# 2022-01 International Patient Summary (IPS)

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## Short Description
This track will test the creation and exchange of patient summary data across jurisdictions and usage contexts using the FHIR International Patient Summary (IPS) Implementation Guide specification.

## Long Description
This track will test the creation and exchange of patient summary data across jurisdictions and usage contexts using the FHIR International Patient Summary (IPS) Implementation Guide specification. The track will focus on the primary theme of cross-border IPS document bundle data exchange, with additional sub-themes:

- Pilot implementations of multiple jurisdictions (e.g., GDHP) for cross-border IPS document bundle data exchange
- Test implementation of proposed Patient resource `$summary` operation (multiple servers, including Terminz)
  - Can generate an IPS instance for a patient based on existing data and a set of rules
  - Rules can be server-defined (default) or specified by parameter
  - Need to answer the “relevant” question for what data to include
- Enhanced IPS instance testing leveraging available testing suites
  - The Inferno testing tool (ONC/MITRE)
  - The Gazelle testing tool suite (used in common with the IHE North American and European Connectathons) (optionally, as available)
  - One or more FHIR server(s) for demonstrating and testing IPS data exchange
- Transforming IPS data to a WHO DDCC:VS vaccination certificate document including the EU DCC, Smart Health Cards, and DIVOC QR code specifications.

General track goals include:

- Promote the sharing of experiences
- Identify gaps and pitfalls in the IPS adoption

An open approach will be followed, expecting attendees to actively participate in the selection and definition of the tests to be performed and topics to be discussed, beyond those suggested by the track leaders.

## Type
Test an Implementation Guide

## Submitting Work Group/Project/Accelerator/Affiliate/Implementer Group
Patient Care WG (IPS Project)
| **Track Lead(s)** | Rob Hausam, rob@hausamconsulting.com  
|                  | Giorgio Cangioli, giorgio.cangioli@gmail.com |
| **Track Lead Email (s)** | rob@hausamconsulting.com; giorgio.cangioli@gmail.com |
| **Related Tracks** | International Patient Access  
|                  | SHC for Vaccination  
|                  | Vulcan/Gravitate |
| **FHIR Version** | R4 |
| **Specification(s) this track uses** | IPS CI build  
|                  | http://build.fhir.org/ig/HL7/fhir-ips  
|                  | 1.0.0 STU1 build  
|                  | http://hl7.org/fhir/ips/  
|                  | https://build.fhir.org/ig/HL7/fhir-ips/branches/connectathon29-pre/index.html  
|                  | Connectathon 29 IPS branch - for changes during Connectathon (to be created) |
| **Artifacts of focus** | We're planning to focus this time on the updated IPS Bundle and Composition profiles, plus the IPS profiles for the required Medication, Allergy and Problems sections and the recommended Immunization and Lab Results sections (plus Patient).  
|                  | **IPS “base” profiles**  
|                  | IPS Bundle: http://build.fhir.org/ig/HL7/fhir-ips/StructureDefinition-Bundle-uv-ips.html  
|                  | IPS Composition: http://build.fhir.org/ig/HL7/fhir-ips/StructureDefinition-Composition-uv-ips.html  
|                  | IPS AllergyIntolerance: http://build.fhir.org/ig/HL7/fhir-ips/StructureDefinition-AllergyIntolerance-uv-ips.html  
|                  | IPS Condition: http://build.fhir.org/ig/HL7/fhir-ips/StructureDefinition-Condition-uv-ips.html  
|                  | IPS Immunization: http://build.fhir.org/ig/HL7/fhir-ips/StructureDefinition-Immunization-uv-ips.html  
|                  | IPS Observation - Results (Laboratory): http://build.fhir.org/ig/HL7/fhir-ips/StructureDefinition-Observation-results-laboratory-uv-ips.html  
|                  | IPS Patient: http://build.fhir.org/ig/HL7/fhir-ips/StructureDefinition-Patient-uv-ips.html  
|                  | **WHO DDCC**  
|                  | DDCC:VS vaccination certificate document |
| **Expected participants** |  
|                  | • IPS adopters and implementers  
|                  | • GDHP Interoperability Work Stream IPS Work Group member countries and territories participating in IPS pilot implementations  
|                  | • IHE IPS profile implementers and testers  
|                  | Expected number of participants: 10-15 |
| **Zulip stream** | IPS Zulip stream (multiple topics) |
| **Track Details** | **Track Kickoff**  
|                  | 2:00 - 3:00 PM CST  
|                  | The initial IPS session to assess track interest and participation. We will review and update the track agenda and do final planning for the track activities over the following two days.  
|                  | **IPS Workflow Discussion (Tuesday)** |
Tuesday 9am-10am CST

People from the IPS track are invited to attend an event that will include developers from the UK for an IPS prototype. A 12-minute demo is shown here: https://vimeo.com/653713828

This discussion will also include feedback from a US implementation of the IPS (Patient Centric Solutions)

For more information on this meeting, please contact John D'Amore at johnd@moreinformatics.com

Meeting ID: 979 1516 4351
Passcode: 035254
+13017158592,,97915164351#,,,,*035254# US (Washington DC)
+13126266799,,97915164351#,,,,*035254# US (Chicago)

IPS Storyboards

( the storyboard details are to be further developed)

- International travel and unplanned care in a different country/territory
- Vaccination (including COVID-19) data representation and exchange
- Data exchange for clinical care in limited resource environments (LMIC)

WHO DDCC / IPS transforms

The recently released WHO specification for Digital Documentation of Covid Certificates: Vaccination Status (DDCC:VS) is used to capture and share Covid Vaccination Status and leverages International Patient Summary’s Immunization profile. In this track, we are looking for implementers of IPS with immunization content to provide an IPS Document Bundle to be submitted to the DDCC Certificate Generation Service (CGS). The DDCC CGS will ingest an IPS Document Bundle and produce a signed DDCC Document Bundle which includes DocumentReferences containing QR codes in the following formats:

- EU Digital Covid Certificates
- SMART Health Cards
- DIVOC

This interaction uses the Generate Health Certificate operation which has an OperationDefinition.

Further interactions with DDCC Registry and Repository Services can utilize MHDS as referenced in the DDCC:VS transactions to register, store and retrieve DDCC:VS documents.

IPS Roles

IPS Document Creator

Creates or updates a FHIR IPS document (Bundle containing a Composition and supporting resources) from source data. The source data likely will be existing data on a FHIR server, but this can be done using whatever means are appropriate, including manual creation, assembling documents from other resources, transforming from a CDA IPS document, etc. Submits that document to a FHIR server. Optionally a document creator may digitally sign the document (but this is not expected at this time).

IPS Data Source

Creates or Update FHIR IPS resources (e.g. allergies, vaccination data) to be used for creating or updating a FHIR IPS document. The source data likely will be existing data on a FHIR server, but this can be done using whatever means are appropriate, including manual creation, transforming/extracting data from a CDA IPS document, etc. Submits those resources to a FHIR server.

IPS Document Consumer

Retrieves a FHIR IPS document and/or individual component resource instances created by the Document Creator or the Data Source from the FHIR server and does one or more of the following: a) validates the document and/or component resource instances against the IPS Clinical Document profile, b) displays the document and/or discrete data components in a browser (or by other means), c) translates the coded and/or narrative data to a different language for display, or d) translates the coded data to different code system(s) used in a jurisdiction that is different from the source.

IPS Document Processor
Uses a FHIR IPS document and/or individual component resource instances for the purpose of creating/updating other kinds of IPS based documents as for example vaccination certificate.

**Scenarios**

For all scenarios below, participants are expected to provide their own content for the documents (obviously nothing with PHI should be used at a public Connectathon). If participants don’t have readily available content, they are encouraged to create documents that mimic the content in IPS or other patient summary sample files.

The following scenarios describes few of the many situations that can be realized and tested:

1. **Create and submit an IPS document bundle (bundle end point)**

   **Action:** User creates a FHIR IPS document consisting of a Composition resource with narrative sections, bundled with Patient (Composition.subject) and Practitioner (Composition.author) and the additional supporting component resources containing the summary clinical data.

   User then POSTs the document to a FHIR server, by using the bundle end point.

   **Precondition:** none, but existing resources may be used.

   **Success Criteria:** Bundle is successfully submitted to a FHIR server. Consumer in Scenario 4 can display the document and render all attested content.

2. **Create and submit an IPS document bundle (base end point)**

   **Action:** User creates a FHIR IPS document consisting of a Composition resource with narrative sections, bundled with Patient (Composition.subject) and Practitioner (Composition.author) and the additional supporting component resources containing the summary clinical data.

   User then POSTs the document to a FHIR server, by using the base end point.

   **Precondition:** used resources are not Success Criteria: all of the resources that the IPS bundle contains are processed as individual resources. Consumer 4 can ask to generate a new IPS bundle by using the $document operation.

3. **Submit an IPS composition and retrieve the IPS by using the $document operation**

   **Action:**
   - Step 1: Create a Composition resource
   - Step 2: Ensure the subject, author, and custodian references point to valid Patient, Practitioner, and additional clinical resources.
   - Step 3: POST the Composition to a FHIR server
   - Step 4: Check the operation outcome to ensure it was successful
   - Step 5: Call $document (persistent option) on the Composition to get a full document Bundle back,

   **Precondition:** all referenced resources are owned by the FHIR server generating the IPS

   **Success Criteria:** The IPS Bundle is successfully generated and made persistent by the FHIR server.

4. **Display an IPS document and/or individual component resources**

   **Action:** User retrieves an IPS document and/or discrete component resources from the FHIR server and displays the data in a web browser (or by other means).

   **Precondition:** An IPS document exists on the target FHIR server.

   **Success Criteria:** Document is successfully displayed.

5. **Translate (or map) the narrative and coded data**

   **Action:** the consumer retrieves an IPS (or some of the used resources) and possibly using FHIR terminology services translate the narrative and coded data into different language(s) for display or to other code systems appropriate for different jurisdictions.

   **Precondition:**

   **Success Criteria:** a translated display for a codeable element, or a code mapped into another code systems appropriate for different jurisdictions is shown.

6. **Update an IPS document and/or individual component resources**
**Action:**
- the data source POST/PUT new or updated components to the FHIR server
- the Creator retrieves an IPS (or some of the used resources) and uses these data to update the IPS
- the Creator PUT the new IPS Composition

**Precondition:** An IPS document exists on the target FHIR server.

**Success Criteria:** An updated IPS is made available for usage in the Server.

7. **Process an IPS document and/or individual component resources**

**Action:** the processor retrieves an IPS (or some of the used resources) and uses these data to generate other IPS-based document as for example Vaccination Certificates.

**Precondition:** An IPS document exists on the target FHIR server.

**Success Criteria:** a translated display for a codeable element, or a code mapped into another code systems appropriate for different jurisdictions is shown.

**TestScript(s)**

No test scripts have been defined at the present time.

Connectathon Manager (ConMan) [link](#)

**Security and Privacy Considerations**

These are important considerations as IPS implementations are progressing. No specific security expectations or requirements have been defined at the present time but the proposed International Patient Access (IPA) IG specification may help to provide a model and a means for addressing these issues (see the Bonus Challenge below).

**Bonus Challenge**

- Utilize the IPA standard API access mechanisms (including Smart App Launch protocol) for obtaining clinical data from an EHR (or other repository/source) for creation of IPS document and/or profile instances
  - The US Core IG specification may be used as a relatively well-developed and implemented model for this
<table>
<thead>
<tr>
<th>Available servers for IPS testing /exchange</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Terminz</strong></td>
</tr>
<tr>
<td><a href="https://terminz.azurewebsites.net/fhir">https://terminz.azurewebsites.net/fhir</a></td>
</tr>
<tr>
<td>Will now accept (and save) POSTs of IPS Bundles that satisfy the following criteria...</td>
</tr>
<tr>
<td>- Bundle.Type == Bundle.BundleType.Document</td>
</tr>
<tr>
<td>- Bundle.Identifier.System == &quot;urn:oid:2.16.724.4.8.10.200.10&quot;</td>
</tr>
<tr>
<td>- Contains one Composition and one Patient Resource</td>
</tr>
<tr>
<td>- Contains at least one of each of these resources - AllergyIntolerance, Condition and MedicationStatement.</td>
</tr>
<tr>
<td>- Includes at least one Patient.Identifier with populated system and value elements (these are used for persistence and $summary request purposes)</td>
</tr>
<tr>
<td>The $summary operation is also provisionally defined at <a href="https://terminz.azurewebsites.net/fhir/OperationDefinition/Patient-summary">https://terminz.azurewebsites.net/fhir/OperationDefinition/Patient-summary</a></td>
</tr>
<tr>
<td><strong>Drimpy</strong></td>
</tr>
<tr>
<td>&lt;INSERT URL Luke Duncan&gt;</td>
</tr>
<tr>
<td>The above link will be a DDCC Certificate Generation Service that can be used to submit DDCC QuestionnaireResponses or an IPS Document Bundle using the Certificate Generation Service.</td>
</tr>
<tr>
<td><strong>Gravitate Health</strong></td>
</tr>
<tr>
<td><a href="https://gravitate-dk-ips.trifork.dev/fhir">https://gravitate-dk-ips.trifork.dev/fhir</a></td>
</tr>
<tr>
<td>The summary operation is found at: <a href="https://gravitate-dk-ips.trifork.dev/fhir/Patient/$summary">https://gravitate-dk-ips.trifork.dev/fhir/Patient/$summary</a></td>
</tr>
<tr>
<td>Note: Only POST's are supported</td>
</tr>
<tr>
<td>The body being, e.g.:</td>
</tr>
<tr>
<td><code>&lt;Parameters xmlns=&quot;http://hl7.org/fhir&quot;&gt; &lt;parameter&gt; &lt;name value=&quot;identifier&quot; /&gt; &lt;valueIdentifier&gt; &lt;system value=&quot;urn:oid:1.2.3.4&quot; /&gt; &lt;value value=&quot;1206450168&quot; /&gt; &lt;/valueIdentifier&gt; &lt;/parameter&gt; &lt;parameter&gt; &lt;name value=&quot;profile&quot; /&gt; &lt;valueUri value=&quot;http://hl7.org/fhir/uv/ips/StructureDefinition/Bundle-uv-ips&quot; /&gt; &lt;/parameter&gt; &lt;/Parameters&gt;</code></td>
</tr>
<tr>
<td>When invoked with the system identifier used above, it returns the expected IPS examples. Both of the bundles are not entirely IPS compliant as they are lacking some data.</td>
</tr>
<tr>
<td>[Note: Using a different system identifier the server hooks into the danish national test setup and may return unexpected results.]</td>
</tr>
<tr>
<td><strong>Hausam Consulting LLC test server</strong></td>
</tr>
<tr>
<td><a href="https://fhir.hausamconsulting.com">https://fhir.hausamconsulting.com</a></td>
</tr>
<tr>
<td>Based on HAPI 5.4.0. No $summary operation (yet).</td>
</tr>
</tbody>
</table>