

Datos-Assuta

DocumentReference FHIR API

FHIR-4.01 API

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0 Track Changes

Version 2:

- Added open issues section

Version 3:

- Added issues & decisions section
- Removed update functionalities

Version 4:

- Added extension for survey id and survey version
- Changed 'trocar' to 'drain'
- Added ECG result identifier URI

Version 4.1:

- Added pain-followup code

Version 5:

- Added home hospitalization care plan document
- Added a chapter describing the process of defining a new document type (chapter 8)

1 Operations

Datos will create a DocumentReference by calling an http POST method. The HTTP endpoint will be referenced as **BaseURL** in this specification.

1.1 Create a new DocumentReference

POST [BaseURL]/DocumentReference

2 LOINC Codes for Document Type

Each type of document has a standard LOINC code that should be used in the 'type' element. The following table lists the codes that correspond to Datos's current supported documents:

LOINC Code	Description	Comments
74465-6	Questionnaire response Document	The type.coding.display element should be equal to this description. A more specific description in Hebrew can also be supplied in the type.text element.
11524-6	EKG study	
84164-3	Interdisciplinary Patient's home Plan of care note	

6 Body

The body of the HTTP request is a DocumentReference resource.

Structure:

Element name	Cardinality	Type	Value	Notes
resourceType	1..1	string	"DocumentReference"	fixed value
extension	0..*	Object		Extension array
extension[0].url	1..1	string	http://fhir.datosconnectedhealth.com/StructureDefinition/ext-survey-info DATOS – please approve	URL that identifies the extension
extension[0].extension	1..*	Object		Survey tag extension
extension[0].extension[0].url	1..1	string	"survey-tag"	
extension[0].extension[0].valueString	1..1	string		Survey tag (id)
extension[0].extension[1].url	1..1	string	"survey-version"	
extension[0].extension[1].valueString	1..1	string		Survey version
masterIdentifier	0..1	Object		Document identifier as assigned by Datos. This identifier is specific to this version of the document. Can be a UUID
masterIdentifier.system	1..1	string		URI for the identifier system
masterIdentifier.value	1..1	string		The actual identifier value
identifier	0..*	Object		version independent identifiers
identifier.system	1..1	string		URI for the identifier system

identifier.value	1..1	string		The actual identifier value
status	1..1	string	current superseded entered-in-error	The status of this document reference
docStatus	0..1	string	preliminary final amended entered-in-error	The status of the underlying document
type	1..1	Object		Type of document
type.coding	1..*	Object		
type.coding.system	1..1	string	http://loinc.org	fixed value
type.coding.code	1..1	string	74465-6 11524-6 84164-3	LOINC code for type of document
type.coding.display	0..1	string	Questionnaire response Document EKG study Interdisciplinary Patient's home Plan of care note	description of the LOINC code
type.text	0..1	string		Hebrew description of the type of document. Can be a translation of the LOINC description
category	0..*	Object		
category.coding	0..*	Object		
category.coding.system	1..1	string	http://www.datosconnectedhealth.com/cs/document-type	The URI of the code system
category.coding.code	1..1	string	ecg pain-survey drain-survey urine-survey home-careplan	
category.text	0..1	string	תוצאת בדיקת א.ק.ג.	

			מעקב מעקב כאב מעקב נקז מעקב שתן תכנית טיפול לאישפוז בית	
subject	1..1	Object		
subject.reference	1..1	string	Patient/[logical id]	A relative URL pointing at the patient resource
author	0..*	Object		
author.reference	1..1	string	Patient/[logical id]	A relative URL pointing at the patient resource
date	1..1	string	YYYY-MM-DDTHH:mm:ss.*Z	DocumentReference's creation date & time
content	1..*	Object		
content.attachment	1..1	Object		
content.attachment.contentType	1..1	string	application/pdf	fixed value
content.attachment.data	1..1	string		Data inline, base64ed
context	0..1	Object		Context of the document
context.encounter	0..*	Object		
context.encounter.identifier	0..1	Object		
context.encounter.identifier.system	1..1	string	http://fhir.assuta.co.il/identifier/tafnit-mrn	
context.encounter.identifier.value	1..1	string		Tafnit encounter ID

Example:

```
{
  "resourceType": "DocumentReference",
  "extension": [
    {
      "url": "http://fhir.datosconnectedhealth.com/StructureDefinition/ext-survey-info",
      "extension": [
        {
          "url": "survey-tag",
          "valueString": "abc123"
        }
      ]
    }
  ]
}
```

```
    },
    {
      "url": "survey-version",
      "valueString": "1.0.1"
    }
  ]
}
],
"identifier": [
  {
    "system": "http://www.datosconnectedhealth.com/identifier/result-id",
    "value": "432543262356"
  }
],
"status": "current",
"docStatus": "final",
"type": {
  "coding": [
    {
      "system": "http://loinc.org",
      "code": "74465-6",
      "display": "Questionnaire response Document"
    }
  ],
  "text": "מענה לשאלון"
},
"category": [
  {
    "coding": [
      {
        "system": "http://www.datosconnectedhealth.com/cs/document-type",
        "code": "urine-survey"
      }
    ],
    "text": "מעקב שתן"
  }
],
"subject": {
  "reference": "Patient/b710cc99-c1d4-4a6e-b1b2-1184e46f342b"
},
"author": [
  {
    "reference": "Patient/b710cc99-c1d4-4a6e-b1b2-1184e46f342b"
```



```
    }
  ],
  "date": "2021-08-15T15:15:15.15Z",
  "content": [
    {
      "attachment": {
        "contentType": "application/pdf",
        "data":
"oaidfjo9wejcfdv877q0wfdv877230e97gfdv87723023009q09e09fdv877230c09qwe09icq0wfdv8
77230e97gfdv87723009iq0wfdv877230e9i0ic09qwie09i09qie09idjquih43h875877230c09qwe0
9ic09iq0wfdv877230e97gfdv8772309ud87"
      }
    }
  ],
  "context": {
    "encounter": {
      "identifier": {
        "system": "http://fhir.assuta.co.il/identifier/tafnit-mrn",
        "value": "12345678"
      }
    }
  }
}
```

7 Gap Analysis Against Core Profiles

7.1 US Core

This DocumentReference resource is conformant to the US Core DocumentReference profile since:

1. The status field is populated
2. The type element is populated with a LOINC code that is valid according to the profile's binding.
3. The category element is populated with a code that is valid according to the profile's extensible binding strength
4. The subject is a Patient resource that is conformant to the US Core Patient profile
5. It has content
6. contentType is populated

7.2 Israel Core

The DocumentReference resource does not currently have a profile defined in the Israel Core. But since it's conformant to the US core, and it's subject is a Patient resource that is conformant to the Israel

Core, this DocumentReference resource is expected to be conformant to the ILCore DocumentReference profile once it's defined.

8 Defining additional document types

When defining new document types, the following steps should be taken:

1. Find a LOINC code that best describes the type of underlying document. This code should be used as one of the codings in DocumentReference.type.coding. At least coding.system + coding.code SHALL be populated, and coding.display should also be populated to increase readability of the resource. If populated, coding.display SHALL contain the exact description of the code as defined in LOINC. A Hebrew description corresponding to the LOINC meaning SHOULD be populated in DocumentReference.type.text
2. Define a category for the document for indexing purposes. The category code can use a DATOS assigned code, and may convey a more specific concept that includes not only the meaning of the document (which is already represented using a standard LOINC code) but also its intended usage. To make things easier to manage, it is recommended that the new code will be defined under the existing code system that is currently used for existing documents. This code system is identified by the following URL: <http://www.datosconnectedhealth.com/cs/document-type>. The existing codes are listed in chapter 3 in this document – make sure that any new codes are added there for documentation purposes.
3. If applicable - define a document identifier URI and specify it in chapter 4. In some cases several document types may share the same document identifier URI, if (and ONLY if) they share a common identifier namespace (e.g. They are managed in a single table that has a single PK).

9 Issues & Decisions

Resource	Element	Issue	Decision	IL-Core Action Required?
DocumentReference	subject	The native identifier for a patient in this interface's scope is the Tafnit MRN identifier. Since the MRN is not the Patient's logical id this can only be done with an identifier reference instead of a literal reference. This	To avoid using business identifier references that will result in multiple identifiers for the same patient and may require migration/merges in the future, Datas will reference the patient using a literal reference constructed with the patient's logical ID created by Assuta solely for this purpose. This logical id is not saved on Datas's systems, it is only kept during an active session.	No

		will create complexity for Assuta in the future when extending their FHIR server		
DocumentReference	context.encounter	When saving clinical information in Chameleon it must be done in the context of a Tafnit MRN (Encounter). Identifying the Patient is not enough	Each observation resource will provide the Encounter identifier as a Tafnit MRN in the encounter.identifier element. We decided to use a business identifier instead of a literal reference since the only purpose is to preserve the relation of the Observation to the Tafnit MRN, and there is no need to define the actual Encounter resource and it's logical id.	No
DocumentReference	extension	Need a way to represent the survey's version	We decided to define an extension for the version ID. The extension will be defined as a Datas extension, and it's canonical URL will be under Datas's domain name	No
DocumentReference	Updating the resource (PUT operation)	Updating the resource requires the definition of a mechanism for the determination of the logical ID, or to support conditional updates according to a business identifier	<p>To avoid these complexities, we have decided that at this point updates will not be supported.</p> <p>If support for updates will be required in the future we will chose one of the following mechanisms:</p> <ul style="list-style-type: none"> Assuta defined logical ID – requires Datas to save the Content-Location header returned from Assuta Datos defined logical ID – requires Assuta to allow updates according to this ID and to allow the creation of the resource with a client-defined id Conditional update – allows for updating according to one of the business identifiers, without the use of a logical ID. This approach introduces some additional complexities and constraints. 	

9.1 Open Issues

- Need to define an identifier URI (namespace) for ECG documents
 - דאטוס יבררו מה המזהה של תוצאת אקג עד 30.9
 - DONE
- Make sure the code we defined “trocar-survey” is the correct term for נקז
 - בבירור אודליה עד 30.9
 - DONE
- Need to define an extension for the survey’s version ID + survey id (tag)
 - באחריות דניאל עד 30.9
 - DONE
- Add section to document explaining the process of defining a new survey
 - באחריות דניאל עד 30.9
 - DONE
- Updates are currently not supported. To support updates we will need to decide on a mechanism such as:
 - Assuta defined logical ID – requires Datas to save the Content-Location header returned from Assuta
 - Datas defined logical ID – requires Assuta to allow updates according to this ID
 - Conditional update – allows for updating according to one of the business identifiers, without the use of a logical ID. This approach introduces some additional complexities and constraints.
- נדרש איפיון של הציונים המשוקללים לכל אחד מהשאלונים: כאב, נקז, שתן על מנת להתחיל איפיון של ה-Observations
 - באחריות נדב עד 30.9