

# **Pan-Canadian Patient Summary**

# **Companion Guide to Reference Architecture**

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# Companion Guide: Reference Architecture

# Purpose

The pan-Canadian Patient Summary - Companion Guide to Reference Architecture provides guidance on how to apply specific IHE patterns and integration profiles 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.

# Intended Audience

The intended audience of the pan-Canadian Patient Summary - Companion Guide to Reference Architecture include s, 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.

## Overview

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

# 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 mandatory 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 mandatory 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 that are optional for this release

- Within the Reference Architecture, two options for implementation have been highlighted, with Option 1 having two scenarios.
  - Optional 1, Scenario #1: MHD implementation, where the Document Repository is Central
  - Optional 1, Scenario #2: MHD implementation, where the Document Repository is Local
  - Option 2, Scenario #1: XDS implementation
  - A preferred option is indicated with an asterik \*(e.g Optional 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 Canadian National Integration Profiles 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.

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

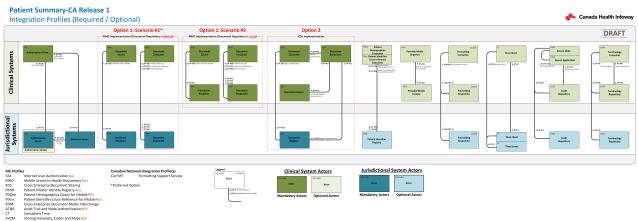
Below list summarizes how to use this document:

- **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 on 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, esp. MHDS, PMIR, PIQm, PDQm, mCSD, ATNA, CT and IUA.

# High Level View - Reference Architecture for Patient Summary-CA

This is a high-level view of relevant Integration Profiles to support the Patient Summary-CA project. The view contains a superset of profiles that offer alternatives to exchanging Patient Summaries, depending on Jurisdictional service type and availability. Mandatory and optional capability support is described in the sequence diagrams associated with each Use Case analysis.



High Level View - Reference Architecture for Patient Summary-CA – 3

# Foundational IHE Profiles

### Background

Foundational IHE Profiles are required for all of use cases and corresponding sequence diagrams. They 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/formating (e.g. CM-FMT) that are important for sharing of Patient Summaries within and across care networks.

### Assumption

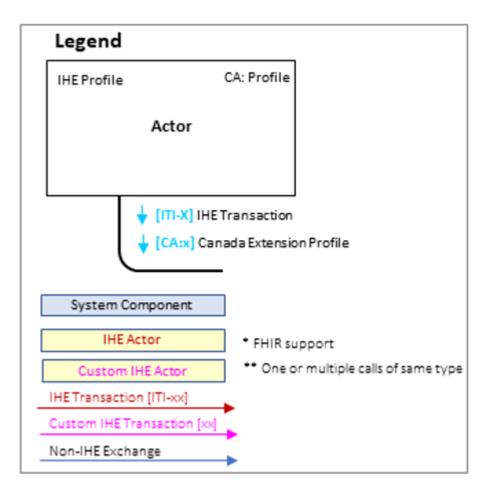
It is assumed that in order to satisfy any of the use cases for the Patient Summary-CA in Release 1, vendors and jurisdictions in the ecosystem must ensure they meet the requirements of the standardized actors and transactions listed in the Cross Cutting IHE Profiles.

For more background information on the specific IHE profiles, please view this link.

IHE Profiles Included: IUA, ATNA, CT, SVCM, CA: FMT

### <u>Legend</u>

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



### <u>IUA\*</u>

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

Foundational IHE Profiles – used across all Use Cases – IUA\*

IUA" Authorization Client	IUA* Authorization Server		IUA* Resource	eServer	IUA⁺
Request resource IUA* Incorporate Access Token [ITI-72]	4	equest Verify Token UA® Introspect Token (ITI-102) Return Verify Token Result			

### ATNA\*

ATNA\* (Audit Trail and Node Authentication) 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, the might be specified in other IHE profiles, local law or regulation, or local policy.

Foundational IHE Profiles – used across all Use Cases – ATNA\*

ATNA* Secure N	ode/App	ATNA* Secure Node	(Remote)		Record ository	ATNA⁺
	ATNA* Authenticate Node [ITI-19]				1	
			<u>OK</u>	 	_	

### <u>CT</u>

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.

#### Foundational IHE Profiles – used across all Use Cases - CT

CT CT Time Client		CT CT Time Server	ст
	2T Maintain Time [ITI-1] OK		

### SVCM\*

SVCM (Sharing Valusets, 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

#### Foundational IHE Profiles – used across all Use Cases – SVCM\*

SVCM* Termin				inology	SVCM*
Cons	umer		кер	ository	
ſ	SVCN	M* Query Value Set [ITI-95]			
		Return single or multiple Value Sets			
	SVCN	M* Query Cade system [ITI-96]			
	<b></b>	Return single or multiple Code Systems			
	SVCN	M* Expand Value Set [ITI-97]			
	<	Return expanded Value Set			
	SVCN	M* Lookup Code [ITI-98]			
	<b>4</b>	Return Code Details			
	SVCN	M* Validate Code [ITI-99]			
	<b></b>	Return Code validation result			
	SVCN	M* Query Concept Map [ITI-100]			
	<b></b>	Return single or multiple Concept Maps			
	SVCN	M* Translate Code [ITI-101]	,		
	<	Return translated Code			
	Т				

### CA:FMT

\*Note: Content and specifications for his Canadian Integration Profile is in development. More information on the his profile, including introduction, benefits and actor & transaction diagrams can be found below. This profile 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.

### Introduction

CA:FMT is a Canadian Integration Profile that provides formatting support service. It provides support for transformation of documents between different formats (e.g., from FHIR to PFD, CDA, etc.).

### **Benefits of CA:FMT**

The following are examples of benefits for the CA:FMT profile

- Handle transformation from FHIR to PDF
- Handle transformation from FHIR to CDA

### Actor & Transaction Diagram of CA:FMT

Transform Format [C	CA:FMT-1] → Formatting Responder
---------------------	----------------------------------

#### Foundational IHE Profiles – used across all Use Cases – CA:FMT

Form: Cons		Form: Resp		CA:FMT
٢	CA:FMT Transform Format [CA:FMT-1]		1	
	 Return Formatted PS (e.g. PDF)			
L		L	-	

# 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.

### Release 1 Implementation Options: MHD

This option is recommended and the preffered option for Release 1 as it promotes HL7 FHIR standards.

### Alternative Implementation Option: XDS

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

### UC-01: Sequence Diagram 1 Implementation Option 1.1: MHD

Scenario / Assumption(s): Patient Summary 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

**Release 1 Implementation Option:** 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:**

- 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 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 an 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

	PS-CA Producer	Document Re (Local to PS-CA Produ	
		t Demogr sumer	
	Clinician is authenticated in possession of a token, and the token is passed with each subsequent transaction	e <sup>t</sup> er to IUA*	User is authenticated
Opt	Request Patient identity/ID [Patient ID] Return Patient identity/ID	Request Patient Demographics Info (including patien PMIR*/PDQm* Mobile Patient Demographics Query Return Patient Demograph	
	Retrieve clinical data from local data sources [Patient ID]		Retrieve clinical data from local data sources
Opt	Optionally the EMR uses SVCM* profile     update     Refer to SVCM       Current ValueSets and ConceptMaps     Map data to standard codes     SVCM* profile       (e.g. FIRK ValueSets)     SvCM* profile     See notes in PS-CA Specification       Assemble and review     Patient Summary     Omit or mask data based on local or jurisdictional policies		Assemble and review Patient Summary
	Request Save Patient Summary (trigger) Request Save Patient Summary Docum (including method for handling version MHD* Provide Document Bundle (ITI-	5)	Create, replace, stack, archive, etc. Save Patient Summary Document (create or replace) Save Patient Summary References (create or update)

Prerequisites	Legend	
Client is logged into the system (IUA*)	IHE Profile	CA: Profile
Client obtained a valid access token from the Authorization Server that is used with each transaction(IUA*)	Actor	
All communication is done through secure channels (ATNA)		
System time is synchronized among all components (CT)		E Transaction Inada Extension Profile —
	System Component	
	IHE Actor	* FHIR support
	Custom IHE Actor	** One or multiple calls of same type
	IHE Transaction [ITI-xx]	•
	Custom IHE Transaction [xx	
	Non-IHE Exchange	→
	L	

### UC-01 Sequence Diagram 2 Implementation Option 1.2: XDS

**Scenario / Assumption(s):** Patient Summary is stored Local (Decentralized) Document Repository (XDS style repository)

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

**Alternative Option:** 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:

- 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 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 an 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

	PS-CA Producer													HIE Centr	al Infrastructure		
	Client (EMR)			iment irce			Demogr sumer			ument ository				ument gistry	PV	AIR* Patient I Regi	
		ician is authenticated in pos token is passed with each su						Refer to IU/	A•						User i	is authenti	icated
Opt		Request Pat [Patient i	D]	'ID n Patient Ide	ntity/ID	•	-		mographics bile Patient I	emographic	cs Query [ITI	-78]	aphics Info (	ncluding pa	tient Identity/ID)	Identify	Patient
		Retrieve clinical data ) from local data sources [Patient ID]														e clinical d al data so	
		Optionally the EMR uses SVC current ValueSets and Conce Map data to standard code (e.g. FHIR Value Sets) Assemble and review Patient Summary	ptMaps sSVCN	* profile	CASpecification	1	Refer to S	VCM*							F	Assemb revie Patient Su	w
Opt	<u>ר</u>	Omit or mask data based o local or jurisdictional polici			]												
		quest Save Patient Summany igger) OK			Request Save I (including met XDS Provide ar	thod for ha	ndling versio	ns)	•	Sum (crea	e Patient Imary Docum ate or replac	archi nent :e)	e, replace, si ve, etc. [ITI-42]	Save Refe	Do e Patient Summary erences rate or update)	Save P cument F	

Prerequisites	Legend	
Client is logged into the system (IUA*)	IHE Profile CA: Profile	
Client obtained a valid access token from the Authorization Server that is used with each transaction(IUA*)	Actor	
All communication is done through secure channels (ATNA)		
System time is synchronized among all components (CT)	↓ [ITI-X] IHE Transaction ↓ [CAox] Canada Extension Profile	
	System Component	
	HE Actor * FHIR support	
	Custom IHE Actor ** One or multiple calls	ofsametype
	IHE Transaction [ITI-xx]	
	Custom IHE Transaction [xx]	
	Non-IHE Exchange	

# 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.

### Release 1 Implementation Options: MHD

This option is recommended and the preferred option for Release 1 as it promotes HL7 FHIR standards.

### Alternative Implementation Option: XDS

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

### Future Scope Implementation Option: XCA-CA

This option is a future-scope implementation option and is based on jurisdictional capabilities on performing data look-up by leveraging FHIR gateways

### UC-02 Sequence Diagram 3 Implementation Option 2.1: MHD

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

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

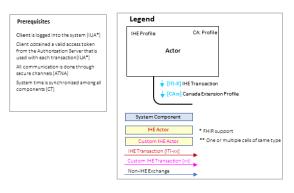
**Release 1 Implementation Option:** This sequence diagram provides the option of using the MHD IHE profile, including a Document Repository actor and supporting HL7 FHIR standards

Note: This sequence diagram includes a custom Canadian IHE profile (e.g. CA:FMT) that handles 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:

- 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 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 includes a custom Canadian IHE profile (e.g. CA:FMT) that handles 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 an be found here.

	inical Solution A Retrieves PS from MHD Document Registry – (MHD* S is stored in Central or Local (Decentralized) Document Repository	IHE Profile)
	PS-CA Consumer	Document Repository (Local to PS-CA Producer or Central) HIE Central Infrastructure
		nt Demogr Issumer Responder PMIR* Patient identity Registry
	Clinician is authenticated in possession of a token, and the token is passed with each subsequent transaction	Refer to IUA* User is authenticated
		Identify Patient
Opt	Request Patient Identity/ID  [Patient ID]  Return Patient Identity/ID	Request Patient Demographics Info (including patient identity/ID) PMIR*/PDQm* Mobile Patient Demographics Query [ITI-78] Return Patient Demographics Info (including patient identity/ID)
	Request Patient Summary References [patient Identity/ID] See notes in PS-CA Specification Return Patient Summary References Request Patient Summary [patient summary References] Request Patient Summary References] Return Patient Summary (or summaries, if multiple) Return Patient Summary (or summaries, if multiple)	entes (ITI-67) Return Patient Summary References
Ait Opt	IRender to PDF]         Optionally the EMR uses CA:FMT profile to perform transformation between different formats         Format PS (e.g. PDF)         CA:FMT profile See notes in PS-CA Specification         Display PS         Download/ print PS         Render to CDA]         Optionally the EMR uses SVCM* profile to update current ValueSets and ConceptMaps         Map data from standard codes (e.g. FHIR Value Sets)         SVCM* profile Assemble internal apply code mappings)         Optionally the EMR use CA:EMT confile to perform	Refer to CA:FMT Refer to CA:FMT Refer to SVCM* Refer to SVCM*
	Optionally the EMR uses CA-FMT profile to perform transformation between different formats Format PS (e.g. CDA) CA-FMT profile See notes in PS-CA Specification	Refer to CA-FMT



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

### UC-02 Sequence Diagram 4 Implementation Option 2.2: XDS

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

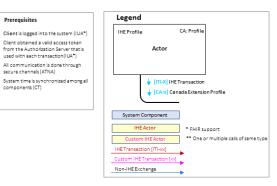
Assumption: Patient Summary is stored in Local (Decentralized) Document Repository (XDS style repository)

**Alternative Option:** 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:

- 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 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 includes a custom Canadian IHE profile (e.g. CA:FMT) that handles 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 an be found here.

		PS-CA Consumer		PS-CA	Producer	Documer	nt Registry	HIE Central Infrastructure
Clie (EM		ment P	DQm* Patient Demogr Consumer		cument pository		cument egistry	PMIR* Patient Identity Registry
	Clinician is authenticated in possession the token is passed with each subsequ		Refer t	o IUA*				User is authenticated
	Request Patient (C	entity/ID Return Patient Identity/ID		nt Demographics Info (inc Mobile Patient Demogra	aphics Query [ITI-78		sinfo (including	Identify Patient
	Request Patient Summary References [patient identity/ID] See notes in PS-CA Specification Return Patient Summary References Request Patient Summary [patient summary References] Return Patient Summary	XDS Registry Request Patient Summ XDS Retrieve Docume Return Pat	tient Summary References [ide y stored Query [ITI-18] mary Document [PS Reference ent Set [ITI-43] ient Summary aries, if [multiple]	Return Patient Su (XDSDocumentEn	mmary References try uniqueld and re Retrieve Patient Su			Retrieve PS from Document Repository
			Refer to CA:	FMT				Render to specific format
t	Assemble internal Patient Summary (e.g. apply code mappings) Optionally the EMR uses CA:FMT p transformation between different Format PS (e.g. CDA) CA-F	M* profile notes in PS-CA Specification	Refer to SVO					



Sequence Diagrams for UC-02: HCP Views/Consumes a PS-CA - 17

# 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.

### Release 1 Implementation Options: MHD

This option is recommended and the preferred option for Release 1 as it promotes HL7 FHIR standards.

### Alternative Implementation Option: XDS

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

### Future Scope Implementation Option: XCA-CA

This option is a future-scope implementation option and is based on jurisdictional capabilities on performing data look-up by leveraging FHIR gateways.

### UC-03 Sequence Diagram 6 Implementation Option 3.1: MHD

Scenario: Patient Portal Retrieves PS from MHD Document Registry - (MHD\* IHE Profile)

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

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

Note: This sequence diagram includes a custom Canadian IHE profile (e.g. CA:FMT) that handles 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:

- 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 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 includes a custom Canadian IHE profile (e.g. CA:FMT) that handles 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 an be found here.

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

		Patient P	ortal		Document F (Local or		roducer HIE Central Infrastructure
	Client App	MHD* Document Consumer	PDOm* Patient Demogr Consumer	XDM Portable Media Creator	MHD* Docur Respo		ument PMIR* Patient Identity Registry
		I in possession of a token, and n each subsequent transaction		Refer to IUA	•		User is authenticated
Opt	- 14						ldentify Patient
	Ке	quest Patient Identity/ID [Patient ID] Return Patient	: Identity/ID		emographics Info (includ obile Patient Demograph		o (including patient identity/ID)
		e notes in CCA Specification imary References summary y References]	MHD <sup>+</sup> Find Docur Request Patient Summary Do WHD <sup>+</sup> Find Document Lists ( WHD <sup>-</sup> Retrieve Epocument ( Return Patient Sum	TI-66] or TI-68]		Summary References Retrieve Patient Summary	Retrieve PS from Document Repository
Opt	L transformation bets Format PS (e.g. PE Display PS Download/ print PS	uses CA:FMT profile to perfor ween different formats (F)	A Specification	Refer to C	A.FMT		Render to specific format

Prerequisites	Legend	
Client is logged into the system (IUA*)	IHE Profile	CA: Profile
Client obtained a valid access token from the Authorization Server that is used with each transaction(IUA*)	Acto	r
All communication is done through secure channels (ATNA)		
ystem time is synchronized among all omponents (CT)	[CA:	K] IHE Transaction x] Canada Extension Profile
	System Componen	
	IHE Actor	* FHIR support
	Custom IHE Acto	** One or multiple calls of same type
	IHE Transaction [ITI-xx	1
	Custom IHE Transactio	n [xo]
	Non-IHE Exchange	

### UC-03 Sequence Diagram 7 Implementation Option 3.2: XDS

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

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

**Alternative Option:** 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: This sequence diagram includes a custom Canadian IHE profile (e.g. CA:FMT) that handles 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:

- 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 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 includes a custom Canadian IHE profile (e.g. CA:FMT) that handles 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 an be found here.

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

		Ра	tient Portal			Document	Registry HIE Central Infrastructure
	Client App		Qm <sup>*</sup> Patient Demogr Consumer	XDM Portable Media Creator	XDS Document Repository	XDS Docu Reg	
	Patient is authenticated in the token is passed with ea			Refer to IUA*			User is authenticated
Opt		atient Identity/ID					Identify Patient
	Patient		P	lequest Patient Demographi PMIR*/PDQm* Mobile Patier	t Demographics Query [ITI-		ding patient (dentity/ID)
	Request Patient Summary Re [patient identity/ID] See noter PS-CA Spe Return Patient Summary Refe Request Patient Summary Refe Return Patient Summary Refe	s in 2 scification scification seferences tany Request P XDS Retriev	Request Patient Summ KDS Registry Stored Qu stient Summary Docum re Document Set (111-4 Return Patient Summar or summaries, if multi	Return P (XDSDoci tent [PS References] 3] Dy	stient Summary References imentEntry uniqueld and re		Retrieve <b>P</b> S from Document Repository
	Optionally the EMR uses C4 transformation between di Format PS (e.g. PDF) Display PS		ation	Refer to CA:FMT			Render to specific format
Opt Opt	Download/ print PS	Request Save to Portable Medi	a OK				

-03 Patient Views/Obtains Personal PS-CA - XDS	
tient Portal Retrieves PS from XDS Document Registry – (XDS IHE Profile)	1

PS is stored in Local (Decentralized) Document Repository (XDS style repository)

Prerequisites	Legend	
Client is logged into the system (IUA*)	IHE Profile	CA: Profile
Client obtained a valid access token from the Authorization Server that is used with each transaction(IUA*)	Acto	r
All communication is done through secure channels (ATNA)		
System time is synchronized among all components (CT)		K] IHE Transaction x] Canada Extension Profile
	System Componen	nt
	IHE Actor	* FHIR support
	Custom IHE Acto	** One or multiple calls of same type
	IHE Transaction [ITI-xx	1
	Custom IHE Transactio	n [xo]
	Non-IHE Exchange	