## 2022-05 Imaging Track

- **Short Description**: Test imaging-related resources and implementation guides.

- **Long Description**: The objectives of this track are:
  - Test ImagingStudy resource core use cases
  - Integration between enterprise imaging and EMR
  - Combined image and document viewing
  - Test DICOM SR to FHIR Resource Mapping IG and ImagingSelection resource
  - Test Integration between FHIR and DICOMweb

- **Type**
  - Test the design of a resource
  - Test a FHIR IG

- **Submitting Work Group/Project/Accelerator/Affiliate/Implementer Group**: Imaging Integration

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- **Related Tracks**: Current Build

- **FHIR Version**: Current Build

- **Specification(s) this track uses**
  - Resources:
    - ImagingStudy
    - Including integration with DICOMweb
    - ImagingSelection
  - Implementation Guides:
    - DICOM SR to FHIR Resource Mapping IG
    - Radiation Dose Summary IG

- **Artifacts of focus**
  - ImagingStudy
    - Including integration with DICOMweb
    - ImagingSelection
    - DICOM SR to FHIR Resource Mapping IG
    - Radiation Dose Summary IG
## Expected participants

<table>
<thead>
<tr>
<th>Participants types:</th>
</tr>
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<tbody>
<tr>
<td>PACS / VNA / Enterprise Imaging Repository applications</td>
</tr>
<tr>
<td>EMR applications</td>
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<tr>
<td>Enterprise Image Viewer applications</td>
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## Zulip stream

https://chat.fhir.org/#narrow/stream/316835-imaging-connectathon-30

## Track Kick Off Call

22 Apr 2022 10:00AM Eastern

## Track Details

### Track Kick Off

22 Apr 2022 10:00AM Eastern

### System roles

#### Role 1 Name: PACS / VNA / Enterprise Imaging Repository (Archive)

- Host a DICOMweb endpoint to find and retrieve images
- (Optional) Host a DICOMweb endpoint to store images
- Provide a means of populating an ImagingStudy endpoint. At least one of:
  - Hosting ImagingStudy resources reflected available imaging studies
  - Calling create API against an externally-hosted FHIR ImagingStudy endpoint
  - Sending a FHIR message containing an ImagingStudy resource bundle
- (Optional) Update ImagingStudy results based on DICOMweb store requests

#### Role 2 Name: EMR

- Host or provide access to ImagingStudy resources
  - i.e. can host ImagingStudy resource populated based on Archive contents or search for Archive-hosted resources on demand
- Host FHIR endpoint for image-related resources
- (Optional) Can launch Enterprise Image Viewer

#### Role 3 Name: Enterprise Image Viewer (Viewer)

- Can search FHIR / DICOMweb endpoints for imaging studies and related resources
- Can retrieve and display imaging studies and related resources

#### Role 4 Name: Imaging Result Creator

- Create and store imaging Observation resources
  - Extracted from a DICOM measurement report
- (Optional) Create and store DICOM images and / or structured reports

#### Role 5 Name: Imaging Study Proxy

- Host ImagingStudy resources
  - Populated based on contents of one or more archives
- (Optional) Update ImagingStudy results based on DICOMweb store requests

### Scenario: FHIR-enhanced Enterprise Viewer
1. **Action:** EMR / Viewer searches for available imaging studies  
   - **Precondition:** User is logged into EMR / Viewer  
   - **Success Criteria:** The set of available imaging studies is displayed  
   - **Bonus point:** All ImagingStudy search fields are tested  
   - **Test Script(s):** FHIREnhancedViewerSearchParams.xml (test diagram here)

2. **Action:** Viewer loads imaging study – directly or launched by EMR  
   - **Precondition:** ImagingStudy contains a valid DICOMweb endpoint that corresponds to a participating Archive  
   - **Success Criteria:** The Viewer requests the images from a DICOMweb Endpoint in the Imaging Study and then displays them  
   - **Bonus point:** EMR / Viewer integration passes launch context from ImagingStudy, such as:  
     - ImagingStudy _id / URL  
     - DICOMweb endpoint  
   - **Test Script(s):** FHIREnhancedViewerEndpointAccess.xml (test diagram here)

3. **Action:** EMR / Viewer displays related FHIR resources  
   - **Precondition:** EMR or Archive hosts FHIR resources that share context – Patient, ServiceRequest, Procedure, etc. – with ImagingStudy  
   - **Success Criteria:** The EMR or Viewer displays associated FHIR resources  
   - **Test Script(s):** FHIREnhancedViewerRelatedResources.xml (test diagram here)

4. **Action:** EMR / Viewer searches for and displays FHIR resources associated with an Imaging Study  
   - **Precondition:** EMR or Archive hosts FHIR resources that reference ImagingStudy resources  
   - **Success Criteria:** The EMR or Viewer displays associated FHIR resources  
   - **Bonus points:** Multiple resource types:  
     - DiagnosticReport  
     - Observation  
     - Radiation Dose Summary  
     - Ophthalmologic Observation  
   - **Test Script(s):** FHIREnhancedViewerAssociatedResources.xml (test diagram here)

5. **Action:** Imaging Result Creator stores additional DICOM instances via DICOMweb  
   - **Precondition:** ImagingStudy contains a valid DICOMweb endpoint that corresponds to a participating Archive  
   - **Success Criteria:** The DICOMweb storage request is accepted and the associated ImagingStudy is updated to reflect the additional instances

**Scenario: DICOM SR to FHIR Resource Mapping IG**

1. **Action:** Imaging Result Creator stores imaging observations in EMR / Archive  
   - **Precondition:** Imaging observations created according to IG  
   - **Success Criteria:** DICOM SR content stored as FHIR observations  
   - **Bonus Point:** Associated ImagingSelection resources are created  
   - **Test Scripts:** To be created

2. **Action:** EMR / Viewer displays imaging observations  
   - **Success Criteria:** EMR / Viewer displays imaging observations  
   - **Bonus point:** imaging observations displayed alongside associated ImagingStudy  
   - **Test Script:** To be created

3. **Action:** Imaging Result Creator stores a DICOM TID1500 Measurement Report using DICOMweb  
   - **Success Criteria:** Observations are created and stored in accordance with DICOM SR to FHIR Resource Mapping IG

**Security and Privacy Considerations:**

- Mutual TLS is recommended but not required  
- If testing EMR / EI application launching is included, a shared authentication mechanism is recommended but not required