**Integrating the Healthcare Enterprise**

# IHE IT Infrastructure
# Technical Framework Supplement

# Secure Retrieve
# (SeR)

# Trial Implementation


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**Please verify you have the most recent version of this document.** See here for Trial Implementation and Final Text versions and here for Public Comment versions.

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## Foreword

This is a supplement to the IHE IT Infrastructure Technical Framework V11.0. Each supplement undergoes a process of public comment and trial implementation before being incorporated into the volumes of the Technical Frameworks.

This supplement is published on August 28, 2014 trial implementation and may be available for testing at subsequent IHE Connectathons. The supplement may be amended based on the results of testing. Following successful testing it will be incorporated into the IT Infrastructure Technical Framework. Comments are invited and can be submitted at http://www.ihe.net/ITI_Public_Comments.

This supplement describes changes to the existing technical framework documents.

"Boxed" instructions like the sample below indicate to the Volume Editor how to integrate the relevant section(s) into the relevant Technical Framework volume.

| *Amend Section X.X by the following:* |
|---|

Where the amendment adds text, make the added text **bold underline**. Where the amendment removes text, make the removed text **~~bold strikethrough~~**. When entire new sections are added, introduce with editor's instructions to "add new text" or similar, which for readability are not bolded or underlined.

General information about IHE can be found at: http://ihe.net.

Information about the IHE IT Infrastructure domain can be found at: http://ihe.net/IHE_Domains.

Information about the organization of IHE Technical Frameworks and Supplements and the process used to create them can be found at: http://ihe.net/IHE_Process and http://ihe.net/Profiles.

The current version of the IHE IT Infrastructure Technical Framework can be found at: http://ihe.net/Resources/Technical_Frameworks.

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## Introduction to this Supplement

This supplement defines new functionalities for an XDS environment with a unique and centralized Access Control system. As a Trial Implementation Supplement, this profile is limited to those deployment models and their policies where a central authorization authority can make complete and definitive decisions, yet support federated identity/authentication. These use-cases specifically mean that neither XDS Document Source nor XDS Document Repository Actors need to have any more fine-grain policies to enforce. The supplement describes how to create a "system of trust" between the actor that can perform Access Decisions (on behalf of Consent Docs, Policies and Creation/Access/Disclosure rules) and XDS Actors that actually store clinical data and documents. Access decisions are often based on metadata (e.g., document types, practiceSetting); therefore the source of truth for metadata (i.e., the XDS Document Registry) is the best place to make the decisions. With the objective to keep the data close to the decision point, the XDS Document Registry Actor in many implementations, is a good candidate to perform access control decisions (Authorization Decisions Manager or Policy Decision Point). In a typical XDS environment, there are many XDS Document Repositories that store documents. These systems are not aware of Consent Documents published by patients, and cannot apply Access/Creation/Disclosure Policies to requests for Document retrieval; then the replication of Access Control functionalities is unfeasible and/or too expensive (due to integration burdens and total cost of ownership).

The objective of the Secure Retrieve Profile is the definition of a mechanism to convey Authorization Decisions between XDS Actors, attesting that the reliable Policy Decision Point (PDP) has already made an access decision.

The starting requirements/constraints upon which this profile is developed are described below:

- A unique PDP performs access decision for all XDS Document Consumer and all XDS Document Repositories involved in the Affinity Domain.
- XDS Document Repositories cannot manage the whole set of information needed to perform access decisions (XDS Document Repositories are not required to store metadata. If the Repository stores metadata, the metadata might be insufficient to perform an access decision).
- The XDS infrastructure is not fully federated; a clear separation of duties and responsibilities between PDP and XDS Document Repositories is needed (Repositories store clinical documents; PDP evaluates access rights to those contents).
- The XDS Document Repositories must enforce access decision made by the Policy Decision Point.
- A technical pattern that reduces behavioral and transactional changes for the Consumer side is clearly preferred (lower costs for deployment and for security reasons).

This supplement is a standalone profile because it defines a flexible pattern that could be used by any Service Provider that queries for Authorization Decisions already granted by a trusted

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Authorization Decisions Manager (or PDP). However, the focus is to add Access Control functionalities to the XDS environment.

This profile introduces two new actors (Authorization Decisions Manager and Authorization Decisions Verifier) and one new transaction (Authorization Decisions Query).

This profile does not describe how Authorization Decisions are performed. However, this profile relies on XACM-SAML framework, so these standards could be good candidates to implement Authorization Requests.

This profile describes how a Service Provider (e.g., Document Repository) can discover the existence of Authorization Decisions granted to an entity and for specific documents.

## Open Issues and Questions

## NoneClosed Issues

1. Which is the best technical approach for the solution?
    - It is suggested an evaluation of both the technical approaches: SAML token vs. JWT Bearer token. A comparison between the two standards will be formalized in a document. First step: evaluation of the efficiency of the two solutions proposed.
    - A JWT token is only OAuth which is REST. What we may end up with is an equivalent of this in MHD. Right now we are doing this for XDS, so the strategy should be:
        - Focus on SAML and SOAP, and advancing XUA.
        - Let MHD handle the RESTful equivalent after this is in TI.
    - Volume 1 should be independent of the standards selected. Volume 2 may eventually contain an extra piece that shows how OAuth, REST and MHD meet the same volume 1 need as the SAML/SOAP pieces that are developed this year.
    - Therefore, the plan is to proceed with SAML and SOAP for now, but not mention this in volume 1, only in volume 2.
2. I've introduced a transaction to "Request Retrieval Token". This allows in the same environment simple Consumer and Consumer compliant with SeR guideline. This is, from my point of view, acceptable because there are certain types of docs (administrative docs and so on...) that probably can be shared without Retrieval Token. In my perspective this choice brings flexibility to the solution. Is this reasonable?
    - This can be addressed silently defining Domain Policies that state that some documents can be retrieved without Retrieval Token. No reasons to profile this feature.
3. Many different patterns have been analyzed. An evaluation spreadsheet was produced. For further details see ftp site: ftp://ftp.ihe.net/IT_Infrastructure/iheitiyr12-2014-

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2015/Technical_Cmte/Workitems/SecureRetrieve_SeR/CRAC%20Standards%20Pattern%20Selection%20Criteria%20Matrix%20-%2020140323.xls

4. Which is the best drafting approach for the supplement? (Suggestion to postpone this decision/discussion, after a deep analysis of the problem. This is something that can be addressed after the first face to face meeting, once we have clear the SCOPE and the USE CASES that can be covered)

   - The supplement is drafted as an independent supplement focused on an XDS environment. The pattern selected, allows to be applied for future applications to other use cases. Transaction ITI-XX is profiled taking this in mind (extensible payload for the XACMLAuthorizationDecisionQuery Request message)

5. There was a proposal: Use Artifact Resolution Protocol (defined in SAML 2.0 core specification) instead of XACMLAuthzDecisionQuery. Rationale: The transaction ITI-XX defines a standard semantic to check if an authorization token exists, but XACMLAuthzDecision Query is used to request and perform Authorization Decision.

   - The proposal was rejected: The use case does not require the sharing of SAML Artifact. The XACMLAuthzDecisionQuery does not require that the Authorization Decisions Manager performs access decisions following the XACML standard. XACML Authorization Query Request message just conveys needed parameters to locate an authorization. In addition to that, Artifact Resolution protocol seems to add some requirements that broke the basic use case “In all cases, the artifact MUST exhibit a single-use semantic such that once it has been successfully resolved, it can no longer be used by any party.” And again: “The responder MUST enforce a one-time-use property on the artifact by ensuring that any subsequent request with the same artifact by any requester results in an empty response as described above”. For the XDS use case, the Authorization Decisions Manager could request the same authorization many times; the one-shot authorization is not useful in this use case.

6. It was suggested to use Attribute Name: urn:oasis:names:tc:SAML:2.0:profiles:attribute:XPSA:subject in accordance to XSPA instead of the subject-id. The proposal was rejected. The using of the XSPA guideline does not add value, and add requirements that do not match with SeR use case..

7. This profile mandates the grouping between XDS Actors and XUA Actors (see Section 3). Readers are asked to provide feedback on this requirement. It is obvious that XUA environment (and SAML 2.0 token) is helpful for entity identification. Are there any other preferred approaches to perform this identification?

   - No other approaches are suggested. XUA grouping is confirmed.

8. Readers should focus on the XACML encoding defined for the XDSDocumentEntry.uniqueId and for the XUA Attribute Patient ID. Both this attribute are identified by the same @Category and same @AttributeId. This could create problems, because the Authorization Decisions Manager should interpret which is the docID and which is the patient ID. It is not clear to the tech cmte how much the impact is.

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- A new urn is defined for patient ID.

9. This profile defines a mandatory grouping between Authorization Decisions Manager and Document Registry. It is an obvious grouping, but implementations could also use other approaches. Readers are asked to provide feedback on this requirement.

    - The profile does not profile the transaction to request Authorizations. This access decision is likely performed during the Query Request processing and requires input parameters local defined by the Domain. However the performing of these decisions needs a lot of information managed by the Registry or conveyed within the Query Request. In accordance to this a grouping approach is proposed.

10. The pattern described in this profile requires the Pull of authorization from an Authorization Decisions Manager Actor. This approach is compliant with XACML standard. For efficiency reasons a Push approach could be better. In a Push environment when an Authorization is granted for a resource, this authorization is sent to the XDS Document Repository that stores this resource. This approach is not described in standard specification yet.

    - The Pull approach is chosen to reduce computational load on the central Authorization Decision Manager

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# General Introduction

*Update the following Appendices to the General Introduction as indicated below. Note that these are not appendices to Volume 1.*

## Appendix A - Actor Summary Definitions

*Add the following actors to the IHE Technical Frameworks General Introduction list of actors:*

| Actor | Definition |
|---|---|
| Authorization Decisions Manager | Actor that can perform Access Control decision, evaluating requests for authorization. The result of this evaluation is the creation of an Authorization Decision that certifies the decision made |
| Authorization Decisions Verifier | This actor queries for Authorization Decisions related to the Requester Entity before disclosing specific documents. An Authorization Decision is stored and managed by the Authorization Decisions Manager Actor and certifies that a decision was made by a trustable actor. |

## Appendix B - Transaction Summary Definitions

*Add the following transactions to the IHE Technical Frameworks General Introduction list of Transactions:*

| Transaction | Definition |
|---|---|
| Authorization Decisions Query | Transaction used by the service provider (Authorization Decisions Verifier) to request valid authorization decisions granted for the Requester Entity to disclose specific documents. |

# Glossary

*Add the following glossary terms to the IHE Technical Frameworks General Introduction Glossary:*

| Glossary Term | Definition |
|---|---|
| Access Decision Manager | A complex system that is responsible for access/creation/disclosure decisions performed according to Domain Policies, Consent Documents, etc. This actor can implement additional functionalities typical of a PDP (Policy Decision Point), PAP (Policy Administration Point) and a PIP (Policy Information Point). |
| Authorization Decision | A security token that describes which documents can be accessed by a specific entity |
| Requester Entity | The entity identified within the identity assertion. This entity asks for resources (documents). This entity performs query to the registry and try to retrieve documents from repositories. Authorization Decisions are created and associated with the Requester Entity. |

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# Volume 1 – Profiles

## Copyright Licenses

NA

## Domain-specific additions

NA

*Add new Section 39*

# 39 Secure Retrieve (SeR) Profile

This profile defines a framework able to enforce a centralized Access Control system, conveying between actors involved in a XDS sharing environment the evidence of the reliable decisions already made by an Access Decision Manager.

The main objective of this profile is to create a system of trust between the actor that performs access decisions (Authorization Decisions Manager), and actors that store clinical data (XDS Document Repositories). This split of responsibilities is needed in many environments where systems that expose clinical data are not able to replicate and repeat access decisions.

This type of approach is useful in many situations:

- XDS environments with many XDS Document Repositories which expose clinical documents without an access control system already implemented. These systems require minimal integration burden to support functionalities defined in this profile.
- Federation of repositories in a new Affinity Domain. The federation of repositories requires the subscription of the whole set of domain policies for content Creation/Access/Disclosure. A centralized Access Decision Manager coupled with the central XDS Document Registry allows the management of accesses to local Repositories without requiring the development of complex Access Control systems.
- Environments where Consent Documents, Policies and Data Access Rules can be collected, managed and discovered only in a centralized way.
- Sharing infrastructure with strong enforcement of Access Control systems. In many organizational and jurisdictional environments, access to clinical data is managed by Servers that store/register clinical data and cannot be regulated by the Consumer itself.

In those scenarios, this profile defines how to create a “logical federation” between an Access Decision Manager (responsible for enabling/denying accesses) and XDS Document Repositories (that store documents and expose them without knowledge related to the user/role/consent documents/policies etc.). Actors that store clinical data could only trust a decision made by the Access Decision Manager

Access Decision Manager functionalities are out of scope for this profile because typically they are domain specific and locally defined. It is out scope of the profile to cover all the Access Control Decision issues. This profile allows the creation of a system where the existence of a document that cannot be accessed by a specific user is totally obscured from the Consumers.

Creation, management and enforcement of policies are out of scope for this profile. However this profile takes in consideration best practices and common implementations for Access Decision Manager functionalities.

This profile allows addressing the following security risks (related to XDS Document Repository exposure):

- The Document Repository does not know the access control decision that should be enforced. Therefore, if it denies access to data, there is a failure of availability. If it

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provides the document inappropriately, there is a risk to confidentiality. The SeR Profile allows the Repository to be aware of the decision made, only asking for the existence of Authorizations granted by the trusted Access Decision Manager and enforcing that decision. In accordance with Affinity Domain policies, the XDS Document Repository can make further access control decisions.

- A separation of duties between Document Consumer (that requests authorization and documents) and the Policy Decision Point is created. The SeR Profile moves the decisions and enforcement into the service layer by grouping decisions with the Registry and enforcement with the Repository (instead of the Consumer).

## 39.1 SeR Actors, Transactions, and Content Modules

This section defines the actors, transactions, and/or content modules in this profile.

Figure 39.1-1 shows the actors directly involved in the SeR Profile and the relevant transactions between them. If needed for context, other actors that may be indirectly involved due to their participation in other related profiles are shown in dotted lines. Actors which have a mandatory grouping are shown in conjoined boxes.

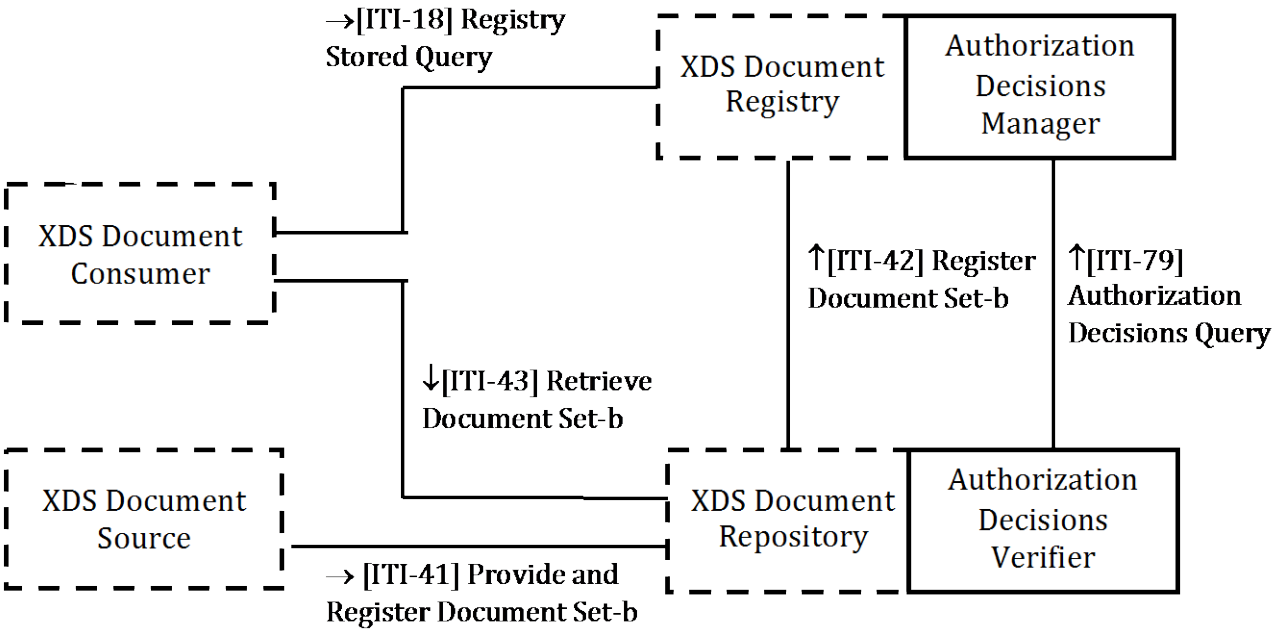


**Figure 39.1-1: SeR Actor Diagram**

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Table 39.1-1 lists the transactions for each actor directly involved in the SeR Profile. To claim compliance with this profile, an actor shall support all required transactions (labeled "R") and may support the optional transactions (labeled "O").

**Table 39.1-1: SeR Profile - Actors and Transactions**

| Actors | Transactions | Optionality | Reference |
|---|---|---|---|
| Authorization Decisions Manager | Authorization Decisions Query | R | ITI TF-2c: 3.79 |
| Authorization Decisions Verifier | Authorization Decisions Query | R | ITI TF-2c: 3.79 |

### 39.1.1 Actor Descriptions and Actor Profile Requirements

Most requirements are documented in Transactions (Volume 2) and Content Modules (Volume 3). This section documents any additional requirements on profile's actors.

#### 39.1.1.1 Authorization Decisions Manager

The Authorization Decisions Manager Actor is responsible for the management of access control decisions in the entire XDS domain. From the Access Control point of view, this actor is the unique Policy Decision Point (PDP) of the entire domain for all documents because it may decide on the outcome of an incoming authorization request in order to provide access to specific resources (documents). The Authorization Decisions Manager completes the Authorization Decision creating and storing a security token. This security token does not need to be exposed to other systems, and it certifies the decision made. This actor could implement additional Access Control functionalities required in the specific implementation scenario.

(Refer to the White Paper IHE ITI Access Control White Paper for further information about PDP and Access Control Systems).

#### 39.1.1.2 Authorization Decisions Verifier

The Authorization Decisions Verifier is the actor that verifies if the Requester Entity is authorized to access specific resources by querying the Authorization Decisions Verifier. This actor enforces the Access Decision made by the trusted Policy Decision Point, so it acts as a Policy Enforcement Point (PEP). This actor enables the secure exposure of documents, allowing access only to Requester Entities previously authorized by the Policy Decision Point.

The Requester Entities (XDS Document Consumer) convey at least the following information to the Authorization Decisions Verifier:

- Requester Entity that obtains authorization (e.g., using an identity assertion)

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- The unique ID of the document that can be accessed (within the Retrieve Document Set-b Request)

(Refer to the White Paper IHE ITI Access Control White Paper for further information about PEP and Access Control Systems).

## 39.2 SeR Actor Options

Options that may be selected for each actor in this profile, if any, are listed in the Table 39.2-1. Dependencies between options when applicable are specified in notes.

**Table 39.2-1: SeR - Actors and Options**

| Actor | Option Name | Reference |
|---|---|---|
| Authorization Decisions Manager | No options defined | -- |
| Authorization Decisions Verifier | No options defined | -- |

## 39.3 SeR Required Actor Groupings

SeR actors are involved in a XDS document sharing infrastructure. The groupings between XDS Actors and SeR actors enforce the system of trust between the XDS Document Registry that localizes the XDS DocumentEntries and the XDS Document Repositories that store XDS documents. The mandatory grouping between the XDS Document Registry and the Authorization Decisions Manager is needed to leave the protocols and semantics of the Authorization Request transaction unspecified. The Authorization Decisions Manager needs metadata, entity identification, policies applicable etc.

This profile requires the identification of the entity that actually performs queries and retrieves of documents. Authorization Decisions are granted to a specific entity and can be used only by that entity to get access to document entries.

Grouping with XUA Actors shall be supported. Other approaches for entity identification could be defined by local domain policies.

An actor from this profile (Column 1) shall implement all of the required transactions and/or content modules in this profile ***in addition to*** all of the transactions required for the grouped actor (Column 2).

Section 39.5 describes some optional groupings that may be of interest for security considerations and Section 39.6 describes some optional groupings in other related profiles.

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**Table 39.3-1: SeR - Required Actor Groupings**

| SeR Actor | Actor to be grouped with | Reference | Content Bindings Reference |
|---|---|---|---|
| Authorization Decisions Manager | XDS Document Registry | ITI TF-1: 10.1.1 | -- |
| | XUA X-Service Provider | ITI TF-1: 13.4 | -- |
| | ATNA Secure Node or Secure Application | ITI TF-1: 9.4 | -- |
| Authorization Decisions Verifier | XDS Document Repository | ITI TF-1: 10.1.1 | -- |
| | XUA X-Service Provider | ITI TF-1: 13.4 | -- |
| | ATNA Secure Node or Secure Application | ITI TF-1: 9.4 | -- |

## 39.4 SeR Overview

### 39.4.1 Concepts

This section describes the primary use-cases for the SeR Profile. In this use case, the storing facility relies on a trusted actor able to evaluate access rights.

The Authorization Decisions Manager Actor is grouped with the XDS Document Registry Actor. It acts as a Policy Decision Point (PDP) and implements functions of Policy Information Point (PIP) and Policy Administration Point (PAP). The Authorization Decisions Manager in this use-case act as a PIP because it manages the whole set of information needed to perform an access decision:

- Consent Documents subscribed by patients
- Security & Privacy Metadata
- Access Policies
- Patients and Providers Master Data and relationship between them
- Etc.

The Authorization Decisions Manager may implement functions of a PAP, administering and maintaining Affinity Domain Policies.

### 39.4.2 Use Cases

#### 39.4.2.1 Use Case #1: Environment with a centralized Access Decision Manager

This use-case describes how an XDS Document Repository without internal Access Control mechanisms uses Authorization Decisions made by a third party.

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#### 39.4.2.1.1 Environment with a centralized Access Decision Manager Use Case Description

The XDS Document Repositories are all in the same XDS Affinity Domain, but are unable to perform access decisions. When an entity tries to retrieve some documents from an XDS Repository the XDS Document Repository lacks of the information needed to make an access control decision. The Authorization Decisions Manager can make the decision at the time of the query to the XDS Registry. This decision is enforced by the XDS Document Repository grouped with Authorization Decisions Verifier Actor.

For example:

Mr. White comes to his GP, Dr. Brown, to show him a Laboratory Report. This Laboratory Report is shared in a XDS infrastructure. Using his EHR, Dr. Brown queries for Mr. White's Laboratory Reports shared in the XDS infrastructure. The Query Response returns some DocumentEntries to the XDS Document Consumer. Each XDSDocumentEntry in the response is authorized for the retrieval. Dr. Brown uses his XDS Document Consumer to retrieve these documents. XDS Document Repository verifies the authorization for the Requester Entity for each document requested before providing documents.

No other access control decisions are needed at this level.

Each Authorization Decision has a time slot of validity. Dr. Brown can retrieve documents until the Authorization expires. The Repository discloses **only** documents requested and authorized.

There are conditions where XDS Document Repository might not be providing documents:

- The Requester Entity does not have authorization according to the Authorization Decisions Query
- The authorization was granted too long ago and the Authorization Decision is expired

The user attempting to retrieve from the XDS Document Repository is different from the user that was authorized (there is a mismatch between the user that performs the retrieve and the user that queries for documents).

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#### 39.4.2.1.2 Environment with a centralized Access Decision Manager Process Flow

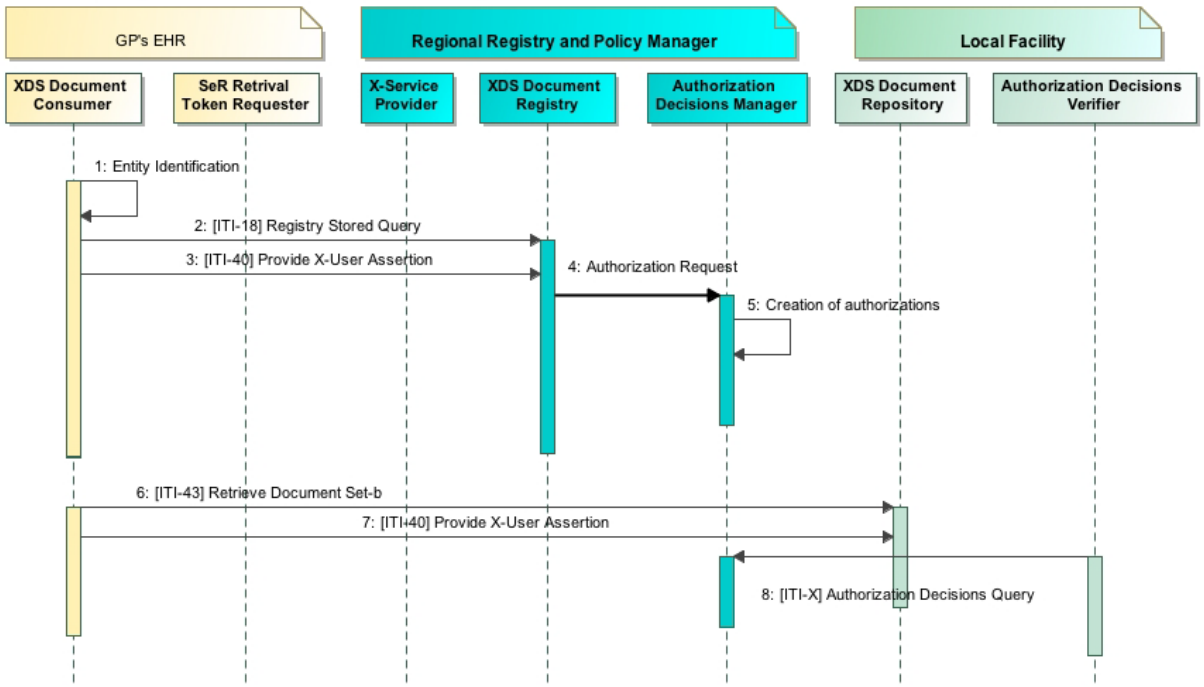


**Figure 39.4.2.1.2-1: Basic Process Flow in SeR Profile**

## 39.5 SeR Security Considerations

To prevent interaction with malicious third parties, a closed system of trust based on TLS digital identities is strongly recommended. Authorization Decisions Manager should accept queries only from a restricted set of Secure Nodes/Applications. The Authorization Decisions Verifier should perform queries only to the domain-identified Authorization Decisions Manager.

Authorization Decisions are collected by the Authorization Decisions Manager. These security tokens should not be exposed to other systems. Encryption of this token (when stored by the Authorization Decisions Manager) could avoid the disclosure of sensitive information.

The centralized Access Control system introduces a single point-of-failure risk in the XDS environment. A failure of the Authorization Decisions Manager Actor could result in legitimate access being denied.

This profile introduces an XDS Error Code in order to codify an additional reason for document retrieve failure. See ITI TF-3: Table 4.2.4.1-2. Adding more technical details within the failure response could be used to refine malicious requests. For example, if the error created by the Authorization Decisions Verifier conveys the reason of the failure, such as “the authorization is

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expired" or "the authorization is released in a different Functional Context", it could provide information to the malicious Document Consumer that can try to refine subsequent requests.

The SeR Profile does not define how to perform the Access Decision. However, this profile supports the creation of a system where the existence of a document that cannot be accessed by a specific user is not revealed. Each document returned within the Query Response should be considered Authorized for the retrieval at the time of the Query Request.

If the Authorization Decisions Verifier Actor is allowed to perform new access decision when it receives an XACMLAuthorizationDecisionsQuery Request message, performances can be not adequate. In order to avoid that, a previous Query is recommended.

## 39.6 SeR Cross Profile Considerations

An XDS Document Consumer Actor that participates in an XDS environment using SeR framework shall be grouped with an XUA X-Service User Actor.

An X-Service User Actor involved in a SeR framework shall be able to identify the specific Requester Entity conveying its logical identity (user ID, application ID, etc. ) within the <Subject>/<NameID> element.

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# Volume 2 – Transactions

*Add Section 3.79*

## 3.79 Authorization Decisions Query [ITI-79]

### 3.79.1 Scope

This transaction is used by the Authorization Decisions Verifier Actor to query for authorization decisions, granted and managed by the Authorization Decisions Manager Actor. These authorization decisions are created for an entity that is authorized to disclose specific documents.

The Authorization Decisions Verifier asks for authorizations based on: the Requester Entity and the requested documents identifiers.

This transaction is based on SOAP v1.2 exchange protocol and Synchronous Web services (See ITI TF-2x: Appendix V).

### 3.79.2 Actor Roles

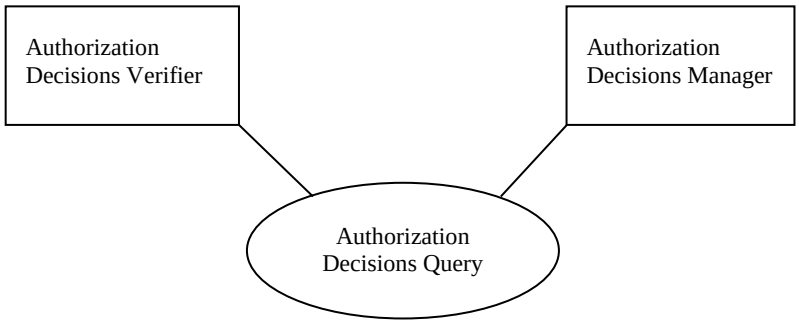


**Figure 3.79.2-1: Use Case Diagram**

**Table 3.79.2-1: Actor Roles**

| | |
|---|---|
| **Actor:** | Authorization Decisions Manager |
| **Role:** | This actor stores and manages authorization decisions granted for an entity and for specific documents. |
| **Actor:** | Authorization Decisions Verifier |
| **Role:** | This actor queries for authorization decisions granted based on the Requester Entity and requested documents identifiers. |

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### 3.79.3 Referenced Standards

OASIS SOAP v1.2

OASIS Security Assertion Markup Language (SAML) v2.0

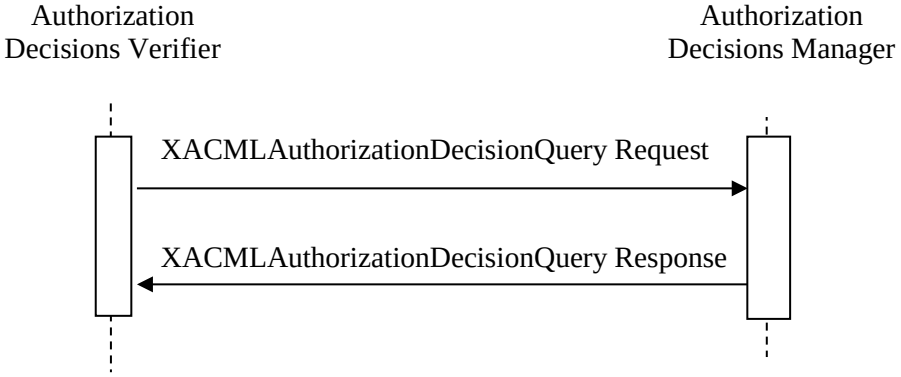
OASIS eXtensible Access Control Markup Language (XACML) v2.0

OASIS Multiple resource profile of XACML v2.0

OASIS SAML 2.0 profile for XACML v2.0

OASIS Cross-Enterprise Security and Privacy Authorization (XSPA) Profile of SAML v2.0 for Healthcare Version 2.0 (not normative)

### 3.79.4 Interaction Diagram




#### 3.79.4.1 XACMLAuthorizationDecisionQuery Request

This message enables the Authorization Decisions Verifier to query the Authorization Decisions Manager for authorizations. This message relies on the SAML v2.0 extension for XACML and uses the element `<XACMLAuthzDecisionQuery>` to convey the document identifiers and the subject identifier. The Authorization Decisions Verifier can ask for authorization for many documents in one query, so the Request message complies with the Multiple resource profile of XACML v2.0. Actors involved support XUA and use SAML identity assertions to identify entities (See ITI TF-1: 39.5 and 39.6). SAML attribute elements shall be mapped into xacml-context attribute elements as defined in SAML 2.0 Profile of XACML v2.0 (Section 2).

##### 3.79.4.1.1 Trigger Events

The Authorization Decisions Verifier sends this message when it needs to verify whether there is an Authorization to disclose specific documents to an entity requesting them. The trigger event is the grouped XDS Document Repository receiving a Retrieve Document Set Request message (see ITI TF-2b:3.43.4.1) and a Provide X-User Assertion [ITI-40] transaction from an XDS

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Document Consumer Actor that identifies the specific Requester Entity within a SAML Assertion.

#### 3.79.4.1.2 Message Semantics

The XACMLAuthorizationDecisionQuery Request message shall use SOAP v1.2 message encoding.

The WS-Addressing Action header shall have this value:

- urn:ihe:iti:2014:ser:XACMLAuthorizationDecisionQueryRequest

The body of the message shall use an `<XACMLAuthzDecisionQuery>` element (defined in the SAML 2.0 Profile for XACML v2.0) to convey Authorization Query parameters.

This element shall contain the following attributes:

- `@InputContextOnly`: shall be set to “false” (as default), because the Authorization Decisions Manager releases authorization based on information obtained outside the XACMLAuthorizationDecisonQuery Request message.
- `@ReturnContext`: shall be set to “false” because the content of the XACMLAuthorizationDecision Request is not needed within the Authorization Result.

IHE does not define constraints for other attributes (see OASIS SAML 2.0 Profile of XACML Version 2.0 Section 4 for details).
The `<XACMLAuthzDecisionQuery>` element shall have only one child element `<Request>`. This element shall comply with OASIS Multiple resource profile of XACML v2.0. This element shall have the following child elements:

- It shall have one child element `<Subject>`. This element identifies the Requester Entity. The `<Subject>` element shall have at least one child element `<Attribute>` characterized by `@AttributeId=”urn:oasis:names:tc:xacml:1.0:subject:subject-id”` and `@DataType=”http://www.w3.org/2001/XMLSchema#string”`. The `<AttributeValue>` child element shall convey the subject identifier. This element shall have the same value of the `<Subject>/<NameID>` element conveyed within the SAML assertion. See transaction [ITI-40] Provide X-User Assertion (ITI TF-2b: 3.40) for details. Any other SAML attribute related to the subject shall be added as additional XACML attribute. Table 3.79.4.1.2-1 defines which XUA attributes are identified as related to the subject (each attribute with XACML category equals to `urn:oasis:names:tc:xacml:1.0:subject-category:access-subject`)
- It shall have one or more `<Resource>` elements that identify resources. There is one `<Resource>` element for each document requested by the Requester Entity. In the XDS environment a `<Resource>` element identifies a document. Each document is identified by two required `<Attribute>` child elements.
    - The first `<Attribute>` element shall have `@AttributeId`=”urn:oasis:names:tc:xacml:1.0:resource:resource-id” and

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@DataType="http://www.w3.org/2001/XMLSchema#string". The <AttributeValue> child element stores the value of the XDSDocumentEntry.uniqueId;

- The second <Attribute> element shall have @AttributeId="urn:ihe:iti:xds-b:2007:document-entry:repository-unique-id" and @DataType="http://www.w3.org/2001/XMLSchema#anyURI". The <AttributeValue> child element stores the value of the XDSDocumentEntry.repositoryUniqueId.

Any other SAML attribute related to the resource requested shall be added as additional XACML attribute (e.g., homeCommunityId). Table 3.79.4.1.2-1 defines which XUA attributes are identified as related to the resource (each attribute with "XACML category" equals to urn:oasis:names:tc:xacml:1.0:resource)

Attributes that belong to the XACML environment category (e.g., XUA attributes with "XACML Category" equals to urn:oasis:names:tc:xacml:1.0:environment in Table 3.79.4.1.2-1) shall be added to an <Environment> element.

The <Action> element identifies the action that the Authorization Decisions Manager has to authorize. This element shall have a child element <Attribute> with @AttributeId="urn:oasis:names:tc:xacml:1.0:action:action-id" and @DataType=http://www.w3.org/2001/XMLSchema#anyURI. This attribute shall have a child element <AttributeValue> characterized by value:
urn:ihe:iti:2007:RetrieveDocumentSetResponse
Additional attributes that belong to the XACML action category (e.g., XUA attributes with "XACML Category"= urn:oasis:names:tc:xacml:1.0:action in Table 3.79.4.1.2-1) shall be added to an <Action> element.

The mapping of attributes from SAML v2.0 assertion defined in [ITI-40] transaction into XACML query attributes is defined below. For each attribute from [ITI-40], the XACML category and @AttributeId are identified:

**Table 3.79.4.1.2-1 [ITI-40] Attributes mapping into XACML Query Attributes**

| [ITI-40] Attribute | XACML Category | AttributeId | DataType |
|---|---|---|---|
| Subject ID | urn:oasis:names:tc:xacml:1.0:subject-category:access-subject | urn:oasis:names:tc:xacml:1.0:subject:subject-id | http://www.w3.org/2001/XMLSchema#string |
| Subject Organization | urn:oasis:names:tc:xacml:1.0:subject-category:access-subject | urn:oasis:names:tc:xspa:1.0:organization | http://www.w3.org/2001/XMLSchema#string |
| Subject Organization ID | urn:oasis:names:tc:xacml:1.0:subject-category:access-subject | urn:oasis:names:tc:xspa:1.0:subject:organization-id | http://www.w3.org/2001/XMLSchema#anyURI |
| Home Community ID | urn:oasis:names:tc:xacml:1.0:resource | urn:ihe:iti:xca:2010:homeCommunityId | http://www.w3.org/2001/XMLSchema#anyURI |
| National Provider Identifier (NPI) | urn:oasis:names:tc:xacml:1.0:subject-category:access-subject | urn:oasis:names:tc:xspa:1.0:subject:npi | http://www.w3.org/2001/XMLSchema#string |

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| [ITI-40] Attribute | XACML Category | AttributeId | DataType |
|---|---|---|---|
| Subject Role | urn:oasis:names:tc:xacml:1.0:subject-category:access-subject | urn:oasis:names:tc:xacml:2.0:subject:role | http://www.w3.org/2001/XMLSchema#anyURI |
| Authz-Consent | urn:oasis:names:tc:xacml:1.0:resource | urn:ihe:iti:bppc:2007:docid | http://www.w3.org/2001/XMLSchema#anyURI |
| Patient Identifier | urn:oasis:names:tc:xacml:1.0:resource | urn:ihe:iti:xds-b:2007:patient-id | http://www.w3.org/2001/XMLSchema#string |
| PurposeOfUse | urn:oasis:names:tc:xacml:1.0:action | urn:oasis:names:tc:xacml:2.0:action:purpose | http://www.w3.org/2001/XMLSchema#anyURI |

Any SAML 2.0 Attribute codified using the HL7 CD or CE dataType shall be codified into a XACML Attribute using the percentage urn encoding and DataType http://www.w3.org/2001/XMLSchema#anyURI as defined below:

"urn:ihe:iti:2014:ser:[codeSystem]:[codeSystemName]:[code]:[displayName]"

E.g.,

```
<saml:Attribute
NameFormat="urn:oasis:names:tc:SAML:2.0:attrname-format:uri"
Name=" urn:oasis:names:tc:xacml:2.0:action:purpose">
 <saml:AttributeValue>
              <value xmlns="urn:hl7-org:v3" xsi:type="CD"
code="RECORDMGT"
displayName="records management"
codeSystem="2.16.840.1.113883.1.11.20448"
codeSystemName="Purpose of Use" />
</saml:AttributeValue>
</saml:Attribute>
```

Shall be codified in a urn:

urn:ihe:iti:2014:ser:2012.16.840.1.113883.1.11.20448:Purpose%20Of%20Use:RECORDMGT:records%20management

Additional SAML 2.0 `<Attribute>` elements useful as authorization query parameters may be identified by domain policies. Any additional `<Attribute>` can be provided to the Authorization Decisions Verifier using a SAML v2.0 assertion. OASIS SAML 2.0 Profile of XACML Version 2.0, Section 2 provides guidance in mapping SAML attributes into XACML attributes. Domain Policies should define to which XACML category (Subject, Resource, Action or Environment) each additional Attribute belongs.

#### 3.79.4.1.2.1 Example of a SOAP v1.2 XACMLAuthorizationDecisionQuery Request message

```
<?xml version="1.0" encoding="UTF-8"?>
<soap:Envelope xsi:schemaLocation="http://www.w3.org/2003/05/soap-envelope
soap-envelope.xsd"
    xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
```

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```
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xacml-
saml="urn:oasis:xacml:2.0:saml:assertion:schema:os">
      <soap:Header
xsi:schemaLocation="http://www.w3.org/2005/08/addressing ws-addr.xsd"
xmlns:wsa="http://www.w3.org/2005/08/addressing">

      <wsa:Action>urn:iti:2014:ser:XACMLAuthorizationDecisionQueryRequest<
/wsa:Action>
            <wsa:MessageID>urn:uuid:9376254e-da05-41f5-9af3-
ac56d63d8ebd</wsa:MessageID>
            <wsa:To>https://AuthorizationDecisionsManager</wsa:To>
      </soap:Header>
      <soap:Body
xsi:schemaLocation="urn:oasis:xacml:2.0:saml:assertion:schema:os
access_control-xacml-2.0-saml-assertion-schema-os.xsd">
            <xacml-samlp:XACMLAuthzDecisionQuery xmlns:xacml-
samlp="urn:oasis:xacml:2.0:saml:protocol:schema:os" xacml-
samlp:InputContextOnly="false" xacml-samlp:ReturnContext="false">
                  <Request
xmlns="urn:oasis:names:tc:xacml:2.0:context:schema:os">
      <!-- Requester Entity identifier -->
                        <Subject>
                              <Attribute
AttributeId="urn:oasis:names:tc:xacml:1.0:subject:subject-id"
DataType="http://www.w3.org/2001/XMLSchema#string">
                                    <AttributeValue>admin</AttributeValue>
                              </Attribute>
                        </Subject>
      <!-- DOC 1 -->
                  <Resource>
                      <Attribute
AttributeId="urn:oasis:names:tc:xacml:1.0:resource:resource-id"

DataType="http://www.w3.org/2001/XMLSchema#string">
                        <AttributeValue>documentID1</AttributeValue>
                      </Attribute>
                      <Attribute
                        AttributeId="urn:ihe:iti:xds-b:2007:document-
entry:repository-unique-id"

DataType="http://www.w3.org/2001/XMLSchema#anyURI">>

<AttributeValue>urn:oid:1.2.3.4.5</AttributeValue>
                      </Attribute>
                  </Resource>
      <!-- DOC 2 -->
                  <Resource>
                      <Attribute
AttributeId="urn:oasis:names:tc:xacml:1.0:resource:resource-id"

DataType="http://www.w3.org/2001/XMLSchema#string">
                        <AttributeValue>documentID2</AttributeValue>
                      </Attribute>
```

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```
                    <Attribute
                        AttributeId="urn:ihe:iti:xds-b:2007:document-
entry:repository-unique-id"

DataType="http://www.w3.org/2001/XMLSchema#anyURI">>
                            <AttributeValue>
urn:oid:1.2.3.4.5</AttributeValue>
                    </Attribute>
                </Resource>
     <!-- DOC 3 -->
                <Resource>
                    <Attribute
AttributeId="urn:oasis:names:tc:xacml:1.0:resource:resource-id"

DataType="http://www.w3.org/2001/XMLSchema#string">
                        <AttributeValue>documentID3</AttributeValue>
                    </Attribute>
                    <Attribute
                        AttributeId="urn:ihe:iti:xds-b:2007:document-
entry:repository-unique-id"

DataType="http://www.w3.org/2001/XMLSchema#anyURI">>
                            <AttributeValue>
urn:oid:1.2.3.4.5</AttributeValue>
                    </Attribute>
                </Resource>
                <Action>
                    <Attribute
AttributeId="urn:oasis:names:tc:xacml:1.0:action-id"

DataType="http://www.w3.org/2001/XMLSchema#anyURI">

<AttributeValue>urn:ihe:iti:2007:RetrieveDocumentSetResponse
                        </AttributeValue>
                    </Attribute>
                </Action>
                <Environment/>
            </Request>
        </xacml-samlp:XACMLAuthzDecisionQuery>
    </soap:Body>
</soap:Envelope>
```

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### 3.79.4.1.3 Expected Actions

When the Authorization Decisions Manager receives an XACMLAuthorizationDecisionQuery Request message, it evaluates each Authorization Request conveyed within the XACMLAuthorizationDecision (one for each `<Resource>` element). The Authorization
620 Decisions Manager shall verify the existence of Authorization Decisions that match the XACML Query parameters:

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- The Requester Entity identified within the XACMLAuthorizationDecisionQuery (`<Subject>/<Attribute>` element with `@AttributeId`="urn:oasis:names:tc:xacml:1.0:subject:subject-id" ) is an entity that has Authorization Decisions already granted;

AND

- Among these authorizations, there is an authorization for each document identified within the XACMLAuthorizationDecisionQuery (`<Resource>/<Attribute>` elements with `@AttributeId`=”urn:oasis:names:tc:xacml:1.0:resource:resource-id” and “urn:ihe:iti:xds-b:2007:document-entry:repository-unique-id”).

If other parameters (such as attributes taken from an [ITI-40] identity assertion) are specified within the XACMLAuthorizationDecisionQuery Request message and if domain policies require the creation of authorizations related to these parameters, then the Authorization Decisions Manager shall verify the match with these additional parameters (e.g., An authorization is created for document A for entity X acting for PurposeOfUse Y, the same entity cannot retrieve the documents acting for PurposeOfUse Z).

If authorization decisions that match the query parameters of the XACMLAuthorizationDecisionQuery Request message were not cached by the Authorization Decisions Manager, this actor can make a new access decision based on those query parameters.

The Authorization Decisions Manager shall produce a XACMLAuthorizationDecisionQuery Response message that conveys the results of this evaluation. One Result for each `<Resource>` shall be sent in the response message.

### 3.79.4.2 XACMLAuthorizationDecisionQuery Response

The XACMLAuthorizationDecisionQuery Response message is created by the Authorization Decisions Manager in response to the XACMLAuthorizationDecisionQuery Request. This message conveys to the Authorization Decisions Verifier Actor the results of the evaluation made by the Authorization Decisions Manager. For each Resource (document) specified within the Request message, the Authorization Decisions Manager provides an Authorization Result, that shall be used by the Authorization Decisions Verifier / XDS Document Repository to determine which of the requested documents to return to the Document Consumer in response to the [ITI-43] Retrieve Document Set request, in accordance with local policies. This message relies on the XACML extension of SAML v2.0 protocol standard. Authorization Results are conveyed using an XACMLAuthzDecisionStatement.

#### 3.79.4.2.1 Trigger Events

This message is created by the Authorization Decisions Manager after the evaluation of the XACMLAuthorizationDecisionQuery Request message. The Authorization Decisions Manager identifies Authorization Decisions applicable to the Documents/Requester Entity and produces a result of the evaluation done.

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#### 3.79.4.2.2 Message Semantics

The XACMLAuthorizationDecisionQuery Response message is based on OASIS SAML 2.0 Profile of XACML Version 2.0. That profile relies on SAML v2.0 protocol standard.

The Addressing Action header of the SOAP message shall be:

`urn:ihe:iti:2014:ser:XACMLAuthorizationDecisionQueryResponse`

The XACMLAuthorizationStatement (defined in the OASIS SAML 2.0 Profile of XACML Version 2.0) is conveyed within a SAML v2.0 Assertion. The Assertion does not need to be signed. The SAML StatusCode of the Response message shall be `urn:oasis:names:tc:SAML:2.0:status:Success`.

The `<Issuer>` of the Authorization Assertion should identify the trusted Authorization Decisions Manager (SOAP endpoint of the Web Service).

See Section 3.1 of the OASIS SAML 2.0 Profile of XACML Version 2.0 document for further details on the message structure. As specified in the OASIS Multiple resource profile of XACML v2.0, the XACML `<Response>` element shall contain one `<Result>` element for each `<Resource>` element identified within the XACMLAuthorizationDecisionQuery Request message. Each `<Result>` element shall contain a `@ResourceId` attribute that identifies the <AttributeValue> value of the related resource.

As defined in the XACML v2.0 standard, there are four possible values associated with the `<Decision>`. The Authorization Decisions Manager shall associate codes to the result as described below:

- Permit: if a valid authorization decision exist allowing the disclosure of the requested document to the Requester Entity
- Deny: if no valid authorization decisions exist for the identified Document/Requester Entity, or if authorization decision does not allow disclosure of the Document to the Requester Entity
- Indeterminate: if the Authorization Decisions Manager cannot discover if authorization decisions are granted (e.g., Internal Errors, or DB unreachable for network problems, … )
- NotApplicable: if access to the requested document is not managed by the Authorization Decisions Manager. If the Authorization Decisions Manager cannot determine if the Requester Entity can access the resource requested.

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#### 3.79.4.2.2.1 Example of a SOAP v1.2 XACMLAuthorizationDecisionQuery Response message

```
<?xml version="1.0" encoding="UTF-8"?>
<soap:Envelope xsi:schemaLocation="http://www.w3.org/2003/05/soap-envelope
soap-envelope.xsd"
    xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xacml-
saml="urn:oasis:xacml:2.0:saml:assertion:schema:os">
    <soap:Header xsi:schemaLocation="http://www.w3.org/2005/08/addressing
ws-addr.xsd"
        xmlns:wsa="http://www.w3.org/2005/08/addressing">

<wsa:Action>urn:iti:2014:XACMLAuthorizationDecisionQueryResponse</wsa:Action
>
        <wsa:RelatesTo>urn:uuid:9376254e-da05-41f5-9af3-
ac56d63d8ebd</wsa:RelatesTo>
        <wsa:MessageID>urn:uuid:7534324t-mm56-45t5-6tg4-
gt56d63g6hym</wsa:MessageID>
    </soap:Header>
    <soap:Body xmlns:samlp="urn:oasis:names:tc:SAML:2.0:protocol"
        xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
        xsi:schemaLocation="urn:oasis:names:tc:SAML:2.0:protocol saml-
schema-protocol-2.0.xsd">
        <samlp:Response ID="a123456" Version="2.0" IssueInstant="2014-04-
16T14:53:55Z">
            <samlp:Status>
                <samlp:StatusCode
Value="urn:oasis:names:tc:SAML:2.0:status:Success"/>
                <samlp:StatusMessage>OK</samlp:StatusMessage>
            </samlp:Status>
            <saml:Assertion
xmlns:saml="urn:oasis:names:tc:SAML:2.0:assertion" Version="2.0"
                ID="a9812368" IssueInstant="2006-05-31T13:20:00.000">
                <saml:Issuer>https://XACMLPDP.example.com</saml:Issuer>
                <saml:Statement xsi:type="xacml-
saml:XACMLAuthzDecisionStatementType"

xsi:schemaLocation="urn:oasis:xacml:2.0:saml:assertion:schema:os
access_control-xacml-2.0-saml-assertion-schema-os.xsd"
                    xmlns:xacml-
saml="urn:oasis:xacml:2.0:saml:assertion:schema:os">
                    <Response

xmlns="urn:oasis:names:tc:xacml:2.0:context:schema:os">
                        <Result ResourceId="DocumentID1">
                            <Decision>Deny</Decision>
                        </Result>
                        <Result ResourceId="DocumentID2">
                            <Decision>Permit</Decision>
                        </Result>
                        <Result ResourceId="DocumentID3">
                            <Decision>Permit</Decision>
```

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```
                        </Result>
                    </Response>
                </saml:Statement>
            </saml:Assertion>
        </samlp:Response>
    </soap:Body>
</soap:Envelope>
```

#### 3.79.4.2.3 Expected Actions

When the Authorization Decisions Verifier receives a XACMLAuthorizationDecisionQuery Response, the XDS Document Repository shall enforce the decision results according to local policy.

If a Deny decision is returned, the XDS Document Repository shall not disclose the document, unless local policies allow it.

If a Permit decision is returned, the XDS Document Repository shall disclose the document, unless additional local decisions are applied

If NotApplicable or Indeterminate decisions are returned, local policies determine what action is appropriate for the XDS Document Repository to perform.

If one or more of the requested documents are not authorized, then the Document Repository shall send a status *urn:ihe:iti:2007:ResponseStatusType:PartialSuccess* in the Retrieve Document Set Response message (see ITI TF-2b: 3.43.5).

If all the requested documents are not authorized, then the Document Repository shall send a status *urn:ihe:iti:2007:ResponseStatusType:Failure* in the Retrieve Document Set Response message (see ITI TF-2b: 3.43.5).

The XDS Document Repository shall generate an Error of type:

- DocumentAccessNotAuthorized

### 3.79.5 Security Considerations

Relevant Security Considerations are defined in ITI TF-1:  39.5. The Authorization Decisions Query transaction requires TLS communication between actors involved.

This transaction mandates the creation of Authorizations associated at least with the Requester Entity and with the document requested. If additional parameters need to be associated to the authorization, then the same parameters shall be provided within the Authorization Decisions Query transaction.

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### 3.79.5.1 Security Audit Considerations

Both the actors involved in the Authorization Decisions Query transaction are recommended to record the "Query" event creating audit messages in accordance to the following structure.

The audit message shall identify:

- The entity that requires authorization
- The documents have been requested
- The overall result of the Authorization processing

#### 3.79.5.1.1 Authorization Decisions Verifier audit message

| Real World Entities | Field Name | Opt. | Value Constraints |
|---|---|---|---|
| **Event** | EventID | M | EV (110112, DCM,"Query") |
| | EventActionCode | M | E = Execute |
| | EventDateTime | M | *not specialized* |
| | EventOutcomeIndicator | M | *not specialized* |
| | EventTypeCode | M | EV("ITI-79", "IHE Transactions", "Authorization Decisions Query") |
| Source (Authorization Decisions Verifier) (1) | | | |
| Destination (Authorization Decisions Verifier ) (1) | | | |
| Query Parameters (1) | | | |
| Requester Entity (1) | | | |
| Authorization Result (1) | | | |

| | | | |
|---|---|---|---|
| **Source:** AuditMessage/ ActiveParticipant | UserID | M | The content of the <wsa:ReplyTo/> element |
| | AlternativeUserID | MC | the process ID as used within the local operating system in the local system of logs |
| | *UserName* | *U* | *not specialized* |
| | *UserIsRequestor* | *U* | *not specialized* |
| | RoleIDCode | M | EV (110153, DCM, "Source") |
| | NetworkAccessPointTypeCode | U | "1" for machine (DNS) name "2" for IP address |
| | NetworkAccessPointID | U | The machine name or IP address, as specified in DICOM PS 3.15 A.5.3. |

| | | | |
|---|---|---|---|
| **Destination:** AuditMessage/ ActiveParticipant (1) | UserID | M | Authorization Decisions Manager SOAP URI |
| | AlternativeUserID | U | the process ID as used within the local operating system in the local system of logs |
| | UserName | U | *not specialized* |

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| | | | |
|---|---|---|---|
| | UserIsRequestor | *U* | *not specialized* |
| | RoleIDCode | M | EV (110152, DCM, “Destination”) |
| | NetworkAccessPointTypeCode | U | “1” for machine (DNS) name “2” for IP address |
| | NetworkAccessPointID | U | The machine name or IP address, as specified in DICOM PS 3.15 A.5.3. |

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| | | | |
|---|---|---|---|
| **Requester Entity:** AuditMessage/ ParticipantObjectIdentification (1) | ParticipantObjectTypeCode | M | “1” (person) |
| | ParticipantObjectTypeCodeRole | M | “11” (security user entity) |
| | *ParticipantObjectDataLifeCycle* | *U* | *not specialized* |
| | ParticipantObjectIDTypeCode | M | EV(“ITI-79”, “IHE Transaction”, “Authorization Decisions Query”) |
| | *ParticipantObjectSensitivity* | *U* | *not specialized* |
| | *ParticipantObjectID* | M | The Requester Entity who wants to retrieve documents (identified in the Attribute with AttributeId urn:oasis:names:tc:xacml:1.0:subject:subject-id) |
| | *ParticipantObjectName* | *U* | *not specialized* |
| | *ParticipantObjectQuery* | *U* | *not specialized* |
| | *ParticipantObjectDetail* | *U* | *not specialized* |

| | | | |
|---|---|---|---|
| **Query Parameters:** AuditMessage/ ParticipantObjectIdentification (1) | ParticipantObjectTypeCode | M | “2” (SYSTEM) |
| | ParticipantObjectTypeCodeRole | M | “24” (query) |
| | *ParticipantObjectDataLifeCycle* | *U* | *not specialized* |
| | ParticipantObjectIDTypeCode | M | EV(“ITI-79”, “IHE Transaction”, “Authorization Decisions Query”) |
| | *ParticipantObjectSensitivity* | *U* | *not specialized* |
| | *ParticipantObjectID* | M | *not specialized* |
| | *ParticipantObjectName* | *U* | *not specialized* |
| | *ParticipantObjectQuery* | *U* | The <Request>, base 64 encoded |
| | *ParticipantObjectDetail* | *U* | *not specialized* |

| | | | |
|---|---|---|---|
| **Authorization Result:** AuditMessage/ ParticipantObjectIdentification (1) | ParticipantObjectTypeCode | M | **“**2” (SYSTEM) |
| | ParticipantObjectTypeCodeRole | M | “13” (security resource) |
| | *ParticipantObjectDataLifeCycle* | *U* | *not specialized* |
| | ParticipantObjectIDTypeCode | M | EV(“ITI-79”, “IHE Transaction”, “Authorization Decisions Query”) |
| | *ParticipantObjectSensitivity* | *U* | *not specialized* |
| | *ParticipantObjectID* | M | Content of StatusCode element (overall result of the authorization) |
| | *ParticipantObjectName* | *U* | *not specialized* |
| | *ParticipantObjectQuery* | *U* | *not specialized* |
| | *ParticipantObjectDetail* | *U* | *not specialized* |

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### 3.79.5.1.2 Authorization Decisions Manager audit message

| Real World Entities | Field Name | Opt. | Value Constraints |
|---|---|---|---|
| **Event** | EventID | M | EV (110112, DCM,"Query") |
| | EventActionCode | M | E = Execute |
| | EventDateTime | M | *not specialized* |
| | EventOutcomeIndicator | M | *not specialized* |
| | EventTypeCode | M | EV("ITI-79", "IHE Transactions", "Authorization Decisions Query") |
| Source (Authorization Decisions Verifier) (1) | | | |
| Destination (Authorization Decisions Verifier ) (1) | | | |
| Query Parameters (1) | | | |
| Requester Entity (1) | | | |
| Authorization Result (1) | | | |

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| | | | |
|---|---|---|---|
| **Source:** AuditMessage/ ActiveParticipant | UserID | M | The content of the <wsa:ReplyTo/> element |
| | AlternativeUserID | MC | the process ID as used within the local operating system in the local system of logs |
| | *UserName* | *U* | *not specialized* |
| | *UserIsRequestor* | *U* | *not specialized* |
| | RoleIDCode | M | EV (110153, DCM, "Source") |
| | NetworkAccessPointTypeCode | U | "1" for machine (DNS) name "2" for IP address |
| | NetworkAccessPointID | U | The machine name or IP address, as specified in DICOM PS 3.15 A.5.3. |

| | | | |
|---|---|---|---|
| **Destination:** AuditMessage/ ActiveParticipant (1) | UserID | M | Authorization Decisions Manager SOAP URI |
| | AlternativeUserID | U | the process ID as used within the local operating system in the local system of logs |
| | UserName | U | *specialized* |
| | UserIsRequestor | *U* | *not specialized* |
| | RoleIDCode | M | EV (110152, DCM, "Destination") |
| | NetworkAccessPointTypeCode | U | "1" for machine (DNS) name "2" for IP address |
| | NetworkAccessPointID | U | The machine name or IP address, as specified in DICOM PS 3.15 A.5.3. |

| | | | |
|---|---|---|---|
| **Requester Entity:** | ParticipantObjectTypeCode | M | "1" (person) |
| | ParticipantObjectTypeCodeRole | M | "11" (security user entity) |

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| | | | |
|---|---|---|---|
| **AuditMessage/ ParticipantObjectIdentification (1)** | *ParticipantObjectDataLifeCycle* | *U* | *not specialized* |
| | ParticipantObjectIDTypeCode | M | EV("ITI-79", "IHE Transaction", "Authorization Decisions Query") |
| | *ParticipantObjectSensitivity* | *U* | *not specialized* |
| | *ParticipantObjectID* | M | The person who wants to create retrieve documents (identified in the Attribute with AttributeId urn:oasis:names:tc:xacml:1.0:subject:subject-id) |
| | *ParticipantObjectName* | *U* | *not specialized* |
| | *ParticipantObjectQuery* | *U* | *not specialized* |
| | *ParticipantObjectDetail* | *U* | *not specialized* |

| | | | |
|---|---|---|---|
| **Query Parameters:** **AuditMessage/ ParticipantObjectIdentification (1)** | ParticipantObjectTypeCode | M | "2" (SYSTEM) |
| | ParticipantObjectTypeCodeRole | M | "24" (query) |
| | *ParticipantObjectDataLifeCycle* | *U* | *not specialized* |
| | ParticipantObjectIDTypeCode | M | EV("ITI-79", "IHE Transaction", "Authorization Decisions Query") |
| | *ParticipantObjectSensitivity* | *U* | *not specialized* |
| | *ParticipantObjectID* | M | *not specialized* |
| | *ParticipantObjectName* | *U* | *not specialized* |
| | *ParticipantObjectQuery* | *U* | The <Request>, base 64 encoded |
| | *ParticipantObjectDetail* | *U* | *not specialized* |

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| | | | |
|---|---|---|---|
| **Authorization Result:** **AuditMessage/ ParticipantObjectIdentification (1)** | ParticipantObjectTypeCode | M | "2" (SYSTEM) |
| | ParticipantObjectTypeCodeRole | M | "13" (security resource) |
| | *ParticipantObjectDataLifeCycle* | *U* | *not specialized* |
| | ParticipantObjectIDTypeCode | M | EV("ITI-79", "IHE Transaction", "Authorization Decisions Query") |
| | *ParticipantObjectSensitivity* | *U* | *not specialized* |
| | *ParticipantObjectID* | M | Content of StatusCode element (overall result of the authorization) |
| | *ParticipantObjectName* | *U* | *not specialized* |
| | *ParticipantObjectQuery* | *U* | *not specialized* |
| | *ParticipantObjectDetail* | *U* | *not specialized* |

### 3.79.5.2 Authorization Decisions Manager Specific Security Considerations

None

### 3.79.5.3 Authorization Decisions Verifier Specific Security Considerations

745 None

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# Appendices

Not applicable

# Volume 3 – Content Modules

*Add the following ErrorCode in ITI TF-3: Table 4.2.4.1-2: Error Codes*

| Error Code[1] | Discussion | Transaction (See Note 1) |
|---|---|---|
| DocumentAccessNotAuthorized | The document requested is not authorized to be disclosed to the Requester Entity | RS |

## Volume 3 Namespace Additions

*Add the following terms to the IHE Namespace:*

None

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# Volume 4 – National Extensions

Not applicable

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