The Argonaut Project:
Accelerating the Next Generation of Interoperability

March 2017

Agenda

Why do we need the Argonaut Project?

Who's behind it and what do we want to do?

What have we done?

What's next for the Argonaut Project?

What is the Argonaut Project?

> *The Argonaut Project is an implementation community comprising leading technology vendors and provider organizations to accelerate the use of FHIR and OAuth in health care information exchange.*

We are:

- Private sector initiated and funded
- Working collaboratively with other FHIR initiatives such as SMART-on-FHIR, the Health Systems Platform Consortium, and the FHIR Foundation
- Creating open industry Implementation Guides in high priority use cases of importance to patients, providers and the industry as a whole

We are NOT:

- A standards development activity
- A separate legal entity
- A proprietary activity

Who's Behind the Argonaut Project?

Technology Vendors	Provider Organizations
Accenture	Beth Israel Deaconess Medical Center
Athenahealth	Intermountain Health
Cerner	Mayo Clinic
Epic	Partners Healthcare
McKesson	SMART at Boston Children's Hospital
MEDITECH	
Surescripts	
The Advisory Board Company	

Staff (current and past)

Prime contractor: HL7

FHIR initiatives: Grahame Grieve, Josh Mandel, Brett Marquard, Eric Haas

OAuth initiatives: Dixie Baker, Josh Mandel

Project Management: Micky Tripathi, Jennifer Monahan

81 Organizations Registered in Argonaut Implementation Community

Accenture	GE	Office of National Coordinator (ONC)
ActualMeds Corp.	Geisinger	Optum (UnitedHealth Group)
AEGIS.net,Inc.	Hackensack University Medical Center	Orion Health
Aetna	Health Samurai/Aidbox	OSIA Medical
Akana	i2b2/Mass General Hospital	Partners Healthcare
Allscripts	Iconic Systems	Persistent System Ltd
American Medical Association	Infor	Personal Medicine Plus
Amida Technology Solutions	Inpriva	Pokitdok Inc.
Apigee	Intermountain Healthcare	Practice Fusion
Applied Informatics	InterSystems Corporation	Premier Inc
athenahealth	KaiRx	Qvera
Bespoke Systems	Mana Health	Redox Engine
BIDMC	Mayo Clinic	Reliant Medical Group
Care at Hand	McKesson/RelayHealth	RxREVU
Carebox	Medfusion	SMART Health IT
Carefluence	MedicaSoft	Surescripts
Carolinas HealthCare System	Medicity	The Advisory Board Company
Cerner	MEDITECH	The Sequoia Project (formerly Healtheway)
CipherHealth	Medivo	Trinity Health
Clinical Cloud Solutions, LLC	MITRE	UC Santa Cruz
Commerce Kitchen	MobileSmith	UPMC
DoD/VA	ModuleMD	US Postal Service
Duke Medicine	My Total Health	Vetter Software
eClinicalWorks	NavHealth	VigiLanz Corporation
Eligible	NaviNet	VSee
EMR Direct	Netsmart	xG Health Solutions
Epic	NextGen/QSI	Xperterra

Why do we need the Argonaut Project to accelerate FHIR?

Standards development process, by design, values comprehensiveness over speed-to-market

Market input is needed to make standards relevant and usable

- Identification of priority use cases to meet market needs
- Development of well-packaged implementation guides
- Facilitation of testing and implementation community
- Coupling with other standards or protocols needed for implementation (e.g., security)

Implementers need to have greater input (i.e., deeper, earlier) into standards development

Need to get as much collaboration as early as possible in the cycle to head off problems of heterogeneous implementations down the road

STU2 Data and Document Access Implementation Guide Released!

Argonaut Data Query Implementation Guide Version 1.0.0

Home   General Guidance   Profiles   Extensions   ValueSets   Operations   Search Parameters   Conformance   Downloads

This is the current officially published version of *The Argonaut Data Query Implementation Guide* Version 1.0.0. For list of available versions, see the Directory of published versions ⧉

Argonaut Data Query Implementation Guide

The Argonaut Data Query Implementation Guide is based upon the core **FHIR DSTU2 API** and it documents:

- Security and Authorization
- Data element query of the ONC Common Clinical Data Set
- Document query of static documents

Use Cases

This specification describes four use cases and sets search expectations for each. For complete details and background, see Use Cases for the Argonaut Project.

1. Patient uses provider-approved web application to access health data
2. Patient uses provider-approved mobile app to access health data
3. Clinician uses provider-approved web application to access health data
4. Clinician uses provider-approved mobile app to access health data

Note, the Common MU Data Set referenced in the Use Cases is now the ONC 2015 Common Clinical Data Set .

Security

Argonaut uses SMART on FHIR authorization for apps that connect to EHR data. For details, see SMART on FHIR Authorization Guide and the Argonaut Sprint Definitions.

Data Element Query

The Argonaut data element query IG is intended to meet the 2015 Edition certification criterion for Patient Selection 170.315(g)(7) and Application Access – Data Category Request 170.315(g)(8). They were created for each of the 2015 Edition Common Clinical Data

http://www.fhir.org/guides/argonaut/r2/

- Access to individual data elements of *Common Clinical Data Set*

- Access to structured document (CCD) containing all *Common Clinical Data Set* elements

- Leverage OAuth2-based security and authorization

Argonaut Focusing on FHIR Resources Supporting CCDS

2015 Edition
Common Clinical Data Set

Patient name
Sex
Date of birth
Race
Ethnicity
Preferred language
Smoking status
Problems
Medications
Medication allergies
Laboratory tests
Laboratory results
Vital signs
Procedures
Care team members
Immunizations
Unique Device identifiers
Assessment and Plan of Treatment
Goals
Health concerns

93 FHIR DSTU2 Resources (17 Argonaut CCDS Resources in red)

Clinical	**Identification**	**Workflow**	**Infrastructure**	**Conformance**	**Financial**
AllergyIntolerance	Patient	Encounter	Questionnaire	ValueSet	Coverage
Condition (Problem)	Practitioner	EpisodeOfCare	QuestionnaireRespons	ConceptMap	EligibilityRequest
Procedure	RelatedPerson	Communication	Provenance	NamingSystem	EligibilityResponse
ClinicalImpression	Organization	Flag	AuditEvent	StructureDefinition	EnrollmentRequest
FamilyMemberHistory	HealthcareService	Appointment	Composition	DataElement	EnrollmentResponse
RiskAssessment	Group	AppointmentResponse	DocumentManifest	Conformance	Claim
DetectedIssue	Location	Schedule	DocumentReference	OperationDefinition	ClaimResponse
CarePlan	Substance	Slot	List	SearchParameter	PaymentNotice
Goal	Person	Order	Media	ImplementationGuide	PaymentReconciliation
ReferralRequest	Contract	OrderResponse	Binary	TestScript	ExplanationOfBenefit
ProcedureRequest	Device	CommunicationRequest	Bundle		
NutritionOrder	DeviceComponent	DeviceUseRequest	Basic		
VisionPrescription	DeviceMetric	DeviceUseStatement	MessageHeader		
Medication		ProcessRequest	OperationOutcome		
MedicationOrder		ProcessResponse	Parameters		
MedicationAdministration		SupplyRequest	Subscription		
MedicationDispense		SupplyDelivery			
MedicationStatement					
Immunization					
ImmunizationRecommendation					
Observation					
DiagnosticReport					
DiagnosticOrder					
Specimen					
BodySite					
ImagingStudy					
ImagingObjectSelection					

Setting Practical Constraints on Server-Client Interactions

What search criteria can you use?	**What type of data will you get in response?**	**How will that data be represented?**
Search operations Examples: • Can search for individual patient by identifier (e.g., MRN) OR full name & gender OR full name & birthdate • Can search for Procedures by patient or by patient & specified date range	Scope of response Examples: • Search for patient will get all FHIR patient resources • Search for Procedures will get all current and historical procedures or within specified date range	Content of response Examples: • Patient search will get name, identifier, gender, birthdate, birth sex, REL • Procedures search will get type of procedure, date performed, and procedure status • In some cases created Argonaut extensions and value sets

Argonaut Implementation Guides In a Nutshell

Query	Supported searches	Scope of response	Content of response
Patient	Identifier (e.g., MRN) OR (Full name + gender OR Full name + birthdate)	FHIR patient resources	• Name • Patient identifier • Gender • Birthdate • Birth sex • Race, ethnicity, language
Allergies	Patient OR Patient + Date	All allergies	• Type of allergy • Allergy status
Assessment and Plan of Treatment	Patient OR Patient + Category OR Patient + Status OR Patient + Specified date range	All Assessment and Plan of Treatment information	• Care plan category (Argonaut extensions) • Care plan status • Narrative summary
Care Team	Patient OR Patient + Category OR Patient + Status	All current Care Team members	• Care plan category (Argonaut extensions) • Care plan status • Care team members • Care team provider roles
Goals	Patient OR Patient + Specified date range	All patient goals	• Narrative description of goals • Goals status
Immunizations	Patient	All immunizations	• Immunization status (Argonaut valueset) • Date of administration • Type of vaccine • Indicator of vaccine given or reported
Medications (statements)	Patient	All medications	• Medication • Medication status • Date or date range
Medications (order)	Patient	All medication orders	• Medication • Order date • Order status • Prescriber

Argonaut Implementation Guides In a Nutshell (continued)

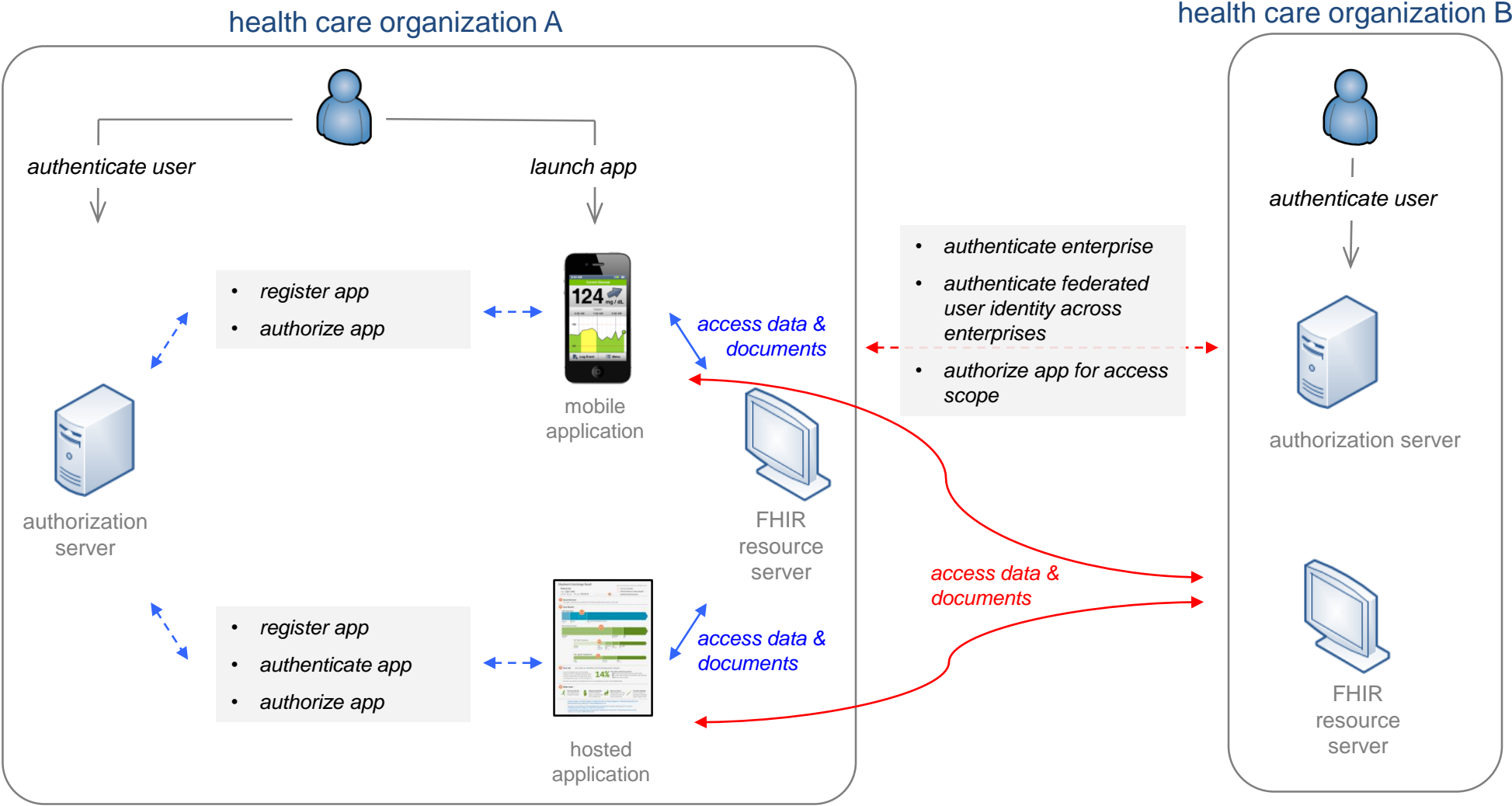| Query	Supported search operations	Scope of response	Content of response
Laboratory results (diagnostic reports)	Patient OR Patient + Diagnostic Report Code(s) OR Patient + Specified date range	All diagnostic reports	• Laboratory code (LOINC) • Result • Status • Time of measurement • Time of report • Source of report
Laboratory results (observations)	Patient OR Patient + Laboratory Code(s) OR Patient + Specified date range	All observations	• Laboratory code (LOINC) • Result value • Status • Time of measurement • Reference range
Problems and Health Concerns	Patient	All problems and health concerns, current and historical	• Problem or health concern code • Problem or health concern category code (Argonaut extension) • Problem or health concern status • Verification status
Procedures	Patient OR Patient + Specified date range	All procedures, current and historical	• Type of procedure • Date performed • Procedure status
Smoking status	Patient	Smoking status	• Smoking observation status • Result value code (LOINC) • Date recorded • Smoking status
Vital signs	Patient OR Patient + Specified date range	All vitals	• Type of measurement (Argonaut value set) • Time of measurement • Result value (Argonaut value set) • Observation status
Implantable devices	Patient	All UDIs for a patient's implantable devices	• Human readable form of barcode string • Type of device

Argonaut Implementation Guides In a Nutshell (continued)

Query	Supported search operations	Scope of response	Content of response
Provider Directory	Practitioner OR Practitioner + Specialty OR Practitioner + Location (WIP) OR Organization Identifier OR Organization Name OR Organization Address OR Endpoint identifier OR Endpoint name	All practitioner, organization, and endpoint information	• Practitioner name • Practitioner Identifier • Practitioner Role and organization • Practitioner Qualifications • Organization name • Organization identifier • Organization status • Organization contact • Organization physical address • Organization endpoint address • Endpoint name • Endpoint status • Endpoint organization • Endpoint channel type • Endpoint address
Document	Document OR Patient	All documents for a patient	• Patient • Document HTTPS address • Document type • Document format • Document reference date • Status • Document identifier

What will Argonaut Implementation Guides allow people to do?

Within enterprise

Cross-enterprise

health care organization A

health care organization B

authenticate user

launch app

- *register app*
- *authorize app*

124 mg/dL

mobile application

access data & documents

FHIR resource server

- *authenticate enterprise*
- *authenticate federated user identity across enterprises*
- *authorize app for access scope*

authenticate user

authorization server

authorization server

- *register app*
- *authenticate app*
- *authorize app*

hosted application

access data & documents

access data & documents

FHIR resource server

Who's using the Argonaut Project Implementation Guides

The following Argonaut founders are basing their FHIR APIs on the Argonaut Implementation Guides:

- Accenture

- athenahealth

- Cerner

- Epic

- MEDITECH

- Surescripts

- The Advisory Board Company

The following nationwide health information networks are implementing Argonaut specifications:

- Carequality – have already implemented a preliminary version of the upcoming Argonaut Project Provider Directory Implementation Guide

- CommonWell Health Alliance – are building FHIR into their core services using the Argonaut Implementation Guides for Data & Document Access and Provider Directory

Argonaut Project: 2017 Plan

1. **Publication of Provider Directory Implementation Guide based on FHIR STU3**

2. **Scheduling**
   - Appointments request – request for appointment
   - Appointment response – reply to an appointment request
   - Slots – blocks of time available for booking appointments

3. **Enhancing integration of EHRs and Apps (in collaboration with CDS Hooks Project)**
   - Integration of an external app into an EHR workflow
   - Validation of security model for integration of external apps with EHRs

www.argonautproject.org

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