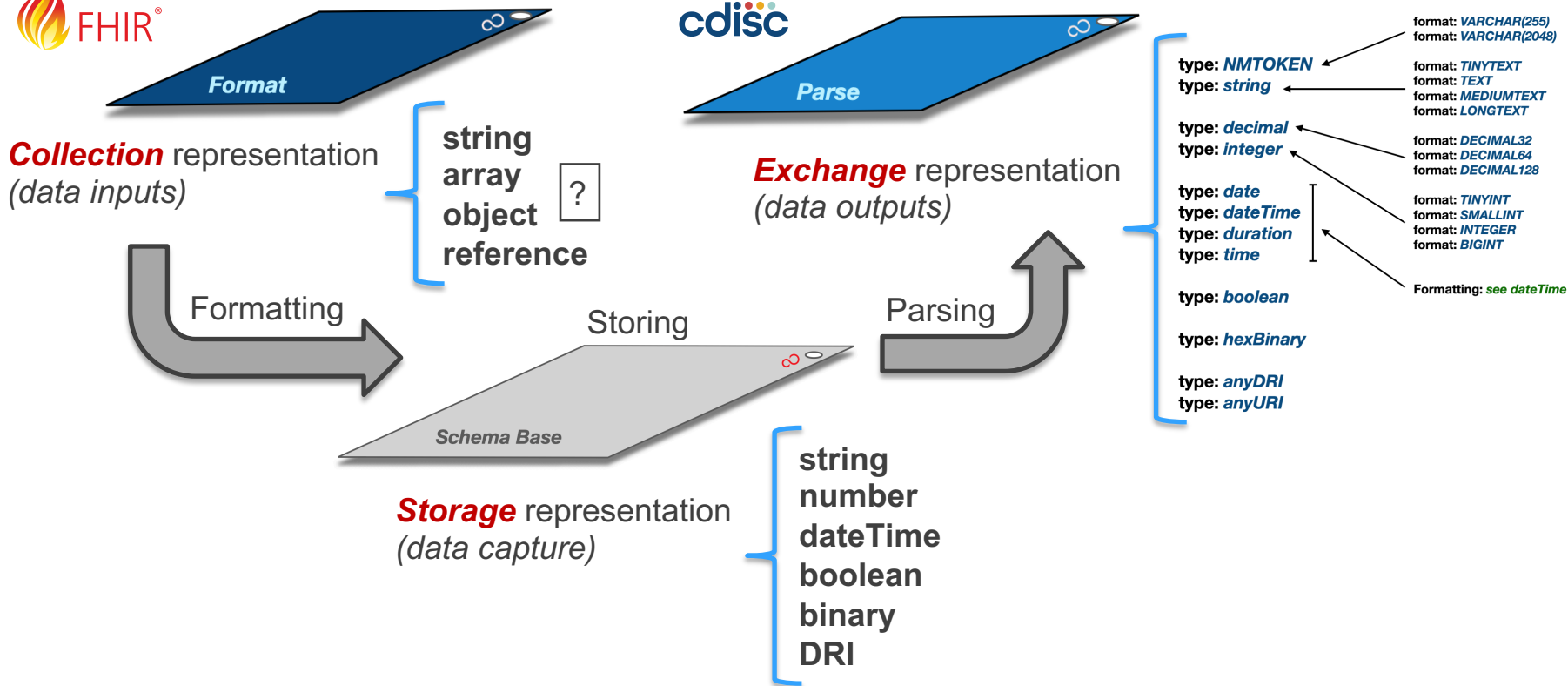


- 3.) **Exchange** representation  
(*data outputs*)

**Parsing** is converting a string to an internal representation of the date, time, number, message or other object.




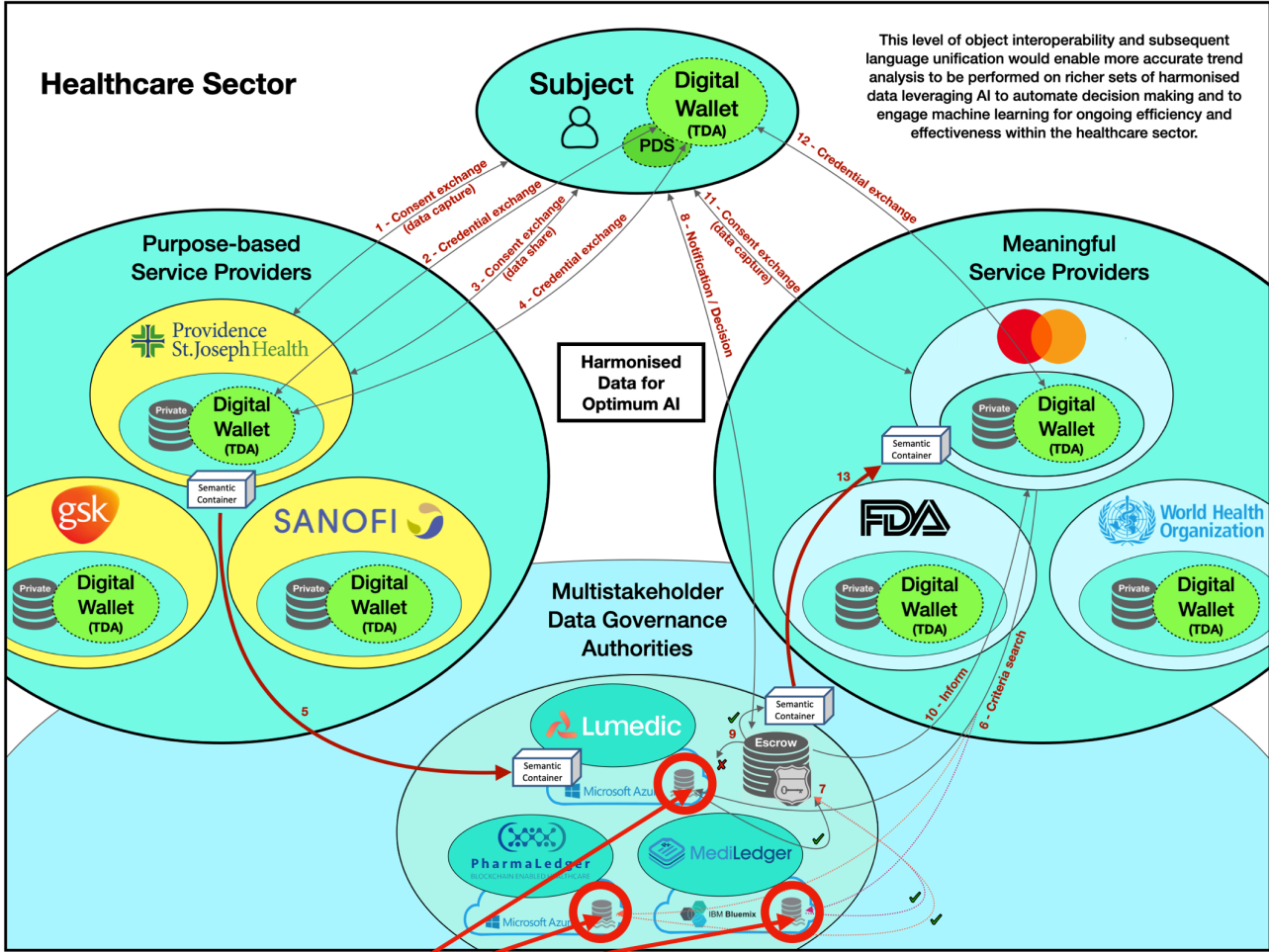
# Formatting, Storing, Parsing



# Dynamic Data Economy

For data pooling requirements, the data storage format must be uniform for similar data across multiple data sharing hubs

		
string		string
array		number
object		dateTime
reference		boolean
		binary
		DRI



## Open Questions

- 1.) Separating the blinding block from the schema base
- 2.) Separating the attribute types from the schema base
- 3.) Separating the descriptive meta data from the schema base
- 4.) As the schema issuer would be publishing a set of objects rather than just a schema base (e.g. the *meta*, *character encoding*, *type*, *label* and *entry overlays*, etc.), use cases are really based on semantic context rather than a machine-readable base object. A predefined set of overlays together with the base object could be an “endorsed” schema. By signing the data processed by the OCA schema structure, captured data can be validated and “endorsed” as authentic by the original issuer. To discuss.

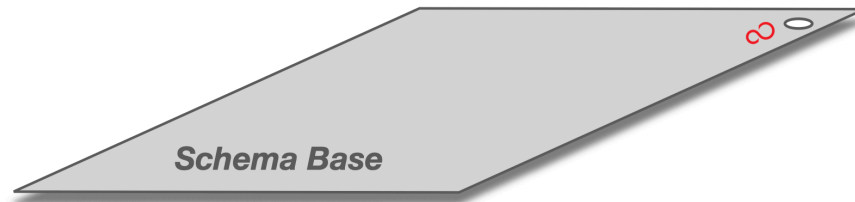
# Schema Base

```
{
  "@context": "https://oca.tech/v1",
  "type": "spec/schema_base/1.0",
  "classification": "GICS:35202010",
  "issued_by": "did:example:ebfeb1f712ebc6f1c276e12ec21",
  "attributes": {
    "efxnizr39ifc4": "string",
    "nfijh9i38ceSa": "string",
    "Mceo097d72bi1": "string",
    "0pwohq6v527vo": "string",
    "kno28gSr53nia": "dateTime",
    "93fdhj87bxzjs": "string"
  },
  "attr_blinding": [
    "efxnizr39ifc4",
    "nfijh9i38ceSa",
    "Mceo097d72bi1",
    "kno28gSr53nia"
  ]
}
```

Storage representation

Uniform PII flags

string  
number  
dateTime  
boolean  
binary  
DRI



# Human-readable schema specifications (5 mins)

Led by: S.Milstein



# Human-readable schema specifications

Rosie's Sandbox Search... dev

- Layout
  - Dropdown selector
  - Overlay column hide/show
  - Overlay column hide/show header attributes

Attributes ☰

en\_US

Attribute	Entry en_US	Information en_US	Label en_US
patientGivenName	-	A given name is the potentially with a mi from the other mem	
patientFamilyName	-	In some cultures, a s personal name that i Practices vary by cu	
patientBirthDate	-	Date on which the p	
sick	Yes,No,Don't Know	There is no evidence increases vaccine ad moderate or severe illness has im- prove infections or diarrhe withhold vaccination	
allergies	Yes,No,Don't Know	History of anaphylac diffi- culty breathing a previ- ous dose of for further doses. Fo eating eggs, do not	

[ Sandbox ] © Copyright 2020

Language selector

Collapsible column filter synced with language selector

Rosie's Sandbox Search... dev

- Layout
  - Dropdown selector
  - Overlay column hide/show
  - Overlay column hide/show header attributes

Attributes ☰

- Base
- Character Encoding
- Entry en\_US
- Entry es\_ES
- Format
- Information es\_ES
- Information en\_US
- Label en\_US

Select language

en\_US

✓ es\_ES

Attribute	Entry es_ES	Information es_ES	Label es_ES
patientGivenName	-	Un nombre de pila es la parte de un nombre personal que identifica a una persona, potencialmente también con un segundo nombre, y diferencia a esa persona de los demás miembros de un grupo que tienen un apellido común.	Nombre (de persona, potencialmente también con un segundo nombre, y diferencia a esa persona de los demás miembros de un grupo que tienen un apellido común):
patientFamilyName	-	En algunas culturas, un apellido, apellido o apellido es la parte de un nombre personal que indica la familia, tribu o comunidad de una persona. Las prácticas varían según la cultura.	Nombre (apellido):

[ Sandbox ] © Copyright 2020 All rights reserved CollabVentures |

# Logistics and miscellaneous (5 mins)

<https://wiki.trustoverip.org/display/HOME/2021-01-05+Meeting>

## News from the Operations Team

### **Nick Hayfack**

*(Inputs and Semantics WG representative on the ToIP Operations Team)*

The purpose of the Operations Team is to create a small group of ToIP members who will share information on the workplans of our WGs, help ensure that draft deliverables are advancing as intended through the stages of the ToIP workflow, resolve any bottlenecks that arise around decision-making/approvals and discuss issues such as (for example) introducing firmer parameters for the creation of Taskforces under all WGs.

The Operations Team will not be directing or otherwise interfering with the development of content and deliverables in the WGs themselves.

## ISWG Leadership positions

- › Inputs Group Chair
  - › **Robert Mitwicki**
- › Inputs Group Vice-chair
  - › **Sam Smith**
- › Semantics Group Chair
  - › **Paul Knowles** (*ISWG Lead*)
- › Semantics Group Vice-chair
  - › **John Wunderlich**
- › Volunteer via the meeting page at ...
  - › <https://wiki.trustoverip.org/display/HOME/2021-01-05+Meeting>

## Meeting schedule

- › **FHIR FG** bi-weekly meeting
  - › Thursday, **January 7th** @ 08:00 US PT / 17.00 CET
  - › Zoom link: <https://zoom.us/j/93406719136?pwd=SUozZHBQM0N5TUhYMHJqL0ZQM3I3Zz09>
- › **Semantics Group** weekly meeting
  - › Tuesday, **January 12th** @ 09:00 US PT / 18.00 CET
  - › Zoom link: <https://zoom.us/j/93406719136?pwd=SUozZHBQM0N5TUhYMHJqL0ZQM3I3Zz>
- › **Inputs Group** weekly meeting
  - › Wednesday, **January 13th** @ 09:00 US PT / 18.00 CET
  - › Zoom link: <https://zoom.us/j/93406719136?pwd=SUozZHBQM0N5TUhYMHJqL0ZQM3I3Zz>
- › **Storage & Portability TF** bi-weekly meeting
  - › Monday, **January 18th** @ 09:00 US PT / 18.00 CET
  - › Zoom link: <https://zoom.us/j/96177500988?pwd=cDVNS2JzN1YxYXhiUVprWIM0OGQxQT09>





Closing Q & A

# Legal Notices

The Linux Foundation, The Linux Foundation logos, and other marks that may be used herein are owned by The Linux Foundation or its affiliated entities, and are subject to The Linux Foundation's Trademark Usage Policy at <https://www.linuxfoundation.org/trademark-usage>, as may be modified from time to time.

Linux is a registered trademark of Linus Torvalds. Please see the Linux Mark Institute's trademark usage page at <https://lmi.linuxfoundation.org> for details regarding use of this trademark.

Some marks that may be used herein are owned by projects operating as separately incorporated entities managed by The Linux Foundation, and have their own trademarks, policies and usage guidelines.

TWITTER, TWEET, RETWEET and the Twitter logo are trademarks of Twitter, Inc. or its affiliates.

Facebook and the "f" logo are trademarks of Facebook or its affiliates.

LinkedIn, the LinkedIn logo, the IN logo and InMail are registered trademarks or trademarks of LinkedIn Corporation and its affiliates in the United States and/or other countries.

YouTube and the YouTube icon are trademarks of YouTube or its affiliates.

All other trademarks are the property of their respective owners. Use of such marks herein does not represent affiliation with or authorization, sponsorship or approval by such owners unless otherwise expressly specified.

The Linux Foundation is subject to other policies, including without limitation its Privacy Policy at <https://www.linuxfoundation.org/privacy> and its Antitrust Policy at <https://www.linuxfoundation.org/antitrust-policy>, each as may be modified from time to time. More information about The Linux Foundation's policies is available at <https://www.linuxfoundation.org>.

Please email [legal@linuxfoundation.org](mailto:legal@linuxfoundation.org) with any questions about The Linux Foundation's policies or the notices set forth on this slide.