

CDX Release Notes, Autumn 2017

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CDX – Release Notes

1.0 Summary

This version of the CDX system is providing two new, optional features that will be very useful for clinics that use the CDX system to send EMR to EMR documents. The first is an enhancement to the Clinic-Provider Registry Queries that we are calling “Location Capability”, and the second is a new query service that we are calling “Distribution Status”.

1.1 CDX Clinic-Provider Registry Queries: Location Capability

The CDX system’s Clinic-Provider Registry Queries were enhanced to send back the clinic(s)’ content templates. To note, v2 CIX and POI content templates are not returned; only v3 CDA templates are returned.

Templates are what the CDX system uses to activate messaging for a clinic. They follow HL7 standards. There are fifteen v3 CDA templates such as ‘Lab Report Template’, ‘E2E Generic Unstructured Referral’, and ‘History and Physical Note’; see the Technical Details section for details on all fifteen templates.

How this affects you:

Changes are optional and should not affect EMR vendor’s current functionality. This enhancement supports current and future multi-directional messaging by informing the physician’s EMR what content the destination clinic location can accept. The EMR can then prevent a physician from sending content to a location that does not accept it. For example, clinic A would like to send a “History and Physical Note” to clinic B:

- a. If destination clinic B has the History and Physical Note template active, the EMR system knows it may send it.
- b. If destination clinic B *does not* have the History and Physical template active, the EMR system would not send it.

Additionally, there is a slight change in current functionality whereby the CDX system may return a clinic when previously it did not. The Technical Details section gives a thorough explanation.

1.2 Distribution Status

This release of CDX adds an important piece to EMR to EMR communications. The sender of a document can now track the document’s status in the CDX system, and the sender can know when a document has been delivered to the recipient clinic(s). All information about the intended recipient clinics and providers will be returned. This new feature also allows a sender to know when something unexpected happens, so they can call the intended recipient or the CDX support team to troubleshoot.

How this affects you:

Any EMRs wishing to use this feature need to implement a new query, which is very similar to the query used to retrieve a list of documents for downloading. The query uses the Document ID, assigned at the time the document is created by the EMR, to retrieve the document’s status. The EMR needs to be able to parse the response and present the response to the sender.

2.0 EMR Vendor / CDX Team Next Steps

A test system, with the Location Capability and Distribution Status enhancements, is running at:

<https://servicesdev.bccdx.ca/>

Location Capability is an enhancement to existing services, while Distribution Status is a new service. Please see Section 4.2 for the URL of the new Distribution Status service.

The CDX team is ready to help EMR vendors, who wish to implement these features, in any way that they can.

3.0 Technical Details

3.1 CDX Clinic-Provider Registry Queries: Location Capability

The CDX system’s Clinic-Provider Registry Queries were enhanced to send back the clinic location’s content templates. To note, v2 CIX and POI content templates are not returned; only v3 CDA templates are returned.

Templates are what the CDX system uses to activate messaging for a clinic. They follow HL7 standards. There are fifteen v3 CDA templates:

- The template(s) must be active for corresponding messages to queue-up for the clinic. Active templates will be sent back with the Clinic-Provider Registry Query.
- 0 templates active means no messages will queue-up for the clinic. No EMR-to-EMR messages would flow through for example.
- “POI” templates are Interior’s v2 messages. “CIX” are Northern’s v2 messages.
- A clinic may, for example, have Lab and Rad messaging active using v2 CIX templates and transcription messaging active using v3 CDA templates. This is how most clinics in the Northern Health Authority area are set up.
- E2E consults flow through CDX using the “E2E Unstructured Document” template.
- E2E referrals flow through CDX using the “E2E Generic Unstructured Referral” template.

Following is the complete list of the CDX system’s HL7 v3 CDA templates:

Template OID	Template Name
2.16.840.1.113883.3.51.60.2.7	Admit Notification CDA Template (ADT, currently AIHS is not consuming)
2.16.840.1.113883.3.51.60.2.2	Anatomic Pathology Report Template
2.16.840.1.113883.10.20.4	Consultation Note
2.16.840.1.113883.3.51.60.2.5	Diagnostic Imaging Report Template
2.16.840.1.113883.3.51.60.2.6	Discharge Notification CDA Template (ADT, currently AIHS is not consuming)
2.16.840.1.113883.3.51.60.2.4	Discharge Summary Template
2.16.840.1.113883.3.1818.10.1.2	E2E Generic Episodic Document
2.16.840.1.113883.3.1818.10.1.5	E2E Generic Unstructured Referral
2.16.840.1.113883.3.1818.10.1.4	E2E Unstructured Document (e.g. consults)
2.16.840.1.113883.10.20.2	History and Physical Note
2.16.840.1.113883.3.51.60.2.1	Lab Report Template
2.16.840.1.113883.10.20.7	Operative Note
2.16.840.1.113883.3.51.60.2.3	Procedure Note Template
2.16.840.1.113883.10.20.21	Progress Note
2.16.840.1.113883.10.20.19	Unstructured Report Template

Technically, the CDX response to a Clinic-Provider Registry Query will be the same, but now there is a new definition structure inside the registrationEvent, as a peer to the statusCode, subject1, and custodian structures. This structure will contain all of the document types (“templates”) that the location is able to receive in a list inside an actDefinition structure. Each document type that the location can consume will be listed as an **id** element, with **root** set to the CDX Document Template OID (2.16.840.1.113883.3.277.100.40.1), **extension** set to the OID of the document type, and **assigningAuthorityName** set to the name of the document type. The document type that the sender is attempting to send needs to be listed here in order for the document to be delivered by CDX. If the document type isn’t listed for the intended recipient, the sender should contact the receiver and/or the CDX team for more information.

Example of query response code showing the two level 1 E2E document types returned:

```
<definition typeCode="INST">
  <templateId root="2.16.840.1.113883.3.277.100.40" assigningAuthorityName="Document Template OID">
    </templateId>
    <actDefinition classCode="INFO" moodCode="DEF">
      <id root="2.16.840.1.113883.3.277.100.40.1" extension="2.16.840.1.113883.3.1818.10.1.5"
assigningAuthorityName="E2E Generic Unstructured Referral">
        </id>
        <id root="2.16.840.1.113883.3.277.100.40.1" extension="2.16.840.1.113883.3.1818.10.1.4"
assigningAuthorityName="E2E Unstructured Document">
          </id>
          <code nullFlavor="UNK">
            </code>
          </actDefinition>
        </definition>
      </definition>
```

Location Capability Test Results:

It is important to note, there is a slight change in current functionality whereby the CDX system, when sent a provider query, may return a clinic but subsequent v3 CDA messages such as 'E2E Generic Unstructured Referral' will not queue for the clinic. See Note#1 and Note#2 in the Test Results tables below.

Provider Query - Current Functionality:

Configuration of Provider in the CDX System:	Testing Results:		
	Does query return the provider?	Does query return the clinic?	Does query return the content templates?
1. Provider subscribed to 0 clinics	Yes	No	No
2. Provider subscribed to 1 clinic with 0 templates active.	Yes	No	No
3. Provider subscribed to clinic with POI template	Yes	No	No
4. Provider subscribed to clinic with CDA template	Yes	Yes	No
5. Provider subscribed to clinic with both CDA and POI templates	Yes	Yes	No

Provider Query – Enhancement:

Configuration of Provider in the CDX System:	Testing Results:		
	Does query return the provider?	Does query return the clinic?	Does query return the content templates?
1. Provider subscribed to 0 clinics	Yes	No	No
2. Provider subscribed to 1 clinic with 0 templates active.	Yes	Yes <i>*Note#1</i>	no
3. Provider subscribed to clinic with POI template	Yes	No	No
4. Provider subscribed to clinic with CDA template	Yes	Yes	Yes
5. Provider subscribed to clinic with both CDA and POI templates	Yes	Yes	Yes-CDA No – CIX/POI

***Note#1:** Please note change from current functionality. This situation should not occur, but a clinic with no templates listed should **not** be considered a valid recipient of CDA documents.

Clinic Query - Current functionality:

Configuration of Clinic in the CDX System:	Testing Results:		
	Does query return the provider?	Does query return the clinic?	Does query return the content templates?
1. Inactive clinic, 0 providers, 0 templates	No	No	No
2. Active clinic with 0 providers, 0 templates	No	No	No
3. Clinic with 0 providers, 1 CDA template	No	Yes	No
4. Clinic with 0 providers, 1 POI template	No	No	No
5. Clinic with 0 providers, both CDA and POI template	No	Yes	No
6. Clinic with 1 providers, 0 templates	No	No	No
7. Clinic with 1 providers, 1 CDA template	Yes	Yes	No
8. Clinic with 1 providers, 1 POI template	No	No	No
9. Clinic with 1 providers, both CDA and POI template	Yes	Yes	No
10. Clinic with many providers, both CDA and POI templates	Yes	Yes	No

Clinic Query – Enhancement:

Configuration of Clinic in the CDX System:	Testing Results:		
	Does query return the provider?	Does query return the clinic?	Does query return the content templates?
1. Inactive clinic, 0 providers, 0 templates	No	No	No
2. Active clinic with 0 providers, 0 templates	No	Yes <i>*Note#2</i>	No
3. Clinic with 0 providers, 1 CDA template	No	Yes	Yes
4. Clinic with 0 providers, 1 POI template	No	No	No
5. Clinic with 0 providers, both CDA and POI template	No	Yes	Yes - CDA No - CIX/POI
6. Clinic with 1 providers, 0 templates	Yes <i>*Note#2</i>	Yes <i>*Note#2</i>	No
7. Clinic with 1 providers, 1 CDA template	Yes	Yes	Yes
8. Clinic with 1 providers, 1 POI template	No	No	No
9. Clinic with 1 providers, both CDA and POI template	Yes	Yes	Yes – CDA No - CIX/POI
10. Clinic with many providers, both CDA and POI templates	Yes	Yes	Yes - all CDA. No - CIX/POI

Note#2:* Please note change from current functionality. This situation should not occur, but a clinic with no templates listed should **not be considered a valid recipient of CDA documents.

3.2 Distribution Status

There's a new web service available from CDX, **DistributionStatus**. Here are the full new URLs:

Pre-Release Test: <https://servicesdev.bccdx.ca/DistributionStatusService/DistributionStatus.svc>

Post-Release Test: <https://servicestest.bccdx.ca/DistributionStatusService/DistributionStatus.svc>

Production: <https://services.bccdx.ca/DistributionStatusService/DistributionStatus.svc>

This new service is modeled very closely on the service that EMRs use to download a document.

QUERY

The query uses the HL7 v3 RCMR_IN000029UV01 schema, which is nearly identical to the RCMR_IN000031UV01 schema used for retrieving documents from the CDX system. There are only 3 changes; the schema name, the interaction ID, and the clinical document ID in the query parameters.

Schema Name:

```
<RCMR_IN000029UV01 ITSVersion="XML_1.0" xmlns="urn:hl7-org:v3">
```

Interaction ID:

```
<interactionId root="2.16.840.1.113883.1.6" extension="RCMR_IN000029UV01" />
```

Clinical Document ID:

```
<clinicalDocument.id>
  <value root="2.16.840.1.113883.3.277.100.3" extension="CDA Document ID" />
</clinicalDocument.id>
```

When retrieving documents from the CDX system, the client uses the "Message ID" provided by the CDX system to request the documents. When using the Distribution Status query, the client uses the "Document ID" that they generated when they created the report.

RESPONSE

The core of the response is an object representing the document, represented as:

```
controlActProcess/subject/target
```

This object has one or more child objects, represented as:

```
informationRecipient/intendedRecipient
```

Each `informationRecipient` contains a recipient provider (`informationRecipient`) and associated location (`receivedOrganization`), along with the distribution status, which is contained in a child `cdx:distributionStatus` object. This object contains the `cdx:statusCode` and the `cdx:statusTime` elements. The status time will be present for delivered and queued documents. It represents the date and time that a document was first delivered to the destination location, or the time that the document entered the queue to be downloaded by the destination location.

These are some possible values of the statusCode element. If the status is anything other than “100 DELIVERED,” especially if the status is one of the “400.n UNDELIVERABLE” codes, the sender should contact the CDX team to inquire about the document, and to initiate troubleshooting.

Status Code ID	Status Code Name	Description
100	DELIVERED	The destination location has downloaded the document from the CDX system.
200	QUEUED	The document is waiting in the CDX system to be downloaded.
400.2	UNDELIVERABLE: Location Unknown	The destination location could not be found in the CDX registry.
400.6	UNDELIVERABLE: Unknown provider specified	The recipient provider could not be found in the CDX registry.
400.3	UNDELIVERABLE: Location Not Active	The destination location is in the registry, but marked as inactive, which usually indicates a closed clinic.
400.4	UNDELIVERABLE: Location not capable of receipt	The destination clinic has been marked in the CDX system as NOT ABLE to receive this document type.
400.5	UNDELIVERABLE: Marked As Undeliverable	The document was intentionally marked as “Do Not Deliver” by an administrator, most likely as a result of a call from the sender.
400.1	UNDELIVERABLE: Content Purged	The document remained undeliverable for too long and was removed (“purged”) from the system. It cannot be fixed; it must be resent.
400.10	UNKNOWN	The status of the document is unknown. Call the CDX team for help.

EXAMPLE INFORMATION RECIPIENT OBJECT

A recipient, Provider X at Clinic B, has downloaded the document on 2017-08-23 12:58 PDT. This is what the informationRecipient object for this provider would look like.

```
<informationRecipient typeCode="PRCP">
  <intendedRecipient classCode="ASSIGNED">
    <id root="2.16.840.1.113883.3.277.1.61" extension="X.X" assigningAuthorityName="IHA Meditech ID">
    </id>
    <informationRecipient classCode="PSN" determinerCode="INSTANCE">
      <name>
        <family>X</family>
        <given>Xavier</given>
        <prefix>Provider</prefix>
      </name>
    </informationRecipient>
    <receivedOrganization classCode="NAT" determinerCode="INSTANCE">
      <id root="2.16.840.1.113883.3.277.100.2" extension="cdxB" assigningAuthorityName="CDX Clinic Registry ID">
      </id>
      <name>Clinic B</name>
      <addr>
        <delimiter>123 B Street</delimiter>
        <city>Nelson</city>
        <state>British Columbia</state>
        <country>Canada</country>
        <postalCode>2Y2 Y2Y</postalCode>
      </addr>
      <cdx:distributionStatus xmlns:cdx="urn:bccdx.ca">
        <cdx:statusCode code="100" displayName="DELIVERED">
        </cdx:statusCode>
        <cdx:statusTime value="201708231258-0700">
        </cdx:statusTime>
      </cdx:distributionStatus>
    </receivedOrganization>
  </intendedRecipient>
</informationRecipient>
```