



pan-Canadian Patient Summary

Companion Guide: Reference Architecture

Draft

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Table of Contents

1	Introduction	3
2	Intended Audience	4
3	Overview	5
4	How to Read the pan-Canadian Patient Summary - Companion Guide to Reference Architecture	6
5	How to Use the pan-Canadian Patient Summary - Companion Guide to Reference Architecture	7
6	High Level View - Reference Architecture for Patient Summary-CA.....	8
7	Foundational IHE Profiles & pan-Canadian Interoperability Specifications.....	9
8	Sequence Diagrams for UC-01: HCP Creates PS	13
8.1	Additional Considerations	13
8.2	UC-01: Implementation Option 1: MHD	14
8.3	UC:01: Implementation Option 2: CA:FeX	16
8.4	UC-01: Implementation Option 3: XDS.....	18
9	Sequence Diagrams for UC-02: HCP Views/Consumes a PS-CA.....	20
9.1	UC-02: Implementation Option 1: MHD	21
9.2	UC:02: Implementation Option 2: CA:FeX	23
9.3	UC-02: Implementation Option 3: XDS.....	25
10	Sequence Diagrams for UC-03 Patient Views/Obtains Personal PS-CA	27
10.1	Additional Considerations	27
10.2	UC-03: Implementation Option 1: MHD	28
10.3	UC:03: Implementation Option 2: CA:FeX	30
10.4	UC-03: Implementation Option 3: XDS.....	32

1 Introduction

The pan-Canadian Patient Summary - Companion Guide to Reference Architecture provides guidance on how to apply specific IHE patterns and pan Canadian Interoperability Specifications to address interoperability needs pertaining to the Patient Summary-CA use cases. It defines the rules of engagement and defines the interoperability landscape as well as developing a connectivity platform, linked to the virtual care implementation specification package development to allow external vendors to test solutions.

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2 Intended Audience

The intended audience of the pan-Canadian Patient Summary - Companion Guide to Reference Architecture includes, but is not limited, to the following:

- IT departments of healthcare institutions (technical product managers, IT managers, operations staff)
- Technical staff of vendors participating in the IHE initiative
- Experts involved in standards development
- Individuals and teams responsible for implementing software solutions such as project managers, CTOs, CISOs, software engineers, technical product managers, IT managers, operations staff, and other similar roles.

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3 Overview

This document is a Reference Architecture for the Patient Summary-CA project. It contains a list of recommended IHE candidate profiles and pan Canadian Interoperability Specifications that can meet specific needs of the PS-CA project. These sequence diagrams group together actors and transactions from multiple profiles to address the business requirements of the in-scope Patient Summary-CA use cases.

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4 How to Read the pan-Canadian Patient Summary - Companion Guide to Reference Architecture

- This document lists required and optional actors and transactions from candidate IHE profiles, included in the PS-CA v1 Trial Implementation, that can enable secure exchange of health information (e.g., Patient Summary-CA) in Canada.
- The relationship between consuming and recipient actors are indicated by black lines.
- There are two swim lanes that group together the actors and transactions: Clinical systems and Jurisdictional systems. It is assumed that vendors will take on roles from the clinical systems while provinces and territories will take on roles from the jurisdictional systems.
 - Dark green actors are required actors showcasing different roles within the clinical systems that are required for this release
 - Light green actors are optional actors showcasing different roles within the clinical systems that are optional for this release
 - Dark blue actors are required actors showcasing different roles within the jurisdictional systems that are required for this release
 - Light blue actors are optional actors showcasing different roles within the jurisdictional systems that are optional for this release
- Within the Reference Architecture, two options for implementation have been highlighted, with Option 1 having two scenarios.
 - Option 1, Scenario #1: MHD implementation, where the Document Repository is Central
 - Option 1, Scenario #2: MHD implementation, where the Document Repository is Local
 - Option 2: FHIR HIE Implementation
 - Option 3: XDS implementation
 - A preferred option is indicated with an asterisk* (e.g. Option 1, Scenario #1)
- The black lines are the interactions and standardized transactions of the actors and their association with one another as defined by the IHE methodology framework.
- A list of all the IHE profiles are included at the bottom of the Reference Architecture.
- A list of pan Canadian Interoperability Specifications are listed at the bottom of the Reference Architecture where national extensions to existing IHE profiles and net new profiles for Canada are labelled distinctly.
- A legend is found at the bottom of the Reference Architecture to help readers orient themselves to the diagram.

5 How to Use the pan-Canadian Patient Summary - Companion Guide to Reference Architecture

Below list summarizes how to use this document:

- **Role Identification:** Jurisdictions and vendors will need to identify their role (e.g. actors) from the Reference Architecture and sequence diagrams for each of the use cases in scope for the Patient Summary-CA project.
- **Gap Identification:** Based on the role(s) identified from the Reference Architecture and sequence diagrams, potential assessment is needed for identification of gaps for meeting the requirements of the standardized actors and transactions needed to satisfy particular PS-CA use cases.
- **Provincial Reference Architecture:** Provinces and jurisdictions may need to draft their own version of Reference Architecture specific to their needs. Current technology landscape, existing architecture and current business priorities will help in developing a version for the province.
- **Document Evolution and Feedback:** This is a living document and will evolve based on feedback and refinements to the PS-CA uses cases and business requirements, as well as from other workstreams such as the pan-Canadian Cross-Solution Secure Communications (SMX-CA) . This document is published on InfoScribe to capture comments and feedback from all key stakeholders. Additionally, multiple sessions will be conducted to discuss and update the content of this document.
- **Vendor Conformance Testing (Connectathon / Projectathon):** This document will provide an opportunity for vendors to prepare for conformance testing of the Patient Summary-CA Standard via the IHE Gazelle platform. IHE Gazelle is an open-source, web-based test platform supporting a wide portfolio of interoperability test tools suited to validate interface conformity to IHE Profiles and project-specific standards-based interoperability specifications. Vendors can validate their products and eHealth projects to procure interfaces they deploy. For additional information on Gazelle, please refer to the following link: [IHE Gazelle](#)

*Note: It's expected that the reader should have a moderate degree of familiarity with IHE profiles, especially MHD, MHDS, PMIR, PIQm, PDQm, mCSD, ATNA, CT and IUA.

7 Foundational IHE Profiles & pan-Canadian Interoperability Specifications

Background

Foundational IHE Profiles and pan-Canadian Interoperability Specifications address critical interoperability issues such as user authorization (e.g. IUA), security node and audit records (e.g. ATNA), consistent time (e.g. CT), terminology (e.g. SVCM) and document transformation/formatting (e.g. CM-FMT) and more that are important for sharing of Patient Summaries within and across care networks.

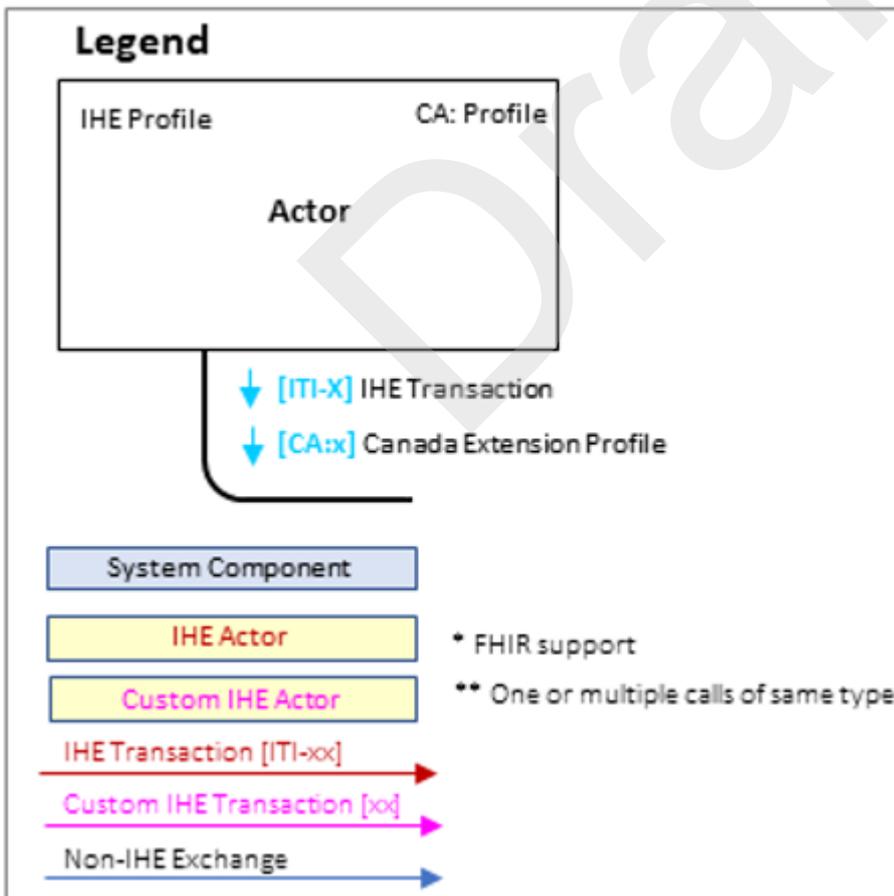
Assumption

Vendors and jurisdictions in the ecosystem can optionally choose to play the standardized actors and transactions listed in the Foundational Profiles for the PS-CA Specification. Additional information and requirements for these Foundational Profiles can be found below. Vendors or jurisdictions may decide not to implement optional IHE profiles listed below, however it is highly recommended that areas pertaining to authentication, auditing and security are being addressed using solutions that currently exist in their respective enterprise architecture.

IHE Profiles & pan-Canadian Profiles included: IUA, ATNA, CT, SVCM, CA:FeX, CA:FMT

Legend

The following diagram is the legend for the sequence diagrams to help readers orient themselves with the diagrams.

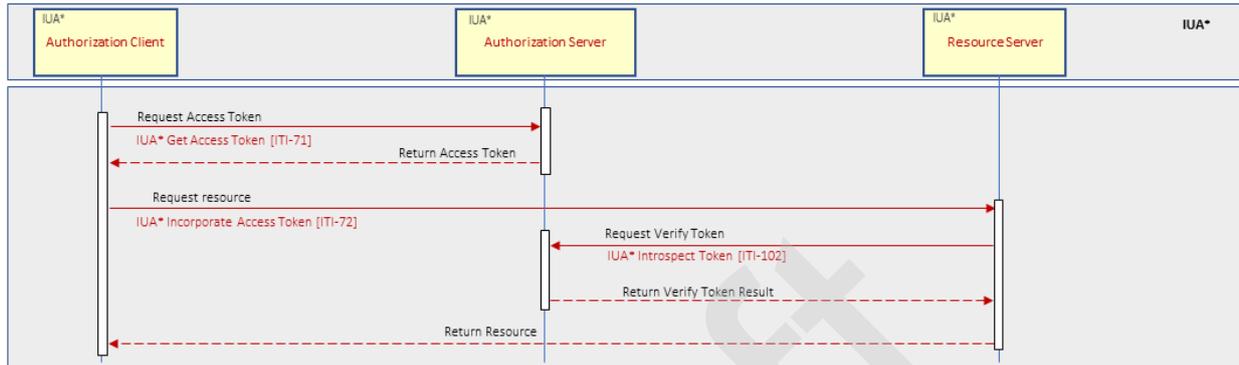


IUA*

The IUA* (Internet User Authorization) provides support for authorization to access resources when using HTTP RESTful transports, by managing authorization tokens.

The Authorization Client must have a valid token that must be presented to resource server with every request

- Get Access Token [ITI-71] – performed when Client does not yet have a token or when token is expired
- Incorporate Access Token [ITI-72] – the client must include the token with every request
- Introspect Token [ITI-102] – the resource server must introspect token at every request



ATNA*

The Audit Trail and Node Authentication (ATNA) Profile specifies the foundational elements needed by all forms of secure systems: node authentication, user authentication, event logging (audit), and telecommunications encryption.

ATNA provides support for ensuring that that the communicating systems have a level of trust in each other through node authentication, that communications between the different system components are encrypted (via TLS), and that system activity is audited.

- ATNA* Authenticate Node [ITI-19]

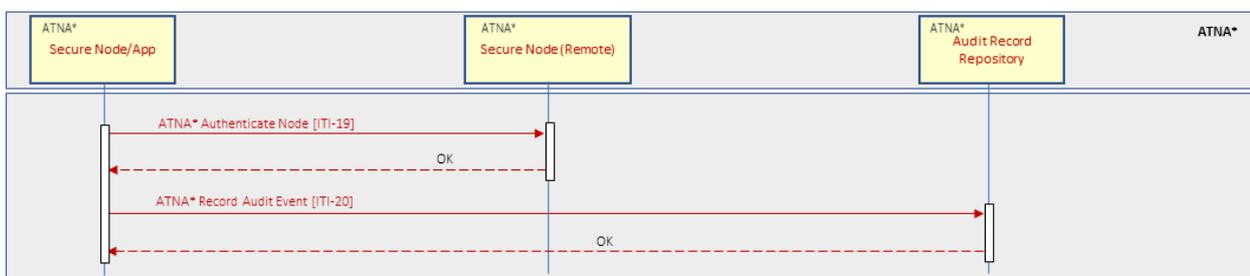
Before establishing secure communication, mutual authentication is performed between two secure nodes.

A secure pipe will be established through which secure transactions will take place.

Secure Node also authenticates the identity of the user who requests access to the node.

- ATNA* Record Audit Event [ITI-20]

The Secure Node/App sends auditable events to an Audit Record Repository. The triggers for sending audit logs can vary and may be specified in other IHE profiles, local law or regulation, or local policy.



CT

CT (Consistent Time) ensures that the system clocks and time stamps of the many computers in a network are well synchronized. Synchronization with a median error less than 1 second is sufficient for most purposes.

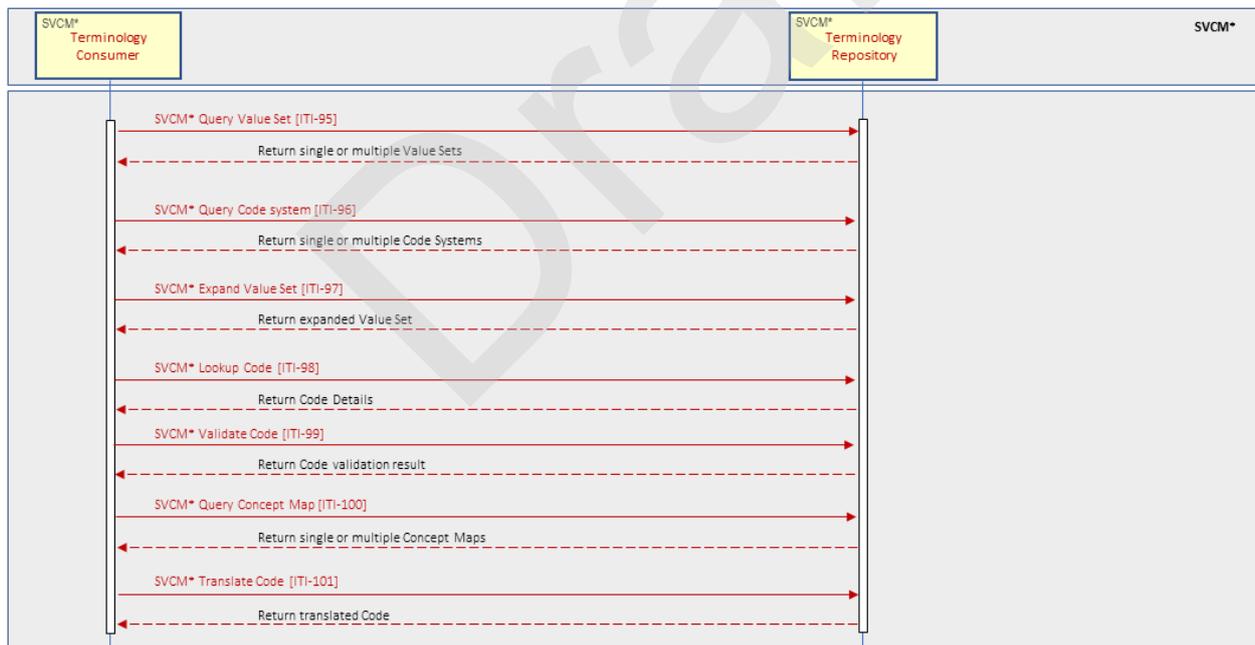


SVCM*

SVCM (Sharing Valuset, Codes, and Maps) supports querying for value sets and code systems using the standard HL7 FHIR resources. It also supports looking up and validating codes as well as expanding a value set to list all the available codes.

Optionally concept maps can also be included to translate from one code system or value set to another (e.g. SNOMED CT to LOINC).

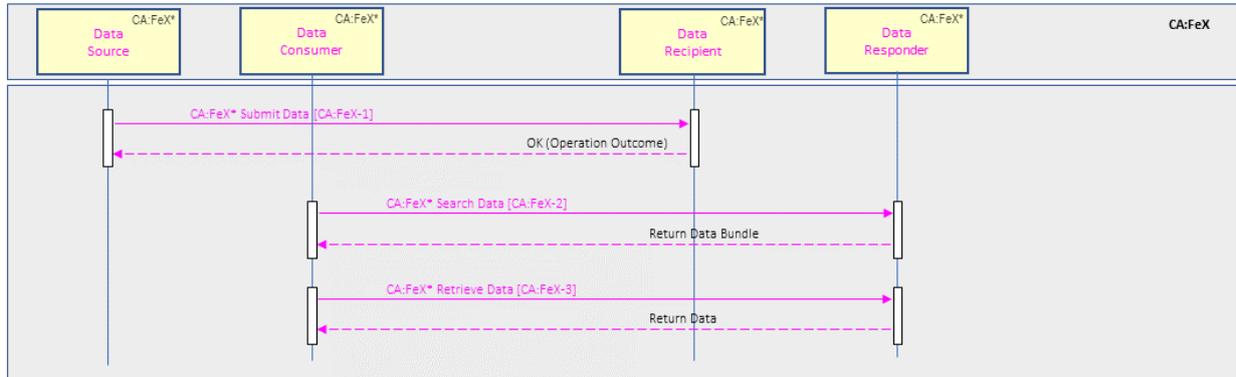
*Note: Please refer to the pan-Canadian Patient Summary – FHIR Implementation Guide for the Patient Summary-CA Valuesets



CA:FeX

The CA:FeX Interoperability Specifications provide support for submitting, searching and retrieving clinical documents (e.g. Patient Summaries) to and from a central Clinical Data Repository (e.g. Document Repository) using FHIR resources.

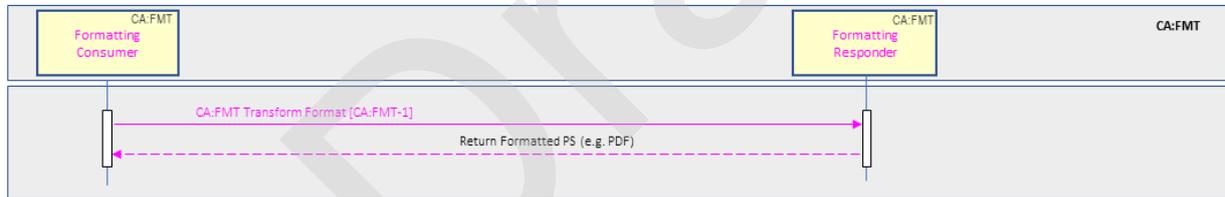
*Note: Content is in development. More information can be found in the CA:FeX Interoperability Specifications, available [here](#).



CA:FMT

The CA:FMT Interoperability Specifications provide formatting support service. It provides support for transformation of documents between different formats (e.g., from FHIR to PDF, CDA, etc.).

*Note: Content is in development and will be added in future roadmaps. More information, including introduction, benefits and actor & transaction diagrams can be found below. This pan Canadian Interoperability Specifications has been included in the sequence diagrams of the pan-Canadian Patient Summary – Companion Guide to Reference Architecture v1 as an option for formatting support.



8 Sequence Diagrams for UC-01: HCP Creates PS

This section provides a summary of the sequence diagrams for Use Case-01:

Use Case-01: HCP Creates/Produces a PS-CA

A Health Care Provider in any care setting creates/produces a PS-CA for use at point of care, including for unscheduled/scheduled local care, which is made available to PS-Consumers.

Implementation Option 1: MHD

This option is recommended for jurisdictions who would like to use document repository/registry patterns and promote HL7 FHIR standards for the creation and viewing of a Patient Summary-CA.

Implementation Option 2: CA:FeX

This option is recommended for jurisdictions who would like to use FHIR health information exchange (HIE) patterns that provide support for submitting, searching and retrieving a Patient-Summary-CA to and from a central Document Repository using FHIR resources.

Implementation Option 3: XDS

This option is an alternative option but not a preferred option for Release 1 as it does not promote HL7 FHIR standards.

8.1 Additional Considerations

The sequence diagrams included in this section do not showcase all of the possible combinations of IHE profiles and transactions that can be used for a particular implementation pattern. For example, ITI-83 transaction can be used in place of ITI-78 if the preferred implementation pattern is PIXm/PMIR.

8.2 UC-01: Implementation Option 1: MHD

Scenario / Assumption(s): Patient Summary-CA is stored in Central or Local (Decentralized) Document Repository

Release 1: Clinical data (e.g. medication, lab results, immunization) is retrieved from local sources only

Implementation Option 1: This sequence diagram provides the option of using the MHD IHE profile, including a Document Repository actor and supporting HL7 FHIR standards.

*Note: Please refer to the pan-Canadian Patient Summary – FHIR Implementation Guide for the Patient Summary-CA Valuesets

Sequence Diagram Overview:

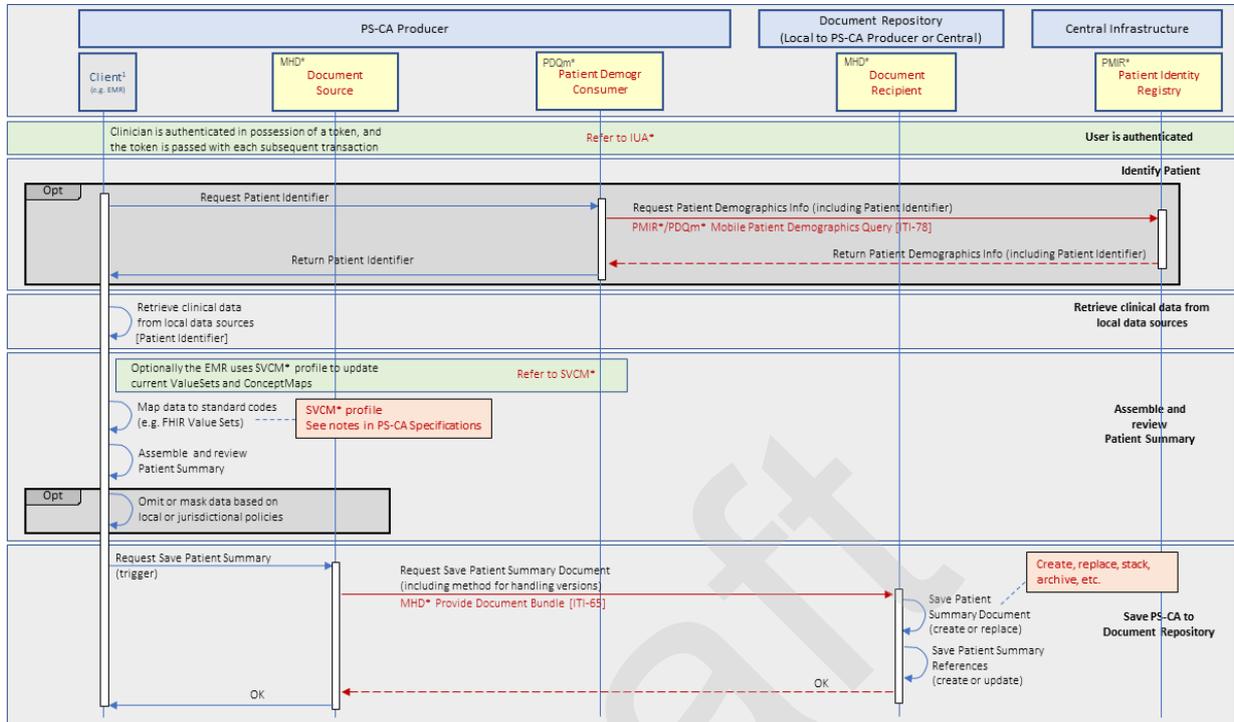
Below provides guidance on how to read the sequence diagram:

- This sequence diagram illustrates how the different standardized actors of systems should interact with each other to carry out specific standardized transactions, and the order in which the transactions and interactions occur when Use Case 1 of the Patient Summary-CA is executed.
- The legend on the bottom right corner describes the different system components, actors and transactions that are necessary to carry out this particular use case.
- The green swim lane is a simplified view of the actors and transactions required by the Foundational IHE Profiles, in addition to the other ones that are not explicitly illustrated on the diagram (e.g. ATNA, CT) but included as a white note. These are pre-requisite conditions for this particular use case and it is assumed that these will be satisfied.
- The blue swim lanes groups sequence of processes (along with their required actors and transactions) that are needed to occur to satisfy this particular use case. These are to be read from left to right and top to bottom.
- The red note boxes describe important call outs, information and notes that provide more context for the sequence diagram.
- More information about those details of the Foundational IHE Profiles can be found [here](#).

UC-01: HCP Creates PS – MHD

PS is stored in Central or Local (Decentralized) Document Repository

R1 – clinical data (e.g. medication, lab results, immunization) is retrieved from local sources only



Footnotes

- Examples of the client system can be any of the following: EMR, HIS, CIS, PHR, or HER.

Prerequisites

Client is logged into the system (IUA*)
 Client obtained a valid access token from the Authorization Server that is used with each transaction (IUA*)
 All communication is done through secure channels (ATNA)
 System time is synchronized among all components (CT)

Legend

IHE Profile CA: Profile
Actor

↓ [ITI-X] IHE Transaction
 ↓ [CA-X] Canada Extension Profile

System Component:

- IHE Actor * FHIR support
- Custom IHE Actor ** One or multiple calls of same type
- IHE Transaction [TI-xxx]
- Custom IHE Transaction [ca-xxx]
- Non-IHE Exchange

8.3 UC:01: Implementation Option 2: CA:FeX

Scenario: Clinical Solution A Retrieves Patient Summary-CA from Central Document Repository

Assumption: Patient Summary-CA is stored in Central Document Repository

Implementation Option 2: This sequence diagram provides the option of using the CA:FeX Interoperability Specifications that provide support for saving and retrieving a Patient Summary-CA to and from a central Document Repository. This profile includes a Data Source and a Data Recipient actor. Additionally, this sequence diagram uses the 'Submit Data' FHIR operation.

Note: Additionally, this sequence diagram include the CA:FMT Interoperability Specifications that handle transformations to and from various formats (e.g. FHIR to PDF, CDA, etc). Additional details will be included in the PS-CA Interoperability Specifications.

Sequence Diagram Overview:

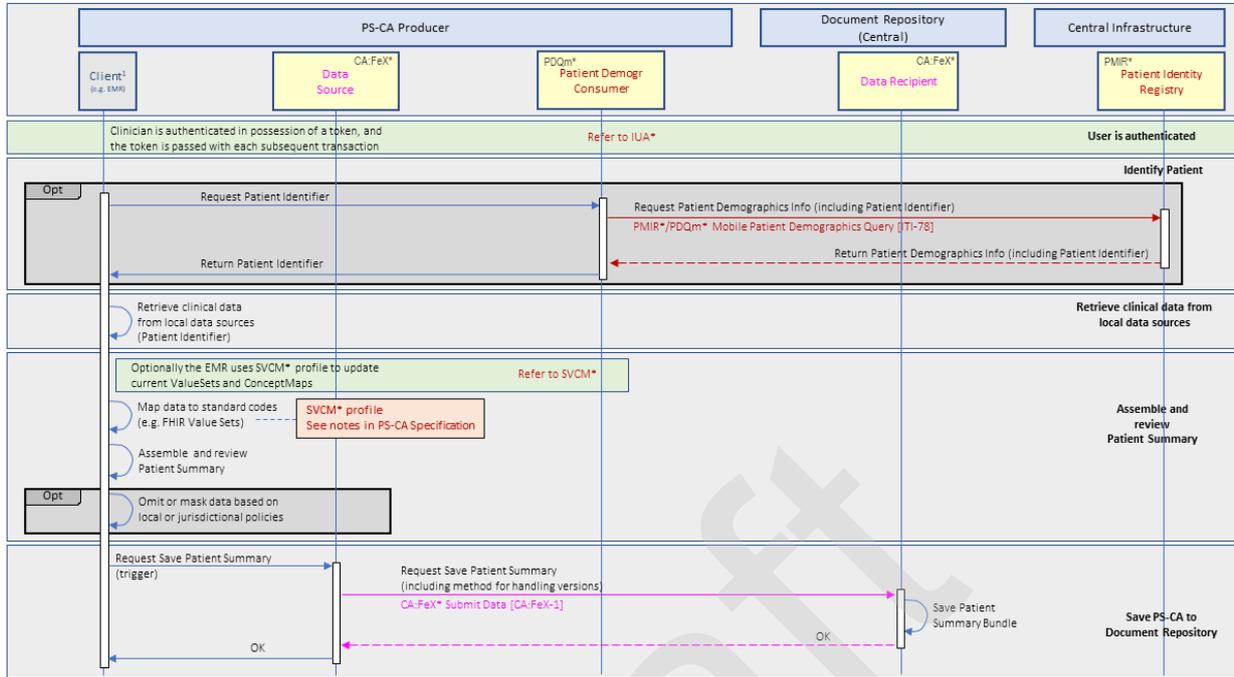
Below provides guidance on how to read the sequence diagram:

- This sequence diagram illustrates how the different standardized actors of systems should interact with each other to carry out specific standardized transactions, and the order in which the transactions and interactions occur when Use Case 1 of the Patient Summary-CA is executed.
- The legend on the bottom right corner describes the different system components, actors and transactions that are necessary to carry out this particular use case.
- The green swim lane is a simplified view of the actors and transactions required by the Foundational IHE Profiles, in addition to the other ones that are not explicitly illustrated on the diagram (e.g. ATNA, CT) but included as a white note. These are pre-requisite conditions for this particular use case and it is assumed that these will be satisfied.
- The blue swim lanes groups sequence of processes (along with their required actors and transactions) that are needed to occur to satisfy this particular use case. These are to be read from left to right and top to bottom.
- The red note boxes describe important call outs, information and notes that provide more context for the sequence diagram.
- This sequence diagram include the CA:FeX Interoperability Specifications and CA:FMT Specifications. Additional details will be included in the PS-CA Interoperability Specifications.
- More information about those details of the Foundational IHE Profiles can be found [here](#).

UC-01: HCP Creates PS – CA:FeX

PS is stored in Central Document Repository

R1 – clinical data (e.g. medication, lab results, immunization) is retrieved from local sources only

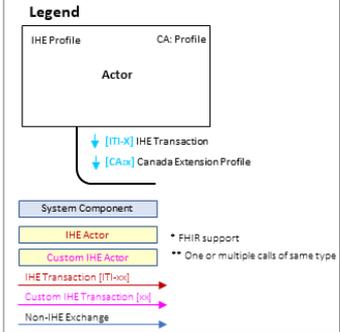


Footnotes

1. Examples of the client system can be any of the following: EMR, HIS, CIS, PHR, or EHR

Prerequisites

- Client is logged into the system ([UA*])
- Client obtained a valid access token from the Authorization Server that is used with each transaction([UA*])
- All communication is done through secure channels (ATNA)
- System time is synchronized among all components (CT)



8.4 UC-01: Implementation Option 3: XDS

Scenario / Assumption(s): Patient Summary-CA is stored in a Local (Decentralized) Document Repository (XDS style repository).

Release 1: Clinical data (e.g. medication, lab results, immunization) is retrieved from local sources only.

Implementation Option 3: This sequence diagram provides the option of using the XDS IHE profile to give jurisdictions and vendors option to leverage existing XDS-based implementations in the ecosystem.

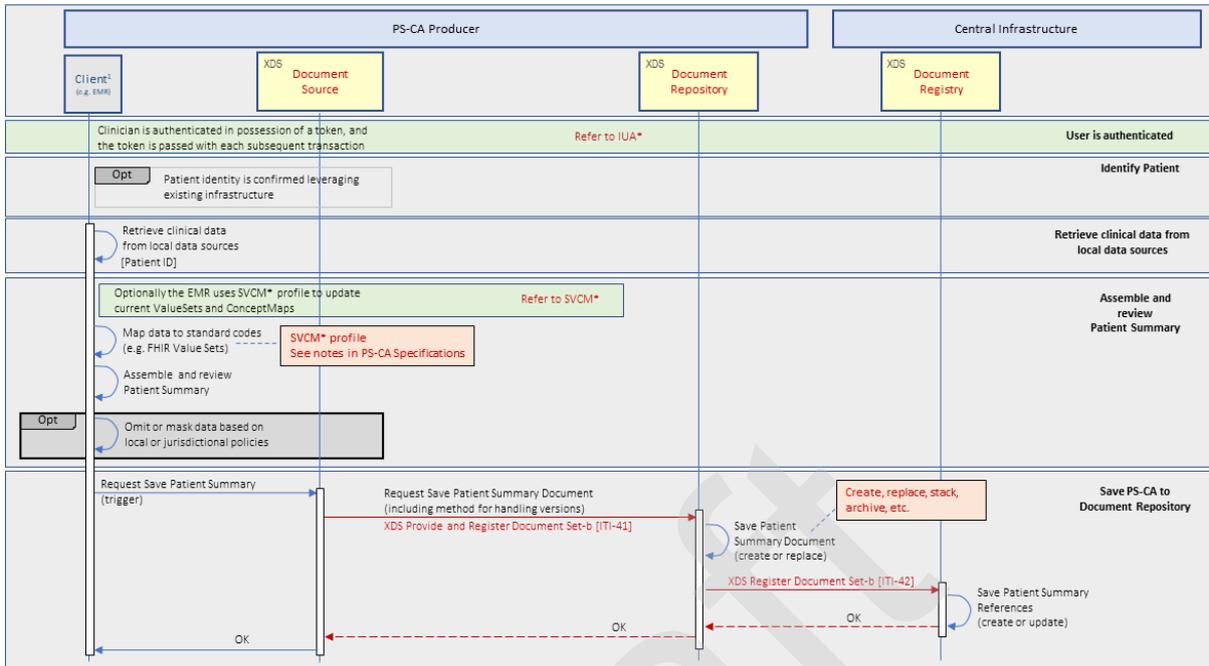
Sequence Diagram Overview:

Below provides guidance on how to read the sequence diagram:

- This sequence diagram illustrates how the different standardized actors of systems should interact with each other to carry out specific standardized transactions, and the order in which the transactions and interactions occur when Use Case 1 of the Patient Summary-CA is executed.
- The legend on the bottom right corner describes the different system components, actors and transactions that are necessary to carry out this particular use case.
- The green swim lane is a simplified view of the actors and transactions required by the Foundational IHE Profiles, in addition to the other ones that are not explicitly illustrated on the diagram (e.g. ATNA, CT) but included as a white note. These are pre-requisite conditions for this particular use case and it is assumed that these will be satisfied.
- The blue swim lanes groups sequence of processes (along with their required actors and transactions) that are needed to occur to satisfy this particular use case. These are to be read from left to right and top to bottom.
- The red note boxes describe important call outs, information and notes that provide more context for the sequence diagram.
- More information about those details of the Foundational IHE Profiles can be found [here](#).

UC-01: HCP Creates PS – XDS

PS is stored Local (Decentralized) Document Repository (XDS style repository)
R1 – clinical data (e.g. medication, lab results, immunization) is retrieved from local sources only

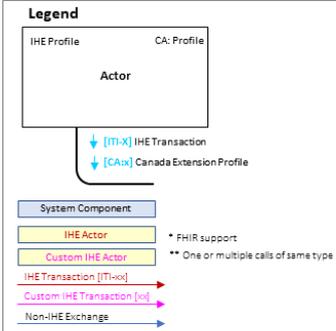


Footnotes

1. Examples of the client system can be any of the following: EMR, HIS, CIS, PHR, or EHR

Prerequisites

- Client is logged into the system ([UA*])
- Client obtained a valid access token from the Authorization Server that is used with each transaction([UA*])
- All communication is done through secure channels (ATNA)
- System time is synchronized among all components (CT)



9 Sequence Diagrams for UC-02: HCP Views/Consumes a PS-CA

This section provides a summary of the sequence diagram for Use Case-02:

Use Case-02: HCP Views/Consumes a PS-CA

A Health Care Provider in any care setting requests and uses a PS-CA at the point of care, including for unscheduled/scheduled local care.

Implementation Option 1: MHD

This option is recommended for jurisdictions who would like to use document repository/registry patterns and promote HL7 FHIR standards for the creation and viewing of a Patient Summary-CA.

Implementation Option 2: CA:FeX

This option is recommended for jurisdictions who would like to use FHIR health information exchange (HIE) patterns that provide support for submitting, searching and retrieving a Patient-Summary-CA to and from a central Document Repository using FHIR resources.

Implementation Option 3: XDS

This option is an alternative option but not a preferred option for Release 1 as it does not promote HL7 FHIR standards.

Additional Considerations

The sequence diagrams included in this section do not showcase all of the possible combinations of IHE profiles and transactions that can be used for a particular implementation pattern. For example, ITI-83 transaction can be used in place of ITI-78 if the preferred implementation pattern is PIXm/PMIR.

9.1 UC-02: Implementation Option 1: MHD

Scenario: Clinical Solution A Retrieves Patient Summary-CA from MHD Document Registry – (MHD* IHE Profile).

Assumption: Patient Summary-CA is stored in Central or Local (Decentralized) Document Repository.

Implementation Option 1: This sequence diagram provides the option of using the MHD IHE profile, including a Document Repository actor and supporting HL7 FHIR standards

Note: Additionally, this sequence diagram include the CA:FMT Interoperability Specifications that handle transformations to and from various formats (e.g. FHIR to PDF, CDA, etc). Additional details will be included in the PS-CA Interoperability Specifications.

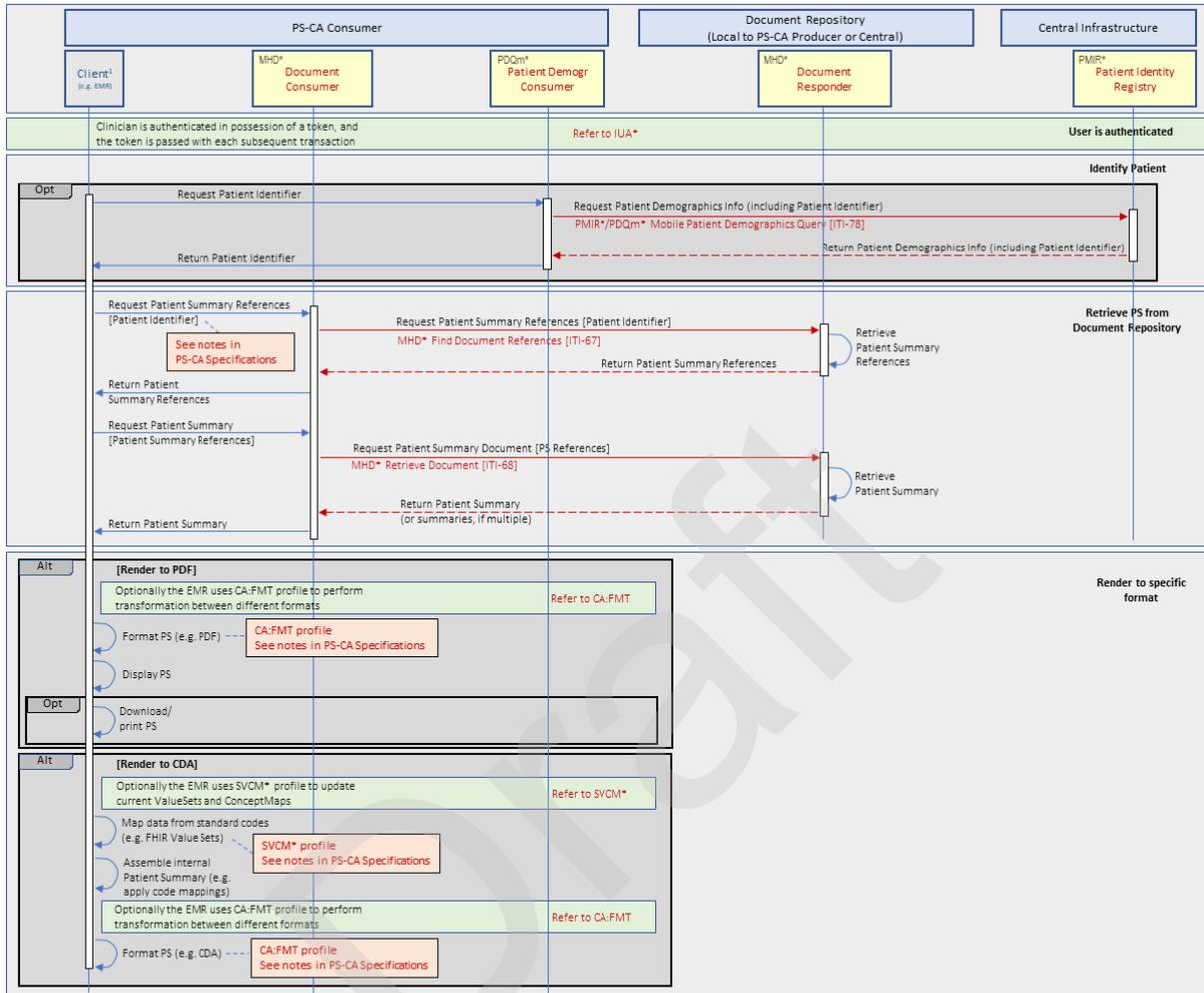
Sequence Diagram Overview:

Below provides guidance on how to read the sequence diagram:

- This sequence diagram illustrates how the different standardized actors of system should interact with each other to carry out specific standardized transactions, and the order in which the transactions and interactions occur when Use Case 2 of the Patient Summary-CA is executed.
- The legend on the bottom right corner describes the different system components, actors and transactions that are necessary to carry out this particular use case.
- The green swim lane is a simplified view of the actors and transactions required by the Foundational IHE Profiles, in addition to the other ones that are not explicitly illustrated on the diagram (e.g. ATNA, CT) but included as a white note. These are pre-requisite conditions for this particular use case and it is assumed that these will be satisfied.
- The blue swim lanes groups sequence of processes (along with their required actors and transactions) that are needed to occur to satisfy this particular use case. These are to be read from left to right and top to bottom.
- The red note boxes describe important call outs, information and notes that provide more context for the sequence diagram.
- This sequence diagram includes the CA:FMT Interoperability Specifications that handle transformations to and from various formats (e.g. FHIR to PDF, CDA, etc.). Additional details will be included in the PS-CA Interoperability Specifications.
- More information about those details of the Foundational IHE Profiles can be found [here](#).

UC-02 HCP Views/Consumes PS-CA - MHD

Clinical Solution A Retrieves PS from MHD Document Registry – (MHD* IHE Profile²)
PS is stored in Central or Local (Decentralized) Document Repository

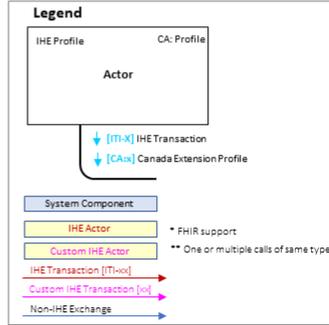


Footnotes

1. Examples of the client system can be any of the following: EMR, HIS, CIS, PHR, or HER
2. ITI-66 is mandatory transaction from IHE for the MHD profile; however, it is not covered in the above sequence diagram because the scope of this use case.

Prerequisites

Client is logged into the system ([UA*])
 Client obtained a valid access token from the Authorization Server that is used with each transaction([UA*])
 All communication is done through secure channels (ATNA)
 System time is synchronized among all components (CT)



9.2 UC:02: Implementation Option 2: CA:FeX

Scenario: Clinical Solution A Retrieves Patient Summary-CA from Document Repository

Assumption: Patient Summary-CA is stored in Central Document Repository

Implementation Option 2: This sequence diagram provides the option of using the CA:FeX Interoperability Specifications that provide support for saving and retrieving a Patient Summary-CA to and from a Document Repository (Local to PS-Producer or Central). This profile includes a Data Consumer and a Data Responder actor. Additionally, this sequence diagram uses the 'Search Data' and 'Retrieve Data' FHIR operations.

Note: Additionally, this sequence diagram include the CA:FMT Interoperability Specifications that handle transformations to and from various formats (e.g. FHIR to PDF, CDA, etc). Additional details will be included in the PS-CA Interoperability Specifications.

Sequence Diagram Overview:

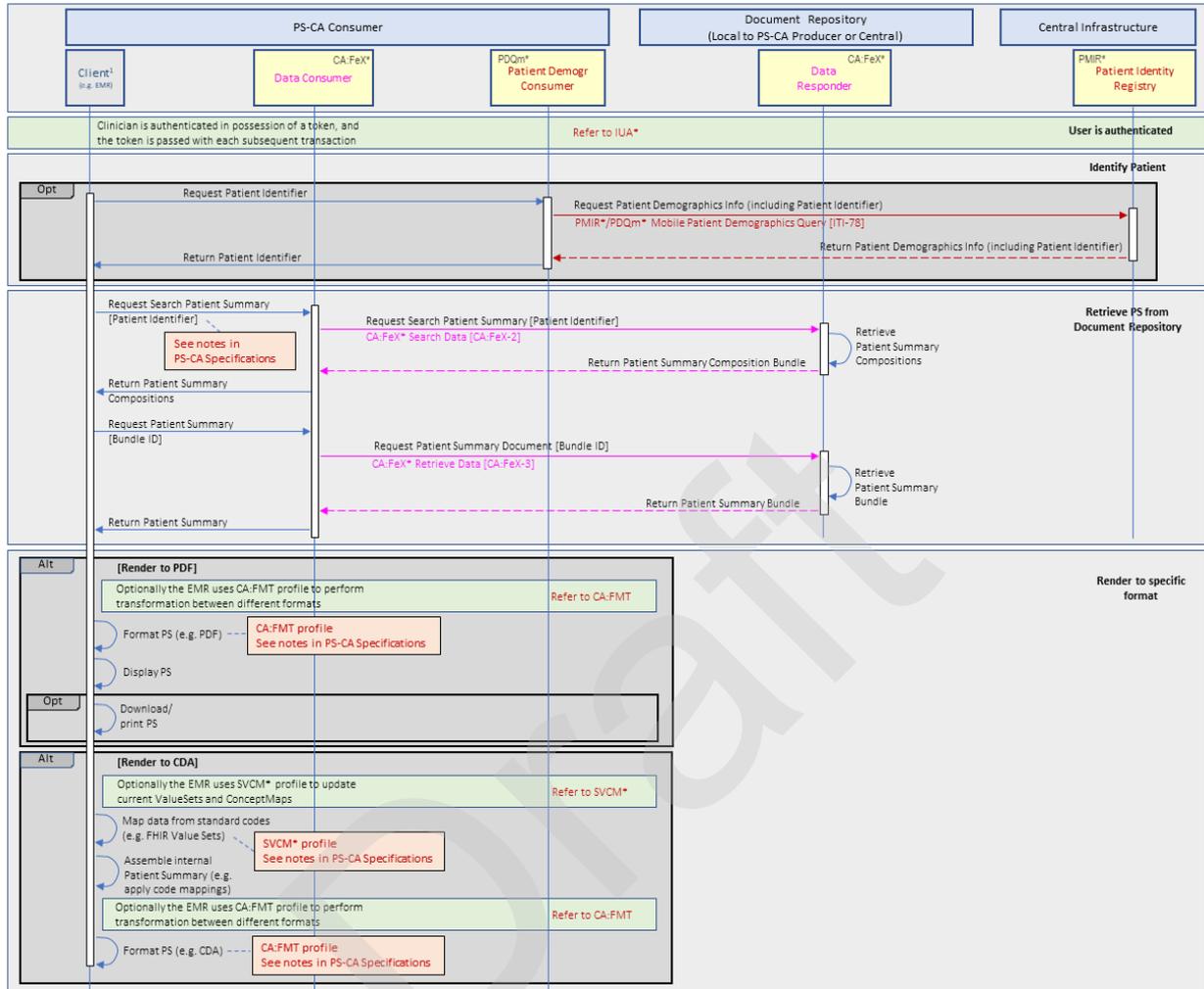
Below provides guidance on how to read the sequence diagram:

- This sequence diagram illustrates how the different standardized actors of systems should interact with each other to carry out specific standardized transactions, and the order in which the transactions and interactions occur when Use Case 2 of the Patient Summary-CA is executed.
- The legend on the bottom right corner describes the different system components, actors and transactions that are necessary to carry out this particular use case.
- The green swim lane is a simplified view of the actors and transactions required by the Foundational IHE Profiles, in addition to the other ones that are not explicitly illustrated on the diagram (e.g. ATNA, CT) but included as a white note. These are pre-requisite conditions for this particular use case and it is assumed that these will be satisfied.
- The blue swim lanes groups sequence of processes (along with their required actors and transactions) that are needed to occur to satisfy this particular use case. These are to be read from left to right and top to bottom.
- The red note boxes describe important call outs, information and notes that provide more context for the sequence diagram.
- This sequence diagram includes the CA:FeX Interoperability Specifications and CA:FMT Interoperability Specifications. Additional details will be included in the PS-CA Interoperability Specifications.
- More information about those details of the Foundational IHE Profiles can be found [here](#).

UC-02 HCP Views/Consumes PS-CA – CA:FeX

Clinical Solution A Retrieves PS from Document Repository

PS is stored in Document Repository (Local to PS-CA Producer or Central)

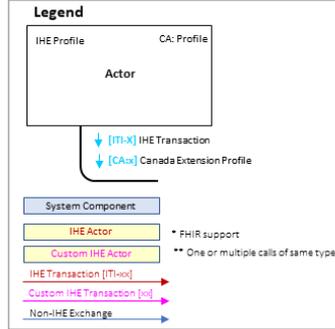


Footnotes

1. Examples of the client system can be any of the following: EMR, HIS, CIS, PHR, or EHR

Prerequisites

Client is logged into the system ([UA*])
 Client obtained a valid access token from the Authorization Server that is used with each transaction([UA*])
 All communication is done through secure channels (ATNA)
 System time is synchronized among all components (CT)



9.3 UC-02: Implementation Option 3: XDS

Scenario: Clinical Solution A Retrieves PS from XDS Document Registry – (XDS IHE Profile).

Assumption: Patient Summary-CA is stored in Local (Decentralized) Document Repository (XDS style repository).

Implementation Option 3: This sequence diagram provides the option of using the XDS IHE profile to give jurisdictions and vendors option to leverage existing XDS-based implementations in the ecosystem.

Note: Additionally, this sequence diagram include the CA:FMT Interoperability Specifications that handle transformations to and from various formats (e.g. FHIR to PDF, CDA, etc.). Additional details will be included in the PS-CA Interoperability Specifications.

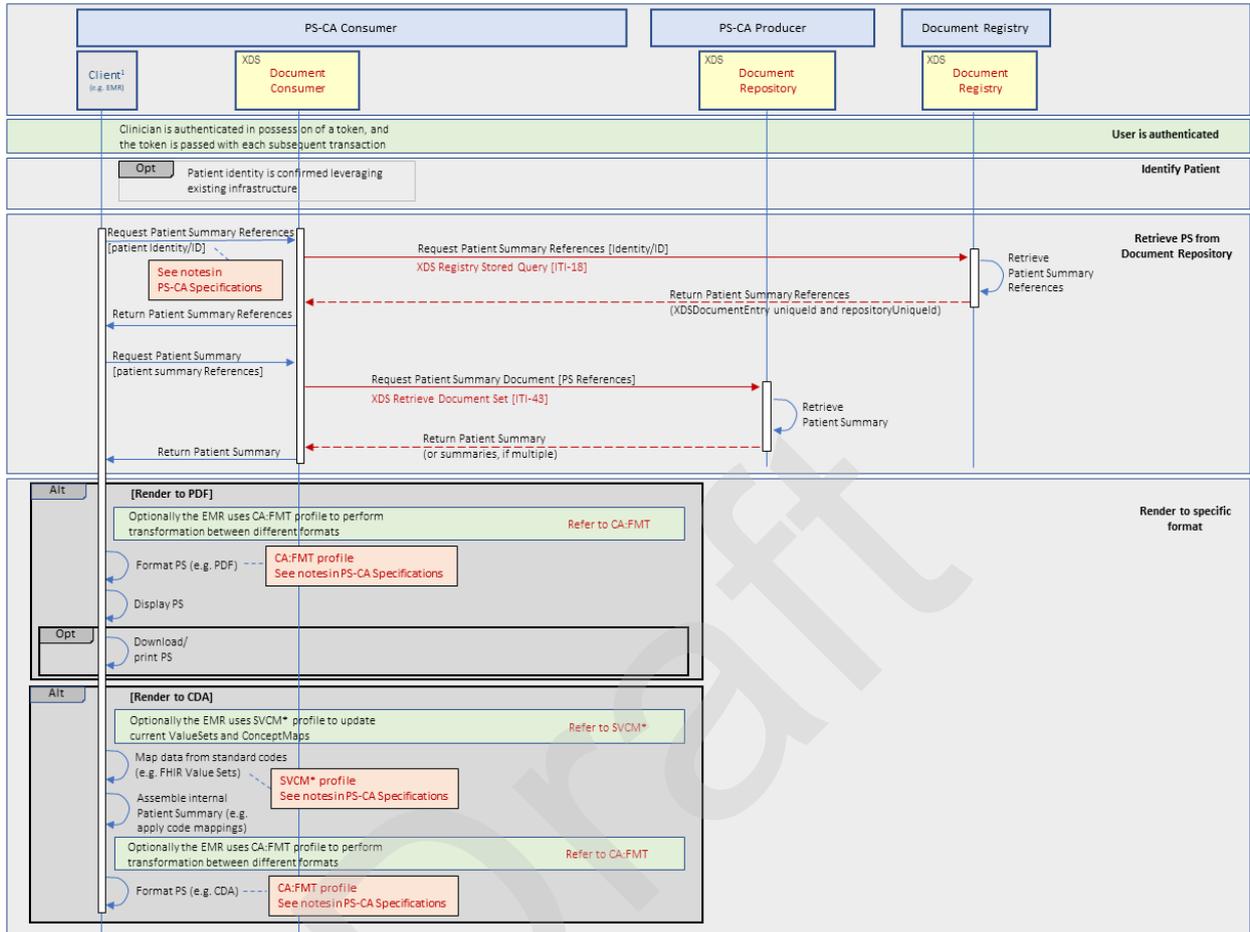
Sequence Diagram Overview:

Below provides guidance on how to read the sequence diagram:

- This sequence diagram illustrates how the different standardized actors of system should interact with each other to carry out specific standardized transactions, and the order in which the transactions and interactions occur when Use Case 2 of the Patient Summary-CA is executed.
- The legend on the bottom right corner describes the different system components, actors and transactions that are necessary to carry out this particular use case.
- The green swim lane is a simplified view of the actors and transactions required by the Foundational IHE Profiles, in addition to the other ones that are not explicitly illustrated on the diagram (e.g. ATNA, CT) but included as a white note. These are pre-requisite conditions for this particular use case and it is assumed that these will be satisfied.
- The blue swim lanes groups sequence of processes (along with their required actors and transactions) that are needed to occur to satisfy this particular use case. These are to be read from left to right and top to bottom.
- The red note boxes describe important call outs, information and notes that provide more context for the sequence diagram.
- This sequence diagram includes the CA:FMT Interoperability Specifications that handle transformations to and from various formats (e.g. FHIR to PDF, CDA, etc). Additional details will be included in the PS-CA Interoperability Specifications.
- More information about those details of the Foundational IHE Profiles can be found [here](#).

UC-02 HCP Views/Consumes PS-CA - XDS

Clinical Solution A Retrieves PS from XDS Document Registry – (XDS IHE Profile)
PS is stored in Local (Decentralized) Document Repository (XDS style repository)

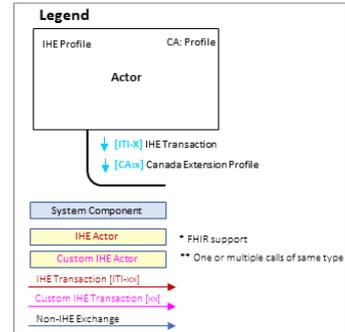


Footnotes

1. Examples of the client system can be any of the following: EMR, HIS, CIS, PHR, or EHR

Prerequisites

- Client is logged into the system ([UA*])
- Client obtained a valid access token from the Authorization Server that is used with each transaction([UA*])
- All communication is done through secure channels (ATNA)
- System time is synchronized among all components (CT)



10 Sequence Diagrams for UC-03 Patient Views/Obtains Personal PS-CA

This section provides a summary of the sequence diagrams for Use Case-03:

Use Case-03: Patient Views/Consumes a PS-CA

A Patient or Subject of Care accesses/views and can retrieve a copy of their own PS-CA to support unscheduled/scheduled local care, or for any other purpose.

Implementation Option 1: MHD

This option is recommended for jurisdictions who would like to use document repository/registry patterns and promote HL7 FHIR standards for the creation and viewing of a Patient Summary-CA.

Implementation Option 2: CA:FeX

This option is recommended for jurisdictions who would like to use FHIR health information exchange (HIE) patterns that provide support for submitting, searching and retrieving a Patient-Summary-CA to and from a central Document Repository using FHIR resources.

Implementation Option 3: XDS

This option is an alternative option but not a preferred option for Release 1 as it does not promote HL7 FHIR standards.

10.1 Additional Considerations

- The sequence diagrams included in this section do not showcase all of the possible combinations of IHE profiles and transactions that can be used for a particular implementation pattern. For example, ITI-83 transaction can be used in place of ITI-78 if the preferred implementation pattern is PIXm/PMIR.
- Additionally, a jurisdictional implementation may choose to present a different version of the Patient Summary to patients than providers. For example, the patient version of the Patient Summary may use more patient friendly language, certain information that might lead to patient harm may be redacted (for example, in the case of patients undergoing behavioral health treatment).

10.2 UC-03: Implementation Option 1: MHD

Scenario: Patient Portal Retrieves PS from MHD Document Registry – (MHD* IHE Profile).

Assumption: Patient Summary-CA is stored in Central or Local (Decentralized) Document Repository.

Implementation Option 1: This sequence diagram provides the option of using the MHD IHE profile, including a Document Repository actor and supporting HL7 FHIR standards.

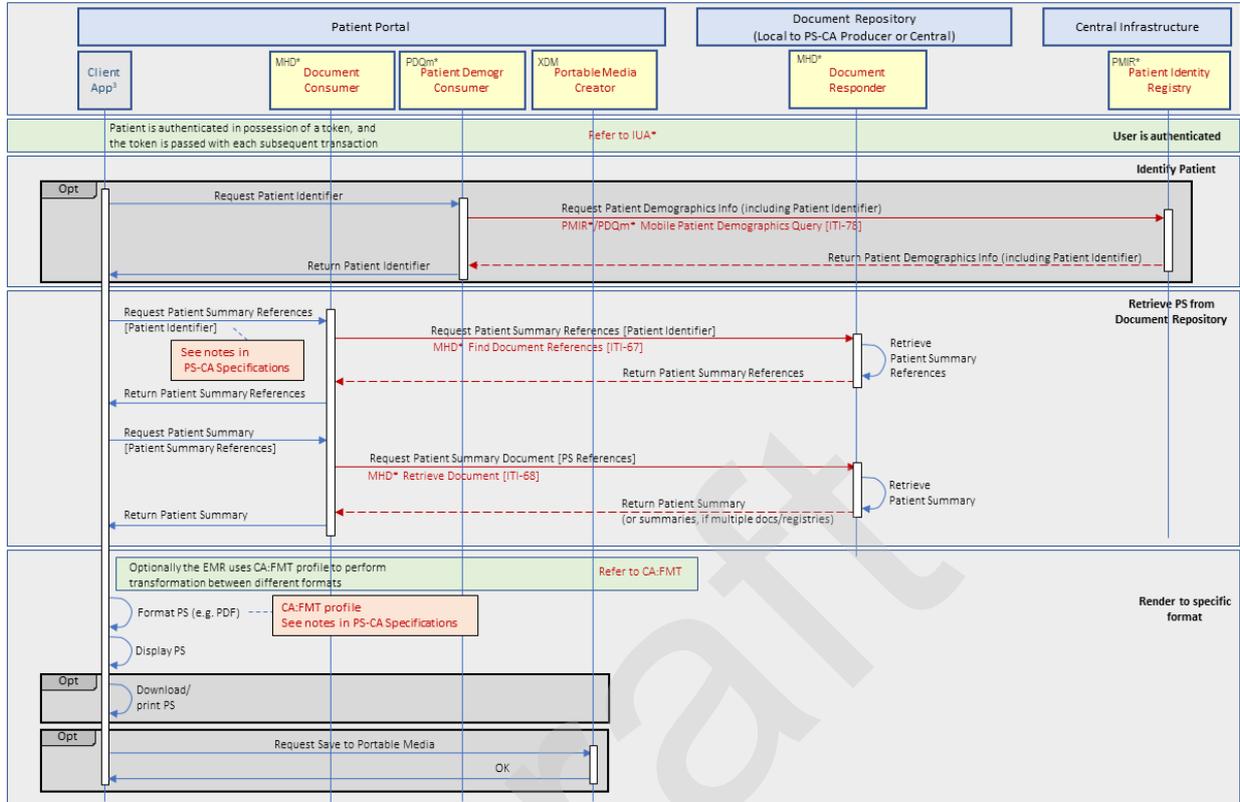
Note: Additionally, this sequence diagram include the CA:FMT Interoperability Specifications that handle transformations to and from various formats (e.g. FHIR to PDF, CDA, etc.). Further details will be included in the PS-CA Interoperability Specifications. Additionally, the Document Repository in this scenario can be either (1) central or (2) at PS-CA Producer (the source where the document was produced). The Document Consumer actor would query the appropriate repository.

Sequence Diagram Overview:

Below provides guidance on how to read the sequence diagram:

- This sequence diagram illustrates how the different standardized actors of systems should interact with each other to carry out specific standardized transactions, and the order in which the transactions and interactions occur when Use Case 3 of the Patient Summary-CA is executed.
- The legend on the bottom right corner describes the different system components, actors and transactions that are necessary to carry out this particular use case.
- The green swim lane is a simplified view of the actors and transactions required by the Foundational IHE Profiles, in addition to the other ones that are not explicitly illustrated on the diagram (e.g. ATNA, CT) but included as a white note. These are pre-requisite conditions for this particular use case and it is assumed that these will be satisfied.
- The blue swim lanes groups sequence of processes (along with their required actors and transactions) that are needed to occur to satisfy this particular use case. These are to be read from left to right and top to bottom.
- The red note boxes describe important call outs, information and notes that provide more context for the sequence diagram.
- More information about those details of the Foundational IHE Profiles can be found [here](#).

UC-03 Patient Views/Obtains Personal PS-CA - MHD
Patient Portal Retrieves PS from MHD Document Registry – (MHD* IHE Profile²)
PS is stored in Central or Local (Decentralized) Document Repository



Footnotes

- ITI-66 is mandatory transaction from IHE for the MHD profile; however, it is not covered in the above sequence diagram because the scope of this use case.
- Examples of the client app can be an EMR, EHR and/or proprietary patient viewer application.

Prerequisites

- Client is logged into the system (IUA*)
- Client obtained a valid access token from the Authorization Server that is used with each transaction (IUA*)
- All communication is done through secure channels (ATNA)
- System time is synchronized among all components (CT)

Legend

- IHE Profile CA: Profile
- Actor
- [ITI-X] IHE Transaction
- [CA:Y] Canada Extension Profile
- System Component
- IHE Actor * FHIR support
- Custom IHE Actor ** One or multiple calls of same type
- IHE Transaction [ITI-x]
- Custom IHE Transaction [x]
- Non-IHE Exchange

10.3 UC:03: Implementation Option 2: CA:FeX

Scenario: Patient Portal Retrieves Patient Summary-CA from Document Repository

Assumption: Patient Summary-CA is stored in a Local or Central Document Repository

Implementation Option 2: This sequence diagram provides the option of using the CA:FeX Interoperability Specifications that provide support for saving and retrieving a Patient Summary-CA to and from a local or central Document Repository. This profile includes a Data Consumer and a Data Responder actor. Additionally, this sequence diagram uses the 'Search Data' and 'Retrieve Data' FHIR operations.

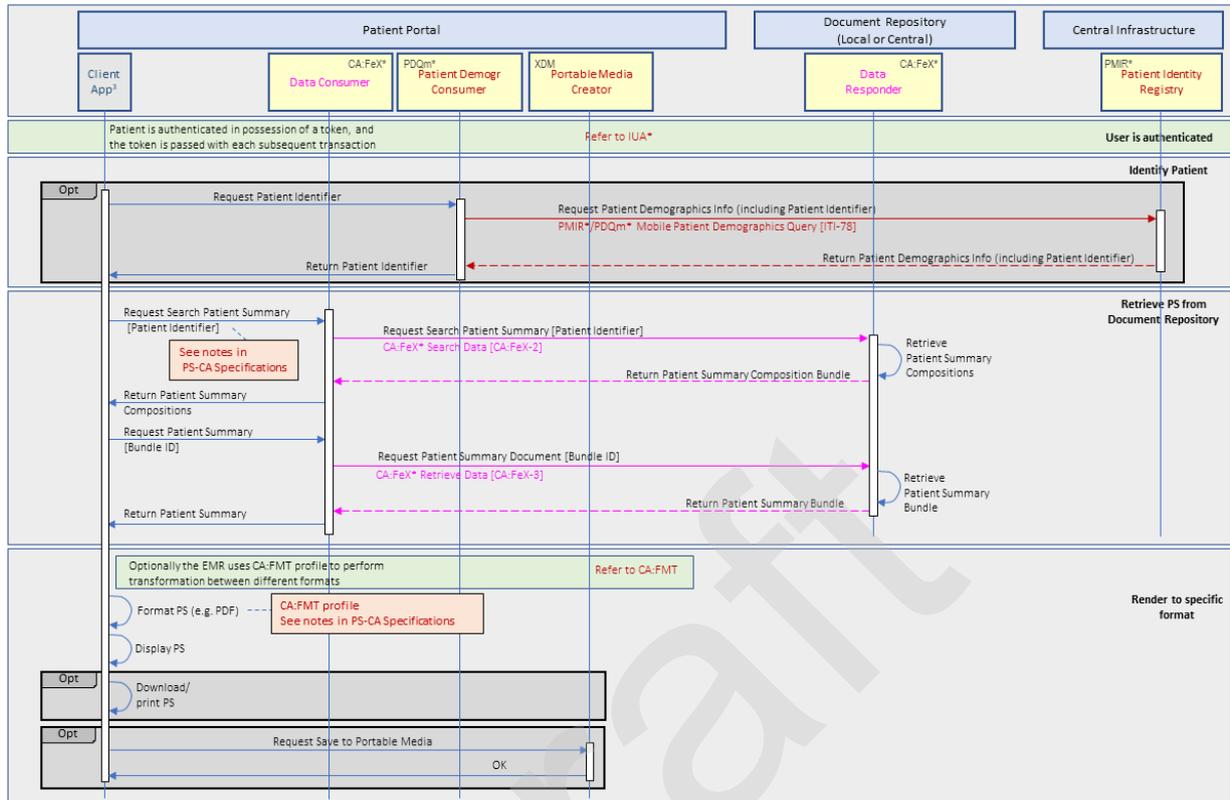
Note: Additionally, this sequence diagram include the CA:FMT Interoperability Specifications that handle transformations to and from various formats (e.g. FHIR to PDF, CDA, etc). Additional details will be included in the PS-CA Interoperability Specifications.

Sequence Diagram Overview:

Below provides guidance on how to read the sequence diagram:

- This sequence diagram illustrates how the different standardized actors of system should interact with each other to carry out specific standardized transactions, and the order in which the transactions and interactions occur when Use Case 3 of the Patient Summary-CA is executed.
- The legend on the bottom right corner describes the different system components, actors and transactions that are necessary to carry out this particular use case.
- The green swim lane is a simplified view of the actors and transactions required by the Foundational IHE Profiles, in addition to the other ones that are not explicitly illustrated on the diagram (e.g. ATNA, CT) but included as a white note. These are pre-requisite conditions for this particular use case and it is assumed that these will be satisfied.
- The blue swim lanes groups sequence of processes (along with their required actors and transactions) that are needed to occur to satisfy this particular use case. These are to be read from left to right and top to bottom.
- The red note boxes describe important call outs, information and notes that provide more context for the sequence diagram.
- This sequence diagram include the CA:FeX Interoperability Specifications and CA:FMT Specifications. Additional details will be included in the PS-CA Interoperability Specifications.
- More information about those details of the Foundational IHE Profiles can be found [here](#).

UC-03 Patient Views/Obtains Personal PS-CA – CA:FeX
Patient Portal Retrieves PS from Document Repository
PS is stored in Local or Central Document Repository

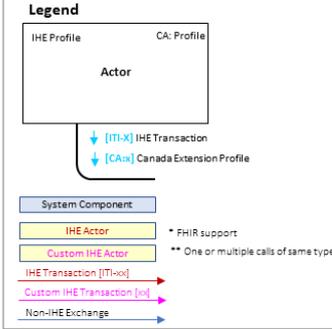


Footnotes

3. Examples of the client application can be an EMR, EHR and/or proprietary patient viewer application.

Prerequisites

Client is logged into the system (IUA*)
 Client obtained a valid access token from the Authorization Server that is used with each transaction (IUA*)
 All communication is done through secure channels (ATNA)
 System time is synchronized among all components (CT)



10.4 UC-03: Implementation Option 3: XDS

Scenario: Patient Portal Retrieves PS from XDS Document Registry – (XDS IHE Profile).

Assumption: Patient Summary-CA is stored in Local (Decentralized) Document Repository (XDS style repository).

Implementation Option 3: This sequence diagram provides the option of using the XDS IHE profile to give jurisdictions and vendors option to leverage existing XDS-based implementations in the ecosystem.

Note: Additionally, this sequence diagram include the CA:FMT Interoperability Specifications that handle transformations to and from various formats (e.g. FHIR to PDF, CDA, etc.). Additional details will be included in the PS-CA Interoperability Specifications.

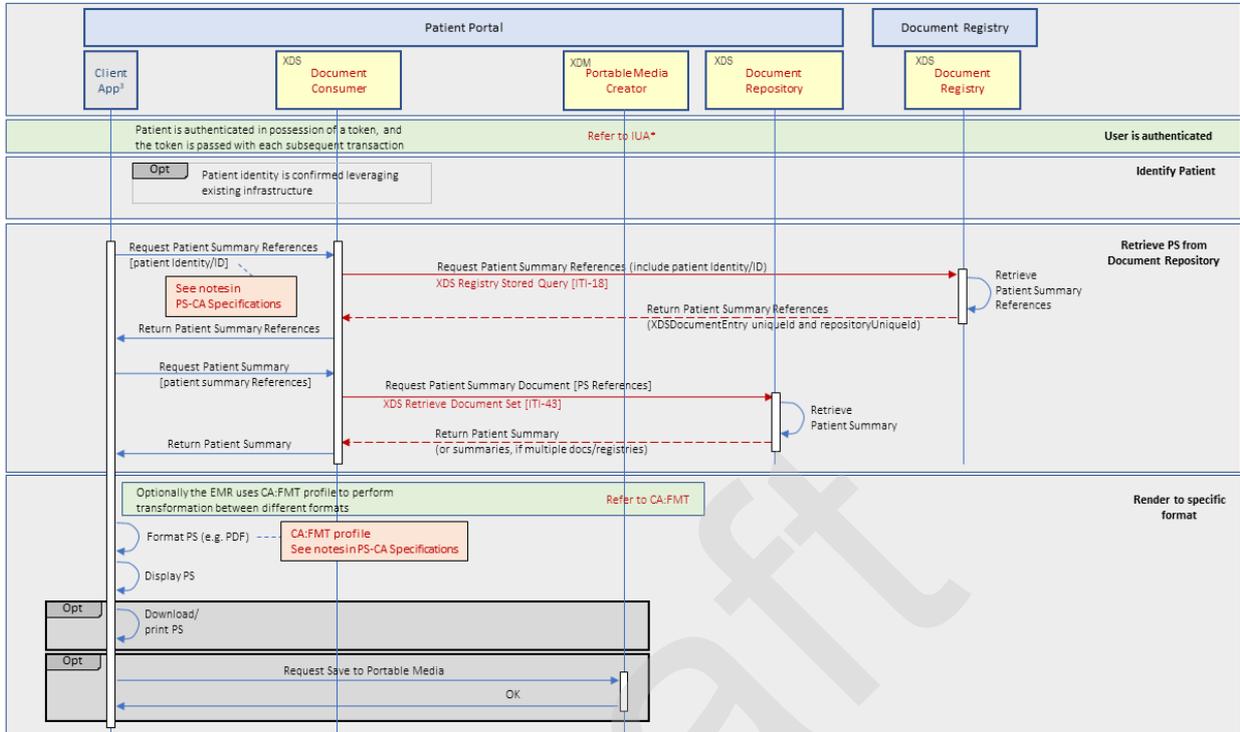
Sequence Diagram Overview:

Below provides guidance on how to read the sequence diagram:

- This sequence diagram illustrates how the different standardized actors of system should interact with each other to carry out specific standardized transactions, and the order in which the transactions and interactions occur when Use Case 3 of the Patient Summary-CA is executed.
- The legend on the bottom right corner describes the different system components, actors and transactions that are necessary to carry out this particular use case.
- The green swim lane is a simplified view of the actors and transactions required by the Foundational IHE Profiles, in addition to the other ones that are not explicitly illustrated on the diagram (e.g. ATNA, CT) but included as a white note. These are pre-requisite conditions for this particular use case and it is assumed that these will be satisfied.
- The blue swim lanes groups sequence of processes (along with their required actors and transactions) that are needed to occur to satisfy this particular use case. These are to be read from left to right and top to bottom.
- The red note boxes describe important call outs, information and notes that provide more context for the sequence diagram.
- More information about those details of the Foundational IHE Profiles can be found [here](#).

UC-03 Patient Views/Obtains Personal PS-CA - XDS

Patient Portal Retrieves PS from XDS Document Registry – (XDS IHE Profile)
PS is stored in Local (Decentralized) Document Repository (XDS style repository)



Footnotes

3. Examples of the client app can be an EMR, EHR and/or proprietary patientviewer application.

Prerequisites

Client is logged into the system (IUA*)
 Client obtained a valid access token from the Authorization Server that is used with each transaction(IUA*)
 All communication is done through secure channels (ATNA)
 System time is synchronized among all components (CT)

