Export

Patient Clinical Data

Medgen Data Export & Backup Utility

JULY 2023

BY MEDGEN DEVELOPERS

CONTENT

Purpose

To share a patient's clinical information with other providers, as well as with systems that store patient data, you can create a CCDA document through our **Medgen Backup Utility API**. Continuity of Care Document (CCD) which contains or references portions of the patient's summary information. After you have selected the clinical information you want to include, you can encrypt and save your patient data using the Consolidated Clinical Document Architecture (CCDA).

CCDA document consists of two components

- A human-readable part known as a narrative block, which can be displayed by a web browser.
- A machine-readable part like XML intended for automated data processing.

XML file (structured in CCDA) which allows for the import of patient information (as discrete data) in to an EHR system.

API Transparency Conditions

Confidential – Proprietary Information Property of Medgen EHR For Use By Authorized Company Clients Only.

NOTICE: This document contains information that is confidential and Property of Medgen Backup Utility API and is intended for use solely by its authorized clients.

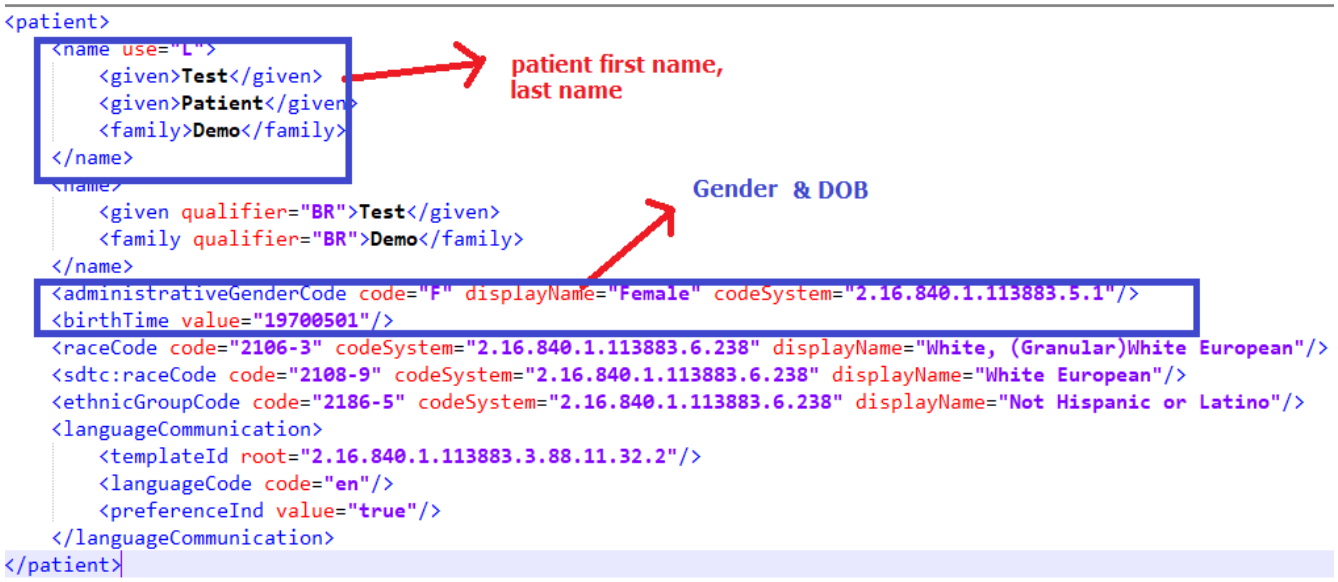
What is C-CDA?

Have you ever heard about the terms CDA and C-CDA in the healthcare industry? Clinical Data Architecture is a markup standard developed by Health Level 7 International. It defines the structure of medical records, including progress and discharge summaries.

CCDA is an **XML** based standard encoding document for easy data exchange. It's describes the syntax and provides a frame work specifying the full semantics of patient's clinical document. The first CCDA document was approved in 2000.

CDA is used across healthcare organizations, including clinics, hospitals, and regulatory authorities. It is a step to make that patient records can be read by any **EHR** systems

Below CCDA Example with Basic patient details in fig 1.




```
<patient>
    <name use="L">
        <given>Test</given>
        <given>Patient</given>
        <family>Demo</family>
    </name>
    <name>
        <given qualifier="BR">Test</given>
        <family qualifier="BR">Demo</family>
    </name>
    <administrativeGenderCode code="F" displayName="Female" codeSystem="2.16.840.1.113883.5.1"/>
    <birthTime value="19700501"/>
    <raceCode code="2106-3" codeSystem="2.16.840.1.113883.6.238" displayName="White, (Granular)White European"/>
    <sdtc:raceCode code="2108-9" codeSystem="2.16.840.1.113883.6.238" displayName="White European"/>
    <ethnicGroupCode code="2186-5" codeSystem="2.16.840.1.113883.6.238" displayName="Not Hispanic or Latino"/>
    <languageCommunication>
        <templateId root="2.16.840.1.113883.3.88.11.32.2"/>
        <languageCode code="en"/>
        <preferenceInd value="true"/>
    </languageCommunication>
</patient>
```

Figure 1

Why Medgen Backup Utility API?

Medgen Backup utility API generates CCDA document to exchange the patient data between two EMR systems. If client share a patient's clinical information with other providers, as well as with systems that store patient data, you can create a CCDA document through our **Medgen Backup Utility API.** We can download patient chart through EMR system by each patient. **Medgen Backup Utility API** helps to download bulk patient's CCDA documents with encrypt/decrypt facility. Along with the patient CCDA document, Can download the patient document in the ZIP format.

Installing 'Medgen Backup Utility.msi'

- Double click on the 'Medgen Backup utility.msi' which will take you through the installation process.
- Now the Installer wizards will popup. Click on the 'Next' button as shown in Fig.2

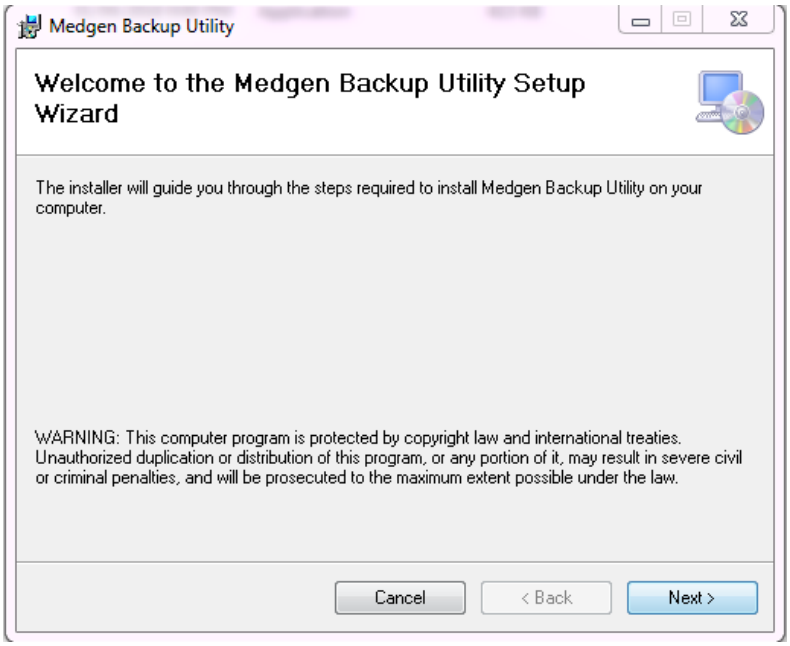


Figure 2

- Select the location where you want to install the application and click on the Next button.

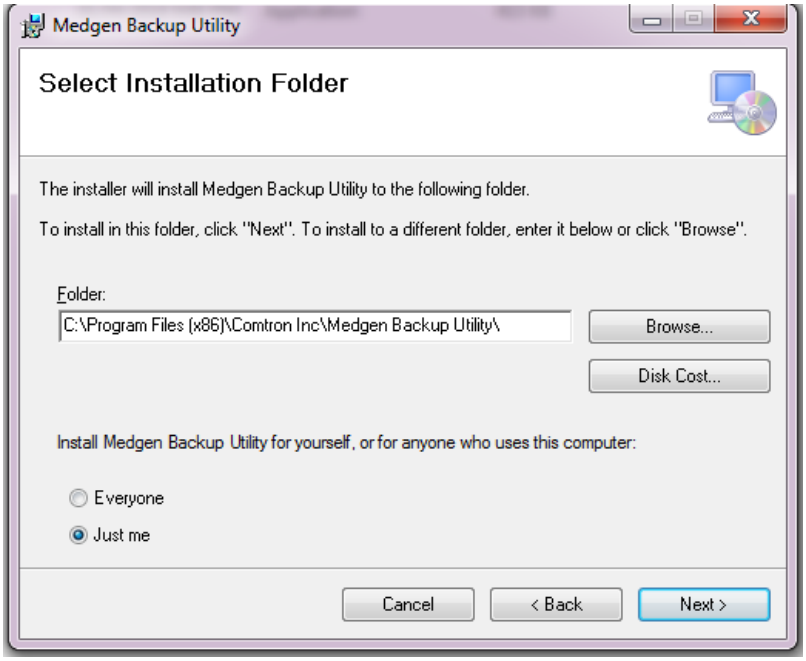


Figure 3

- Then click on the next button which will take you through the installation process.

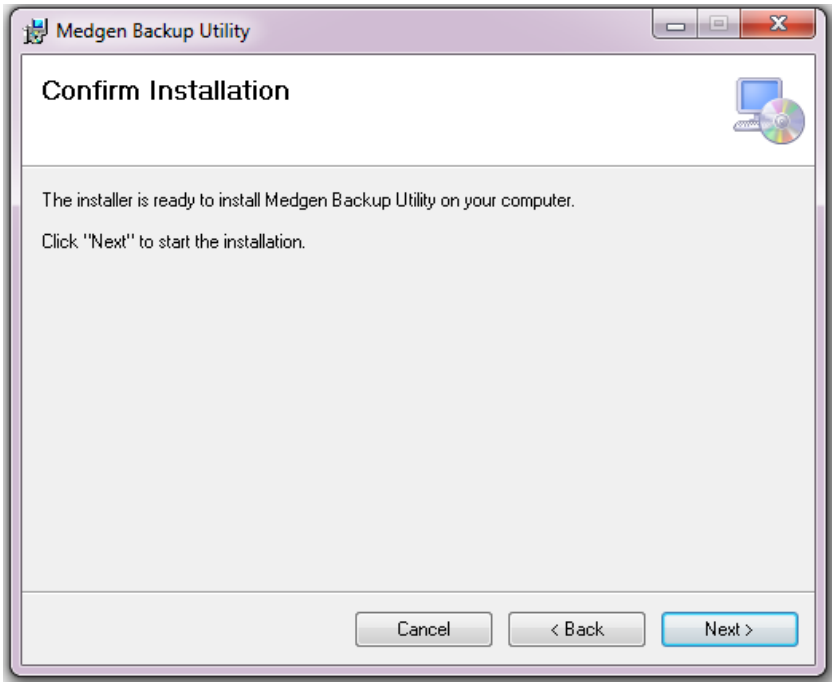


Figure 4

- Finally close the wizard to complete the installation

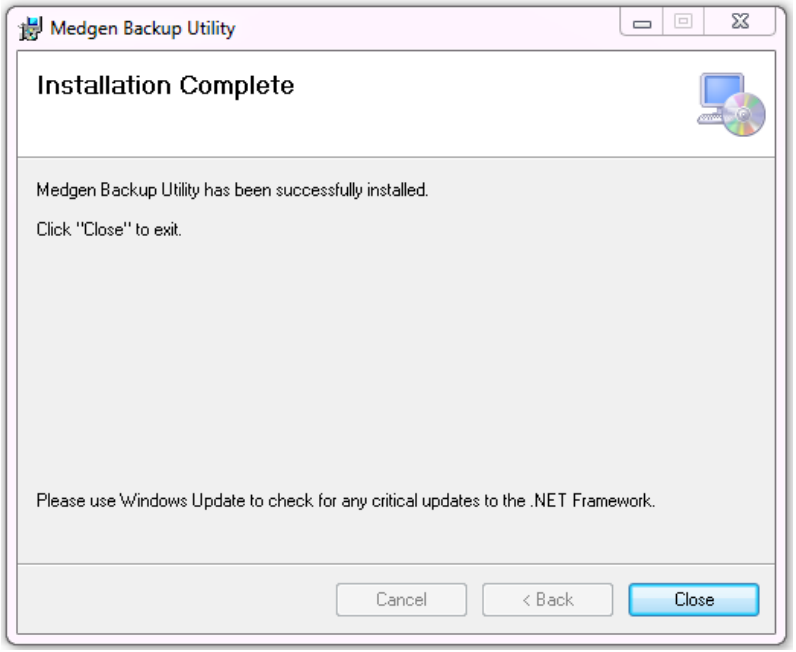


Figure 5

Setting Up Medgen Backup Utility

After installing the utility a folder with the name 'Medgen Backup Utility' will be created in the system(normally C drive 'C:\Program Files (x86)\Comtron Inc\Medgen Backup Utility'). Open the application 'MedBackup_Utility.exe' with Administrative permission and follow the

- If windows user does not have Administrator rights, the application will prompt with a message box.

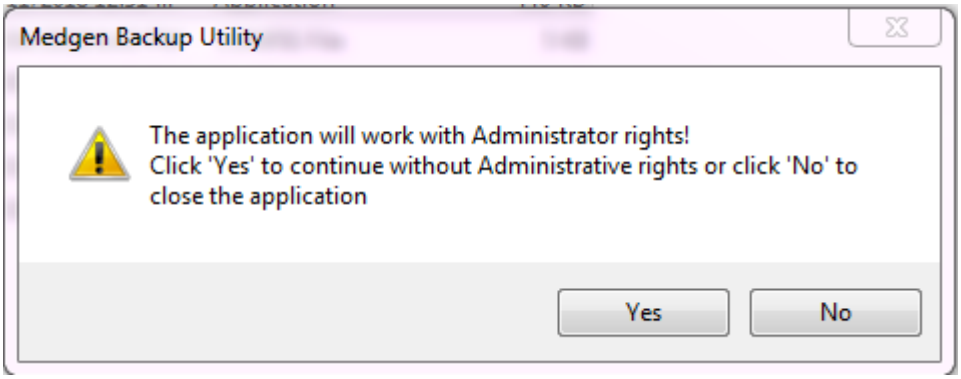


Figure 6

- Enter the Login credentials (Medgen login)

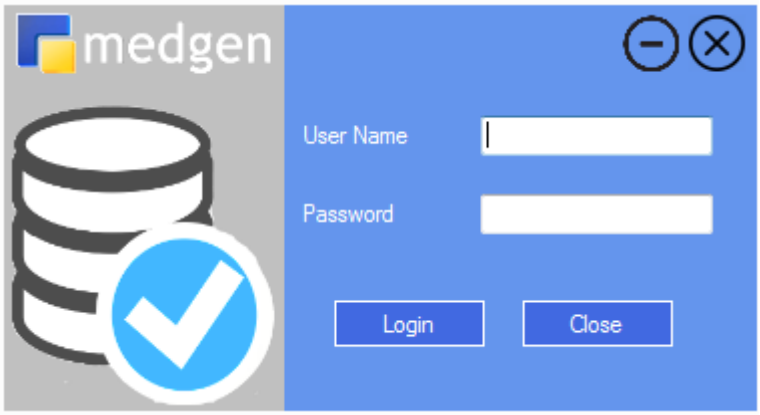


Figure 7

- On successful login you will be taken to the office selection screen. Select the desired location and click on select button.

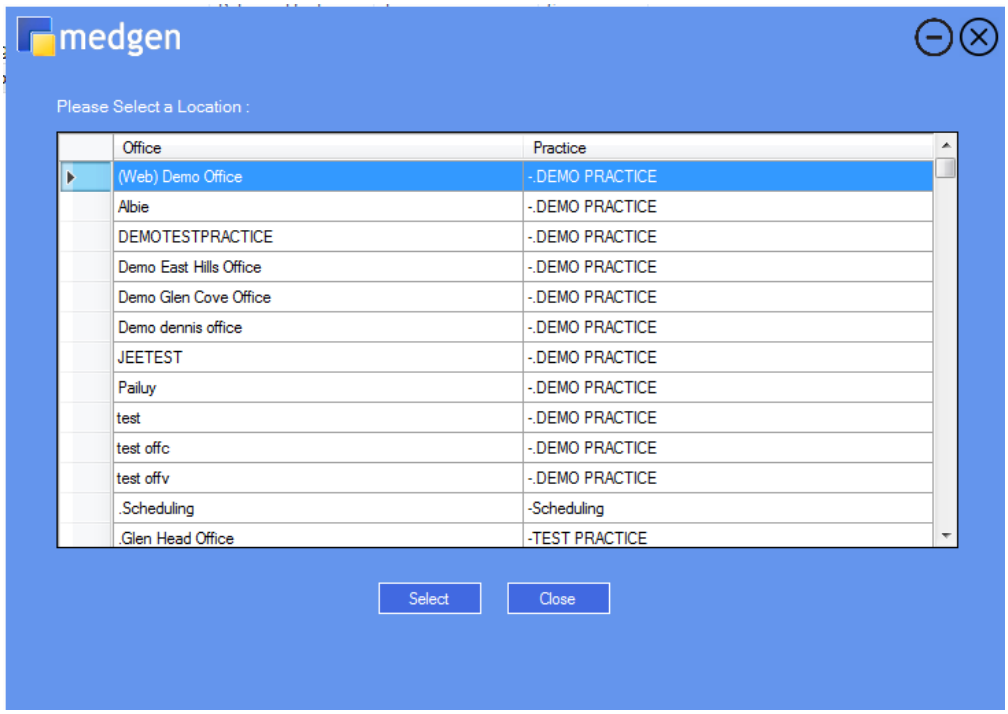


Figure 8

You will now be taken to the home screen of the application. It has two tabs:

- Backup
- Configuration

Backup:

It lists the patient list to be backed up based on the configuration.

Configuration:

Here you need to enter the criteria based on which you need to run the backup.

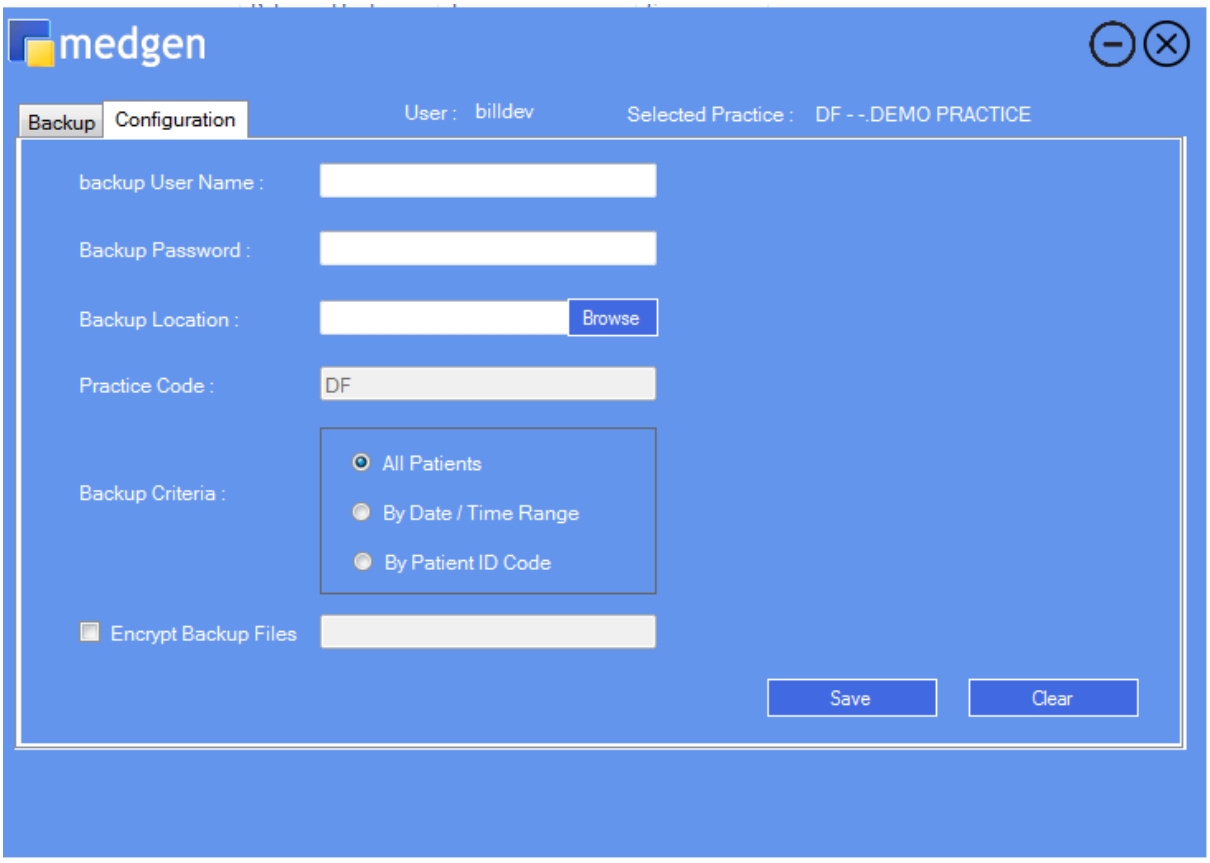


Figure 9

It has below fields:

1. Backup User Name, Backup Password: This is for auto backup feature, the user has to enter their Medgen username and password and based on these credentials the auto backup will take place.
2. Backup Location: The location where the backups should be saved
3. Practice Code: This will be automatically filled based on the office selected by the user in the beginning.
4. Backup Criteria, This can be done based on 3 criteria:

    - All Patients: all patients under the practice
    - By Date/Time Range:

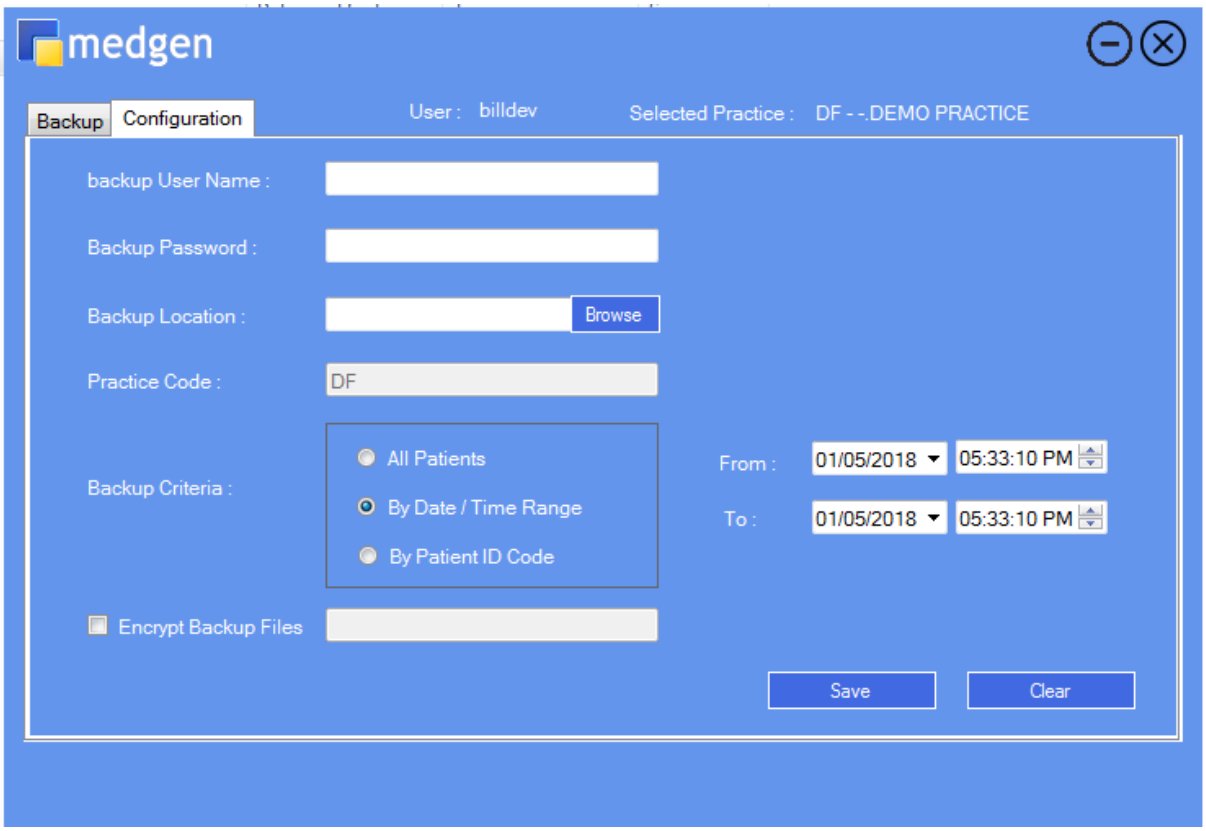


Figure 10

Based on the date range the backup will happen.

- By patient ID Code

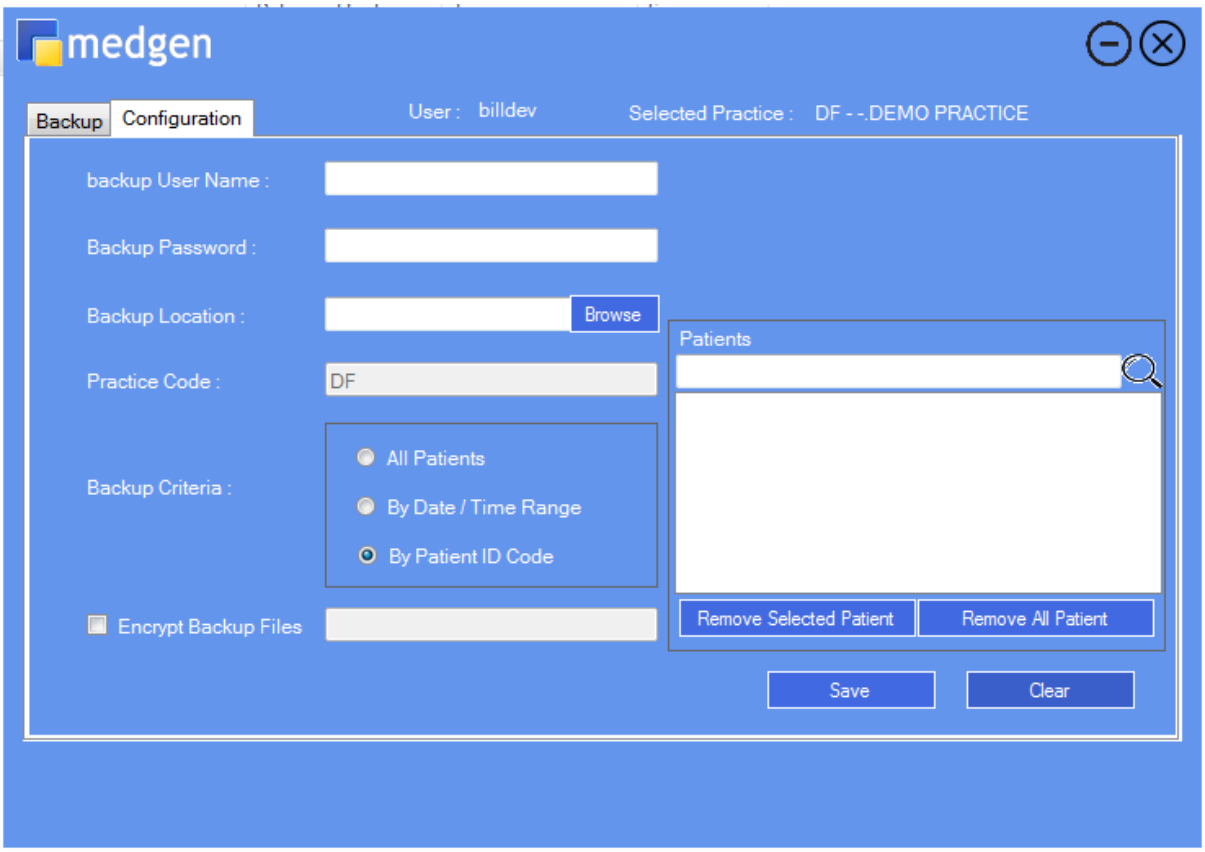


Figure 11

Here user can select multiple patients. And the backup will only happen for those patients.

5. Encrypt Backup Files: On checking this checkbox the textbox will be enabled where user can enter a key (any value) and based on this the backup file will be encrypted. If it is not checked then the files will not b encrypted.

On clicking on the save button the configuration will be saved. Once this is saved when the user logs in next time these details will be auto filled and can be viewed for this 'Configuration' tab.

- Now On clicking the ‘Backup’ tab the list of patients based on the configuration criteria will be listed.

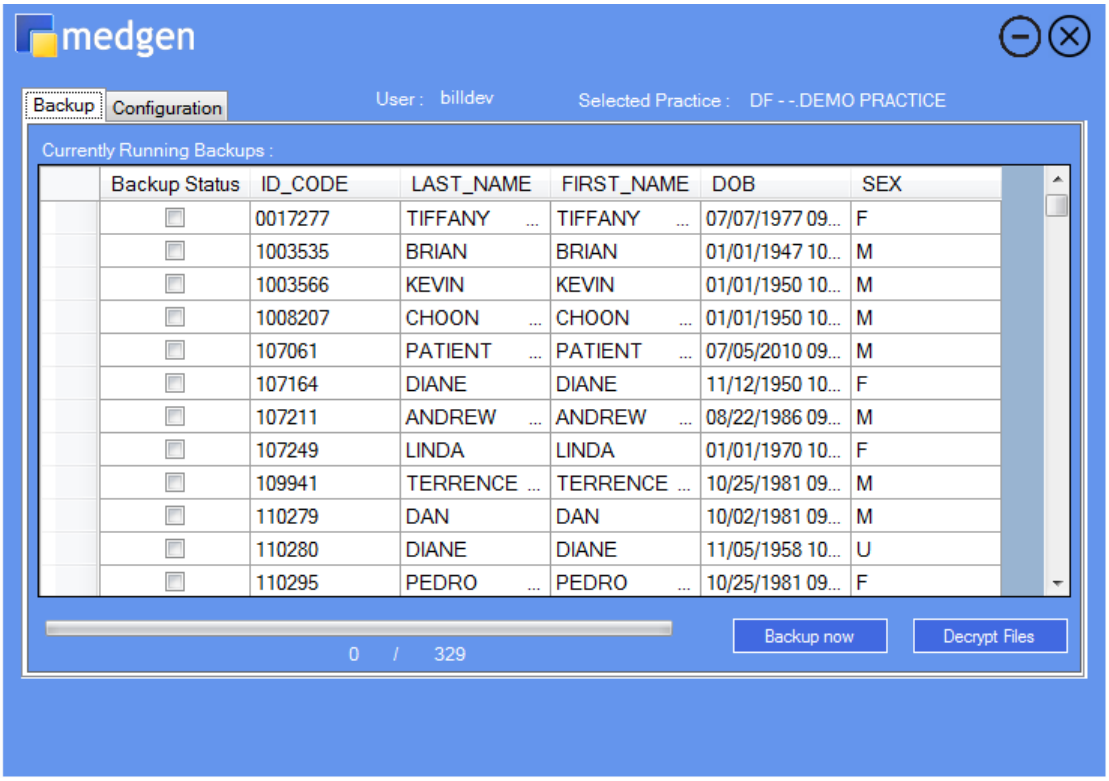
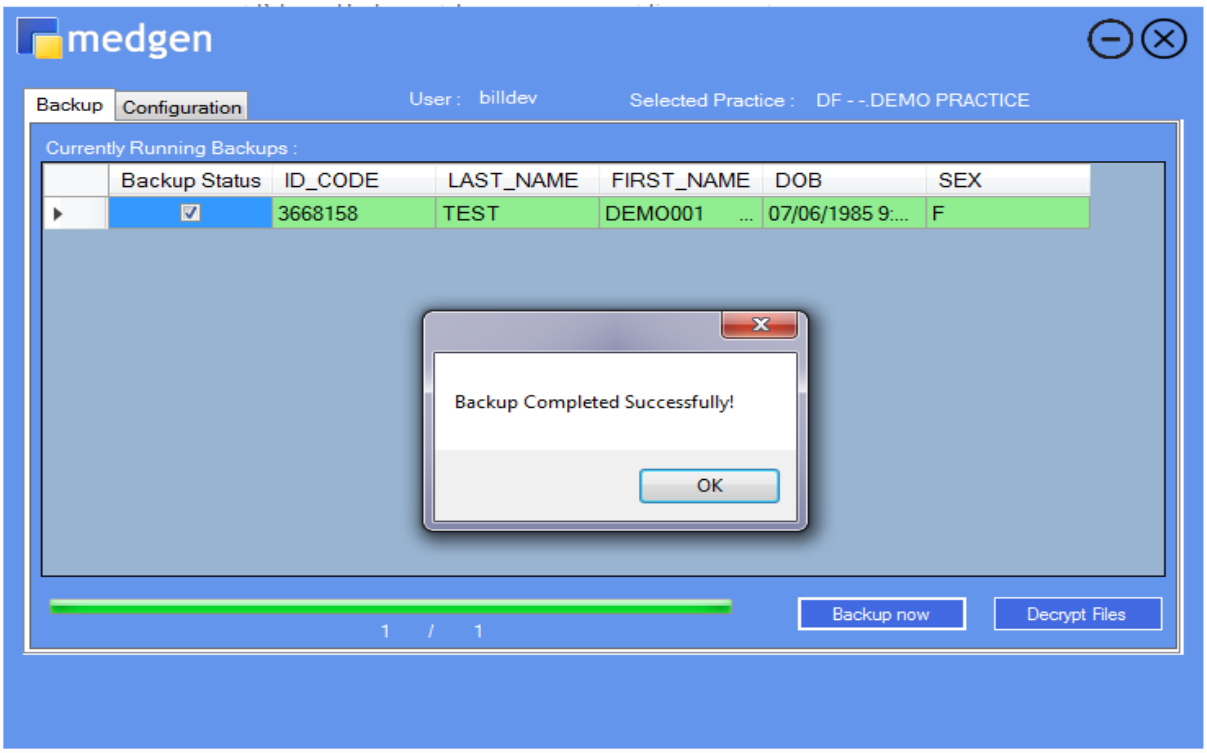


Figure 12

- Now On clicking the Backup Now button, it will start to do the backup if the backup of a patient is success it will be highlighted in Green or else in Red. The backup will be now available in the location which we have mentioned in the configuration.



- Decrypt File button will decrypt all the encrypted backed up files in the location where the backups are saved

Auto Backup

Auto backup will run with the help of Windows Task Scheduler. Please see the below steps to set it up:

- Open windows Task Scheduler and click on 'Create Task...'

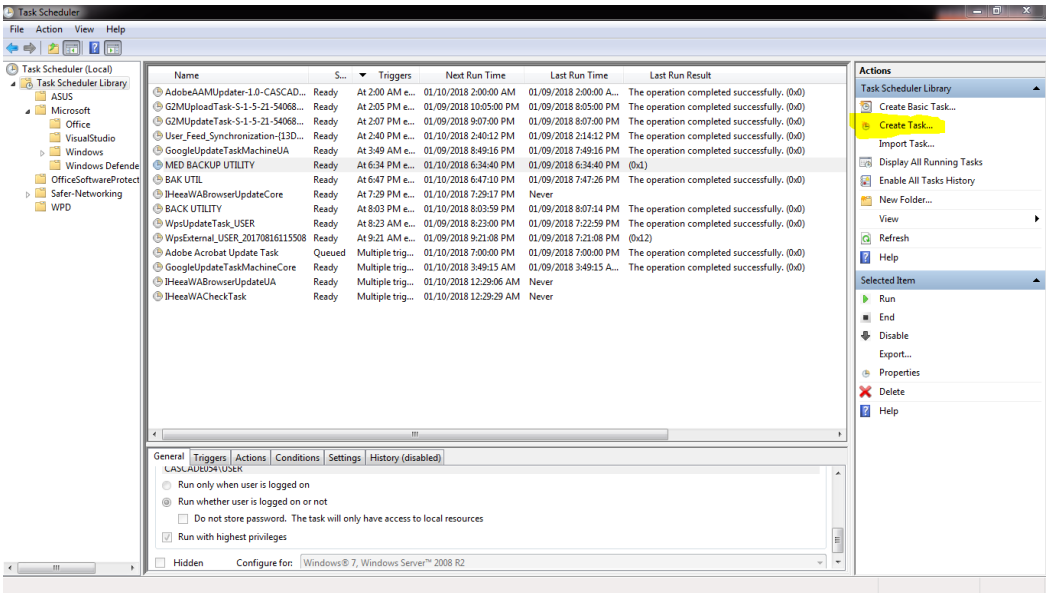


Figure 13

- General Tab: Give a name for the task and also enable the 'Run with highest privileges checkbox.

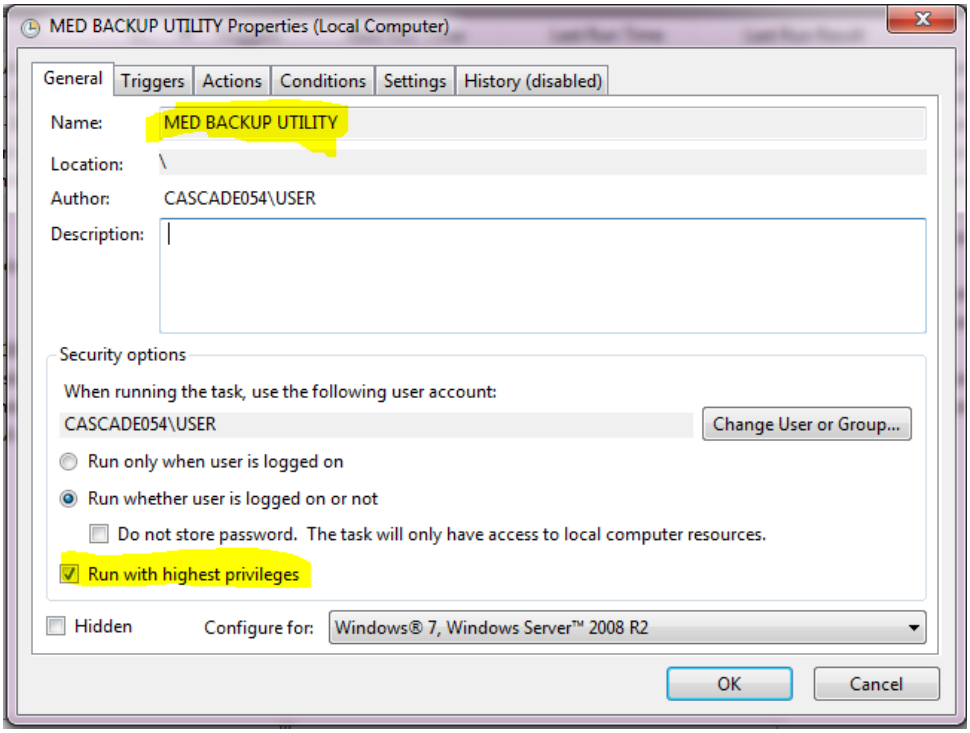


Figure 14

- Triggers Tab: Click On 'New' button and define how you want to run the backup utility. You should also select the start date and start time of the task and click on OK button.

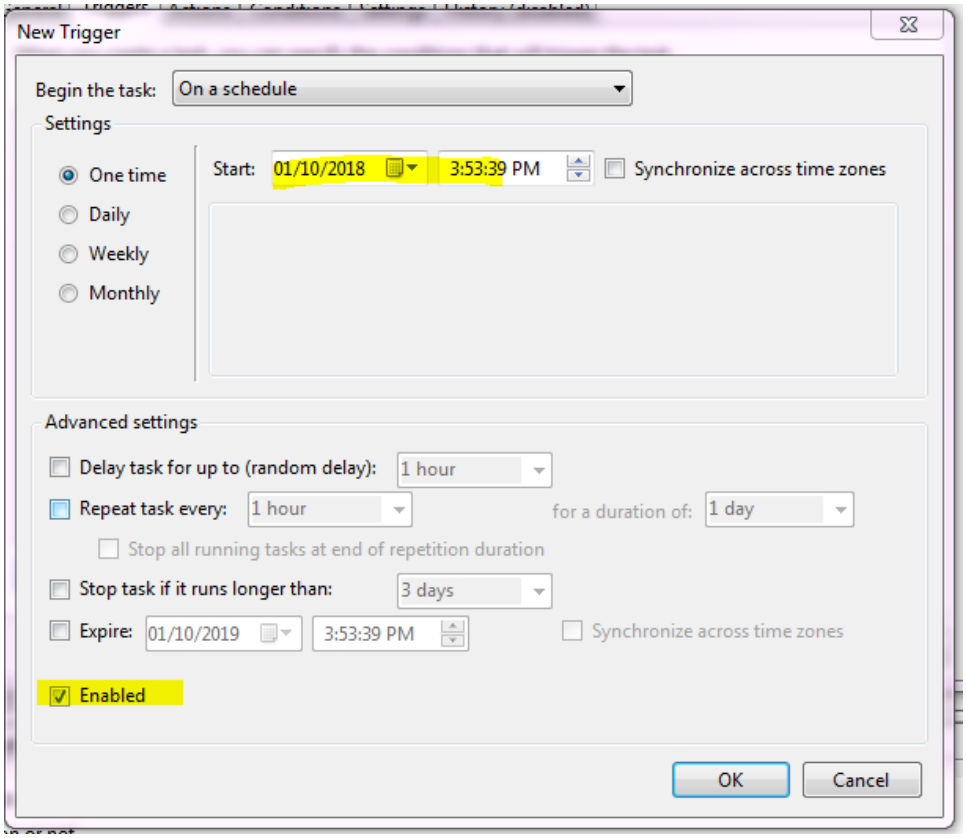


Figure 15

- Action Tab: Click on New button to add a new action.

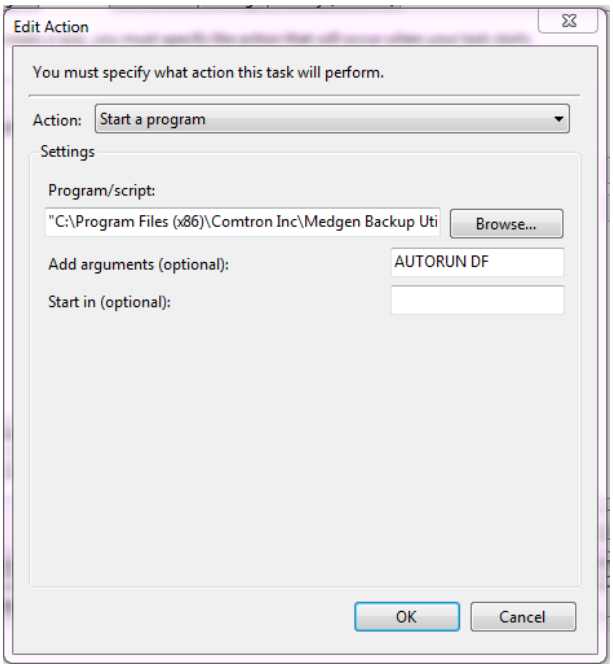


Figure 16

1. Action: select 'Start a Program'
2. Program/ Script: Select the MedBackup_Utility.exe from the installed path
3. Add arguments:

In the 'Add arguments' field enter code as below:

AUTORUN <PRACTICE CODE>

- AUTORUN: is the command required for the application to run in auto mode
- <PRACTICE CODE> : the practice name based on which the autobackup need to be done.

And click On OK.

- Finally click on the 'OK' button to save the task.

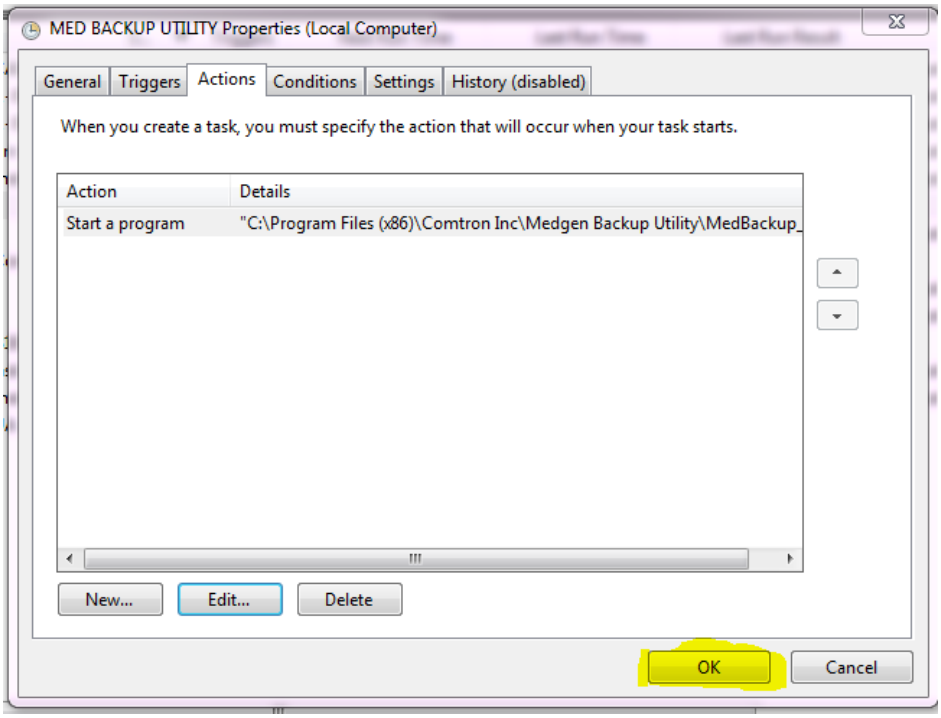


Figure 17

Now the task has been successfully created and the auto backup will work based on the schedule specified. For multiple practices you need to create multiple tasks with those 'PRACTICE CODE' in the Actions.

Scope

A CCDA document is an Extensible Markup Language (XML) document summarizing current and pertinent historical information about an individual patient's health care record at a given facility. Although not every document type contains every section, the current IHS implementation of the CCDA standard supports the following sections

- Allergy Intolerance
- CarePlan
- CareTeam
- Condition
- Device
- DiagnosticReport
- DocumentReference
- Encounter
- Goal
- Immunization
- Location
- Medication
- MedicationRequest
- Observation
- Organization
- Patient
- Practitioner
- Procedure
- Provenance
- Vital Signs

CDA Document Template:

Every CDA document with structured XML body must have at least header and one section. XML enables both human and machine readability.

The XML structure for a CDA document nests data in the following way:

- **Header**
- **Body**
  - **Sections**
    - **Narrative block**
    - **Entries**

Header:

The Header sets the context for the clinical document as a whole and:

- Enables clinical document exchange across and within institutions;
- Facilitates clinical document management
- Facilitates compilation of an individual patient's clinical documents into a electronic patient record.

Body:

The Body contains the clinical report and can contain an unstructured “blob” or structured content organized in one or more Sections.

Section:

Each Section contains one Narrative Block and zero to many coded Entries.

Narrative Block:

Narrative Blocks allow “human-readability” of a CDA document. Within a document section, the narrative block represents content to be rendered for viewing.

The Narrative Block has fixed mark-up, and must be populated by the document originator.

Entries:

Entries allow “machine readability”. It would be more common to extract the data elements form the **<entry>** section as each data has its own specific placement

Allergy Intolerance:

The **Allergy Intolerance** section describes the patient's medication allergies, reactions (adverse, idiosyncratic), anaphylaxis/anaphylactoid reactions to food items etc.

Required:

- Discharge Summary
- History and Physical
- Procedure Note
- Progress Note.

Optional:

- Allergy Concern Act

USCDI Data Class	Data elements included in the section
Allergies & intolerance	• Drug allergies (food and environmental allergies not included) • Reactions

CCDA for Allergies and Intolerances:

```
<section>
<templateId root="2.16.840.1.113883.10.20.22.2.6.1"/>
<templateId root="2.16.840.1.113883.10.20.22.2.6.1" extension="2015-08-01"/>
<code code="48765-2" codeSystem="2.16.840.1.113883.6.1"/>
<title>Allergies, Adverse Reactions, Alerts</title>
<text>
....
</text>
<entry typeCode="DRIV">
<act classCode="ACT" moodCode="EVN">
```

Allergies and Intolerances Section Overview

XPath	Value
Section	
templateId	
@root	2.16.840.1.113883.10.20.22.2 .6
@extension	2015-08-01
Code	
@code	48765-2
@codeSystem	urn:oid:2.16.840.1.113883.6.1
title	
text	
entry	
act	Allergy Concern Act (V3) (identifier **urn hl7ii:** 2.16.840.1.113883.1 0.20.22.4.30:2015-08-01

Specific Code Constraints:

Event	Code	Condition	Agent Code
propensity to allergy	416098002	Drug Allergy	DRUG
	414285001	Food allergy	FOOD
	419199007	Allergy reaction to substance	DRUG or FOOD or NON FOOD
Propensity to adverse reaction	419511003	Propensity to adverse reactions to drug (disorder)	DRUG
	247472004	allergy resource	FOOD
	418634005	Allergy reaction to substance	DRUG or FOOD or NON FOOD

There are various levels of allergies in the CCDA document in the below

- Timestamp
- AllergyType
- Allergy Coded
- AllergyStatus
- Allergy Reaction

Timestamp:

The below equates to the time the concern was authored in the patient's chart. This may frequently be an EHR timestamp. For below example concern was documented on May 10, 1980

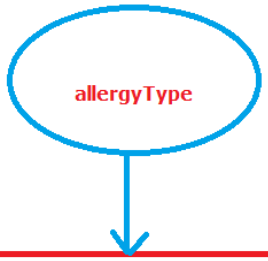
```
<entry typeCode="DRIV">
<act classCode="ACT" moodCode="EVN">
<templateId root="2.16.840.1.113883.10.20.22.4.30"/>
<templateId root="2.16.840.1.113883.10.20.22.4.30" extension="2015-08-01"/>
<id root="2.16.840.1.113883.3.640" extension="4892547"/>
<code code="48765-2" codeSystem="2.16.840.1.113883.6.1" displayName="Allergies, Adverse Reactions, Alerts"/>
<statusCode code="completed"/>
<effectiveTime>
<low value="19800510"/>
<high nullFlavor="UNK"/>
</effectiveTime>
<entryRelationship typeCode="SUBJ">
<observation classCode="OBS" moodCode="EVN">
<templateId root="2.16.840.1.113883.10.20.22.4.7"/>
<templateId root="2.16.840.1.113883.10.20.22.4.7" extension="2014-06-09"/>
<id root="2.16.840.1.113883.3.640" extension="4892548"/>
<code code="ASSERTION" codeSystem="2.16.840.1.113883.5.4"/>
<statusCode code="completed"/>
<effectiveTime>
<low value="19800510"/>
<high nullFlavor="UNK"/>
</effectiveTime>
```

onsetDate

AllergyType:

This below represents code was selected to negate any allergy. For no known drug allergies, code 416098002 would be more appropriate.

```
<entry typeCode="DRIV">
<act classCode="ACT" moodCode="EVN">
<templateId root="2.16.840.1.113883.10.20.22.4.30"/>
<templateId root="2.16.840.1.113883.10.20.22.4.30" extension="2015-08-01"/>
<id root="2.16.840.1.113883.3.640" extension="4892550"/>
<code code="48765-2" codeSystem="2.16.840.1.113883.6.1" displayName="Allergies, Adverse Reactions, Alerts"/>
<statusCode code="completed"/>
<effectiveTime>
<low value="19800510"/>
<high nullFlavor="UNK"/>
</effectiveTime>
<entryRelationship typeCode="SUBJ">
<observation classCode="OBS" moodCode="EVN">
<templateId root="2.16.840.1.113883.10.20.22.4.7"/>
<templateId root="2.16.840.1.113883.10.20.22.4.7" extension="2014-06-09"/>
<id root="2.16.840.1.113883.3.640" extension="4892551"/>
<code code="ASSERTION" codeSystem="2.16.840.1.113883.5.4"/>
<statusCode code="completed"/>
<effectiveTime>
<low value="19800510"/>
<high nullFlavor="UNK"/>
</effectiveTime>
<value xsi:type="CD" code="416098002" codeSystem="2.16.840.1.113883.6.96" displayName="Drug Allergy" codeSystemName="SNOMED CT">
<originalText>
<reference value="#adverse-event-type-8950011"/>
</originalText>
</value>
<author>
<templateId root="2.16.840.1.113883.10.20.22.4.119"/>
<time value="20171206"/>
<assignedAuthor>
<id extension="1597531011" root="2.16.840.1.113883.4.6"/>
```



AllergyCoded:

RxNorm is used to report specific drug allergies. Note to use SNOMED CT for drug classes. Best practice is to report drug allergies at ingredient level (e.g. penicillin) not at the administration level (e.g. 10mg tablet)

```
<templateId root="2.16.840.1.113883.10.20.22.4.119"/>
<time value="20171206"/>
<assignedAuthor>
<id extension="1597531011" root="2.16.840.1.113883.4.6"/>
<assignedPerson>
<name>
<given>Demo</given>
<family>Patient</family>
</name>
</assignedPerson>
</assignedAuthor>
</author>
<participant typeCode="CSM">
<participantRole classCode="MANU">
<playingEntity classCode="MMAT">
<code code="7980" displayName="PENICILLIN G POTASSIUM" codeSystem="2.16.840.1.113883.6.88" codeSystemName="RXNORM">
<originalText>
<reference value="#product-8950011"/>
</originalText>
</code>
```

Allergy Status:

This section describes to status of the allergy like active or inactive.

```
<entryRelationship typeCode="SUBJ" inversionInd="true">
<observation classCode="OBS" moodCode="EVN">
<templateId root="2.16.840.1.113883.10.20.22.4.28"/>
<code code="33999-4" displayName="Status" codeSystem="2.16.840.1.113883.6.1"/>
<statusCode code="completed"/>
<value xsi:type="CE" code="55561003" displayName="Active" codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED CT"/>
</observation>
</entryRelationship>
<entryRelationship typeCode="MFST" inversionInd="true">
<observation classCode="OBS" moodCode="EVN">
<templateId root="2.16.840.1.113883.10.20.22.4.9"/>
<id root="2.16.840.1.113883.3.640" extension="4892552"/>
<code nullFlavor="UNK"/>
<statusCode code="completed"/>
```

Allergy Reaction:

This specifies that the allergy reaction is related to a hives. The following constraints reflect limitations in the base CDA R2 specification.

```
<entryRelationship typeCode="MFST" inversionInd="true">
<observation classCode="OBS" moodCode="EVN">
<templateId root="2.16.840.1.113883.10.20.22.4.9"/>
<id root="2.16.840.1.113883.3.640" extension="4892552"/>
<code nullFlavor="UNK"/>
<statusCode code="completed"/>
<effectiveTime>
<low value="19800510"/>
</effectiveTime>
<value xsi:type="CD" code="247472004" displayName="HIVES" codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED CT"/>
</observation>
</entryRelationship>
</observation>
</entryRelationship>
```

CarePlan:

A **Care Plan** is a consensus-driven dynamic plan that represents a patient's and Care Team Members' prioritized concerns, goals, and planned interventions. It serves as a blueprint shared by all Care Team Members (including the patient, their caregivers and providers), to guide the patient's care. A Care Plan integrates multiple interventions proposed by multiple providers and disciplines for multiple conditions.

The CDA Care Plan represents an instance of this dynamic Care Plan at a point in time. The CDA document itself is NOT dynamic. Key differentiators between a Care Plan CDA and CCD (another "snapshot in time" document):

Required:

- Health Concerns
- Interventions

Optional:

- Goal
- Outcomes

USCDI Data Class	Data elements included in the section
CarePaln	• Code specifying whether the item is a goal or a plan of care • Goal or care plan text • Problem name for problem-based instructions

Sample CCDA for CarePlan:

```
<templateId root="2.16.840.1.113883.10.20.22.1.15"/>
<id root="db734647-fc99-424c-a864-7e3cda82e703"/>
<code code="52521-2" codeSystem="2.16.840.1.113883.6.1"/>
<title>Care Plan</title>
<effectiveTime value="201308201120-0800"/>
<confidentialityCode code="N" codeSystem="2.16.840.1.113883.5.25" displayName="normal" />
<languageCode code="en-US"/>
```

CarePlan Data elements section Overview

XPath	Value
Section	
templateId	
@root	2.16.840.1.113883.10.20.22.1 .15
@extension	2015-08-01
Code	
@code	urn:oid:2.16.840.1.113762.1.4 .1099.10 (Care Plan Document Type)
@codeSystem	urn:oid:2.16.840.1.113883.5.1 11 (HL7RoleCode) = 2.16.840.1.113883.5.111
section	Goals Section (identifier: urn:oid:2.16.840.1.113883.10. 20.22.2.60
text	
entry	
@typeCode	urn:oid:2.16.840.1.113883.1.1 1.11610 (x_ActRelationshipDocument)

Health Concerns:

The below describes the patient's general health using an HL7 defined SNOMED code subset. Examples include alive and well, chronically ill, in remission, general health poor, etc.

```
<entry>
<observation classCode="OBS" moodCode="EVN">
<templateId root="2.16.840.1.113883.10.20.22.4.5" extension="2014-06-09"/>
<templateId root="2.16.840.1.113883.10.20.22.4.5"/>
<id root="2.16.840.1.113883.3.640" extension="4892584"/>
<statusCode code="completed"/>
<value xsi:type="CD" code="161901003" codeSystem="2.16.840.1.113883.6.96" displayName="Chronically ill"/>
</observation>
</entry>
<entry>
```

Health concerns

Authenticator

The authenticator identifies a participant or participants who attest to the accuracy of the information in the document.

```
<authenticator>
 <time value="20130802" />
 <signatureCode code="S" />
 <sdtc:signatureText mediaType="text/xml"
representation="B64">omSJUEdmde9j44zmMiromSJUEdmde9j44zmMirdMDSsWdIJdksIJR3373jeu83
 6edjzMMIjdMDSsWdIJdksIJR3373jeu83MNYD83jmMdomSJUEdmde9j44zmMir ...
 MNYD83jmMdomSJUEdmde9j44zmMir6edjzMMIjdMDSsWdIJdksIJR3373jeu83
 4zmMir6edjzMMIjdMDSsWdIJdksIJR3373jeu83==</sdtc:signatureText>
 <assignedEntity>
 <id extension="996-756-495" root="2.16.840.1.113883.19.5" />
 <code code="ONESELF" displayName="Self" codeSystem="2.16.840.1.113883.5.111"
codeSystemName="HL7 Role code" />
 </assignedEntity>
</authenticator>
```

Care plan Review:

This participant represents the Care Plan review. If the date in the time element is in the past, then this review has already taken place. If the date in the time element is in the future, then this is the date of the next scheduled review. This example shows a Care Plan Review that has already taken place.

```
<participant typeCode="IND">
 <functionCode code="425268008" codeSystem="2.16.840.1.113883.6.96"
codeSystemName="SNOMED CT" displayName="Review of Care Plan" />
 <time value="20130801" />
 <associatedEntity classCode="ASSIGNED">
 <id root="20cf14fb-b65c-4c8c-a54d-b0cca834c18c" />
 </associatedEntity>
</participant>
```

CareTeam

The **Care Team** Section is used to share historical and current Care Team information. A Care Team can exist over time such as a longitudinal care team which includes historical members that may be active or inactive on the care team as needed. Or a Care Team, such as a rehabilitation team, may exist to address a person's needs associated with a particular care event, or a team can be based on addressing a specific condition.

Required:

- Activity

Optional:

- Care team organizer

USCDI Data Class	Data elements included in the section
Care Team	• Care Team Member Name • Member Identifier • Member Role • Location • Telecom

CCDA template for Care Team:

```
<section>
 <templateId root="2.16.840.1.113883.10.20.22.2.500" extension="2019-07-01"/>
 <templateId root="2.16.840.1.113883.10.20.22.2.500" extension="2022-06-01"/>
 <code code="85847-2" codeSystem="2.16.840.1.113883.6.1"/>
 <title>Patient Care Teams</title>
 <text>
 <list>
 <item>
 <content ID= "CareTeamName1">Inpatient Diabetes Care Team</content> (
 <content>Active</content>) (10/08/2018 - )

 <table>
 <thead>
 <tr>
 <th>Member</th>
 <th>Role on Team</th>
 <th>Status</th>
 <th>Date</th>
 </tr>
 </thead>
 <tbody>
 <tr>
 <td>Dr. Test </td>
 <td ID="CT1_M01">PCP</td>
 <td>(Active)</td>
 <td>10/18/2019</td>
 </tr>
 </tbody>
 </table>
 </item>
 </list>
 </text>
 <entry>
 <!--Care Team Organizer-->
... entry info here, if coded data available for care team members...

 </entry>
</section>
```

Care Team Section Overview

XPath	Value
Section	
templateId	
@root	2.16.840.1.113883.10.20.22.2 .500
@extension	2022-06-01
Code	
@code	urn:oid:2.16.840.1.113883.6.1 (LOINC) = 85847-2
@codeSystem	urn:oid:2.16.840.1.113883.6.1 2.16.840.1.113883.6.1
title	
text	
entry	
act	Allergy Concern Act (V3) (identifier **urn hl7ii:** 2.16.840.1.113883.1 0.20.22.4.30:2015-08-01

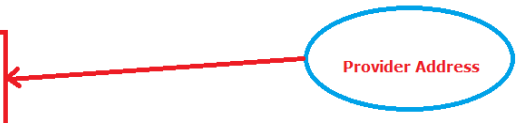
This section will describe the care team provider. Provider name and address

```
<act classCode="PCPR" moodCode="EVN">
  <templateId root="2.16.840.1.113883.10.20.22.4.500.1" extension="2019-07-01"/>
  <templateId root="2.16.840.1.113883.10.20.22.4.500.1" extension="2022-06-01"/>
  <id root="1.5.5.5.5.5.5"/>
  <code code="85847-2" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Care Team Information"/>
  <text>
    <reference value="#CareTeamParticipants1" />
  </text>

  <statusCode code="active"/>
  <effectiveTime xsi:type="IVL_TS">
    <low value="201810081426-0500"/>
  </effectiveTime>

  <performer typeCode="PRF">
    <functionCode xmlns="urn:hl7-org:sdtc" code="PCP" displayName="primary care physician" codeSystem="2.16.840.1.113883.5.88" codeSystemName="ParticipationFunction" />
    <assignedEntity>
      <id root="B00B14E8-CDE4-48EA-8A09-01BC4945122A" extension="1"/>
      <id root="1.5.5.5.5.5.5"/>

      <id extension="EEEEEEEEEE" root="2.16.840.1.113883.4.6"/>
      <addr>
        <streetAddressLine>100 Main St. Suite 100</streetAddressLine>
        <city>Hope Valley</city>
        <state>RI</state>
        <postalCode>02832</postalCode>
        <country>US</country>
      </addr>
      <telecom use="WP" value="tel:+1(401)539-2461"/>
      <telecom value="mailto:johndsmith@direct.aclinic.org"/>
      <assignedPerson>
        <name>
          <given>Test</given>
          <given>D</given>
          <family>Demo</family>
          <suffix>MD</suffix>
        </name>
      </assignedPerson>
      <representedOrganization>
        <id extension="219BX" root="1.2.16.840.1.113883.4.6"/>
        <name>Hope Woods Health Services</name>
      </representedOrganization>
    </assignedEntity>
  </performer>
</act>
```



Problems:

The Problem section lists and describes all relevant clinical problems at the time the document is generated. At a minimum, all pertinent current and historical problems should be listed. Overall health status may be represented in this section.

Required:

- Problem Concern Act

Optional:

- Health Status Observation (V2) (optional)

USCDI Data Class	Data elements included in the section
Problems	• Problems • Problem/Health Concerns • Data of diagnosis • Date of resolution

Problems Section Overview

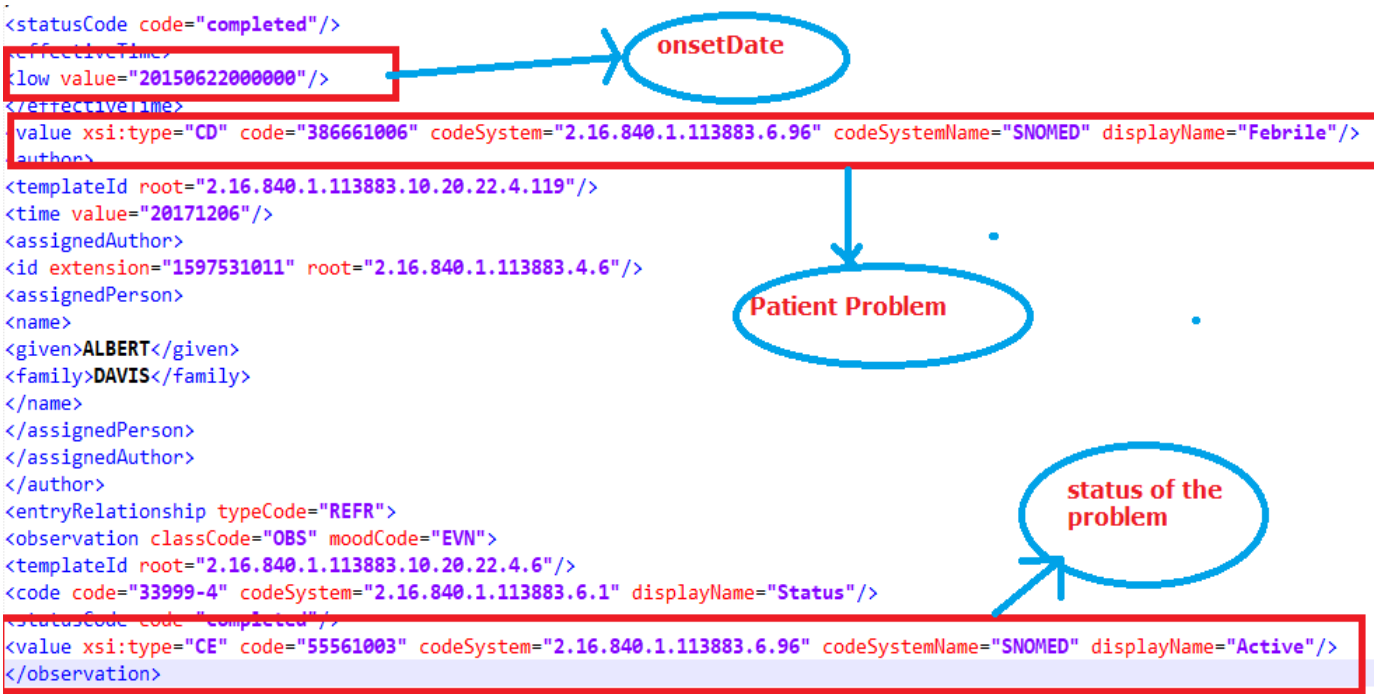
XPath	Value
Section	
templateId	
@root	2.16.840.1.113883.10.20.22.2.5.1
@extension	2015-08-01
Code	
@code	48765-2
@codeSystem	urn:oid: 2.16.840.1.113883.6.1
title	
text	
entry	
act	

There are various levels of Problems in the CCDA document in the below

- Active Problems
- Problem Status
- Diagnosis
- Resolution

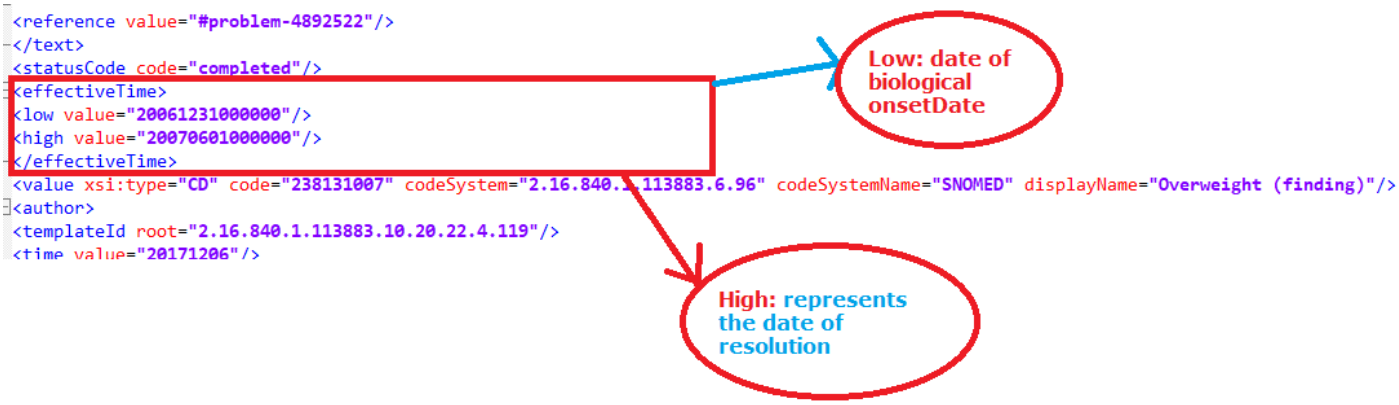
Problems & Status:

- Since this is an active problem, the concern status is active.
- While clinicians can track resolved problems, generally active problems will have active concern status and resolved concerns will be completed.



Resolution:

Low Value represents the date of biological onset. This can be before the patient vistited the clinician, as illustrated in this example. High value represents the date of resolution. Since this a boundary condition, if you wish to include the full day, the boundary should be padded or be the start of next day. This reflects a common confusion point since people often consider dates to include the day at the boundary, but this ia RIM-related boundary constraint



Medication:

The **Medications** Section contains a patient's current medications and pertinent medication history. At a minimum, the currently active medications are listed. An entire medication history is an option. The section can describe a patient's prescription and dispense history and information about intended drug monitoring.

Required:

- Medication

USCDI Data Class	Data elements included in the section
Medication	• Medication • Dose • Indication • Fill status

Medication Section Overview

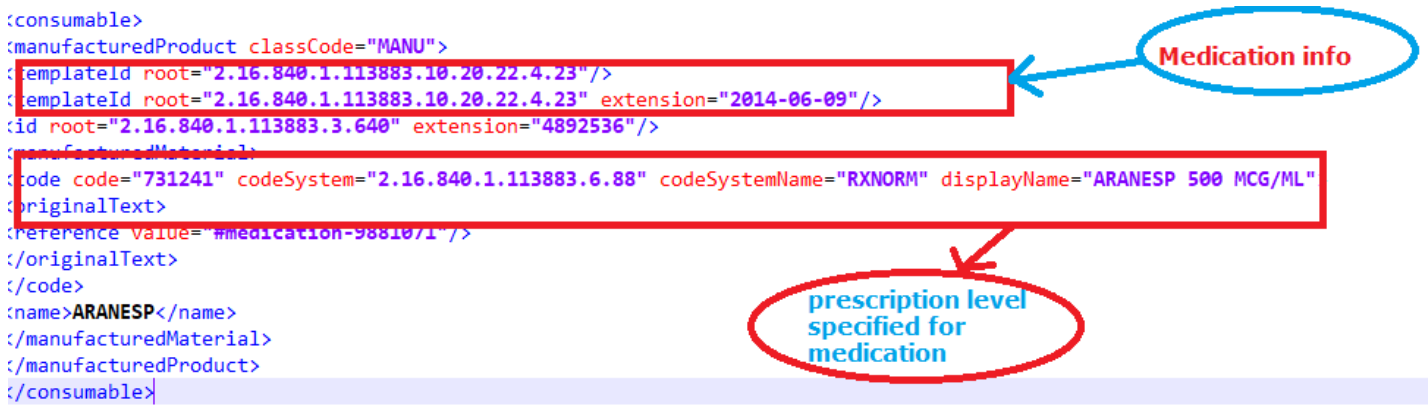
XPath	Value
Section	
templateId	
@root	**2.16.840.1.113883.10.20.22.2.1.1**
@extension	2015-08-01
Code	
@code	48765-2
@codeSystem	urn:oid: 2.16.840.1.113883.6.1
fill	repeatNumber/@value
Status	statusCode/@code
entry	
act	

There are various levels of Medication in the CCDA document in the below

- Medication
- Dose
- Indication
- Fill status

Medication:

Medications should be specified at a level corresponding to prescription when possible, such as 500mg oral tablet



Dose:

An absolute dose quantity is unknown at the time the order is placed because. The drug is prepared based on the weight at the time of administration.

```
<id root="2.16.840.1.113883.3.640" extension="4892539"/>
<statusCode code="completed"/>
<effectiveTime xsi:type="IVL_TS">
<low value="20150622"/>
</effectiveTime>
<doseQuantity value="1"/>
<administrationUnitCode code="C44278" displayName="Units" codeSystem="2.16.840.1.113883.3.26.1.1" codeSystemName="NCI Thesaurus"/>
<consumable>
<manufacturedProduct classCode="MANU">
<templateId root="2.16.840.1.113883.10.20.22.4.23"/>
<templateId root="2.16.840.1.113883.10.20.22.4.23" extension="2014-06-09"/>
<id root="2.16.840.1.113883.3.640" extension="4892540"/>
<manufacturedMaterial>
<code code="209459" codeSystem="2.16.840.1.113883.6.88" codeSystemName="RXNORM" displayName="TYLENOL 500 MG">
<originalText>
<reference value="#medication-9881062"/>
</originalText>
</code>
<name>TYLENOL</name>
</manufacturedMaterial>
</manufacturedProduct>
</consumable>
```

Dose Quantity

drug

Immunization:

The **Immunization** Section defines a patient's current immunization status and pertinent immunization history. The primary use case for the Immunization Section is to enable communication of a patient's immunization status. The section should include current immunization status, and may contain the entire immunization history that is relevant to the period of time being summarized.

Required:

- Immunization Activity

USCDI Data Class	Data elements included in the section
Immunization	• Vaccination status • Code

Immunization Section Overview

XPath	Value
Section	
templateId	
@root	2.16.840.1.113883.10.20.22.2 .2
@extension	2015-08-01
Code	
@code	11369-6
@codeSystem	urn:oid: :2.16.840.1.113883.6.1
fill	repeatNumber/@value
substanceAdministration	Immunization Activity(identifier: urn:hl7ii:2.16.840.1.113883.1 0.20.22.4.52:2015-08-01
entry	
act	

There are various levels of immunization in the CCDA document in the below

- Vaccination
- Status
- Vaccination code

Vaccination:

Vaccination status code indicates the status of the substance Administration. Value indicates vaccine date and dose quantity indicates vaccine quantity.

```
<entry typeCode="DRIV">
<substanceAdministration classCode="SBADM" moodCode="EVN" negationInd="false">
<templateId root="2.16.840.1.113883.10.20.22.4.52"/>
<templateId root="2.16.840.1.113883.10.20.22.4.52" extension="2015-08-01"/>
<id root="2.16.840.1.113883.3.640" extension="4892541"/>
<statusCode code="completed"/>
<effectiveTime value="20120104"/>
<doseQuantity nullFlavor="UNK"/>
<consumable>
<manufacturedProduct classCode="MANU">
<templateId root="2.16.840.1.113883.10.20.22.4.54"/>
<templateId root="2.16.840.1.113883.10.20.22.4.54" extension="2014-06-09"/>
<manufacturedMaterial>
<code code="106" codeSystem="2.16.840.1.113883.12.292" codeSystemName="CVX" displayName="DAPTACEL">
<originalText>
<reference value="#immune-895808"/>
</originalText>
</code>
<lotNumberText>2</lotNumberText>
</manufacturedMaterial>
<manufacturerOrganization>
<name>IMMUNO INC</name>
</manufacturerOrganization>
</manufacturedProduct>
</consumable>
</substanceAdministration>
</entry>
```

Immunization information:

An absolute dose quantity is unknown at the time the order is placed because. The drug is prepared based on the weight at the time of administration.

```
<entry typeCode="DRIV">
<substanceAdministration classCode="SBADM" moodCode="EVN" negationInd="false">
<templateId root="2.16.840.1.113883.10.20.22.4.52"/>
<templateId root="2.16.840.1.113883.10.20.22.4.52" extension="2015-08-01"/>
<id root="2.16.840.1.113883.3.640" extension="4892542"/>
<statusCode code="completed"/>
<effectiveTime value="20150622"/>
<doseQuantity nullFlavor="UNK"/>
<consumable>
<manufacturedProduct classCode="MANU">
<templateId root="2.16.840.1.113883.10.20.22.4.54"/>
<templateId root="2.16.840.1.113883.10.20.22.4.54" extension="2014-06-09"/>
<manufacturedMaterial>
<code code="166" codeSystem="2.16.840.1.113883.12.292" codeSystemName="CVX" displayName="Influenza, intradermal, quad, preservative free">
<originalText>
<reference value="#immune-895810"/>
</originalText>
</code>
</manufacturedMaterial>
<manufacturerOrganization>
<name>IMMUNO INC</name>
</manufacturerOrganization>
</manufacturedProduct>
</consumable>
</substanceAdministration>
</entry>
```

Immunization medication information

Functional Status:

The Functional Status Section contains observations and assessments of a patient's physical abilities. A patients functional status may include information regarding the patients ability to perform Activities of Daily Living (ADLs) in areas such as Mobility (e.g., ambulation), Self-Care (e.g., bathing, dressing,

feeding, grooming) or Instrumental Activities of Daily Living (IADLs) (e.g., shopping, using a telephone, balancing a check book). Problems that impact function (e.g., dyspnea, dysphagia) can be contained in the section.

Required:

- Functional Status

USCDI Data Class	Data elements included in the section
Functional Status	• Health Concerns • Functional Status • Smoking status

Functional Status Section Overview

XPath	Value
Section	
templateId	
@root	2.16.840.1.113883.10.20.22.2 .14
@extension	2014-06-09
Code	
@code	47420-5
@codeSystem	urn:oid: : 2.16.840.1.113883.6.1
fill	repeatNumber/@value
substanceAdministration	Immunization Activity(identifier: urn:hl7ii:2.16.840.1.113883.1 0.20.22.4.52:2015-08-01
entry	
observation	Functional Status Observation (V2) (identifier: urn:hl7ii:2.16.840.1.11388

There are various levels of Functional Status in the CCDA document in the below

- Functional Status
- Smoking status

Functional Status:

Cognitive Status:

The Mental Status Section contains observations and evaluations related to a patients psychological and mental competency and deficits including, but not limited to any of the following types of information: Appearance (e.g., unusual grooming, clothing or body modifications) Attitude (e.g., cooperative, guarded, hostile) Behavior/psychomotor (e.g., abnormal movements, eye contact, tics) Mood and affect (e.g., anxious, angry, euphoric) Speech and Language (e.g., pressured speech, perseveration) Thought process (e.g., logic, coherence) Thought content (e.g., delusions, phobias) Perception (e.g., voices, hallucinations) Cognition (e.g., memory, alertness/consciousness, attention, orientation) which were included in Cognitive Status Observation in earlier publications of C-CDA. Insight and judgment (e.g., understanding of condition, decision making)

Required:

- Status
- Problem
- Observation

Optional:

- Functional Status Section

USCDI Data Class	Data elements included in the section
Cognitive Status	• physical • Cognitive • intellectual • Psychiatric disabilities.

Cognitive Status Section Overview

XPath	Value
Section	
templateId	
@root	2.16.840.1.113883.10.20.22.2.56
@extension	2015-08-01
Code	
@class code	10190-7
@codeSystem	urn:oid: 2.16.840.1.113883.6.1
title	
text	
entry	
value	urn:oid:2.16.840.1.113883.3.8 8.12.3221.7.4 (Problem)
Method Code	

Specific Code Constraints:

Code	Code System	Code System OID	Print Name
10000006	SNOMED CT	urn:oid:2.16.840.1.113883.6.96	Radiating chest pain
10001005	SNOMED CT	urn:oid:2.16.840.1.113883.6.96	Bacterial sepsis
10007009	SNOMED CT	urn:oid:2.16.840.1.113883.6.96	Coffin-Siris syndrome
10010001191 02	SNOMED CT	urn:oid:2.16.840.1.113883.6.96	Pulmonary embolism
10010001241 04	SNOMED CT	urn:oid:2.16.840.1.113883.6.96	Normal left ventricular
10017004	SNOMED CT	urn:oid:2.16.840.1.113883.6.96	Occlusal wear of teeth

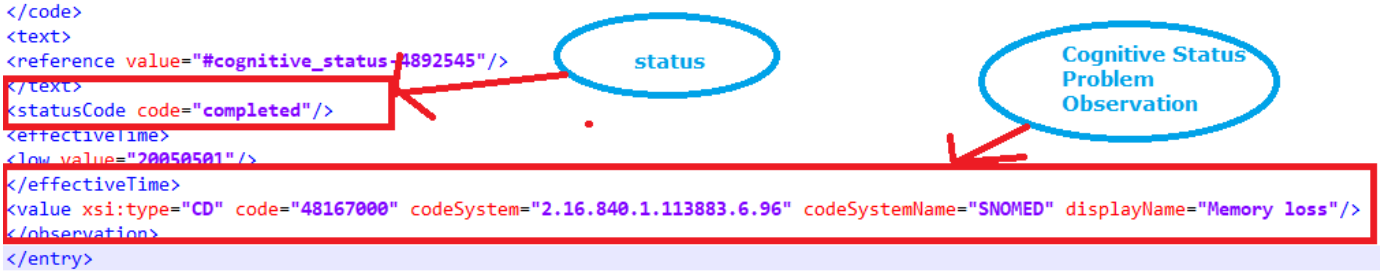
There are various levels of Cognitive Status in the CCDA document in the below

- Status
- Cognitive problem

Timestamp:

A cognitive status problem observation is a clinical statement that describes a patient's cognitive condition, findings, or symptoms. Examples of cognitive problem observations are inability to recall, amnesia, dementia, and aggressive behaviour.

```
<entry typeCode="DRIV">
<observation classCode="OBS" moodCode="EVN">
<templateId root="2.16.840.1.113883.10.20.22.4.74"/>
<templateId root="2.16.840.1.113883.10.20.22.4.74" extension="2015-08-01"/>
<id root="2.16.840.1.113883.3.640" extension="4892546"/>
<code code="373930000" codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED" displayName="Cognitive function finding">
<translation code="75275-8" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Cognitive function finding"/>
</code>
<text>
<reference value="#cognitive_status-4892545"/>
</text>
<statusCode code="completed"/>
<effectiveTime>
<low value="20050501"/>
</effectiveTime>
<value xsi:type="CD" code="48167000" codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED" displayName="Memory loss"/>
</observation>
</entry>
```



Reason for deprecation: Cognitive Status Problem Observation has been merged, without loss of expressivity, into Mental Status Observation (2.16.840.1.113883.10.20.22.4.74).

Result Section Data:

The **Results** Section contains observations of results generated by laboratories, imaging procedures, and other procedures. These coded result observations are contained within a Results Organizer in the Results Section. The scope includes observations such as hematology, chemistry, serology, virology, toxicology, microbiology, plain x-ray, ultrasound, CT, MRI, angiography, echocardiography, nuclear medicine, pathology, and procedure observations. The section often includes notable results such as abnormal values or relevant trends, and could contain all results for the period of time being documented.

Required:

- Result Organizer (V3) (required)

Optional:

- Consultation Note
- Continuity of Care Document
- Transfer Summary
- Referral Note

USCDI Data Class	Data elements included in the section
Result Section Data	• Tests • Values/Results

Results Section Overview

XPath	Value
Section	
templateId	
@root	2.16.840.1.113883.10.20.22.2 .3.1
@extension	2015-08-01
Code	
@class code	30954-2
@codeSystem	urn:oid:2.16.840.1.113883.6.1 (LOINC) = 2.16.840.1.113883.6.1
title	
text	
entry	
value	urn:oid:2.16.840.1.113883.3.8 8.12.3221.7.4 (Problem)
Organizer	Result Organizer (V3) (identifier: urn:hl7ii:2.16.840.1.113883.1 0.20.22.4.1:2015-08-01

Results Section (entries required) (V3) Example

```
<section>
        <templateId root="2.16.840.1.113883.10.20.22.2.3.1" extension="2015-08-01" />
        <code code="30954-2" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
       displayName="RELEVANT DIAGNOSTIC TESTS AND/OR LABORATORY DATA" />
        <title>Results</title>
        <text />
        <entry typeCode="DRIV">
            <organizer classCode="BATTERY" moodCode="EVN">
                <templateId root="2.16.840.1.113883.10.20.22.4.1" extension="2014-06-09" />
                ...



                <organizer>
                    <component>
                        <observation classCode="OBS" moodCode="EVN">
                        <templateId root="2.16.840.1.113883.10.20.22.4.2" extension="2014-06-09" />
                        . . .


                        </observation>
                    </component>
                </organizer>
            </organizer>
        </entry>
</section>
```

There are various levels of Result Section in the CCDA document in the below

- Tests
- Values/Results
- Lab Location

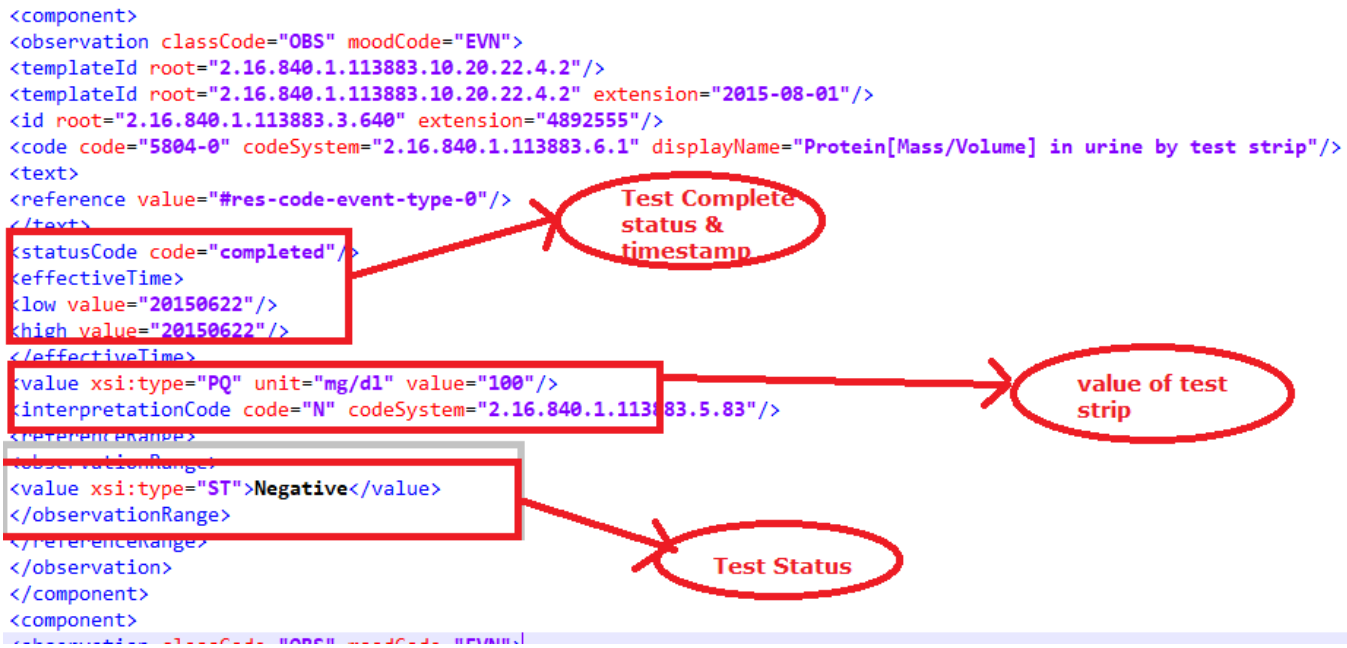
Tests:

This result section describes Result Organizer detail, containing the ordered test, date/time. the name and result of the items that are resulted additional result details, such as ranges, interpretations, comments


```
<entry typeCode="DRIV">
<organizer classCode="BATTERY" moodCode="EVN">
<templateId root="2.16.840.1.113883.10.20.22.4.1"/>
<templateId root="2.16.840.1.113883.10.20.22.4.1" extension="2015-08-01"/>
<id root="2.16.840.1.113883.3.640" extension="4892553"/>
<code xsi:type="CE" code="24357-6" codeSystem="2.16.840.1.113883.6.1" displayName="Urinanalysis macro (dipstick) panel"/>
<statusCode code="completed"/>
<effectiveTime>
<low value="20150622"/>
<high value="20150622"/>
</effectiveTime>
<component>
<observation classCode="OBS" moodCode="EVN">
<templateId root="2.16.840.1.113883.10.20.22.4.2"/>
<templateId root="2.16.840.1.113883.10.20.22.4.2" extension="2015-08-01"/>
<id root="2.16.840.1.113883.3.640" extension="4892554"/>
<code code="24357-6" codeSystem="2.16.840.1.113883.6.1" displayName="Urinanalysis macro (dipstick) panel"/>
<text>
<reference value="#res-code-event-type-0"/>
</text>
<statusCode code="completed"/>
<effectiveTime>
<low value="20150622"/>
<high value="20150622"/>
</effectiveTime>
<value xsi:type="CD" nullFlavor="UNK">
<originalText>.</originalText>
</value>
<interpretationCode code="N" codeSystem="2.16.840.1.113883.5.83"/>
</observation>
```

Results & Values:

This interpretation code denotes that this reference range is for normal results. This is not the interpretation a specific patient value. Below example we can find the status of the test negative value is a normal result and the values of the tests and time stamps.



Vital Signs Section Data

The Vital Signs Section contains relevant vital signs for the context and use case of the document type, such as blood pressure, heart rate, respiratory rate, height, weight, body mass index, head circumference, pulse oximetry, temperature, and body surface area. The section should include notable vital signs such as the most recent, maximum and/or minimum, baseline, or relevant trends. Vital signs are represented in the same way as other results, but are aggregated into their own section to follow clinical conventions.

Required:

- History and Physical

Optional:

- Discharge Summary
- Progress Note

USCDI Data Class	Data elements included in the section
Vital signs	• Systolic Blood Pressure • Diastolic Blood Pressure • Heart Rate • Respiratory Rate • Body Temperature • Body Height • Body Weight • Pulse Oximetry • Inhaled Oxygen Concentration

Vital signs Overview

XPath	Value
Section	
templateId	
@root	2.16.840.1.113883.10.20.22.2 .4
@extension	2015-08-01
Code	
@class code	8716-3
@codeSystem	urn:oid:2.16.840.1.113883.6.1 (LOINC) = 2.16.840.1.113883.6.1
title	
text	
entry	
value	
Organizer	Vital Signs Organizer (V3) (identifier: urn:hl7ii:2.16.840.1.113883.1 0.20.22.4.26:2015-08-01

There are various levels of Vital Sign section in the CCDA document in the below

- Systolic Blood Pressure
- Diastolic Blood Pressure
- Heart Rate
- Respiratory Rate
- Body Temperature
- Body Height
- Body Weight

Height:

The Vital Signs Section contains relevant vital signs for the context and use case of the document type, such as body height, patient Name and units

This below describes patients weight, body mass index, head circumference, pulse oximetry. Vital signs are represented in the same way as other results, but are aggregated into their own section to follow clinical conventions.

```
 </component>
 <component>
 <observation classCode="OBS" moodCode="EVN">
 <templateId root="2.16.840.1.113883.10.20.22.4.27"/>
 <templateId root="2.16.840.1.113883.10.20.22.4.27" extension="2014-06-09"/>
 <id root="2.16.840.1.113883.3.640" extension="4892567"/>
 <code code="8480-6" codeSystem="2.16.840.1.113883.6.1" displayName="Systolic BP"/>
 <statusCode code="completed"/>
 <effectiveTime value="20150622"/>
 <value xsi:type="PQ" unit="mm[Hg]" value="145"/>
 <author>
 <templateId root="2.16.840.1.113883.10.20.22.4.119"/>
 <time value="20150622"/>
 <assignedAuthor>

</component>
<component>
<observation classCode="OBS" moodCode="EVN">
<templateId root="2.16.840.1.113883.10.20.22.4.27"/>
<templateId root="2.16.840.1.113883.10.20.22.4.27" extension="2014-06-09"/>
<id root="2.16.840.1.113883.3.640" extension="4892569"/>
<code code="39156-5" codeSystem="2.16.840.1.113883.6.1" displayName="Body Mass Index"/>
<statusCode code="completed"/>
<effectiveTime value="20150622"/>
<value xsi:type="PQ" value="28.1" unit="kg/m2"/>
<author>
<templateId root="2.16.840.1.113883.10.20.22.4.119"/>
<time value="20150622"/>
<assignedAuthor>
<id extension="1597531011" root="2.16.840.1.113883.4.6"/>

<component>
<observation classCode="OBS" moodCode="EVN">
<templateId root="2.16.840.1.113883.10.20.22.4.27"/>
<templateId root="2.16.840.1.113883.10.20.22.4.27" extension="2014-06-09"/>
<id root="2.16.840.1.113883.3.640" extension="4892571"/>
<code code="59408-5" codeSystem="2.16.840.1.113883.6.1" displayName="O2 % BldC Oximetry"/>
<statusCode code="completed"/>
<effectiveTime value="20150622"/>
<value xsi:type="PQ" value="95" unit="%"/>
<author>
<templateId root="2.16.840.1.113883.10.20.22.4.119"/>
<time value="20150622"/>
<assignedAuthor>
<id extension="1597531011" root="2.16.840.1.113883.4.6"/>
<assignedPerson>
<name>
<given>ALBERT</given>
<family>DAVIS</family>
</name>
</assignedPerson>
```

patient blood pressure & units and values

patient mass index and values

patient pulse oximetry and vales

This describes body temperature, and body repository rate and heart rate. The section should include notable vital signs such as the most recent, maximum and/or minimum, baseline, or relevant trends.

```
</component>
<component>
<observation classCode="OBS" moodCode="EVN">
<templateId root="2.16.840.1.113883.10.20.22.4.27"/>
<templateId root="2.16.840.1.113883.10.20.22.4.27" extension="2014-06-09"/>
<code code="8310-5" codeSystem="2.16.840.1.113883.6.1" displayName="Body Temperature"/>
<statusCode code="completed"/>
<effectiveTime value="20150622"/>
<value xsi:type="PQ" value="38" unit="Cel"/>
```

Patient Body Temp and values

```
</component>
<component>
<observation classCode="OBS" moodCode="EVN">
<templateId root="2.16.840.1.113883.10.20.22.4.27"/>
<templateId root="2.16.840.1.113883.10.20.22.4.27" extension="2014-06-09"/>
<id root="2.16.840.1.113883.3.640" extension="4892573"/>
<code code="9279-1" codeSystem="2.16.840.1.113883.6.1" displayName="Respiratory Rate"/>
<statusCode code="completed"/>
<effectiveTime value="20150622"/>
<value xsi:type="PQ" value="18" unit="/min"/>
```

Patient Repository Rate and values

```
</component>
<component>
<observation classCode="OBS" moodCode="EVN">
<templateId root="2.16.840.1.113883.10.20.22.4.27"/>
<templateId root="2.16.840.1.113883.10.20.22.4.27" extension="2014-06-09"/>
<code code="8867-4" codeSystem="2.16.840.1.113883.6.1" displayName="Heart Rate"/>
<statusCode code="completed"/>
<effectiveTime value="20150622"/>
<value xsi:type="PQ" value="80" unit="/min"/>
<templateId root="2.16.840.1.113883.10.20.22.4.119"/>
<time value="20150622"/>
```

Patient heart rate and values

Social History:

This **Social History** or Patient Demographic history section contains social history data that influence a patient's physical, psychological or emotional health (e.g., smoking status, pregnancy). Demographic data, such as marital status, race, ethnicity, and religious affiliation, is captured in the header.

Required:

- History and Physical

Optional:

- Pregnancy Observation (optional)
- Caregiver Characteristics (optional)
- Characteristics of Home Environment (optional)
- Cultural and Religious Observation (optional)
- Smoking Status - Meaningful Use (V2) (optional)
- Tobacco Use (V2) (optional)
- Social History Observation (V3) (optional)

USCDI Data Class	Data elements included in the section
Social History	• First Name • Last Name • Family Name • Date of birth • Birth sex • Address • Telecom Number

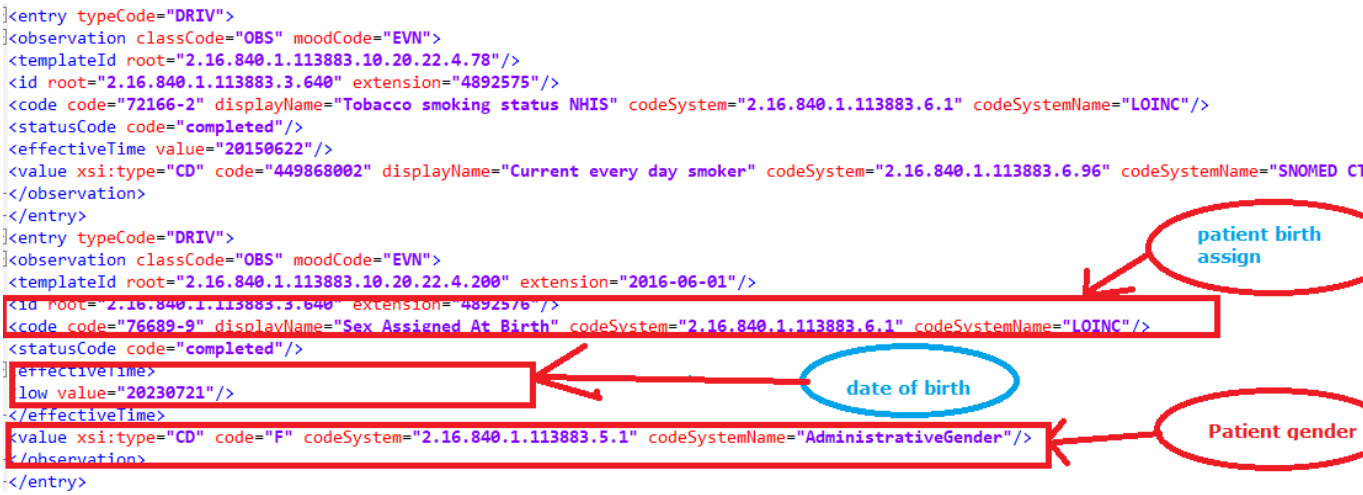
Social History Overview

XPath	Value
Section	
templateId	
@root	2.16.840.1.113883.10.20.22.2 .17
@extension	2015-08-01
Code	
@class code	29762-2
@codeSystem	urn:oid:2.16.840.1.113883.6.1 (LOINC) = 2.16.840.1.113883.6.1
title	
text	
entry	
value	
Observation	Social History Observation (V3) (identifier: urn:hl7ii:2.16.840.1.113883.1 0.20.22.4.38:2015-08-01

There are various levels of Social History section in the CCDA document in the below

- Name & family Name
- Smoking Status
- Gender
- Date of birth

The below describe the patient demographics like patient birth date, Patients gender etc. The below shows Patient gender assign, patient birthdate and sex.



Implant or Device:

This is meant to represent multiple implants during the same procedure. This is not necessarily an ideal modelling and other changes to transition away from procedure act may be in future

Required:

- Instruction

Optional:

- History and Physical
- Progressive note

USCDI Data Class	Data elements included in the section
Implant or Device	• Device

Implant or Device Overview

XPath	Value
Section	
templateId	
@root	2.16.840.1.113883.10.20.22.2 .33
@extension	2015-08-01
Code	
@class code	55122-6
@codeSystem	urn:oid:2.16.840.1.113883.6.1 (LOINC) = 2.16.840.1.113883.6.1
title	
text	
entry	
value	

There are various levels of Social History section in the CCDA document in the below

- Device

The below describe the patient device pacemaker setup. This is meant to represent multiple implants during the same procedure and where one of the procedures has an unknown UDI


```
<entry>
<procedure classCode="PROC" moodCode="EVN">
<templateId root="2.16.840.1.113883.10.20.22.4.14"/>
<id root="2.16.840.1.113883.3.640" extension="4892577"/>
<code nullFlavor="UNK"/>
<statusCode code="completed"/>
<effectiveTime>
<low value="20150622"/>
</effectiveTime>
<participant typeCode="DEV">
<participantRole classCode="MANU">
<templateId root="2.16.840.1.113883.10.20.22.4.37"/>
<id root="2.16.840.1.113883.3.3719" extension="(01)00643169007222(17)160128(21)BLC200461H"/>
<playingDevice>
<code code="704708004" codeSystem="2.16.840.1.113883.6.96" displayName="Cardiac resynchronization therapy implantable pacemaker" codeSystemName="SNOMED CT"/>
</playingDevice>
<scopingEntity>
<id root="2.16.840.1.113883.3.3719"/>
</scopingEntity>
</participantRole>
```

History of Encounter:

This refers template wraps relevant problems or diagnoses at the close of a visit or that need to be followed after the visit. If the encounter is associated with a Hospital Discharge, the Hospital Discharge Diagnosis must be used. This entry requires at least one Problem Observation entry

Required:

- Problem observation

Optional:

- Health Concerns
- Risk Concerns
- Encounter Activity

USCDI Data Class	Data elements included in the section
Social History	• Encounter Type • Encounter Diagnosis • Encounter Time • Location

Encounter Overview

XPath	Value
Section	
templateId	
@root	2.16.840.1.113883.10.20.22.4.80
@extension	2015-08-01
Code	
@class code	29308-4
@codeSystem	urn:oid:2.16.840.1.113883.6.1 (LOINC) = 2.16.840.1.113883.6.1
title	
text	
entry	
value	
Observation	Problem Observation (V3) (identifier: urn:hl7ii:2.16.840.1.1138

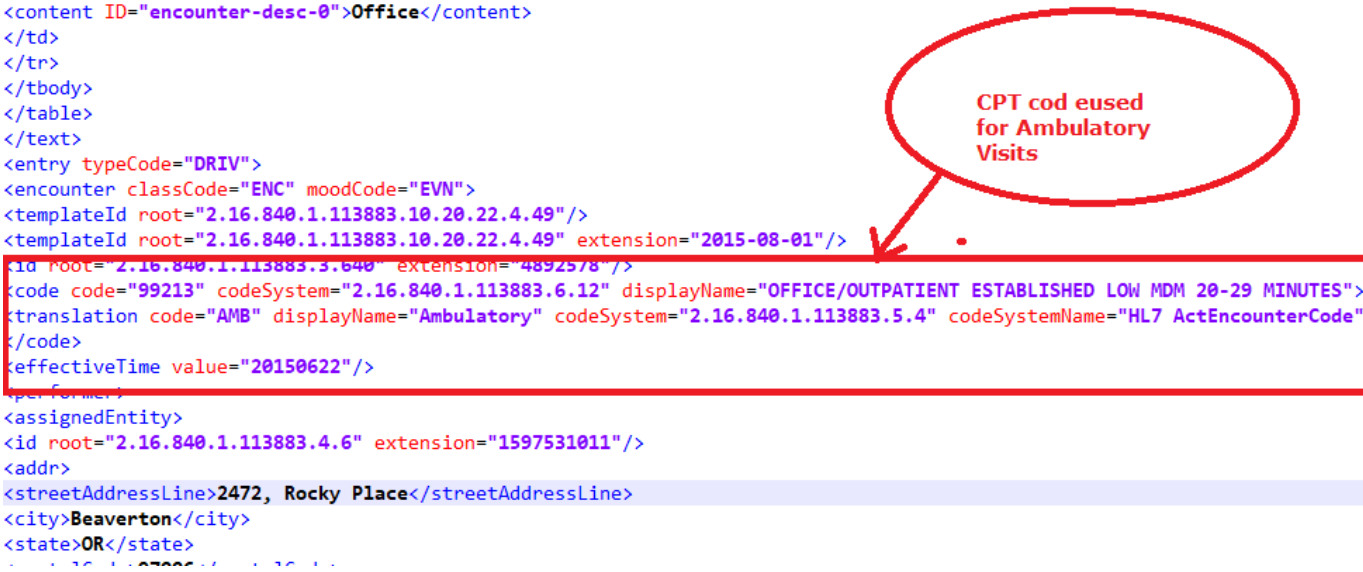
Encounter Activity (V3) Example

```
<encounter classCode="ENC" moodCode="EVN">
 <templateId root="2.16.840.1.113883.10.20.22.4.49" extension="2015-08-01" />
 <id root="2a620155-9d11-439e-92b3-5d9815ff4de8" />
 <code code="99213" displayName="Office outpatient visit 15 minutes"
codeSystemName="CPT-4" codeSystem="2.16.840.1.113883.6.12">
 <originalText>
 <reference value="#Encounter1" />
 </originalText>
 <translation code="AMB" codeSystem="2.16.840.1.113883.5.4" displayName="Ambulatory"
codeSystemName="HL7 ActEncounterCode" />
 </code>
 <effectiveTime value="201209271300+0500" />
 <performer>
 <assignedEntity>
 . . .
 </assignedEntity>
 </performer>
 <participant typeCode="LOC">
 <participantRole classCode="SDLOC">
 <templateId root="2.16.840.1.113883.10.20.22.4.32" />

 . . .
 </participantRole>
 </participant>
 <entryRelationship typeCode="RSON">
 <observation classCode="OBS" moodCode="EVN">
 <templateId root="2.16.840.1.113883.10.20.22.4.19" extension="2014-06-09" />

 . . .
 </observation>
 </entryRelationship>
</encounter>
```

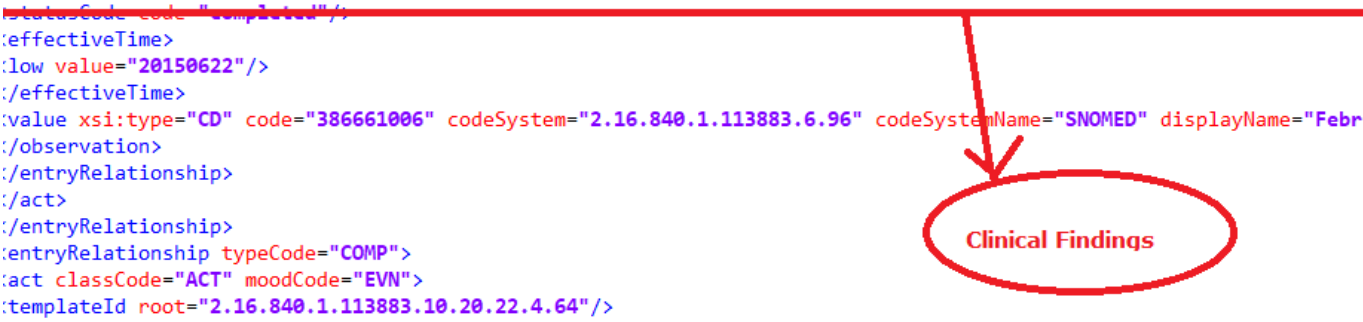
CPT code should be used for ambulatory visits, but for a hosptialization, another codeSystem is more appropriate. for a hospitalization, the low and high effectiveTimes would logically be admission and discharge date/time




```
<content ID="encounter-desc-0">Office</content>
</td>
</tr>
</tbody>
</table>
</text>
<entry typeCode="DRIV">
<encounter classCode="ENC" moodCode="EVN">
<templateId root="2.16.840.1.113883.10.20.22.4.49"/>
<templateId root="2.16.840.1.113883.10.20.22.4.49" extension="2015-08-01"/>
<id root="2.16.840.1.113883.3.640" extension="4892578"/>
<code code="99213" codeSystem="2.16.840.1.113883.6.12" displayName="OFFICE/OUTPATIENT ESTABLISHED LOW MDM 20-29 MINUTES">
<translation code="AMB" displayName="Ambulatory" codeSystem="2.16.840.1.113883.5.4" codeSystemName="HL7 ActEncounterCode"
</code>
<effectiveTime value="20150622"/>
<assignedEntity>
<id root="2.16.840.1.113883.4.6" extension="1597531011"/>
<addr>
<streetAddressLine>2472, Rocky Place</streetAddressLine>
<city>Beaverton</city>
<state>OR</state>
```

Describe the patient Clinical findings and Office or other outpatient visit for the evaluation and management of an established patient, which requires a medically appropriate history and/or examination and low level of medical decision making. When using time for code selection, 20-29 minutes of total time is spent on the date of the encounter

```
</performer>
<entryRelationship typeCode="SUBJ">
<act classCode="ACT" moodCode="EVN">
<templateId root="2.16.840.1.113883.10.20.22.4.19"/>
<templateId root="2.16.840.1.113883.10.20.22.4.80"/>
<id root="2.16.840.1.113883.3.640" extension="4892579"/>
<code xsi:type="CE" code="29308-4" codeSystem="2.16.840.1.113883.6.1" displayName="ENCOUNTER DIAGNOSIS"/>
<effectiveTime>
<low value="20150622"/>
</effectiveTime>
<entryRelationship typeCode="SUBJ" inversionInd="false">
<observation classCode="OBS" moodCode="EVN">
<templateId root="2.16.840.1.113883.10.20.22.4.4"/>
<templateId root="2.16.840.1.113883.10.20.22.4.4" extension="2015-08-01"/>
<id root="2.16.840.1.113883.3.640" extension="4892580"/>
<code code="404684003" codeSystem="2.16.840.1.113883.6.96" displayName="Finding">
<translation code="75321-0" displayName="Clinical finding" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC
</code>
<statusCode code="completed"/>
<effectiveTime>
<low value="20150622"/>
</effectiveTime>
<value xsi:type="CD" code="386661006" codeSystem="2.16.840.1.113883.6.96" codeSystemName="SNOMED" displayName="Febr
</observation>
</entryRelationship>
</act>
</entryRelationship>
<entryRelationship typeCode="COMP">
<act classCode="ACT" moodCode="EVN">
<templateId root="2.16.840.1.113883.10.20.22.4.64"/>
<code code="48767-8" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"/>
<text>
<reference value="#encounter-desc-0"/>
</text>
<statusCode code="completed"/>
```



Goals:

This template represents patient Goals. A goal is a defined outcome or condition to be achieved in the process of patient care. Goals include patient-defined over-arching goals (e.g., alleviation of health concerns, desired/intended positive outcomes from interventions, longevity, function, symptom management, comfort) and health concern-specific or intervention-specific goals to achieve desired outcomes.

Required:

- goal

Optional:

- Care plan

USCDI Data Class	Data elements included in the section
Goals	• Patient Goals

Goals Section Overview

XPath	Value
Section	
templateId	
@root	2.16.840.1.113883.10.20.22.2 .60
@extension	2015-08-01
Code	
@class code	61146-7
@codeSystem	urn:oid:2.16.840.1.113883.6.1 (LOINC) = 2.16.840.1.113883.6.1
title	
text	
entry	
value	
Observation	Goal Observation (identifier: urn:oid:2.16.840.1.113883.10. 20.22.4.121

Goal Section Example

```
<section>
 <templateId root="2.16.840.1.113883.10.20.22.2.60" />
 <code code="61146-7" displayName="Goals" codeSystem="2.16.840.1.113883.6.1"
codeSystemName="LOINC" />
 <title>Goals Section</title>
 <text />
 <entry>
 <observation />
 </entry>
</section>
```

```
<component>
<section>
<templateId root="2.16.840.1.113883.10.20.22.2.60"/>
<code code="61146-7" codeSystem="2.16.840.1.113883.6.1"/>
<title>Goals</title>
<text>a. Get rid of intermittent fever that is occurring every few weeks. b. Need to gain more energy to do regular activities</text>
<entry>
<observation classCode="OBS" moodCode="GOL">
<templateId root="2.16.840.1.113883.10.20.22.4.121"/>
<id root="2.16.840.1.113883.3.640" extension="4892588"/>
<code code="58144-7" codeSystem="2.16.840.1.113883.6.1" displayName="Resident's overall goal established during assessment process"/>
<statusCode code="active"/>
<effectiveTime>
<low value="20230721"/>
</effectiveTime>
<value xsi:type="ST">a. Get rid of intermittent fever that is occurring every few weeks. b. Need to gain more energy to do regular activities
</observation>
</entry>
</section>
</component>
```

Pateint Goals longevity, function, symptom management, comfort

It describes the Goals include patient-defined over-arching goals (e.g., alleviation of health concerns, desired/intended positive outcomes from interventions, longevity, function, symptom management, comfort)

Procedure:

The Procedure Description section records the particulars of the procedure and may include procedure site preparation, surgical site preparation, pertinent details related to sedation/anesthesia, pertinent details related to measurements and markings, procedure times, medications administered, estimated blood loss, specimens removed, implants, instrumentation, sponge counts, tissue manipulation, wound closure, sutures used, vital signs and other monitoring data. Local practice often identifies the level and type of detail required based on the procedure or specialty.

Required:

- Procedure Note
- Operative Note

USCDI Data Class	Data elements included in the section
Procedure	• Procedures

Procedures Section Overview

XPath	Value
Section	
templateId	
@root	2.16.840.1.113883.10.20.22.2 .27
@extension	
Code	
@class code	29554-3
@codeSystem	urn:oid:2.16.840.1.113883.6.1 (LOINC) = 2.16.840.1.113883.6.1
title	
text	
entry	
value	

Procedure Section Example

```
<section>
 <templateId root="2.16.840.1.113883.10.20.22.2.27"/>
 <code code="29554-3"
 codeSystem="2.16.840.1.113883.6.1"
 codeSystemName="LOINC"
 displayName="PROCEDURE DESCRIPTION"/>
 <title>Procedure Description</title>
 <text>The patient was taken to the endoscopy suite where ... </text>
</section>
```

The below describe the Medical nebulizer therapy; initial assessment and intervention, individual, face-to-face with the patient.

```
<entry typeCode="DRIV">
<procedure classCode="PROC" moodCode="EVN">
 <templateId root="2.16.840.1.113883.10.20.22.4.14"/>
 <templateId root="2.16.840.1.113883.10.20.22.4.14" extension="2014-06-09"/>
 <id root="2.16.840.1.113883.3.640" extension="4892591"/>
 <code code="56251003" codeSystem="2.16.840.1.113883.6.96" displayName="Nebulizer therapy" codeSystemName="SNOMED">
 <originalText>
 <reference value="#procedure-4892589"/>
 </originalText>
 </code>
 <statusCode code="completed"/>
 <effectiveTime value="20150622"/>
 <methodCode nullFlavor="UNK" />
 </procedure>
 </entry>
<entry typeCode="DRIV">
<procedure classCode="PROC" moodCode="EVN">
 <templateId root="2.16.840.1.113883.10.20.22.4.14"/>
 <templateId root="2.16.840.1.113883.10.20.22.4.14" extension="2014-06-09"/>
 <id root="2.16.840.1.113883.3.640" extension="4892592"/>
 <code code="175135009" codeSystem="2.16.840.1.113883.6.96" displayName="Introduction of cardiac pacemaker system via vein (procedure)" codeSystemName="SNOMED">
 <originalText>
 <reference value="#procedure-4892590"/>
 </originalText>
 </code>
 <statusCode code="completed"/>
 <effectiveTime value="20111005"/>
 <methodCode nullFlavor="UNK" />
 </procedure>
 </entry>
 </section>
 </component>
```

Therapy Procedure to patient

pacemaker procedure for patient

Clinical Notes:

The Notes Section allow for inclusion of clinical documentation which does not fit precisely within any other C-CDA section. Multiple Notes sections may be included in a document provided they each include different types of note content as indicated by a different section. code. The Notes Section SHOULD NOT be used in place of a more specific C-CDA section. For example, notes about procedure should be placed within the Procedures Section, not a Notes Section. When a Notes Section is present, Note Activity entries contain structured information about the note information allowing it to be more machine processable

Required:

- Note Activity

USCDI Data Class	Data elements included in the section
Clinical Notes	• Consultation note • Discharge summary • Procedure note • Progress note • Test Reports

Clinical Note Section Overview

XPath	Value
Section	
templateId	
@root	2.16.840.1.113883.10.20.22.2 .65
@extension	
Code	
@class code	
@codeSystem	urn:oid:2.16.840.1.113883.11. 20.9.68 (Note Types)
title	
text	
entry	
act	Note Activity (identifier: urn:hl7ii:2.16.840.1.113883.1 0.20.22.4.202:2016-11-01

Clinical Note Section Example

```
<section>
 <!-- Notes Section -->
 <templateId root="2.16.840.1.113883.10.20.22.2.65" extension="2016-11-01"/>
 <code code="11488-4" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
displayName="Consultation note"/>
 <title>Consultation Notes</title>
 <text>
 <list>
 <item ID="ConsultNote1">
 <paragraph>Dr. Specialist - September 8, 2016</paragraph>
 <paragraph>Evaluated patient due to symptoms of...</paragraph>
 </item>
 </list>
 </text>
 <!-- Note Activity entry -->
 <entry>
 <act classCode="ACT" moodCode="EVN">
 <templateId root="2.16.840.1.113883.10.20.22.4.202" extension="2016-11-01"/>
 <code code="34109-9" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
displayName="Note">
 <!-- Code must match or be equivalent to section code -->
 <translation code="11488-4" codeSystem="2.16.840.1.113883.6.1"
codeSystemName="LOINC" displayName="Consultation note" />
 </code>
 <text>
 <reference value="#ConsultNote1" />
 </text>
 <statusCode code="completed"/>
 <!-- Clinically-relevant time of the note -->
 <effectiveTime value="20160908" />
 <!--...-->
 </act>
 </entry>
</section>
```

The sections illustrated below are especially relevant to a Procedure Note. Other sections can be included in the document, e.g. Allergies and Alerts. The Implementation Guide lists the sections most relevant to a Procedure Note.

```
</text>
<entry>
<act classCode="ACT" moodCode="EVN">
<templateId root="2.16.840.1.113883.10.20.22.4.202" extension="2016-11-01"/>
<code code="34109-9" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Note">
<translation code="28570-0" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Procedure Note"/>
</code>
<text>
<reference value="Note126036699"/>
</text>
<statusCode code="completed"/>
<effectiveTime value="20150622"/>
<author>
<templateId root="2.16.840.1.113883.10.20.22.4.119"/>
<time value="20150622"/>
```

patient relevant to a Procedure Note

```
<entry>
<act classCode="ACT" moodCode="EVN">
<templateId root="2.16.840.1.113883.10.20.22.4.202" extension="2016-11-01"/>
<translation code="11502-2" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Laboratory Report Narrative"/>
</code>
<text>
</text>
<statusCode code="completed"/>
<effectiveTime value="20150622"/>
<author>
<templateId root="2.16.840.1.113883.10.20.22.4.119"/>
<time value="20150622"/>
<assignedAuthor>
<id extension="1597531011" root="2.16.840.1.113883.4.6"/>
<assignedPerson>
<name>
```

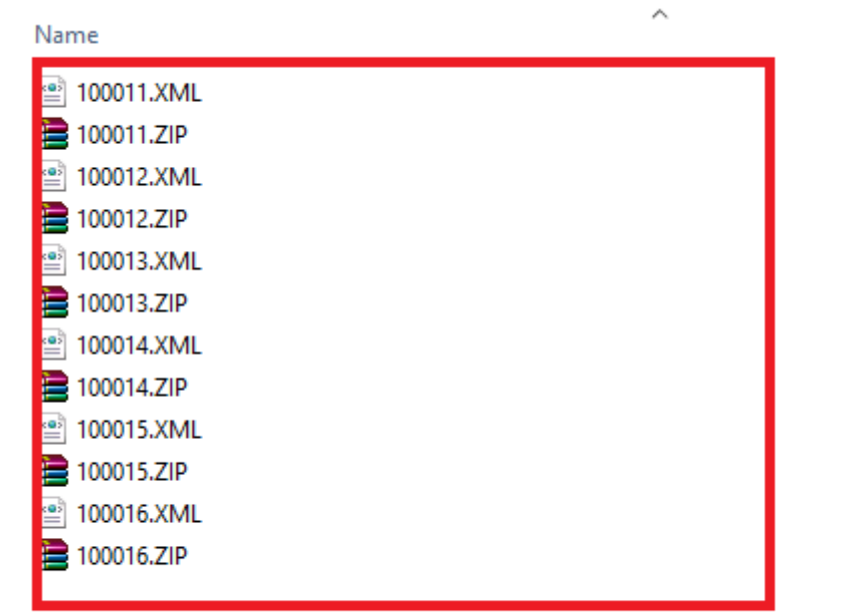
Patient Laboratory Report

```
<entry>
<act classCode="ACT" moodCode="EVN">
<templateId root="2.16.840.1.113883.10.20.22.4.202" extension="2016-11-01"/>
<code code="34109-9" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Note">
<translation code="11506-3" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayName="Progress Note"/>
</code>
<text>
<reference value="Note126039363"/>
```

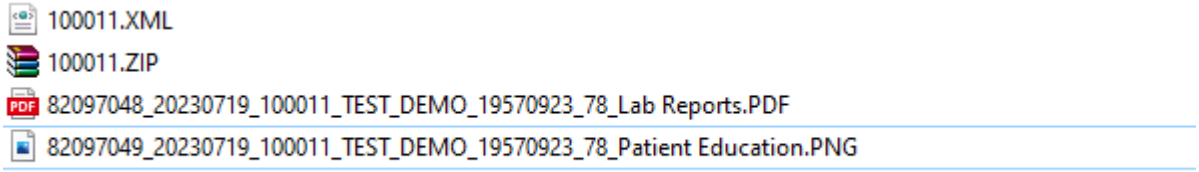
This sample file contains representative data elements to represent a Progress Note. The file depicts a fictional character's health data. Any resemblance to a real person is coincidental. To illustrate as many data elements as possible, the clinical scenario may not be plausible.

Patient Documents Download

Example of download CCDA & Patient's Documents



In the above, Zip folder can extract and can see the patient document like below

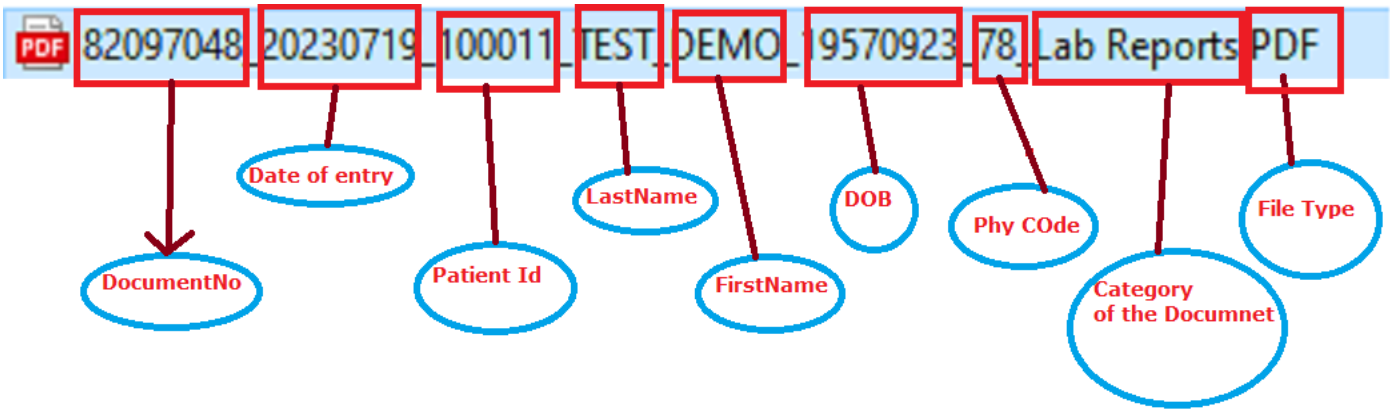


File Name pattern

The file name pattern aligned different types of categories like document number, date of creation, Id code. First Name, Last Name, date of birth, physician, Description, and file type.

Using the "_" to separate each and every category and generate a file name below

82097048_20230719_100011_TEST_DEMO_19570923_78_Lab Reports.PDF



Additional .CSV Data Export Files

Along with the standard C-CDA patient file and patient documents additional .CSV files may be supplied by the Medgen team or extracted from the Medgen EMR software. These files contain client data that is out of scope of the previously mentioned data files. Please review the following file specifications as to the type of data and format of the data that these .CSV contain.

Patient Demographics & Insurance: patients.csv

Position	Column Name	Description
1	Id_code	Medgen Patient Identifier
2	last_name	Patient Last Name
3	First_name	Patient First Name
4	Middle_int	Patient Middle Initial
5	Addres1	Patient Street Address
6	Addres2	Patient Suite or Apt Number
7	City	Patient City
8	State	Patient State
9	Zip	Patient Zip
10	DOB	Patient DOB (MM/DD/YYYY)
11	Sex	Patient Birth Gender
12	SSN	Patient Social Security Number
13	Phone	Patient Home Phone Number
14	Work_phone	Patient Work Phone Number
15	Cellno	Patient Cell Phone Number
16	email	Patient Email
17	INS1	Patient Primary Medgen Insurance Code
18	NAME1	Patient Primary Insurance Name
19	INSPOLICY1	Patient Primary Insurance Policy Number
20	INS2	Patient Secondary Medgen Insurance Code
21	NAME2	Patient Secondary Insurance Name
22	INSPOLICY2	Patient Secondary Insurance Policy Number

Patient Appointments: appointments.csv

Position	Column Name	Description
1	Apptno	Medgen Appointment Identifier
2	Appt_date	Appointment Date (MM/DD/YYYY)
3	Start_time	Appointment Start Time (HHMM)
4	Duration	Appointment Duration
5	Id_code	Medgen Patient Identifier
6	Last_name	Patient Last Name
7	First_name	Patient First Name
8	Dob	Patient DOB (MM/DD/YYYY)
9	Apptreason	Appointment Reason Description
10	Notes	Appointment Notes
11	Provider	Appointment Provider Medgen Identifier
12	Officeid	Appointment Office Medgen Identifier

Patient Pharmacies: pharmacy.csv

Position	Column Name	Description
1	Id_code	Medgen Patient Identifier
2	NCPDPID	Pharmacy NCPDPID
3	Name	Pharmacy Name
4	Address	Pharmacy Address
5	City	Pharmacy City
6	State	Pharmacy State
7	Zip	Pharmacy Zip

Patient Comments: comments.csv

Position	Column Name	Description
1	Id_code	Medgen Patient Identifier
2	Comment_no	Medgen Comment Identifier
3	Comdate	Comment Date (MM/DD/YYYY)
4	Alert	Comment Alert Flag (0/1)
5	Color	Comment Color
6	Comment	Comment

Patient Charges & Transactions: Transactions.csv

Position	Column Name	Description
1	Claim No	Claim No
2	Accession	Accession
3	Patient ID	Patient ID
4	Patient Name	Patient Name
5	DOB	DOB
6	STATE	STATE
7	DOS	DOS
8	InitialIns	InitialIns
9	Current Bill Type	Current Bill Type
10	Procdure Code	Procdure Code
11	Modifier 1	Modifier 1
12	Modifier 2	Modifier 2
13	Modifier 3	Modifier 3
14	Modifier 4	Modifier 4
15	Proc Charge	Proc Charge
16	Paid	Paid
17	Deductible	Deductible
18	Coinsurance	Coinsurance
19	Copay	Copay
20	Adjustment	Adjustment
21	Balance	Balance
22	Primary Balance	Primary Balance
23	Other Balance	Other Balance
24	Patient Balance	Patient Balance
25	DIAG1	DIAG1
26	DIAG2	DIAG2
27	DIAG3	DIAG3
28	DIAG4	DIAG4
29	DIAG5	DIAG5
30	DIAG6	DIAG6
31	DIAG7	DIAG7
32	DIAG8	DIAG8
33	DIAG9	DIAG9
34	DIAG10	DIAG10
35	DIAG11	DIAG11
36	DIAG12	DIAG12
37	ActionNote	ActionNote
38	ActionNoteDate	ActionNoteDate
39	ActionNoteType	ActionNoteType
40	FollowupDate	FollowupDate
41	Claim Status	Claim Status
42	Claim Action	Claim Action
43	Claim Sub Status	Claim Sub Status
44	DateEntered	DateEntered
45	FirstBillDate	FirstBillDate
46	LastBillDate	LastBillDate
47	ClaimPostedDate	ClaimPostedDate

48	Office	Office
49	PayInsurance	PayInsurance
50	Amount	Amount
51	CHECKCREDITNUMBER	CHECKCREDITNUMBER
52	CheckDate	CheckDate
53	PaymentPostedDate	PaymentPostedDate
54	ThirdParty	ThirdParty
55	ThirdPartyName	ThirdPartyName
56	RefProvid	RefProvid
57	RefProvName	RefProvName
58	Hold	Hold
59	LastUpdated	LastUpdated
60	PriInsCode	PriInsCode
61	PriInsName	PriInsName
62	PriInsClass	PriInsClass
63	PriInsPolicy1	PriInsPolicy1
64	PriInsGroupName	PriInsGroupName
65	PriInsNotes	PriInsNotes
66	PriEffDate	PriEffDate
67	PriTermDate	PriTermDate
68	SecInsCode	SecInsCode
69	SecInsName	SecInsName
70	SecInsClass	SecInsClass
71	SecInsPolicy1	SecInsPolicy1
72	SecInsGroupName	SecInsGroupName
73	SecInsNotes	SecInsNotes
74	SecEffDate	SecEffDate
75	SecTermDate	SecTermDate
76	DeptCode	DeptCode
77	POS	POS
78	PROVIDER	PROVIDER
79	Sex	Sex
80	Days Since Status Change	Days Since Status Change
81	Payer Ref Number	Payer Ref Number
82	Test Code	Test Code
83	ProcName	ProcName
84	Procedure Notes	Procedure Notes
85	Adj Reason	Adj Reason
86	Tran Comment	Tran Comment
87	Primary Payer Family	Primary Payer Family
88	Secondary Payer Family	Secondary Payer Family
89	Service Facility	Service Facility
90	Units	Units
91	PreAuthNo	PreAuthNo
92	Address1	Address1
93	Address2	Address2
94	City	City
95	Zip	Zip
96	Phone	Phone
97	Item No	Item No

98	PrimaryPlanId	PrimaryPlanId
99	SecondaryPlanId	SecondaryPlanId
100	TransactionID	TransactionID
101	PaidToPatient	PaidToPatient
102	OfficeName	OfficeName
103	ProviderLastName	ProviderLastName
104	ProviderFirstName	ProviderFirstName
105	PatientEmail	PatientEmail
106	PatientCellNo	PatientCellNo
107	PayInsuranceName	PayInsuranceName
108	SALES_GROUP_1	SALES_GROUP_1
109	SALES_GROUP_2	SALES_GROUP_2
110	SALES_GROUP_3	SALES_GROUP_3
111	SALES_GROUP_4	SALES_GROUP_4
112	ClientNote	ClientNote
113	ClientNoteDate	ClientNoteDate
114	ClientNoteType	ClientNoteType

Software Requirements

Mandatory Software Components

In order to access the Backup Utility API, the below requirement's needed

Mandatory software configuration

In order to use the API, an application needs to be created in home-app as described in authentication to get the data from the EHR.

For a bulk data export of full patient populations please contact a Medgen support team member: medgensupport@comtronusa.com