DiagnosticReport-Update

eventMaturity | 0 - Draft

Workflow

User performed one or more of the actions: a) updated the content belonging to the current DiagnosticReport context b) changed the active resource(s) in the current DiagnosticReport context c) did a minor modification to the current DiagnosticReport context (e.g. added a "prior" ImagingStudy)

Context

For this event, the context array is used to communicate the context to which the change happened. Clients MUST provide this seemingly redundant information in order to avoid potential patient data inconsistency in case they have missed any previous context update event.

Key	Optionality	FO	Description
Report	REQUIRED		FHIR DiagnosticReport containing *at least* the id of the Report which the user is working on.
Study	REQUIRED		FHIR ImagingStudy for which the DiagnosticReport is being created. NOTE: this key can be present multiple times.
Patient	OPTIONAL		FHIR Patient linked to the ImagingStudy being reported on.
PriorStudy	OPTIONAL		FHIR ImagingStudy which is not the primary Study the Report is being created for but is considered during reading. NOTE: this key can be present multiple times.

Additional Parameters

Field	Optionality	Description
versionId	REQUIRED	A topic-wide unique identifier of the current version of the content on the hub in order to provide optimistic concurrency handling. It is generated by *the hub* during event notification. When a client posts a change request, it MUST provide the latest versionId maintained by the hub, otherwise the hub SHALL reject the change request.
client.id	OPTIONAL	Used to indicate which client initiated the update so that further content update restrictions can be applied. Hubs supporting content handling MAY implement this functionality.
content	OPTIONAL	A FHIR Bundle Resource with `type` of `transaction` containg a set of resources to be added (`PUT`), updated (`POST`) or deleted (`DELETE`) as part of a single, atomic transaction. Hubs MAY implement this functionality.
activeResourceIds	OPTIONAL	An array of strings containing a set of FHIR Resource Ids to mark as the 'active' resources in the given context. Hubs supporting content handling (see `content` above) MAY implement this functionality.
context.new	OPTIONAL	The refined context. Hubs MAY implement this functionality. *Not supported in this version.*

Examples

1. Update of the current context's *content* by adding 2 new Observations Example use case:
   - Prerequisite: user has DiagnosticReport 40012366 in context with a reference to ImagingStudy 1462123458.
   - Action: user dictates or types 2 new Observations in the reporting system.
   - Expectation: content contains the 2 new Observations and the 2 new observations show up in the imaging system.

```
{
    "timestamp": "2019-08-23T21:03:11.71",
    "id": "1f5164e2-817a-4d55-8969-8b20c9c8648b",
    "event": {
      "hub.topic": "7jaa86kgdudewiaq0wtu",
      "hub.event": " DiagnosticReport-update",
      "versionId": "2019-08-23T20:59:58.64 ",
      "client.id": "app_example_client_id",
      "context " : [
              "key": "Report",
       "resource": {
         "resourceType": "DiagnosticReport",
         "id": "40012366",
       }
     },
     {
       "key": "Study",
       "resource": {
         "resourceType": "ImagingStudy",
         "id": "1462123458",
       }
     }],
      "content": {
          "resourceType": "Bundle",
          "id": "8i7tbu6fby5ftfbku6fniuf",
          "type": "transaction",
          "entry": [
            {
              "request": {
                "method": "PUT"
              },
              "resource": {
                "resourceType": "Observation"
                …
              }
            },
            {
              "request": {
                "method": "PUT"
              },
              "resource": {
                "resourceType": "Observation"
                …
              }
            }
        ]}
    }
}
```

2. Update of the current context's active resource set by setting it to 2 Observations (123456789 and 987654321) Example use case:
    - Prerequisite: user has DiagnosticReport 40012366 in context with a reference to ImagingStudy 1462123458.
    - Action: user selects 2 Observations in the imaging system.
    - Expectation: the reporting system jumps to the 2 selected Observations in its editor UI.

```
{
    "timestamp": "2019-08-23T21:05:22.27",
    "id": "1f5164e2-817a-4d55-8969-8b20c9c8648b",
    "event": {
      "hub.topic": "7jaa86kgdudewiaq0wtu",
      "hub.event": " DiagnosticReport-update",
      "versionId": "2019-08-23T21:03:12.17",
      "client.id": "app_example_client_id",
      "context": [
       "key": "Report",
       "resource": {
         "resourceType": "DiagnosticReport",
         "id": "40012366",
       }
      },
      {
        "key": "Study",
        "resource": {
         "resourceType": "ImagingStudy",
          "id": "1462123458",
        }
      }],
       "activeResourceIds": [
         "Observation/123456789",
         "Observation/987654321"
      ]
    }
  }
```

3. Minor refinement of the currently active context, without changing it entirely. Example use case:
   - Prerequisite: user has DiagnosticReport 40012366 in context with a reference to ImagingStudy 1462123458.
   - Action: user adds ImagingStudy 342123458 as a prior to the current reading case in the imaging system.
   - Expectation: context consists of DiagnosticReport 40012366 with a reference to ImagingStudy 1462123458 and ImagingStudy 342123458 in the reporting system.

```
{
 "timestamp": "2019-08-23T20:59:58.34",
 "id": "0d4c9998",
 "event": {
   "hub.topic": "DrXRay",
   "hub.event": "DiagnosticReport-update",
   "version": "2019-08-23T20:57:18.35",
   "context": [
             "key": "Report",
        "resource": {
          "resourceType": "DiagnosticReport",
          "id": "40012366",
        }
      },
      {
        "key": "Study",
        "resource": {
          "resourceType": "ImagingStudy",
          "id": "1462123458",
        }
      }],
    "context.new": [
      {
        "key": "Report",
        "resource": {
          "resourceType": "DiagnosticReport",
          "id": "40012366",
          "code": "18748-4",
          "imagingStudy": [
            {
              "reference": "ImagingStudy/342123458"
```

```
        },
        {
          "reference": "ImagingStudy/1462123458"
        }
      ]
    }
  },
  {
    "key": "PriorStudy",
    "resource": {
      "resourceType": "ImagingStudy",
      "description": "CHEST XRAY",
      "started": "2010-01-30T23:00:00.000Z",
      "id": "342123458",
      "identifier": [
        …
      ]
    }
  },
  {
    "key": "Study ",
    "resource": {
      "resourceType": "ImagingStudy",
      "description": "CHEST XRAY",
      "started": "2019-08-23T20:00:00.000Z",
       "id": "1462123458",
      "identifier": [
        …
      ]
    }
  }
  ]
 }
}
```

Response Codes from the Hub

Code	Meaning	Condition
400	Bad Request	Some portion of the request was improperly formed or a duplicate `client.id` was provided in the request
401	Unauthorized	The application was not granted an authorization scope required to add, update, or remove the resource type of one of the FHIR resources in the request
403	Forbidden	Update or removal of one of the resources in the request is not permitted by any application except the creator of the resource
404	Not Found	One of the FHIR resources which is requested to be updated or removed was not found
409	Conflict	One of the FHIR resources which is requested to be added has an id of a resource already present
410	Gone	The containing context provided in the request was not found
412	Precondition Failed	The application is not subscribed to the `hub.topic`
422	Unprocessable Entity	One of the FHIR resources in the request was structurally malformed
428	Precondition Required	The `versionId` in the submitted request is not the current timestamp of the content held by the Hub
5xx	*per code*	Appropriate status code if a server error occurs

Not all codes will be returned by all hubs, as hubs may choose to support only a certain level of event validation.

Request Update Content Failure - Operational Outome Response Recommendations

If the update content request fails, the Hub MAY respond with a FHIR Operation Outcome resource in addition to returning the appropriate HTTP error status code. The operation outcome `severity` SHALL be 'error' while the following `code` and `details` values are recommended:

HTTP Status	Code	Details
400	structure	MSG_BAD_SYNTAX
401	forbidden	MSG_AUTH_REQUIRED
403	lock-error	MSG_RESOURCE_NOT_ALLOWED
404	not-found	MSG_NO_EXIST
409	duplicate	MSG_DUPLICATE_ID
410	not-found	MSG_NO_EXIST
412	unknown	MSG_AUTH_REQUIRED
422	structure	MSG_CANT_PARSE_CONTENT
428	conflict	MSG_VERSION_AWARE_CONFLICT
5xx	transient	*not applicable*

In order to assist the requestor in identifying the cause of the request's failure, it is highly recommended that in the case of an update content failure with the error status of 403, 404, or 409 that an operation outcome resource be returned containing the id(s) of resources which caused the request to fail. The id(s) should be contained in OperationOutcome.issue.expression.