EMR EHR Connectivity

Context Management – Requirements

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1. INTRODUCTION

1.1 Overview

This document defines the requirements and guides for an EMR Offering to integrate with context management functionality and contextual launch service functionality. The integration allows for interaction with Context-Aware EHR Services or Viewlet available on the provincial ONE Access Gateway (OAG) that leverages context management (e.g., EHR service, web-based clinical viewers, Viewlets). The intended audiences of this document are business and technical implementers.

1.2 Version History

VERSION	REVISION DATE	REVISION NOTES
1.0	2019-12-23	Initial release
1.1	2020-07-13	a) Added CM01.03, CM01.04 and CM01.05 for CMS parameters needed to launch an EHR Service b) Updated CMS02.03 to reflect a more current reference to CMS parameters c) Added CM02.05 to reference scopes associated with the Context Management Service
2.0	2020-11-09	a) Added CM01.01 for extraction and use of CMS endpoint values. This functionality existed in Viewlet Framework requirements and was moved to Context Management requirements instead. b) Re-sequenced all requirement numbers to account for the addition of CM01.01 c) Updated reference to OHDS Viewlet Framework, which is now accessible online d) Added CM05.03 for clearing patient context upon closing an EHR Service or Viewlet
2.1	2021-03-04	Published Specification as Draft for Comment (DFC)
2.2	2021-04-09	Updated reference to ONE Access Viewlet Framework (version)
2.2	2021-05-21	EMR Specification released as Draft for Use (DFU)
2.2	2021-05-31	EMR Specification released as Final
2.3	2021-09-10	a) Added reference to Implementation Guides for EHR Services that support the Provincial Contextual Launch Service b) Added Section 1.3 to Business Overview to describe the Provincial EHR Contextual Launch Service c) Updated reference to Ontario Context Management System HL7 FHIR Implementation Guide d) Various errata and format corrections

VERSION	REVISION DATE	REVISION NOTES
2.4	2024-06-30	a) Integrated EMR Contextual Launch Implementation Guide into this document and specification, removed external reference to this information b) Changed section 2.1 to include Contextual Launch requirements c) Added reference to Implementation Guides for EHR Services that support the Provincial Contextual Launch Service d) Various errata and format corrections e) Renumbered CM01.01 to CM01.02 f) Added CM01.01 to support Contextual Launch Service g) Updated CM01.01 and merged with CM03.02 for consistency on the CMS endpoint value. h) Updated CM02.01 for clarity on context data to send i) Updated CM02.02 for clarity on setting context data j) Retired CM03.02, CM03.03 and CM04.02, no longer relevant k) Updated CM04.01 for clarity on when to set the CMS unique identifier (hub.topic) l) UpdatedCM05.01 for clarity on context setting retry m) Updated CM06.03 to reflect some EHR services can't communicate back to the EMR Offering for closing patient context

1.3 Scope

1.3.1 In Scope

- EMR requirements for unidirectional context sharing from an EMR Offering to an EHR product or service, or Viewlet available on the OAG.
- Patient context, to identify a unique patient.

1.3.2 Out of Scope

- Bi-directional context-sharing.
- Other context topics, such as provider context, may be supported in the future.
- Patient context-sharing implementation from previous initiatives.

1.4 Constraints

- Although there are similarities, this document is not intended to be backward compatible to support the Context Management Service (CMS) 1.0 implementation of patient context sharing.

1.5 Dependencies

- The endpoint for the CMS provided by a Context-Aware EHR service to the EMR Offering to set context is part of the OAuth2 interaction. To facilitate this interaction, the EMR Offering needs to align with the OAG requirements of the EMR EHR Connectivity Specification.

1.6 Related Documents, References and Sources

ID	NAME	VERSION	DATE
1	Ontario Context Management System HL7 FHIR Implementation Guide (Ontario Health Digital Services, 2021) https://www.ehealthontario.on.ca/en/standards/view/ontario-cms	1.0.1	2021-06
2	ONE Access Viewlet Framework (Ontario Health Digital Services, 2021) https://www.ehealthontario.on.ca/en/standards/view/one-access-viewlet-framework-developer-guide	1.7	2021-03

2. EMR REQUIREMENTS

This section consists of the EMR functional requirements for leveraging Context Management.

Support:

M = Mandatory. EMR Offerings certified for this specification MUST support this requirement.
O = Optional. Vendors MAY choose to support this requirement in their certified EMR offering.

Status:

N = New requirement for this EMR Specification version.
P = Previous requirement.
U = Updated requirement from the previous EMR Specification version.
R = Retired requirement from the previous EMR Specification version.

OMD #:

A unique identifier that identifies each requirement within OMD's EMR Requirements Repository.

CONFORMANCE LANGUAGE

The following definitions of the conformance verbs are used in this document:

- **SHALL/MUST** – Required/Mandatory
- **SHOULD** – Best Practice/Recommendation
- **MAY** – Acceptable/Permitted

The tables that follow contain column headings named: 1) "Requirement," which generally contains a high-level requirement statement; and 2) "Guidelines," which contains additional instructions or detail about the high-level requirement. The text in both columns is considered requirement statements.

2.1 Contextual Launch

The Contextual Launch Service is a framework which allows for a standardized method of adding more functionality within an EMR Offering. As the list of supported context-sensitive EHR Services expand, those services may be easily added through configurations, reducing development time to enable these EHR services. The list of EHR Services

OMD #	REQUIREMENT	GUIDELINES	M/O	STATUS
CM01.01	The EMR Offering MUST have EHR Contextual Launch Service functionality to configure and launch the list of EHR services that support the Contextual Launch Service	The EMR Offering MUST have an EMR Contextual Launch functionality that can leverage supported provincial EHR services from where the EMR user can display the list of available EHR services and launch them. The EMR Offering MUST have the functionality to add, update and remove multiple EHR services from the EMR Contextual Launch. The EMR Contextual Launch MUST have the functionality to configure and launch one or more EHR services that support the Refer to the "EMR EHR Connectivity - 04 - Context Management - Contextual Launch Service Configurations" document within this Specification for the list of supported EHR Services and their specific configurations. **Note**: An EMR Contextual Launch List is a common location within the EMR Offering's user interface that lists all the supported provincial EHR services that have been implemented within the EMR Offering. It allows the EMR user to view this list and launch any of the listed EHR services from this list.	M	N

OMD #	REQUIREMENT	GUIDELINES	M/O	STATUS
		Note: Refer to the Types of EHR Services section for more details about what parameters to store or how to retrieve them, depending on the type of EHR service.		
CM01.02	The EMR Offering MUST retrieve the CMS endpoint value from the OAuth2 token request return to interact with CMS.	The EMR Offering MUST extract and use the CMS endpoint value needed to provide context data. It is not acceptable to hard code the CMS endpoint value in the EMR Offering. The CMS key – used to retrieve the CMS endpoint value – is found in the toolbar parameter in the OAuth2 token request return. Refer to the ONE Access Viewlet Framework document for more information on how to identify the appropriate key and how to retrieve the CMS endpoint value. **Note**: The toolbar parameter contains additional parameters for other purposes. Refer to the "hub.url" in the "ONE Access Viewlet Framework" document for more information on how to retrieve CMS endpoint value(s).	M	U

2.2 Context Data Submission

The following EMR requirements apply to functionality specific to context data submission to the CMS.

OMD #	REQUIREMENT	GUIDELINES	M/O	STATUS
CM02.01	The EMR Offering MUST submit all required context data to the CMS to set the context for an EHR Service or Viewlet.	The EMR Offering MUST submit the following context data required by an EHR service or Viewlet when setting the context. <u>Context Data Elements Required</u> a) Health Information Custodian (HIC) Organization b) Location (only if it is different from the organization address) c) Practitioner d) Patient (At a minimum: Identifier, given & family name, gender, DOB) Patient context data MUST only be sent immediately prior to launching the context-enabled EHR service (to ensure the intended patient is in context). The EMR Offering MUST support the ability to send all parameters that the respective EHR service supports. Refer to the "Profiles and Transactions section" in the "Ontario Context Management HL7 FHIR Implementation Guide" and the "ONE Access Viewlet Framework" document for more details on each context data element. **Note:** The elements defined above are set at different times in the workflow. See subsequent requirements for when to set the context for each data element.	M	U

OMD #	REQUIREMENT	GUIDELINES	M/O	STATUS
CM02.02	The EMR Offering MUST submit context data to the CMS when an EMR user authenticates using their Federated Identity credentials or launches a Context-Aware EHR Service.	The EMR Offering MUST submit the following context data: a) Organization (based on selected UAO value) b) Location (only if it is different from the organization address) c) Practitioner Refer to the "FHIRcast Event Catalog" in the "Ontario Context Management HL7 FHIR Implementation Guide" and the "ONE Access Viewlet Framework Developer Guide" document for more details on each context data element.	M	U
CM02.03	The EMR Offering MUST only submit the patient context data to the CMS when a user is launching a Context-Aware EHR Service.	The ability for an EMR Offering to submit the patient context MUST be restricted to a screen or workflow that explicitly references an individual patient. The EMR Offering MUST send the patient context data to the CMS only when a user is launching a Context-Aware EHR Service. Refer to the "Profiles and Transactions" section in the "Ontario Context Management HL7 FHIR Implementation Guide" for more details on the patient context data element. **Note**: It is not acceptable to launch a Context-Aware EHR Service from any module/screen within an EMR Offering that references more than one specific patient, or where one specific patient cannot be identified.	M	P

2.3 Context-Aware EHR Service

The following EMR requirements apply to functionality specific to interaction context-aware EHR Services.

OMD #	REQUIREMENT	GUIDELINES	M/O	STATUS
CM03.01	The EMR Offering MUST provide context data when interacting with any EHR Service that is Context-Aware.	It is not acceptable for the EMR Offering to not provide context to an EHR Service that is Context-Aware. Refer to the "ONE Access Viewlet Framework" document for more information on how to provide context data to a Context-Aware EHR Service.	M	P

2.4 Context Sharing Parameters

The following EMR requirements apply to functionality specific to context-sharing parameters to the CMS.

OMD #	REQUIREMENT	GUIDELINES	M/O	STATUS
CM04.01	The EMR Offering MUST ensure that the CMS unique identifier (hub.topic) is generated before setting the context.	Refer to the "createhub.topic" event in the "Login" section in the "ONE Access Viewlet Framework" document for more information on the CMS unique identifier. The hub.topic parameter is auto-generated by CMS at the time of login with the trusted external IDP Credentials. Refer to the "createHub Topic" transaction in the Ontario Context Management System HL7 FHIR Implementation Guide for more information on the hub.topic.	M	U

2.5 Context Synchronization

All timeouts for the context management service are defined by the OAG. The following EMR requirements apply to functionality specific to context synchronization to the CMS.

OMD #	REQUIREMENT	GUIDELINES	M/O	STATUS
CM05.01	The EMR Offering MUST wait for a response after setting the context before launching a context-aware EHR Service.	After setting the context, the EMR Offering MUST wait for an acknowledgment to be returned from the One Access Gateway. Where no acknowledgment was sent back, the EMR Offering MUST re-attempt to set the context again. The EMR Offering MUST NOT allow an infinite number of automatic re-attempts to set context. Where a finite number of automatic attempts have failed, the EMR Offering MUST notify the user of the failure. If the attempts fail. The EMR Offering MUST NOT continue with automatic re-attempts. The EMR Offering MUST have the functionality to allow the user to trigger a re-attempt for the EMR Offering to set context. **Note**: If the EMR Offering does not wait for an acknowledgment, it will be unclear whether the context available to the EHR service is current or stale, leading to possibly using context for the wrong data (e.g., patient).	M	U

2.6 Notifications for Context-Aware EHR Service

Launching an EHR Service in context can cause adverse or unintended behaviour when multiple sessions or windows are open or remain open where multiple contexts (e.g., multiple patient contexts) can confuse, resulting in a possible patient safety concern. EMR Offering requirements in this section help to reduce or mitigate some of these situations to provide context for a single session in a single window.

OMD #	REQUIREMENT	GUIDELINES	M/O	STATUS
CM06.01	The EMR Offering MUST notify the user in situations where subsequent Context-Aware EHR Service or Viewlet browser windows may be simultaneously opened.	Having multiple windows open can result in inadvertently referencing unintended patient information. In such scenarios or potential scenarios, the user MUST be informed of this potential risk. It is suggested to implement controls to prevent having multiple browser windows open. Where such controls exist that prevent such potential risks, or for scenarios where there is no risk of having multiple EHR Service windows open, then it is not required to inform the user.	M	P
CM06.02	The user MUST have the option to disable and re-enable functionality that notifies a user when multiple browsers may be opened.	Only where an EMR Offering maintains functionality to inform the user when multiple EHR browsers may be opened, there MUST be a configuration to allow a user to disable or re-enable such messages. The initial state MUST be set to enabled and changes to this configuration by the user MUST be logged by the EMR Offering. If controls exist within the EMR Offering that prevent having multiple browser windows open, then it is not required to implement such configuration and logging.	M	P
CM06.03	The EMR Offering MUST clear the patient context data in the CMS when a user closes a Context-Aware EHR Service or Viewlet where possible.	When a user closes a Context-Aware EHR Service or Viewlet, The EMR Offering MUST clear the patient context data in the CMS where possible.	M	U

OMD #	REQUIREMENT	GUIDELINES	M/O	STATUS
		Refer to the "Profiles and Transactions" section in the "Ontario Context Management HL7 FHIR Implementation Guide" for more details on the patient context data. **Note**: Leaving patient context data set in the CMS after a user has closed a Context-Aware EHR Service or Viewlet may lead to a user viewing the wrong patient information when subsequent Context-Aware EHR Services or Viewlets are opened.		

2.7 Auditing and Logging

EMR systems log various information and interactions and may contain PHI. As a result, consideration should be taken to log only what is necessary to avoid unintentionally saving or providing access to logged PHI and should be regarded with the same sensitivities as data containing PHI. The following EMR requirements apply to functionality specific to logging and auditing for the CMS and are supplementary to the requirements identified in the Primary Care Baseline Specification.

OMD #	REQUIREMENT	GUIDELINES	M/O	STATUS
CM07.01	The EMR Offering MUST log all interactions when attempting to set the context.	At a minimum, logs MUST include: a) The name of the Context-Aware EHR Service b) The action or command attempted c) The date and time the interaction occurred d) The initiating user e) The CMS unique identifier f) The status (e.g., success or failure) g) Any warning or error messages received from a Context-Aware EHR Service h) Any warning or error messages provided by the EMR Offering Logs MUST include both successful and failed interactions. **Note**: When attempting to set the context, the EMR interacts with the Context Management System (CMS) which is the system providing any return code.	M	P

2.8 Error Management

In general, any error, warning, or information message provided to a user SHOULD be understandable by the EMR. This MAY be via a message to the user, or via an error code as long as reference material is provided to interpret those codes.

OMD #	REQUIREMENT	GUIDELINES	M/O	STATUS
CM08.01	The EMR Offering MUST inform the user if mandatory context data is missing.	If a user attempts to launch a Context-Aware EHR Service or Viewlet that has missing context data, the EMR Offering MUST inform the user of: a) The missing required data b) The failure to launch the Context-Aware EHR Service. The EMR Offering MUST NOT submit the patient context and NOT launch a Context-Aware EHR Service in cases where required data is missing.	M	P
CM08.02	The EMR Offering MUST inform the user if-any context submission fails.	If any context data has been validated and submitted, but no successful response is received (i.e., either a failed response is received, or a non-response) within the defined Context Response Wait Time period, the EMR Offering MUST inform the user of the failure. There SHOULD be mechanisms within the EMR Offering to re-try such failures, where possible. Actions MAY include (but are not restricted to): a) Automatic retries for a finite number of attempts for a non-response. Where the attempt fails, the EMR Offering MUST NOT continue to connect to the EHR Service. b) Providing a mechanism for the user to manually initiate a retry for a non-response.	M	P