## On names and versions

The original [Argonaut Data Query Implementation Guide](http://www.fhir.org/guides/argonaut/r2/) profiles the FHIR DSTU2 specifications. It is now the [US Core Implementation Guide](http://www.hl7.org/fhir/us/core/) (from now on ‘Argonaut’), profiling the FHIR STU3 and R4 specifications.

The [original](http://international-patient-summary.net/mediawiki/index.php?title=IPS_implementationguide_1) International Patient Summary is an implementation guide profiling the CDA R2 specifications. It is being ported to the FHIR world, where it is the [International Patient Summary Implementation Guide](http://hl7.org/fhir/uv/ips/2018May/index.html) (from now on ‘IPS’), profiling the FHIR STU3 and R4 specifications.

To compare likes with likes this document compares [IPS version 0.1.0](http://www.hl7.org/fhir/uv/ips/2018May/) with [Argonaut 2.0.0](http://hl7.org/fhir/us/core/STU2/) (most recent published versions profiling FHIR STU3), and [IPS version 0.2.0](http://www.hl7.org/fhir/uv/ips/2018Sep/) with [Argonaut 2.1.0](http://hl7.org/fhir/us/core/2019Jan/) (most recent published versions profiling FHIR R4).

## Document vs API

IPS – coming from the CDA world – defines a FHIR document structure and does not specify how the resulting documents are to be exchanged. Argonaut on the other hand explicitly defines the actors exchanging the data and specifies how the FHIR REST API is used to query the profiled resources.

Being REST-based Argonaut supports transferring specific resources – e.g. a client (‘US core requestor’) can request only Observation.

IPS requires a single document containing all the information – without the possibility to pick and choose for the recipient.

IPS document format lends itself to asynchronous or off-band transfer: email attachments, (S)FTP, even thumb drives – whereas the Argonaut API approach requires the recipient to have direct network connection with the data source.

## Goal

The IPS goal is a specific ‘minimal and non-exhaustive patient summary dataset, specialty-agnostic, condition-independent, but readily usable by clinicians for the cross-border unscheduled care of a patient’, whereas the Argonaut one is a much broader ‘minimum conformance requirements for accessing patient data’.

This difference is reflected in the choice of profiled resources: they are all strictly clinical for IPS, broader for Argonaut, that includes things like care plans.

## Must support

Both IPS and Argonaut mark certain elements as ‘Must support’ but their definition are different: a very broad [‘flag the items that have to be supported to comply with the minimal data set, unconstraining all the others’](http://hl7.org/fhir/uv/ips/2018May/general.html#profiling-approach-mustsupport) for IPS and pretty specific for Argonaut: [‘US Core Responders SHALL be capable of including the data element as part of the query . . . ’](http://hl7.org/fhir/us/core/STU2/guidance.html#must-support)

This difference means that an element marked as ‘Must support’ in IPS is something in between ‘Optional’ and ‘Must support’ in Argonaut – with IPS ‘Must support’ elements more likely to be missing or not used than Argonaut ones.

## Restrictiveness

In general, IPS is more restrictive than Argonaut: elements that are required in IPS are often only ‘Must support’ or outright optional in Argonaut, but this is not always the case – for example **Patient**.identifier is optional in IPS but required in Argonaut.

This means that it is more likely that IPS-conformant data conforms also with Argonaut than vice-versa – but there are no guarantees that this will be the case.

## Negation

IPS defines way to specify that the patient does *not* have something:

* No allergy information (unknown) or no allergies in general or no medication, environmental or food allergies – using codes from the [absent-or-unknown-allergies](http://hl7.org/fhir/uv/ips/2018Sep/ValueSet-absent-or-unknown-allergies-uv-ips.html) value set in Allergy.code.
* Unknown or no known conditions (problems) – using codes from the [absent-or-unnown-problems](http://hl7.org/fhir/uv/ips/2018Sep/ValueSet-absent-or-unknown-problems-uv-ips.html) values set in Condition.code.
* Unknown or no known vaccinations – using codes from the [absent-or-unknown-immunization](http://hl7.org/fhir/uv/ips/2018Sep/ValueSet-absent-or-unknown-immunization-uv-ips.html) value set in Immunization.vaccineCode.
* Unknown or no known medications – using codes from the [absent-or-unknown-medication](http://hl7.org/fhir/uv/ips/2018Sep/ValueSet-absent-or-unknown-medication-uv-ips.html) value set in MedicationStatement.medicationCodeableConcept.
* Unknown or no known procedures – using codes from the [absent-or-unknown-procedure](http://hl7.org/fhir/uv/ips/2018Sep/ValueSet-absent-or-unknown-procedures-uv-ips.html)s value set in Procedure.code.

Argonaut does not spell out how to express negation, but being a REST API would generally return no resources in the ‘unknown’ cases. It can use the SNOMED codes for ‘no known allergy’, ‘no known problems’, ‘no known procedures’ and the CVX code for ‘no vaccine administered’ to express negation for those resources.

## Main value sets

**Allergies** and **Conditions** are coded using **SNOMED** in both IPS and Argonaut. IPS additionally uses a custom value sets to express negation (see above).

In IPS **immunizations** (vaccines) and **medications** are coded according to the [**IDMP**](https://www.ema.europa.eu/en/human-regulatory/overview/data-medicines-iso-idmp-standards-overview) standard and the [**WHO ATC** classification](https://www.whocc.no/atc/structure_and_principles/) (using different Coding for the various IDMP sub-standards and for the WHO classification), plus a custom value set to express negation (see above).

In Argonaut **immunizations** are coded using **CVX**, medications using **RxNorm**.

**Observation** are coded using **LOINC** in both IPS and Argonaut.

**Procedures** are coded using **SNOMED** in IPS and either SNOMED or **CPT** in Argonaut. IPS additionally uses a custom value set to express negation (see above).

## Some other notable differences

The **patient name** and **identifier** are optional in IPS but required in Argonaut.

MedicationStatement can express the **medication** as either a reference or a CodeableConcept in Argonaut but only as a reference in IPS – unless it is a negation (unknown or no medication) case.

The **Reference.identifier** element is generally prohibited in IPS, left as optional in Argonaut.

## Profiled data types

IPS profiles CodeableConcept and Coding, explicitly specifying the [translation extension](http://hl7.org/fhir/languages.html) for Coding.display. It is a standard extension, so Argonaut implementations could use it as well.

IPS profiles also Narrative, adding an [IPS-specific extension](http://hl7.org/fhir/uv/ips/2018Sep/StructureDefinition-translateddiv-uv-ips.html) specifying translations for the narrative. This profiled narrative is used for Composition.section.text – that has no Argonaut correspondent.

IPS profiles Quantity, Range and Ratio, requiring that a measurement unit is specified and uses [UCUM](http://unitsofmeasure.org/) units. Argonaut uses UCUM as well, but specifies it as an invariant, only for Quantity and only if a measurement unit system is specified – i.e. not having a system is valid in Argonaut but not in IPS.

Argonaut does not explicitly profile any data type but defines one extension that applies to the ContactPoint data type (see below).

## Extensions

Argonaut defines extensions specifying patients’ [race](http://hl7.org/fhir/us/core/STU2/StructureDefinition-us-core-race.html) and [ethnicity](http://hl7.org/fhir/us/core/STU2/StructureDefinition-us-core-ethnicity.html). They have no equivalent in IPS, it is very US-centric data.

Argonaut defines an extension specifying patients’ [birth sex](http://hl7.org/fhir/us/core/STU2/StructureDefinition-us-core-birthsex.html). There is no IPS equivalent.

Argonaut defines an extension specifying if an email in Patient.telecom or Practitioner.telecom or Organization.telecom (all ContactPoint) is a **Direct address**. There is no IPS equivalent.

IPS defines an extension specifying [translations](http://hl7.org/fhir/uv/ips/2018Sep/StructureDefinition-translateddiv-uv-ips.html) for a Narrative (see above). There is not Argonaut equivalent.

IPS defines an extension specifying the [abatement date](http://hl7.org/fhir/uv/ips/2018Sep/StructureDefinition-abatement-dateTime-uv-ips.html) of an allergy. There is no Argonaut equivalent.

IPS defines an extension specifying the [preferred practitioner or organization](http://hl7.org/fhir/uv/ips/2018Sep/StructureDefinition-participant-uv-ips.html) to be contacted for a patient. It applies to the whole Composition and not to the Patient resource. There is no Argonaut equivalent.

IPS defines an extension specifying the [details about a statement](http://hl7.org/fhir/uv/ips/2018Sep/StructureDefinition-statement-uv-ips.html) on a resource. There is no Argonaut equivalent.

## Resources profiled in Argonaut but not IPS

**CarePlan**, **CareTeam**, **Goal**, **Encounter**, **Location**, **PractitionerRole**: not strictly clinical data, so out of scope for IPS.

**DocumentReference** – US Core DocumentReference Profile: not really relevant in a summary – especially one that is delivered itself as a document, so out of scope for IPS.

**DocumentReference** - [New US Core DocumentReference Profile](http://hl7.org/fhir/us/core/2019Jan/StructureDefinition-new-us-core-documentreference.html) (clinical notes): IPS can use Observation to represent clinical notes.

**MedicationRequest**: IPS uses just **MedicationStatement**, that conveys the same information (medication used by the patient) within a summary.

**DiagnosticReport** – US Core Diagnostic Report Profile: IPS uses **Observation** with children for the same purpose of grouping lab results.

**DiagnosticReport** - [New US Core Diagnostic Report Profile for Report and Note exchange](http://hl7.org/fhir/us/core/2019Jan/StructureDefinition-new-us-core-diagnosticreport.html): IPS uses **Observation** and **ImagingStudy** to represent textual and imaging reports.

## Resources profiled in IPS but not Argonaut

**DeviceUseStatement** - only for FHIR STU3: IPS makes the distinction between the statement that a device is being used and the device description itself (**Device** resource). Argonaut uses only the device description.

**Composition**: does not apply to Argonaut that is API-based.

**ImagingStudy**: Argonaut represent imaging data using **DiagnosticReport** in FHIR R4, it does not profile imaging data for FHIR STU3.

**Specimen**: data not profiled in Argonaut.

## IPS resource profiles with no Argonaut correspondent

**Device-observer**: device used to gather clinical data – not profiled in Argonaut (that profiles only implanted devices).

**Device (use statement)** – only for FHIR R4: IPS makes the distinction between the statement that a device is being used and the device description itself. Argonaut uses only the device description.

**Observation-attachment**: generic attachment like PDF or HTML, go in **DiagnosticReport**.presentedForm in Argonaut.

**Observation (media)** – only for FHIR R4: media attachment, go in **DiagnosticReport**.presentedForm in Argonaut.

**Observation-pathology**, **Observation-member-pathology**: expressed using lab Observation in Argonaut

**Observation-member**, **Observation-member-laboratory**: equivalent to lab **Observation** in Argonaut (IPS uses a parent observation to group lab results whereas Argonaut uses **DiagnosticReport**)

**Observation-alcoholUse**: alcohol use is not explicitly profiled in Argonaut

**Observation-imaging**, **Observation-member-imaging**: imaging data is represented using **DiagnosticReport** in Argonaut for FHIR R4, not profiled in Argonaut for FHIR STU3.

**Observation-pregnancy-edd**, **Observation-pregnancy-outcome**, **Observation-pregnancy-status**: pregnancy data is not profiled in Argonaut.