

# HITSP Sharing Radiology Results Transaction Package

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HITSP/TP49



Healthcare Information Technology Standards Panel

*Submitted to:*

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*Submitted by:*

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# TABLE OF CONTENTS

<b>1.0</b>	<b>INTRODUCTION.....</b>	<b>5</b>
1.1	Overview.....	5
1.2	Copyright Permissions.....	5
1.3	Reference Documents.....	5
1.4	Conformance .....	5
1.4.1	Conformance Criteria .....	5
1.4.2	Conformance Scoping, Subsetting and Options .....	6
<b>2.0</b>	<b>TRANSACTION DEFINITION.....</b>	<b>7</b>
2.1	Context Overview .....	7
2.1.1	Transaction Package Constraints .....	7
2.1.2	Interfaces.....	7
2.1.3	Pre-conditions.....	10
2.1.3.1	Process Triggers .....	10
2.1.4	Post-conditions .....	10
2.1.4.1	Required Output .....	11
2.1.5	Data Flows.....	11
2.2	List of HITSP Constructs .....	11
2.2.1	Construct Dependencies .....	11
2.2.2	Additional Constraints on Required Constructs.....	11
2.3	Standards .....	12
2.3.1	Regulatory Guidance.....	12
2.3.2	Selected Standards .....	12
2.3.3	Informative Reference Standards.....	12
<b>3.0</b>	<b>APPENDIX .....</b>	<b>13</b>
<b>4.0</b>	<b>CHANGE HISTORY .....</b>	<b>14</b>
4.1	May 11, 2007 .....	14
4.2	March 19, 2008.....	14
4.3	March 27, 2008.....	14
4.4	August 20, 2008 .....	14
4.5	August 27, 2008 .....	14
4.6	June 30, 2009.....	14
4.7	July 8, 2009 .....	14



## FIGURES AND TABLES

Figure 2-1 Interface Interactions – Routine Imaging Referral.....	9
Figure 2-2 Interface Interactions – Addendums.....	9
Figure 2-3 Interface Interactions – Distinct Reports .....	10
Table 1-1 Reference Documents .....	5
Table 2-1 Transaction Package Constraints.....	7
Table 2-2 Interfaces .....	7
Table 2-3 Pre-conditions .....	10
Table 2-4 Process Triggers.....	10
Table 2-5 Post-conditions .....	10
Table 2-6 Required Output.....	11
Table 2-7 List of HITSP Constructs .....	11
Table 2-8 Construct Dependencies .....	11
Table 2-9 Additional Constraints on Required Constructs.....	11
Table 2-10 Regulatory Guidance .....	12
Table 2-11 Selected Standards .....	12
Table 2-12 Informative Reference Standards .....	12



## 1.0 INTRODUCTION

### 1.1 OVERVIEW

This Transaction Package supports the process of sharing radiology result data. Radiology result data are captured as part of the normal process of care performed by healthcare providers. This data can be made available through document sharing for both clinical care and public health purposes.

### 1.2 COPYRIGHT PERMISSIONS

#### COPYRIGHT NOTICE

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### 1.3 REFERENCE DOCUMENTS

This section provides a list of key reference documents and background material. If you are already familiar with this information, proceed to Section 2.0.

A list of key reference documents and background material is provided in the table below. These documents can be retrieved from the [hitsp.org](http://hitsp.org) Web Site.

**Table 1-1 Reference Documents**

Reference Document	Document Description
<a href="#">HITSP Acronyms List</a>	Lists and defines the acronyms used in this document
<a href="#">HITSP Glossary</a>	Provides definitions for relevant terms used by HITSP documents
<a href="#">TN900 - Security and Privacy</a>	TN900 is a reference document that provides the overall context for use of the HITSP Security and Privacy constructs

### 1.4 CONFORMANCE

This section describes the conformance criteria, which are objective statements of requirements that can be used to determine if a specific behavior, function, interface, or code set has been implemented correctly.

#### 1.4.1 CONFORMANCE CRITERIA

In order to claim conformance to this construct specification, an implementation must satisfy all the requirements and mandatory statements listed in this specification, the associated HITSP Interoperability Specification, its associated construct specifications, as well as conformance criteria from the selected base and composite standards. A conformant system must also implement all of the required interfaces within the scope, subset or implementation option that is selected from the associated Interoperability Specification.

Claims of conformance may only be made for the overall HITSP Interoperability Specification or Capability with which this construct is associated.



#### 1.4.2 CONFORMANCE SCOPING, SUBSETTING AND OPTIONS

A HITSP Interoperability Specification must be implemented in its entirety for an implementation to claim conformance to the specification. HITSP may define the permissibility for interface scoping, subsetting or implementation options by which the specification may be implemented in a limited manner. Such scoping, subsetting and options may extend to associated constructs, such as this construct. This construct must implement all requirements within the selected scope, subset or options as defined in the associated Interoperability Specification to claim conformance.



## 2.0 TRANSACTION DEFINITION

### 2.1 CONTEXT OVERVIEW

#### *Per IHE-Rad-XDS-I*

IHE IT Infrastructure has released the Cross-Enterprise Document Sharing (XDS) Integration Profile. It provides an integration solution to the problem of general-purpose document sharing in a broad healthcare environment.

This profile [XDS-I] specifies sharing of imaging “documents” such as radiology images and reports; it presents a solution for sharing imaging documents based on XDS. XDS-I extends XDS by sharing, locating and accessing DICOM instances from its original local sources, e.g., for radiologists or oncologists.

#### 2.1.1 TRANSACTION PACKAGE CONSTRAINTS

**Table 2-1 Transaction Package Constraints**

Constraint
No applicable constraints

#### 2.1.2 INTERFACES

All interfaces for this Transaction Package are described in Section 2.2 of IHE-Rad-XDS-I and as follows.

**Table 2-2 Interfaces**

Interface	Description	Used in Component/ Standard	Transaction/Content	Optionality <sup>1</sup>
Imaging Document Source	The Imaging Document Source interface is the producer and publisher of imaging documents. It is responsible for providing imaging documents and metadata to the Document Repository interface, which subsequently registers the imaging documents with the Document Registry interface. It also supports the retrieval services for DICOM SOP Instances referenced in a published imaging manifest document	HITSP/TP49	Provide and Register Imaging Document Set [RAD-54]	C[201]
			Retrieve Images [RAD-16]	R
			Retrieve Presentation States [RAD-17]	R
			Retrieve Reports [RAD-27]	R
			Retrieve Key Image Note [RAD-31], R	R
			Retrieve Evidence Documents [RAD-45]	R
			WADO Retrieve [RAD-55]	R
Document Source		HITSP/TP49	Provide & Register Document Set-b	C[202]
			Provide & Register Document Set	C[202]
Document Consumer	The Document Consumer interface queries a Document Registry interface for documents meeting certain criteria and retrieves selected documents from one or more Document Repository interfaces	HITSP/TP49	Registry Stored Query	C[203]
			Retrieve Document Set	C[203]
			Stored Query	C[203]
Imaging Document Consumer	The Imaging Document Consumer interface parses an imaging manifest document that is retrieved by the Document Consumer interface from the Document Repository	HITSP/TP49	Retrieve Images [RAD-16]	C[206]
			Retrieve Presentation States [RAD-17]	O
			Retrieve Reports [RAD-27]	C[206]
			Retrieve Key Image Note [RAD-31]	O

<sup>1</sup> Optionality = “R” for Required, “R2” for Required if known, “O” for Optional, or “C” for Conditional



Interface	Description	Used in Component/ Standard	Transaction/Content	Optionality <sup>1</sup>
	interface and retrieves DICOM SOP Instances referenced within that manifest from the Imaging Document Source interface		Retrieve Evidence Documents [RAD-45]	C[206]
			WADO Retrieve [RAD-55]	C[206]
Document Registry	The Document Registry interface maintains metadata about each registered document in a document entry. This includes a link to the Document Repository where the actual document is stored. The Document Registry responds to queries from Document Consumer interfaces about documents meeting specific criteria. It also enforces some healthcare specific technical policies at the time of document registration	HITSP/TP49	Patient Identity Feed	R
			Registry Stored Query	C[205]
			Provide & Register Document Set-b	C[205]
			Stored Query	C[205]
			Provide & Register Document Set	C[205]
			Provide & Register Document Set (offline mode)	C[202]
Document Repository	The Document Repository interface persistently stores documents. It assigns and maintains a unique identifier for each document, to allow Document Consumers to retrieve them	HITSP/TP49	Provide and Register Document Set-b	C[204]
			Register Document Set-b	C[204]
			Retrieve Document Set	C[204]
			Register Document Set	C[204]
			Provide & Register Document Set	C[204]
			Retrieve Document	C[204]
Patient Identity Source	The Patient Identity Source interface assigns a unique identifier to each instance of a patient as well as maintains a collection of identity traits	HITSP/TP49	PIX Identity Feed	R

#### Transaction/Content (T/C) Optionality Conditions

- C[201] - At least one of the optional retrieve transactions is required to be supported. Refer to section 18.4 of IHE Radiology Technical Framework part 1 for additional requirements on the Imaging Document Consumer
- C[202] - The Interface shall support at least one of these transactions
- C[203] - The Document Consumer shall support either XDS.a transactions, XDS.b transactions or both. Where Identity Assertion is required, the Document Consumer shall support XDS.b (Registry Stored Query, Retrieve Document Set)
- C[204] - The Document Repository shall support either XDS.a transactions, XDS.b transactions or both. Where Identity Assertion is required, the Document Repository shall support XDS.b (Provide & Register Document Set-b, Register Document Set-b, Retrieve Document Set)
- C[205] - The Document Registry shall support either XDS.a transactions, XDS.b transactions or both. Where Identity Assertion is required, the Document Repository shall support XDS.b to query the registry (Registry Stored Query)
- C[206] - Support of at least one of the three document types described by the options in section 18.2 of IHE Radiology Technical Framework part 1 is required
  - Interface Interactions

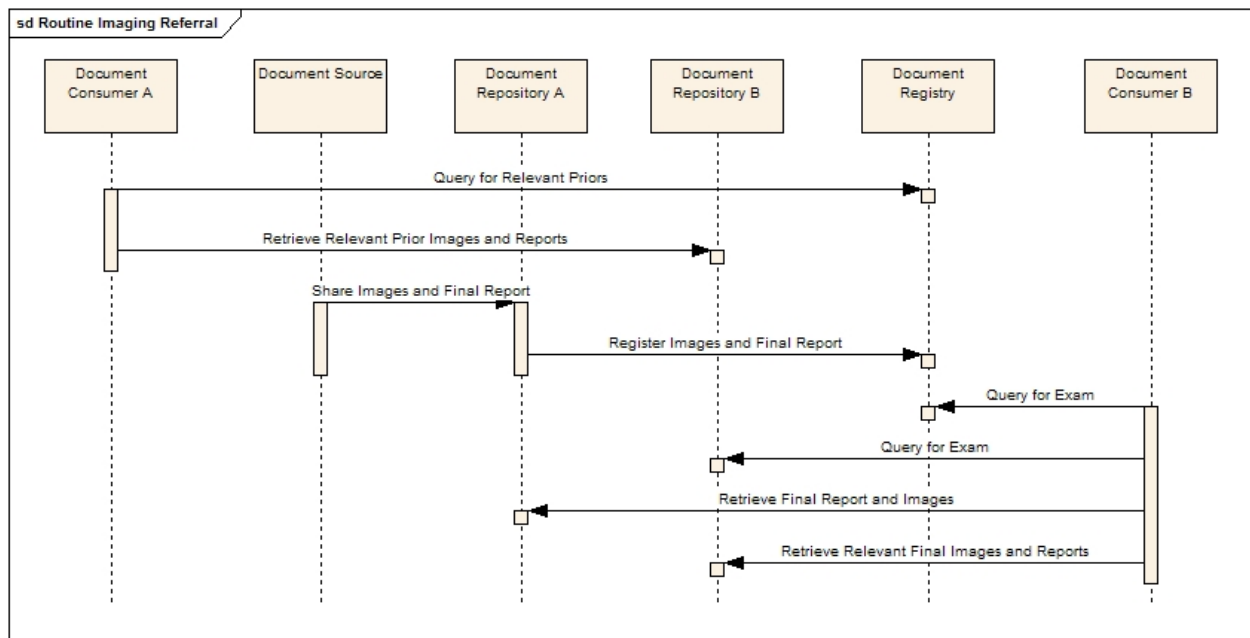
All interactions associated with this Transaction Package can be found in Section 18 of IHE-Rad-XDS-I and are reproduced below.

The following diagram shows the interactions involved in a routine imaging referral.



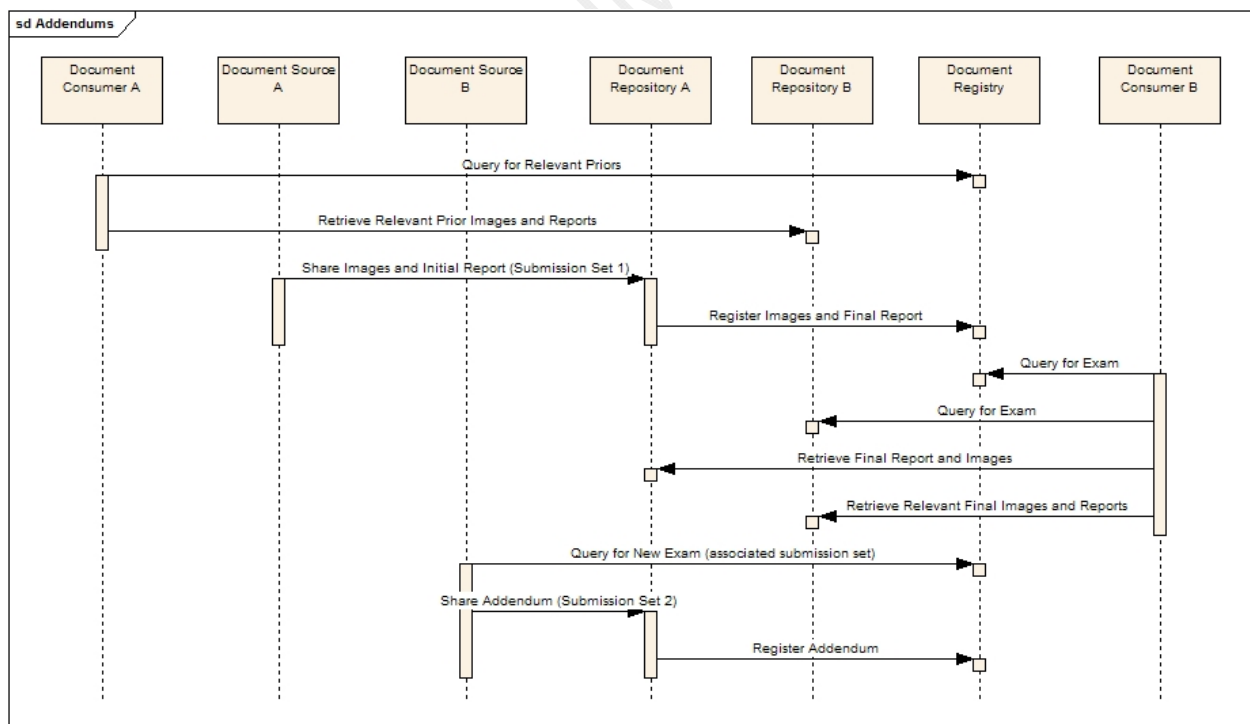


**Figure 2-1 Interface Interactions – Routine Imaging Referral**



The following diagram shows the interactions involved in the case where an addendum is provided during the course of treatment.

**Figure 2-2 Interface Interactions – Addendums**



The following diagram shows the interactions involved when separate and distinct reports are provided for the same imaging exam.



```
sequenceDiagram
    participant DCA as Document Consumer A
    participant DSA as Document Source A
    participant DRA as Document Repository A
    participant DRB as Document Repository B
    participant DCC as Document Consumer C
    participant DSB as Document Source B
    participant DR as Document Registry
    participant DCB as Document Consumer B

    DCA->>DR: Query for Relevant Priors
    activate DCA
    DCA->>DRA: Retrieve Relevant Prior Images and Reports
    deactivate DCA
    activate DSA
    DSA->>DRA: Share Images and Final Report
    deactivate DSA
    DRA->>DR: Register Images and Report
    activate DRA
    DCC->>DR: Query for New Exam
    deactivate DCC
    DR->>DRA: Retrieve New Exam
    activate DR
    DCC->>DR: Query for New Exam and Relevant Priors
    deactivate DCC
    DR->>DRB: Retrieve New Exam and Relevant Priors
    activate DR
    DRB->>DRA: Retrieve New Exam and Relevant Priors
    deactivate DRB
    DRA->>DSB: Query New Exam (associated submission set)
    activate DRA
    DRA->>DR: Share Consult Report
    deactivate DRA
    DRA->>DR: Register Consult Report
    deactivate DRA
    deactivate DR
    deactivate DCB
```

### Table 2-3 Pre-conditions

### 2.1.3.1 PROCESS TRIGGERS

Process Trigger
Radiology images are ready for sharing

### Table 2-5 Post-conditions

Post-condition
Submitted imaging documents are successfully filed in the repository and their metadata are retrievable from the registry



#### 2.1.4.1 REQUIRED OUTPUT

**Table 2-6 Required Output**

Required Output	Format/Usage
No applicable required outputs	

#### 2.1.5 DATA FLOWS

All process and data flows associated with this Transaction Package can be found in Section 18 of the IHE-Rad-XDS-I Integration Profile.

### 2.2 LIST OF HITSP CONSTRUCTS

**Table 2-7 List of HITSP Constructs**

Construct Name	Description	Transaction/Content
HITSP/TP13	HITSP Manage Sharing of Documents Transaction Package	Manage Sharing of Documents is focused on providing a standards-based specification for managing the sharing of documents between healthcare enterprises
HITSP/TP22	HITSP Patient ID Cross-Referencing Transaction Package	The Patient ID Cross-Referencing (PIX) Transaction Package is a portion of the Interoperability Specifications that deals with identifying and cross-referencing different patient attributes for the same patient

#### 2.2.1 CONSTRUCT DEPENDENCIES

**Table 2-8 Construct Dependencies**

Construct	Depends On (Name of Component that it depends on)	Dependency Type (Pre-condition, Post-condition, General)	Purpose
Provide and Register Imaging Document Set	Patient Identity Feed	Pre-condition	Permit association of image documents with appropriate real or pseudo patient identifiers
WADO Retrieve Query Registry Retrieve Document Retrieve Images Retrieve Presentation States Retrieve Reports Retrieve Key Image Notes Retrieve Evidence Documents	Provide and Register Imaging Document Set <i>or</i> Register Document Set	Pre-condition	Define and populate domains containing imaging documents that may be queried and from which documents may be retrieved

#### 2.2.2 ADDITIONAL CONSTRAINTS ON REQUIRED CONSTRUCTS

All Constraints associated with this Transaction Package are specified in the IHE-Rad-XDS-I Integration Profile.

**Table 2-9 Additional Constraints on Required Constructs**

Data Element	Construct	Constraint	Constraint Type (Pre-condition, Post-condition, General)	Purpose (Reason for this constraint)
No applicable constraints				



## 2.3 STANDARDS

### 2.3.1 REGULATORY GUIDANCE

**Table 2-10 Regulatory Guidance**

Standard	Description
No applicable regulatory guidance	

### 2.3.2 SELECTED STANDARDS

**Table 2-11 Selected Standards**

Standard	Description
Integrating the Healthcare Enterprise (IHE) Radiology Technical Framework Revision 8.0	The IHE Radiology Technical Framework specifies the Cross-Enterprise Document Sharing for Imaging (XDS-I) Integration Profile which enables sharing of imaging documents such as radiology images and reports across healthcare enterprises. XDS-I extends XDS by sharing, locating and accessing DICOM instances from its original local sources, e.g., for radiologists or oncologists. For more information visit <a href="http://www.ihe.net">www.ihe.net</a>

### 2.3.3 INFORMATIVE REFERENCE STANDARDS

**Table 2-12 Informative Reference Standards**

Standard	Description
No applicable informative references	



### 3.0 APPENDIX

The following sections include relevant materials referenced throughout this document.

No additional information at this time.



## 4.0 CHANGE HISTORY

The following sections provide the history of changes made to this document.

### 4.1 MAY 11, 2007

This document is now Released for Implementation.

### 4.2 MARCH 19, 2008

This document has been updated to include the HITSP Security and Privacy constructs and has been updated to reflect the new template.

### 4.3 MARCH 27, 2008

Upon approval by the HITSP Panel on March 27, 2008, this document is now Released for Implementation.

### 4.4 AUGUST 20, 2008

This document has been modified to reflect the updated HITSP approach to categorizing standards as Regulatory Guidance, Selected Standards, and Informative References.

### 4.5 AUGUST 27, 2008

Upon approval by the HITSP Panel on August 27, 2008, this document is now Released for Implementation.

### 4.6 JUNE 30, 2009

Minor editorial changes were made to this document. Removed boilerplate text for simplification. The term "actor" was replaced with "interface".

### 4.7 JULY 8, 2009

Upon approval by the HITSP Panel on July 8, 2009, this document is now Released for Implementation.

