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

5 January 2021

 THE **LINUX** FOUNDATION

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# 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*, the 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

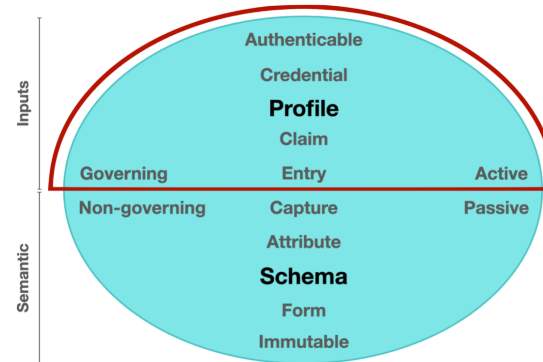


Figure 1. Model of Identifier States (Active state). A component diagram highlighting the Inputs domain within a balanced network model.

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](#)).

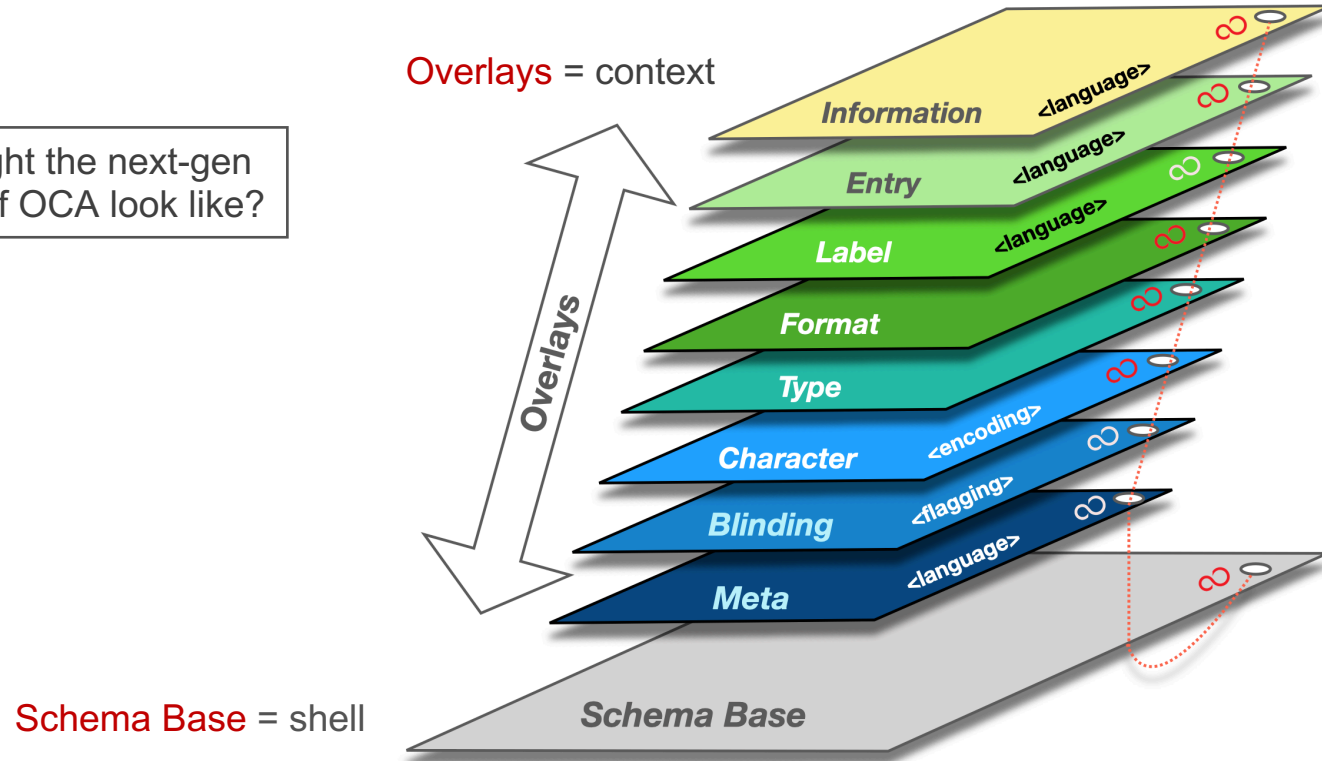
# Evolution of OCA (*cont.*) (20 mins)

Open discussion led by: P.Knowles

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

# Evolution of OCA

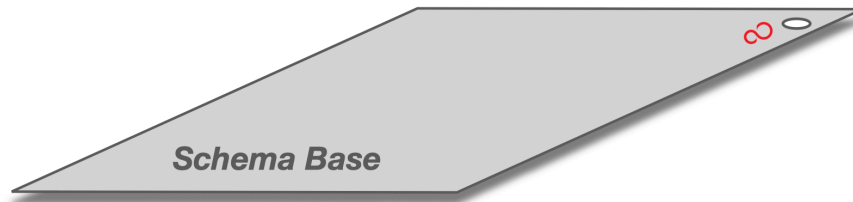
What might the next-gen version of OCA look like?



# Schema Base

```
{  
  "@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

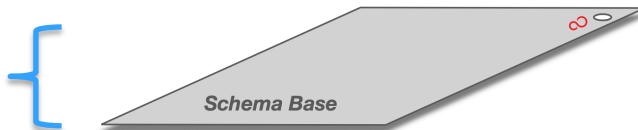
**Ingestion** is the art of collecting data and storing it.

- 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*)

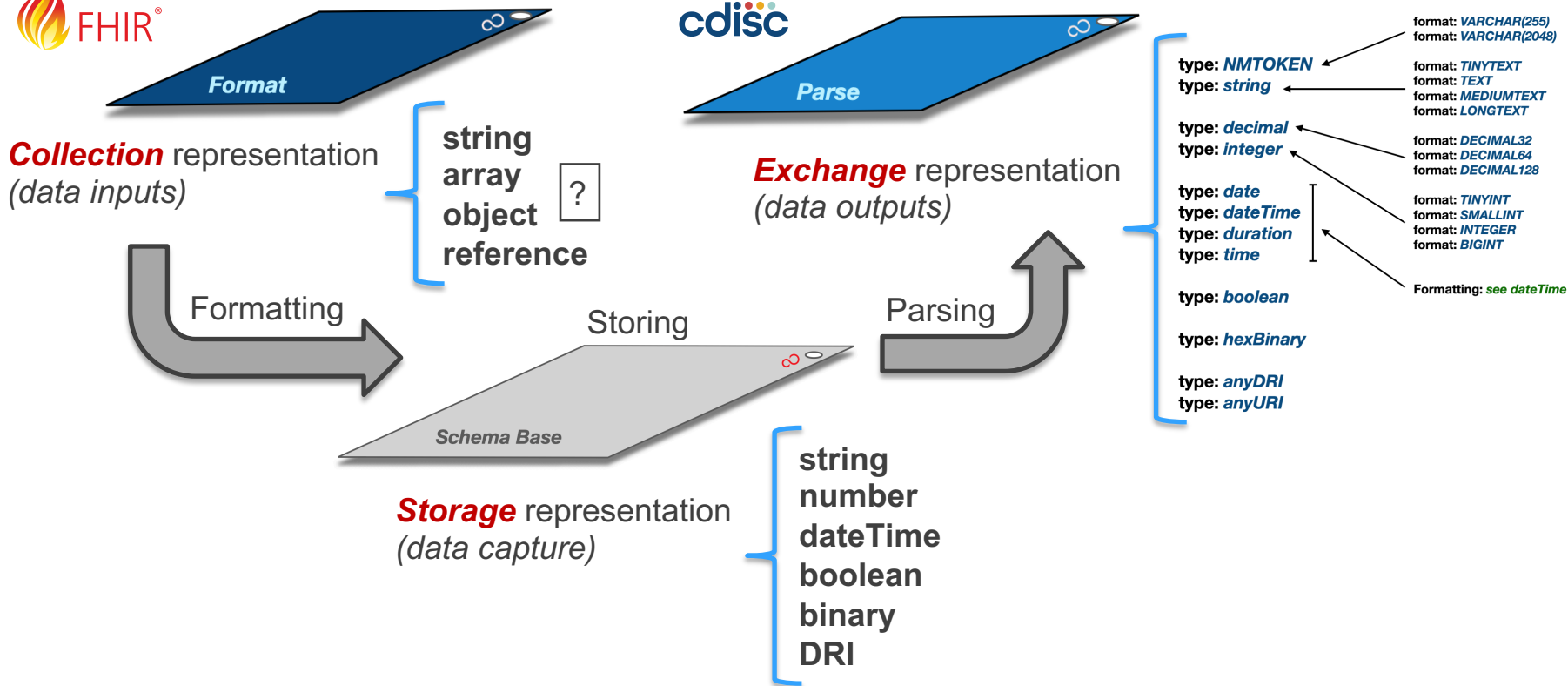


- 3.) **Exchange** representation  
(*data outputs*)

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



# Formatting, Storing, Parsing



# Dynamic Data Economy

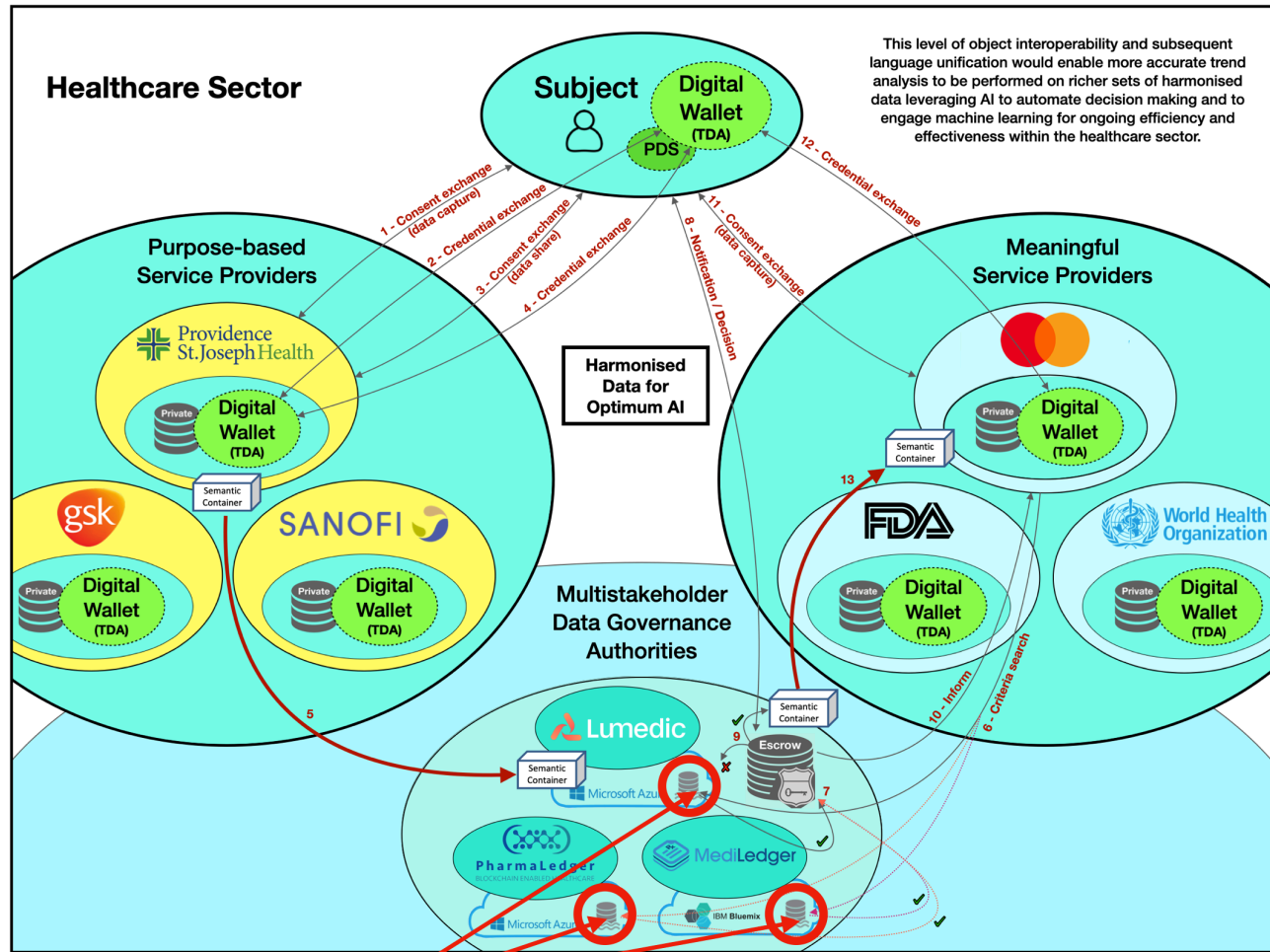
For data pooling requirements, the data storage format must be uniform for similar data across multiple data sharing hubs



string  
array  
object  
reference



string  
number  
dateTime  
boolean  
binary  
DRI



This level of object interoperability and subsequent language unification would enable more accurate trend analysis to be performed on richer sets of harmonised data leveraging AI to automate decision making and to engage machine learning for ongoing efficiency and effectiveness within the healthcare sector.

Dynamic Data Sharing Hubs

## 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.

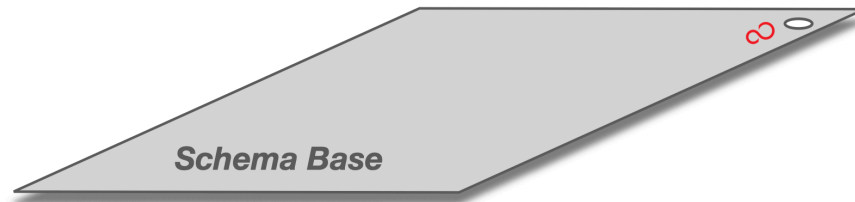
# Schema Base

```
{
  "@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	

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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):

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# 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 Mitwicky**
- › 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>
- › **Privacy & Risk TF** bi-weekly meeting
  - › Monday, **January 11th** @ 09:00 US PT / 18.00 CET
  - › Zoom link: <https://zoom.us/j/91264300414?pwd=RndaTGZxeUp0bWt2aUttVU1kZ1FrQT09>
- › **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

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