Consolidated Clinical Document Architecture (CCDA)

(BCCD)

Technical Manual

Version 1.0
September 2014
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Preface

The purpose of this manual is to provide technical information about the Consolidated Clinical Document Architecture (CCDA) v1.0 (BCCD) package. The BCCD package is designed to generate industry standard Continuity of Care Documents (CCD) in Health Level 7 (HL7) CCDA format, following the July 2012 Draft Standard for Trial Use (DSTU) standard, further restricted by Meaningful Use 2 (MU2) requirements. These documents can be transmitted to Indian Health Service (IHS) Health Information Exchange (HIE) repositories and retrieved by the Electronic Health Record (EHR) Graphical User Interface (GUI) using web services.
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Continuity of Care Document® is a registered trademark of Health Level Seven International.

HL7® and Health Level Seven® are registered trademarks of Health Level Seven International.

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UNIX® is a registered trademark of The Open Group.
1.0 Introduction

The CCDA (BCCD) application is a component of the IHS Resource and Patient Management System (RPMS). The application provides facilities for generating industry standard Clinical Summary, Transitions of Care, Data Portability export summary, and CCD documents that meet the HL7 July 2012 DSTU standard and Meaningful Use 2 specifications.

Clinical Summary and Transitions of Care documents are retrieved by the EHR GUI using web services. Data Portability export summary documents are requested via an RPMS Application Programming Interface (API). CCD documents are generated by a nightly background job or via an RPMS menu option and are transmitted to IHS HIE repositories via web services.

1.1 Purpose

CCDA documents can serve a variety of purposes, including enabling clinician access to patient data in an emergency scenario, quality reporting, bio surveillance, patient access to the patient's own data via a Personal Health Record (PHR) system, and medication or allergy reconciliation.

Each CCDA document consists of two components: a human readable part known as a narrative block, which can be displayed by a web browser, and a machine-readable part intended for automated data processing. The machine-readable part may contain more detailed information than the human-readable part.

1.2 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:

- Allergies
- Care Team
- Hospital Discharge Instructions (inpatient visits only)
- Functional/Cognitive Status
- Immunizations
- Instructions
- Medications
- Patient
• Plan of Care
• Problems/Encounter Diagnoses
• Procedures
• Reason for Hospitalization (inpatient visits only)
• Reason for Referral
• Reason for Visit (ambulatory visits only)
• Results
• Social History (Smoking Status)
• Vital Signs

1.3 Technical Information
This manual provides IHS site managers with a technical description of the CCDA routines, files, menus, cross references, globals, Caché classes, Ensemble productions, and other necessary information required to effectively manage the system.

All routines, files, options, and keys are namespaced, starting with the letters BCCD. The file number range for this package is 90310 – 90310.99. All CCDA Caché and Ensemble classes, productions, and data transformations are contained in Caché class package BCCD.

The CCDA application accesses RPMS data through classes generated by the FileMan-to-Class (FM2C) utility. The FM2C classes are part of the BMW package, which must be installed before CCDA.

1.4 Architecture
There are three mechanisms for initiating CCDA documents. At sites running EHR version 1.1, patch 13 or higher, Clinical Summary, and Transitions of Care documents may be requested via the EHR client. At sites that are a part of the IHS Health Information Exchange, CCD documents are automatically generated by a nightly background task for all patients whose data has changed since the previous nightly upload. Data Portability export summary documents can be generated for specific patients or for all patients via an RPMS API.
2.0 Orientation

2.1 Setup

The following steps are used to set up CCDA at an RPMS site:

1. Calculate the additional disk space required for the BCCD package and allocate disk space.

2. Perform pre-install steps, including enabling Long Strings, verifying access to OS configuration file, designating a directory where the new CCDA database will reside, mapping BMW globals, and stopping CCDA.

3. Install the provided Kernel Installation and Distribution System (KIDS) build.

4. Perform post-install steps, including setting up optional encryption, optional e-mail notifications, disabling journaling in the CCDA database, configuring the CCDA CSP Application, setting up site-specific BCCD parameters, and starting CCDA Messaging.

See the CCDA Installation Manual for further details on the installation and configuration steps.

2.2 Architecture

CCDA processing can be initiated in three ways. If EHR version 1.1, patch 13 has been installed and configured at the site, then authorized EHR users are able to request Clinical Summary and Transitions of Care documents for display within the EHR GUI client. If the site is a part of the IHS HIE, then CCD documents are generated nightly for all patients whose data has changed since the previous nightly upload. Data Portability export summary documents can be generated for specific patients or for all patients via an RPMS API.

To accommodate requests from the EHR GUI, Ensemble has a web service process listening for requests for Clinical Summary and Transitions of Care documents.

If the site is part of the IHS HIE, a nightly TaskMan task called BCCD NHIE PUSH JOB is automatically scheduled to run every night at the time specified by the site manager in option Edit CCDA Site Parameters. When this task runs for the first time, it creates new CCDA requests for all patients in the RPMS database. On subsequent executions, it finds all patients whose data has changed since the last time it ran and creates new requests in the CCDA queue.

To request Data Portability export summary documents, the site manager accesses an RPMS API. In order to prevent unintended initiation of Data Portability documents, the API is not included as an RPMS option in the menu system. Instead, the site
manager must first access Programmer Mode, then enter the necessary command. Because it is expected that this functionality will rarely, if ever, be used, the IHS Software Quality Assurance (SQA) team will distribute instructions for generating Data Portability documents on an “as needed” basis.

The only difference between CCDA requests created by these three mechanisms is that the DocType property is set to the requested document type and several flags are set to control where the documents are sent. For all these requests, a new entry is placed in the CCDA queue, recording the IDs of the requested patient and visit(s), and sets the record’s status to R (for Request).

The CCDA queue is monitored by BCCD BACKGROUND JOB, the main CCDA generator. It is a persistent TaskMan job started at TaskMan startup time or manually from menu option Manage CCDA transmissions. The job constantly runs in the background until the site manager chooses to stop CCDA. When this TaskMan job finds a new CCDA request with the status of R in the CCDA queue, it changes the request’s status to CS (for Compile Started). It then extracts all relevant RPMS data for the specified patient and visit and adds the data to the body of the CCDA request. Depending on the amount of eligible data in the patient’s records, it may take anywhere from under a second to over 10 seconds to extract all needed data from RPMS.

Once the extraction process for the patient is finished, BCCD BACKGROUND JOB changes the status of the request to CE (for Compile Ended). The job then checks the CCDA queue for other outstanding requests with the status of R. If it does not find any, it goes into hibernation for a specific amount of time, usually one second.

The CCDA queue is also monitored by the CCDA Ensemble production running in the CCDA namespace. When the CCDA production finds a new request whose status is set to CE, it retrieves the CCDA data from the body of the request, changes the status to TS (for Transmission Started), and transforms it into a valid CCDA document. For EHR Clinical Summary and Transitions of Care requests, the document is sent back to the requesting EHR. For Data Portability, the production saves this document to a file. For CCD documents, the production transmits it to an IHS HIE. Finally, the production changes the status of the request to T (for Transmitted).

If a site is a part of the IHS HIE, then the site manager is provided with the URL of the associated CCDA repository. Ensemble uses this URL to send CCDA documents to the repository. HIE CCDA processing typically occurs at night to minimize the impact on RPMS performance.
3.0 Implementation and Maintenance

3.1 General Information

The CCDA application is designed to work with RPMS through Ensemble-based web services, Caché objects, and FM2C (BMW) classes.

The following table shows the prerequisite patch requirements:

<table>
<thead>
<tr>
<th>Package and Version</th>
<th>Associated Patch Designation</th>
<th>Brief Patch Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EHR 1.1 patch 13</td>
<td>EHR<em>1.1</em>13</td>
<td>Primarily contains updates to EHR in order to meet Meaningful Use Stage Two Certification.</td>
</tr>
<tr>
<td>C32 (BJMD) 1.0 patch 4</td>
<td>BJMD<em>1.0</em>4</td>
<td>Disables C32 functionality has the application has been replaced by CCDA. This patch is only required if C32 has previously been installed</td>
</tr>
</tbody>
</table>

3.2 System Requirements

<table>
<thead>
<tr>
<th>Module</th>
<th>Minimum Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMW</td>
<td>The BMW application generates Ensemble classes that are distributed in a CACHE.DAT file. These classes must be installed and the generation date of the classes must be January 2, 2014 or later.</td>
</tr>
<tr>
<td>VA FileMan (DI)</td>
<td>v22.0 Patch 1017</td>
</tr>
<tr>
<td>VA Kernel (XU)</td>
<td>v8.0 Patch 1017</td>
</tr>
<tr>
<td>IHS/VA Utilities (XB)</td>
<td>v3.0 through Patch 11</td>
</tr>
<tr>
<td>Taxonomy (ATX)</td>
<td>v5.1 through Patch 10</td>
</tr>
<tr>
<td>IHS Pharmacy Modifications (APSP)</td>
<td>V7.0 through Patch 1007</td>
</tr>
</tbody>
</table>

3.3 Package-wide Variables

The CCDA application-wide variables start with the % character, which ensures that they have a process-wide scope when Caché ObjectScript procedures are used. Their use aids CCDA error analysis.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Brief Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>%DFN</td>
<td>Internal entry number (IEN) of the requested patient; also known as the DFN</td>
</tr>
<tr>
<td>Variable</td>
<td>Brief Description</td>
</tr>
<tr>
<td>------------</td>
<td>--------------------------------------------------------</td>
</tr>
<tr>
<td>%BCCDQID</td>
<td>Internal ID of the CCDA queue record being processed</td>
</tr>
</tbody>
</table>

3.4 Security Keys

The CCDA application does not introduce new security keys.
4.0 CCDA Menu

The CCDA application has one RPMS menu used by site managers, CCDA MENU [BCCD MENU], which comprises the following four menu options:

- Edit CCDA Site Parameters [BCCD EDIT SITE PARAMETERS]
- Generate CCD for a single patient [BCCD CCDGENONE]
- Generate CCD documents for all patients in RPMS [BCCD CCDALLGEN]
- Manage CCDA transmissions [BCCD CCDA MGR]

The CCDA application contains no menu options accessible to end users.
5.0 Routine Descriptions

5.1 Routine List
BCCD1E00
BCCD1P00
BCCDCLAS
BCCDDPT
BCCDEDIT
BCCDPAT
BCCDPUSH
BCCDTSK
BCCDTX
BCCDTXA
BCCDTXAB
BCCDTXAC
BCCDTXAD
BCCDUTIL
BCCDUTL1

5.2 Routines with Description

<table>
<thead>
<tr>
<th>Routine</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCCD1E00</td>
<td>KIDS environmental check routine</td>
</tr>
<tr>
<td>BCCD1P00</td>
<td>KIDS post-installation routine</td>
</tr>
<tr>
<td>BCCDCLAS</td>
<td>Used by the post-installation routine to decrypt and decompress Cache/Ensemble class definitions</td>
</tr>
<tr>
<td>BCCDDPT</td>
<td>API for requesting Data Portability export summary documents</td>
</tr>
<tr>
<td>BCCDEDIT</td>
<td>Edit CCDA site-specific parameters</td>
</tr>
<tr>
<td>Routine</td>
<td>Description</td>
</tr>
<tr>
<td>-------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>BCCDPAT</td>
<td>RPMS options for requesting one patient upload to HIE, requesting all patients upload to HIE, and starting and stopping CCDA.</td>
</tr>
<tr>
<td>BCCDPUSH</td>
<td>TaskMan task active only if the site participates in the IHE HIE; identifies recently modified patient records that need new CCD documents generated</td>
</tr>
<tr>
<td>BCCDTSK</td>
<td>TaskMan task that monitors the CCDA queue for new requests and extracts data from RPMS</td>
</tr>
<tr>
<td>BCCDTX</td>
<td>Creates the BCCD NO LIMIT LOINC CODES Taxonomy</td>
</tr>
<tr>
<td>BCCDTXA</td>
<td>Continuation of BCCDTX</td>
</tr>
<tr>
<td>BCCDTXAB</td>
<td>Continuation of BCCDTX</td>
</tr>
<tr>
<td>BCCDTXAC</td>
<td>Continuation of BCCDTX</td>
</tr>
<tr>
<td>BCCDTXAD</td>
<td>Continuation of BCCDTX</td>
</tr>
<tr>
<td>BCCDUTIL</td>
<td>Contains utility subroutines used by the extract process</td>
</tr>
<tr>
<td>BCCDUTL1</td>
<td>Contains additional utility subroutines used by the extract process</td>
</tr>
</tbody>
</table>
6.0 Files and Tables

6.1 File List

<table>
<thead>
<tr>
<th>File #</th>
<th>Filename</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>90310.01</td>
<td>BCCD SITE PARAMETERS</td>
<td>Contains site-specific CCDA parameters</td>
</tr>
<tr>
<td>90310.02</td>
<td>BCCD MESSAGE TYPE</td>
<td>Contains of message type-specific CCDA parameters</td>
</tr>
<tr>
<td>90310.03</td>
<td>BCCD CLASS TRANSPORT</td>
<td>Contains packed Caché and Ensemble classes, which are used to transfer class definitions via a KIDS build</td>
</tr>
</tbody>
</table>

6.2 File Access

<table>
<thead>
<tr>
<th>File #</th>
<th>Filename</th>
<th>GL</th>
<th>RD</th>
<th>WR</th>
<th>LYG</th>
<th>DD</th>
<th>DEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>90310.01</td>
<td>BCCD SITE PARAMETERS</td>
<td>^BCCDS(90310.01,</td>
<td>@</td>
<td>@</td>
<td>@</td>
<td>@</td>
<td>@</td>
</tr>
<tr>
<td>90310.02</td>
<td>BCCD MESSAGE TYPE</td>
<td>^BCCDS(90310.02,</td>
<td>@</td>
<td>@</td>
<td>@</td>
<td>@</td>
<td>@</td>
</tr>
<tr>
<td>90310.03</td>
<td>BCCD CLASS TRANSPORT</td>
<td>^BCCDCLS(</td>
<td>@</td>
<td>@</td>
<td>@</td>
<td>@</td>
<td>@</td>
</tr>
</tbody>
</table>

6.3 Cross References

90310.01 (BCCD SITE PARAMETERS)

.01 HOME SITE

B regular cross reference

90310.02 (BCCD MESSAGE TYPE)

.01 MESSAGE TYPE

B regular cross reference

90310.021 (ALLOWED CS PROVIDER CLASS)

.01 ALLOWED CS PROVIDER CLASS

B regular cross reference

90310.03 (BCCD CLASS TRANSPORT)
6.4 Table File

File: 90310.01 BCCD SITE PARAMETERS

<table>
<thead>
<tr>
<th>Field #</th>
<th>Field Name</th>
<th>Subscript</th>
<th>Piece</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>.01</td>
<td>HOME SITE</td>
<td>D0,0</td>
<td>1</td>
<td>F</td>
</tr>
<tr>
<td>.02</td>
<td>BACKGROUND JOB DELAY</td>
<td>D0,0</td>
<td>2</td>
<td>N</td>
</tr>
<tr>
<td>.03</td>
<td>RECORD GLOBAL REFERENCES</td>
<td>D0,0</td>
<td>3</td>
<td>S</td>
</tr>
<tr>
<td>.04</td>
<td>CCDA ENABLED</td>
<td>D0,0</td>
<td>4</td>
<td>S</td>
</tr>
<tr>
<td>.05</td>
<td>DATE CCDA INSTALLED</td>
<td>D0,0</td>
<td>5</td>
<td>D</td>
</tr>
<tr>
<td>.06</td>
<td>TIME TO RUN NIGHTLY TASK</td>
<td>D0,0</td>
<td>6</td>
<td>F</td>
</tr>
</tbody>
</table>

File: 90310.02 BCCD MESSAGE TYPE

<table>
<thead>
<tr>
<th>Field #</th>
<th>Field Name</th>
<th>Subscript</th>
<th>Piece</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>.01</td>
<td>MESSAGE TYPE</td>
<td>D0,0</td>
<td>1</td>
<td>S</td>
</tr>
<tr>
<td>.02</td>
<td>LAST PUSH DATE TIME</td>
<td>D0,0</td>
<td>2</td>
<td>D</td>
</tr>
<tr>
<td>.03</td>
<td>DESCRIPTION</td>
<td>D0,0</td>
<td>3</td>
<td>F</td>
</tr>
<tr>
<td>.04</td>
<td>DAYS KEEP TRANSMISSION ENTRIES</td>
<td>D0,0</td>
<td>4</td>
<td>N</td>
</tr>
<tr>
<td>.05</td>
<td>ENABLED</td>
<td>D0,0</td>
<td>5</td>
<td>S</td>
</tr>
<tr>
<td>1</td>
<td>REPOSITORY LOCATION</td>
<td>D0,1</td>
<td>1</td>
<td>F</td>
</tr>
<tr>
<td>2.01</td>
<td>ADD SOCIAL ENVIRONMENT PROB</td>
<td>D0,2</td>
<td>1</td>
<td>S</td>
</tr>
<tr>
<td>2.02</td>
<td>ADD INACTIVE PERS HISTORY PROB</td>
<td>D0,2</td>
<td>2</td>
<td>S</td>
</tr>
<tr>
<td>2.03</td>
<td>DISCHARGE PLANNER PROV TYPE</td>
<td>D0,2</td>
<td>3</td>
<td>P</td>
</tr>
<tr>
<td>2.04</td>
<td>DISPLAY THE SMOKING START DATE</td>
<td>D0,2</td>
<td>4</td>
<td>S</td>
</tr>
<tr>
<td>3</td>
<td>ALLOWED CS PROVIDER CLASS</td>
<td>D0,3,D1,0</td>
<td>1</td>
<td>P</td>
</tr>
</tbody>
</table>

File: 90310.03 BCCD CLASS TRANSPORT

Global: ^BCCDCLS(
<table>
<thead>
<tr>
<th>Field #</th>
<th>Field Name</th>
<th>Subscript</th>
<th>Piece</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>.01</td>
<td>PACKAGE NAME</td>
<td>D0,0</td>
<td>1</td>
<td>F</td>
</tr>
<tr>
<td>.02</td>
<td>RPMS STATUS</td>
<td>D0,1</td>
<td>2</td>
<td>S</td>
</tr>
<tr>
<td>.03</td>
<td>RPMS DATE/TIME INSTALLED</td>
<td>D0,1</td>
<td>3</td>
<td>D</td>
</tr>
<tr>
<td>10</td>
<td>XML</td>
<td>D0,10,D1,0</td>
<td>1</td>
<td>W</td>
</tr>
<tr>
<td>11</td>
<td>CLASS</td>
<td>D0,2,D1,0</td>
<td>1</td>
<td>F</td>
</tr>
</tbody>
</table>
7.0 External Relations

7.1 Callable Routines

CCDA has no callable routines. All entry points and routines are called internally or via options with the exception of the Published Entry Point listed in Section 7.2.

7.2 Published Entry Points

<table>
<thead>
<tr>
<th>Routine</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUDITHIE^BCCDUTIL</td>
<td>Returns the first successful HIE transmission date/time for a visit</td>
</tr>
</tbody>
</table>

7.3 Exported Options

<table>
<thead>
<tr>
<th>Option Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCCD BACKGROUND JOB</td>
<td>Main CCDA background processor; runs continuously in the background when CCDA is running</td>
</tr>
<tr>
<td>BCCD EDIT SITE PARAMETERS</td>
<td>Option to edit CCDA site parameters, accessible by the site manager</td>
</tr>
<tr>
<td>BCCD GEN ALL</td>
<td>Option to generate HIE requests for all patients in RPMS</td>
</tr>
<tr>
<td>BCCD GEN ONE</td>
<td>Option to generate an HIE request for one patient in RPMS</td>
</tr>
<tr>
<td>BCCD MENU</td>
<td>Main CCDA menu; contains options accessible by the site manager. This menu should only be assigned to site managers.</td>
</tr>
<tr>
<td>BCCD MGR</td>
<td>Option to start and stop CCDA</td>
</tr>
<tr>
<td>BCCD NHIE PUSH JOB</td>
<td>Nightly task that identifies patient records for which CCDA document need to be generated and transmitted to HIE; runs only at sites that participate in IHS HIE</td>
</tr>
</tbody>
</table>
8.0 Internal Relations

The document generation process, including transmission, requires the CCDA background jobs and the Ensemble production be running. Generally, these processes are started by accessing the Manage CCDA transmissions in CCDA Menu and electing to start CCDA. The site manager will be able to start CCDA only if the CCDA ENABLED setting in the BCCD SITE PARAMETERS file is set to Y (YES).

The CCDA web service requires the Ensemble production to be running. Web service requests made when the Ensemble production is stopped will receive a “CSP timeout” Simple Object Access Protocol (SOAP) fault.

The ONE and ALL options on CCDA Menu can be accessed when CCDA is stopped. For the ONE option, the request will be put on the CCDA queue but will not be processed until CCDA is started. For the ALL option, the requests will not be queued until the BCCD NHIE PUSH JOB nightly task runs.
9.0 Archiving and Purging

The CCDA installation process automatically schedules a purge task for every Sunday at midnight. The purge task deletes queue entries older than the value in the DAYS KEEP TRANSMISSION ENTRIES setting in the BCCD MESSAGE TYPE file. This parameter can be modified by site managers via the BCCD EDIT SITE PARAMETERS option. The purge task also deletes Ensemble messages older than seven days. While the queue entries and Ensemble messages can be useful when investigating an issue with CCDA processing, they are no longer used once the CCDA document has reached its intended destination. Therefore, they should be purged regularly to prevent them from consuming an excessive amount of disk space.
10.0 Documentation Resources

This section describes a few methods to generate online technical documentation.

10.1 RPMS System Documentation

Online VPS system documentation can be generated through the use of several Kernel options, including, but not limited to:

- %INDEX
- Menu Management
- Inquire Option
- Print Option File
- VA FileMan
- Data Dictionary Utilities
- List File Attributes

For more option listings and further information about other utilities that supply online technical information, see the Decentralized Hospital Computer Program (DHCP) Kernel Reference manual.

10.1.1 %INDEX

The %INDEX option analyzes the structure of a routine to determine in part, if the routine adheres to RPMS programming standards. The output can include the following components:

- Compiled list of errors and warnings
- Routine listing
- Local variables
- Global variables
- Naked globals
- Label references
- External references
- Running %INDEX for a specified set of routines allows users to discover any deviations from RPMS programming standards that exist, and to see how routines interact with one another (i.e., which routines call or are called by other routines).

To run %INDEX for the VPS system:
- At the “Routine(s)?” prompt, type the BCCD namespace.
10.1.2 Inquire Options

The Inquire menu management option provides the following information about a specified option:

- Option name
- Menu text
- Option description
- Type of option
- Lock (if any)

In addition, all items on the menu are listed for each menu option. To secure information about CCDA options, specify the BCCD namespace.

10.1.3 Print Option File

The Print Option File utility generates a listing of options from the Option file (#19). Users can print all of the entries or a single option or range of options.

10.1.4 List File Attributes

This VA FileMan option allows users to generate documentation pertaining to files and file structure. The standard format of this option provides the following data dictionary information for a specified file:

- File name and description
- Identifiers
- Cross-references
- Files pointed to by the file specified
- Files that point to the file specified
- Input, print, and sort templates

In addition, the following applicable data is supplied for each field in the file:

- Field name, number, title, and description
- Global location
- Help prompt
- Cross-references
- Input transform
- Date last edited
- Notes
Using the Global Map format of this option generates an output that lists the following information:

- All cross-references for the file selected
- Global location of each field in the file
- Input, print, and sort templates

For a comprehensive listing of BCCD files, see Section 6.0.

10.2 RPMS Online Help

In addition to system documentation, RPMS includes special help displays for most menu options and data entry prompts. Typing one question mark (?) at the “Select . . . Option” prompt displays information related to the current option, where:

<table>
<thead>
<tr>
<th>Typing . . .</th>
<th>Displays . . .</th>
</tr>
</thead>
<tbody>
<tr>
<td>one question mark (?)</td>
<td>a list of all options accessible from the current option.</td>
</tr>
<tr>
<td>two question marks (??)</td>
<td>a list of all accessible options and their formal names</td>
</tr>
<tr>
<td>three question marks (???)</td>
<td>a brief description for each option in a menu.</td>
</tr>
<tr>
<td>one question mark (?) followed by an option name (?OPTION)</td>
<td>extended help, if available, for that option</td>
</tr>
</tbody>
</table>

10.3 Ensemble Online Help

Ensemble includes extensive online documentation for everything from the Caché ObjectScript language to Ensemble system management. The online documentation can be accessed by clicking on the Ensemble cube and selecting Documentation. The online documentation includes search functionality and a master index to aid in finding relevant documentation.

10.4 Ensemble Class Documentation

Online documentation is available for Ensemble classes. The documentation includes a page for each class, containing a listing and brief description of each parameter, property, method, and query in the class and optionally a description of the class. The class documentation can be viewed by accessing the Ensemble online documentation page, as described in section 10.3, then clicking on Class Reference near the top of the page.

Class information can also be obtained via the Class Browser, available in Ensemble Studio. The Class Browser allows the user to view class information, such as property information, interactively.
10.5 Web Service Specification

The CCDA web service provides an API for requesting and retrieving Clinical Summary and Transitions of Care documents from RPMS. The associated Web Services Description Language (WSDL) file defines the parameters of the web service, including the format of the request and response SOAP messages and the location of the web service. Further information about the web service, including the WSDL, sample request and response messages, and a list of error codes, is given in Appendix E.
11.0 SAC Requirements and Exemptions

The CCDA application has not been granted any SAC exemptions.
Appendix A: CCDA Ensemble/Caché Class Development and Deployment

A.1 Description of Development Environment

The CCDA application was developed using RPMS routines, Caché objects, Caché ObjectScript, and Ensemble productions and data transformations. All new classes created for the CCDA application exist in the RPMS namespace BCCD.

All CCDA Caché and Ensemble classes are delivered in a KIDS build and stored in a regular FileMan file in packed, compressed, and Base64-encoded XML format. The KIDS post-install routine unpacks, uncompresses, decodes, and installs the CCDA classes in the designated Ensemble namespace using class package mapping.

A.2 CCDA Server Requirements

The CCDA application requires Ensemble 2012.2 or later to run. It does not run under Ensemble 2012.1 or any earlier version. CCDA does not require a specific version of the operating system (OS). The CCDA application requires the BMW classes to be installed (generated after January 2, 2014).

A.3 Deployment of CCDA Classes

All Caché and Ensemble classes included in the BCCD package are delivered to RPMS sites in packed format as global data within a standard KIDS build. When the KIDS build is created, classes are packed into global nodes using a class exporter, which exports their definitions to a stream as XML, compresses the result, Base64-encodes it, and outputs it to a FileMan word-processing field in file 90310.03.

At the RPMS site, the post-installation part of the KIDS build invokes DO IMPORT^BCCDCLAS, which reverses the packing operation. The subroutine reads the data from the FileMan word-processing field in file 90310.03, Base64-decodes it, uncompresses the result to a stream, then recreates the class definitions from the stream. Even though the KIDS installation process takes place in the RPMS namespace, all BCCD classes are installed in the associated CCDA namespace due to package mapping. The installation process also stops the CCDA Ensemble production and the CCDA generator before installing the BCCD package.
Appendix B: CCDA Data Elements

CCDA documents are properly formed XML documents that comply with the HL7 Implementation Guide for CDA Release 2: IHE Health Story Consolidation, DSTU Release 1.1 (US Realm) Draft Standard for Trial Use, July 2012 specification, further restricted by Meaningful Use 2 requirements. Individual data elements are listed in this appendix by section.

B.1 General Header

CCDA locations in this section are assumed to be under the /ClinicalDocument element.

<table>
<thead>
<tr>
<th>Data Element</th>
<th>Description</th>
<th>CCDA Location</th>
<th>Value Set</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start Date</td>
<td>Start date for the requested visit</td>
<td>componentOf/encompassingEncounter/effectiveTime/low/@value</td>
<td></td>
</tr>
<tr>
<td>End Date</td>
<td>End date for the requested visit</td>
<td>componentOf/encompassingEncounter/effectiveTime/lhigh/@value</td>
<td></td>
</tr>
<tr>
<td>Info Source Name</td>
<td>Name of the organization and facility the information came from</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>
| Rep Organization | Name of organization and facility the document came from | author/assignedAuthor/representedOrganization/name | author/assignedAuthor/id/@extension
custodian/assignedCustodian/representedCustodianOrganization/id/@extension |
| Author ID | Identifier for the facility generating the document | author/assignedAuthor/id/@extension
custodian/assignedCustodian/representedCustodianOrganization/id/@extension |           |
| Author Address | Address of the facility generating the document | author/assignedAuthor/addr
custodian/assignedCustodian/representedCustodianOrganization/addr |           |
| Author Phone | Telephone number of the facility generating the document | author/assignedAuthor/telecom/@value
custodian/assignedCustodian/representedCustodianOrganization/telecom/@value |           |
### B.2 Patient

CCDA locations in this section are assumed to be under the `/ClinicalDocument/recordTarget/patientRole` element.

<table>
<thead>
<tr>
<th>Data Element</th>
<th>Description</th>
<th>CCDA Location</th>
<th>Value Set</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCD ID</td>
<td>Patient identifier</td>
<td>id/@extension</td>
<td></td>
</tr>
<tr>
<td>CCD HRN</td>
<td>Patient health record number</td>
<td>id/@extension</td>
<td></td>
</tr>
<tr>
<td>Name</td>
<td>Patient name</td>
<td>patient/name</td>
<td></td>
</tr>
<tr>
<td>Home Address</td>
<td>Patient’s home address</td>
<td>addr</td>
<td></td>
</tr>
<tr>
<td>Work Address</td>
<td>Patient’s work address</td>
<td>addr</td>
<td></td>
</tr>
<tr>
<td>Temporary Address</td>
<td>Patient’s temporary address</td>
<td>addr</td>
<td></td>
</tr>
<tr>
<td>Data Element</td>
<td>Description</td>
<td>CCDA Location</td>
<td>Value Set</td>
</tr>
<tr>
<td>------------------</td>
<td>--------------------------------------</td>
<td>-----------------------</td>
<td>----------------------------------------------------</td>
</tr>
<tr>
<td>Home Phone</td>
<td>Patient’s home telephone number</td>
<td>telecom</td>
<td></td>
</tr>
<tr>
<td>Work Phone</td>
<td>Patient’s work telephone number</td>
<td>telecom</td>
<td></td>
</tr>
<tr>
<td>Mobile Phone</td>
<td>Patient’s mobile telephone number</td>
<td>telecom</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>Patient age</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Date of Birth</td>
<td>Patient’s date of birth</td>
<td>patient/birthTime/@value</td>
<td></td>
</tr>
<tr>
<td>Email Address</td>
<td>Patient’s email address</td>
<td>telecom</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>Patient’s gender</td>
<td>patient/administrativeGenderCode/@code</td>
<td>Administrative Gender (HL7 V3) 2.16.840.1.113883.1.11.1</td>
</tr>
<tr>
<td>Marital Status</td>
<td>Patient’s marital status</td>
<td>patient/maritalStatus/@code</td>
<td>HL7 Marital Status 2.16.840.1.113883.1.11.12212</td>
</tr>
<tr>
<td>Race</td>
<td>Patient’s race</td>
<td>patient/raceCode/@code</td>
<td>Race: 2.16.840.1.113883.1.11.14914</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>Patient’s ethnicity</td>
<td>patient/ethnicGroupCode/@code</td>
<td>Ethnicity Value Set: 2.16.840.1.114222.4.11.837</td>
</tr>
<tr>
<td>Language</td>
<td>Patient’s preferred language</td>
<td>patient/languageCommunication/languageCode/@code</td>
<td>Language: 2.16.840.1.113883.1.11.11526</td>
</tr>
<tr>
<td>Communication Method</td>
<td>Patient’s preferred communication method</td>
<td>Comment with the format &lt;!-- PreferredCommunicationMethod=&quot;x&quot; --&gt;</td>
<td></td>
</tr>
</tbody>
</table>

### B.3 Allergy

CCDA locations in this section are assumed to be under the /ClinicalDocument/component/structuredBody/component/section/entry/act element.

<table>
<thead>
<tr>
<th>Data Element</th>
<th>Description</th>
<th>CCDA Location</th>
<th>Value Set</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allergy ID</td>
<td>Allergy identifier</td>
<td>id/@extension</td>
<td></td>
</tr>
<tr>
<td>Start Date</td>
<td>Date when the allergy began</td>
<td>entryRelationship/observation/effectiveTime/low/@value</td>
<td></td>
</tr>
<tr>
<td>Data Element</td>
<td>Description</td>
<td>CCDA Location</td>
<td>Value Set</td>
</tr>
<tr>
<td>---------------------------</td>
<td>------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Adverse Event Type</td>
<td>SNOMED code for the allergy/adverse event type</td>
<td>entryRelationship/obser-vation/value/@code</td>
<td>Allergy/Adverse Event Type: 2.16.840.1.113883.3.88.12.3221.6.2</td>
</tr>
<tr>
<td>Product Free Text</td>
<td>Name of the allergen</td>
<td>entryRelationship/obser-vation/participant/partici-pantRole/playingEntity/code/originalText/referen-ce/@value (pointer)</td>
<td></td>
</tr>
</tbody>
</table>
| Product Code              | Code corresponding to the allergen                   | entryRelationship/obser-vation/participant/partici-pantRole/playingEntity/c ode/@code | Medication Brand Name 2.16.840.1.113883.3.88.12.80.16  
Medication Clinical Drug 2.16.840.1.113883.3.88.12.80.17  
Medication Drug Class 2.16.840.1.113883.3.88.12.80.18  
Ingredient Name 2.16.840.1.113883.3.88.12.80.20                  |
| Product Code System       | OID of the code system for the Product Code          | entryRelationship/obser-vation/participant/partici-pantRole/playingEntity/c ode/@codeSystem |                                                                                                     |
| Status                    | Status of the allergy                                | statusCode/@code                                                              | ProblemAct statusCode: 2.16.840.1.113883.11.2 0.9.19                                             |
| Severity                  | SNOMED codes corresponding to the severity of the allergy | entryRelationship/obser-vation/entryRelationship/observation/value/@code       | Problem Severity 2.16.840.1.113883.3.88.12.3221.6.8                                              |
| Comment                   | Additional information about the allergy             | Narrative only                                                                 |                                                                                                     |
| No Allergy Code           | Code indicating whether there was an allergy assessment | N/A                                                                           |                                                                                                     |
| Allergy Reaction: Reaction ID | Allergy reaction identifier                        | entryRelationship/obser-vation/entryRelationship/observation/id/@extens-ion   |                                                                                                     |
| Allergy Reaction: Reaction | Text indicating the reaction                         | Narrative only                                                                 |                                                                                                     |
### Data Element | Description | CCDA Location | Value Set
--- | --- | --- | ---
Allergy Reaction: Code | SNOMED code of the reaction | entryRelationship/observation/value/@code | Problem 2.16.840.1.113883.3.88.12.3221.7.4

Allergy Code: Product Code | Code indicating the product causing the allergy | entryRelationship/observation/participant/participantRole/playingEntity/code/@code | Medication Brand Name 2.16.840.1.113883.3.88.12.80.16 Medicine Clinical Drug 2.16.840.1.113883.3.88.12.80.17 Medicine Drug Class 2.16.840.1.113883.3.88.12.80.17 Ingredient Name 2.16.840.1.113883.3.88.12.80.20

Allergy Code: Product Code System | OID of the code system for the product code | entryRelationship/observation/participant/participantRole/playingEntity/code/@codeSystem | Healthcare Provider Taxonomy (NUCC - HIPAA) 2.16.840.1.114222.4.11.1066

### B.4 Care Team

CCDA locations in this section are assumed to be under both the /ClinicalDocument/documentationOf/serviceEvent/performer/assignedEntity and /ClinicalDocument/componentOf/encompassingEncounter/encounterParticipant/assignedEntity elements unless otherwise specified.

### Data Element | Description | CCDA Location | Value Set
--- | --- | --- | ---
Provider ID | Provider Identifier | id/@extension | 
Provider ID Type | Indication of whether the value in the Provider ID field is a National Provider Identifier (NPI) or local identifier | Used to determine id/@root |
Label | Label used in the narrative | Narrative only |
NUCC Provider Code | NUCC provider taxonomy | code/@code (documentationOf only) | Healthcare Provider Taxonomy (NUCC - HIPAA) 2.16.840.1.114222.4.11.1066 |
Address | Provider address | addr |
Phone | Provider telephone number | telecom/@value |
<table>
<thead>
<tr>
<th>Data Element</th>
<th>Description</th>
<th>CCDA Location</th>
<th>Value Set</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phone Use</td>
<td>Code indicating the type of telephone number in the Phone field</td>
<td>telecom/@use</td>
<td>Telecom Use (US Realm Header) 2.16.840.1.113883.11.2 0.9.20</td>
</tr>
<tr>
<td>Email</td>
<td>Provider email address</td>
<td>telecom/@value</td>
<td></td>
</tr>
<tr>
<td>Email Use</td>
<td>Code indicating the type of email address in the Email field</td>
<td>telecom/@use</td>
<td>Telecom Use (US Realm Header) 2.16.840.1.113883.11.2 0.9.20</td>
</tr>
<tr>
<td>Name</td>
<td>Provider name</td>
<td>assignedPerson/name</td>
<td></td>
</tr>
<tr>
<td>Referral Number</td>
<td>Referral number (for referring providers)</td>
<td>Narrative only</td>
<td></td>
</tr>
</tbody>
</table>

**B.5 Functional Status**

The Functional Status section does not contain a structured data section, so all elements are narrative only.

<table>
<thead>
<tr>
<th>Data Element</th>
<th>Description</th>
<th>CCDA Location</th>
<th>Value Set</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>Functional status text</td>
<td>Narrative only</td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td>Functional status date</td>
<td>Narrative only</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>SNOMED code for functional statuses related to problems</td>
<td>Narrative only</td>
<td></td>
</tr>
<tr>
<td>Status</td>
<td>Active/inactive status</td>
<td>Narrative only</td>
<td></td>
</tr>
</tbody>
</table>

**B.6 Hospital Discharge Instructions**

The Hospital Discharge section does not contain a structured data section, so all elements are narrative only.

<table>
<thead>
<tr>
<th>Data Element</th>
<th>Description</th>
<th>CCDA Location</th>
<th>Value Set</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text</td>
<td>Text for one line of the instructions</td>
<td>Narrative only</td>
<td></td>
</tr>
</tbody>
</table>

**B.7 Immunization**

CCDA locations in this section are assumed to be under the /ClinicalDocument/component/structuredBody/component/section/entry/substanceAdministration element.
<table>
<thead>
<tr>
<th>Data Element</th>
<th>Description</th>
<th>CCDA Location</th>
<th>Value Set</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immunization ID</td>
<td>Immunization identifier</td>
<td>id/@extension</td>
<td></td>
</tr>
<tr>
<td>Refusal</td>
<td>Boolean value indicating whether the</td>
<td>Used to determine</td>
<td></td>
</tr>
<tr>
<td></td>
<td>immunization was refused</td>
<td>@negationInd</td>
<td></td>
</tr>
<tr>
<td>Mood Code</td>
<td>Mood code indicating whether the</td>
<td>@moodCode</td>
<td>MoodCodeEvnInt 2.16.840.1.113883.11.2 0.9.18</td>
</tr>
<tr>
<td></td>
<td>immunization was given or is planned</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Free Text Product</td>
<td>Name of the immunization</td>
<td>text/reference/@value (pointer)</td>
<td></td>
</tr>
<tr>
<td>Name</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administered Date</td>
<td>Date the immunization was administered</td>
<td>effectiveTime</td>
<td></td>
</tr>
<tr>
<td>Coded Product Name</td>
<td>CVX code of the vaccine</td>
<td>consumable/manufactured</td>
<td>Vaccine Administered Value Set 2.16.840.1.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Product/manufacturedMaterial/code/@code</td>
<td>113883.3.88.12.80.22</td>
</tr>
<tr>
<td>Due Date</td>
<td>Recommended date for a future immunization</td>
<td>effectiveTime</td>
<td></td>
</tr>
<tr>
<td>Dose Quantity</td>
<td>Immunization dose</td>
<td>doseQuantity/@value</td>
<td></td>
</tr>
<tr>
<td>Lot Number</td>
<td>Lot number of the vaccine</td>
<td>consumable/manufactured</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Product/manufacturedMaterial/lotNumberText</td>
<td></td>
</tr>
<tr>
<td>Drug Manufacturer</td>
<td>Manufacturer of the vaccine</td>
<td>consumable/manufactured</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Product/manufactureOrganization/name</td>
<td></td>
</tr>
<tr>
<td>Performer</td>
<td>Provider administering the immunization</td>
<td>performer/assignedEntity/AssignedPerson/name</td>
<td></td>
</tr>
<tr>
<td>Refusal Reason Code</td>
<td>Code indicating the reason for refusal</td>
<td>entryRelationship/observation/code/@code</td>
<td>No Immunization Reason Value Set 2.16.840.1.113883.1.11. 19717</td>
</tr>
<tr>
<td>Refusal SNOMED</td>
<td>SNOMED code indicating the reason for refusal</td>
<td>Narrative only</td>
<td></td>
</tr>
</tbody>
</table>

**B.8 Instruction**

CCDA locations in this section are assumed to be under the
<table>
<thead>
<tr>
<th>Data Element</th>
<th>Description</th>
<th>CCDA Location</th>
<th>Value Set</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Code specifying whether the instruction is an instruction, a patient decision aid, or a care planning activity</td>
<td>Used to group instructions in the narrative</td>
<td></td>
</tr>
<tr>
<td>Text</td>
<td>Instruction text</td>
<td>Narrative only</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Code indicating the type of instruction</td>
<td>code/@code</td>
<td>Patient Education 2.16.840.1.113883.11.2 0.9.34</td>
</tr>
<tr>
<td>Organizer: Text</td>
<td>Problem name for problem-based instructions</td>
<td>text</td>
<td></td>
</tr>
</tbody>
</table>

**B.9 Medication**

CCDA locations in this section are assumed to be under the /ClinicalDocument/component/structuredBody/component/section/entry/substanceAdministration element.

<table>
<thead>
<tr>
<th>Data Element</th>
<th>Description</th>
<th>CCDA Location</th>
<th>Value Set</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of Medication</td>
<td>Specifies the type of medication</td>
<td>Used to group medications in the narrative</td>
<td></td>
</tr>
<tr>
<td>Medication ID</td>
<td>Medication identifier</td>
<td>id/@extension</td>
<td></td>
</tr>
<tr>
<td>Mood Code</td>
<td>Mood code indicating whether the medication was taken in the past or is intended to be taken in the future</td>
<td>@moodCode</td>
<td>MoodCodeEvntInt 2.16.840.1.113883.11.2 0.9.18</td>
</tr>
<tr>
<td>Sig</td>
<td>Medication sig.</td>
<td>text/reference/@value (pointer)</td>
<td></td>
</tr>
<tr>
<td>Status</td>
<td>Medication status</td>
<td>statusCode/@code</td>
<td></td>
</tr>
<tr>
<td>Started Date/Time</td>
<td>Date medication was started</td>
<td>effectiveTime/low/@value</td>
<td></td>
</tr>
<tr>
<td>Stopped Date/Time</td>
<td>Date medication was stopped</td>
<td>effectiveTime/high/@value</td>
<td></td>
</tr>
<tr>
<td>Fills</td>
<td>Number of administrations or number of allowed administrations</td>
<td>repeatNumber/@value</td>
<td></td>
</tr>
<tr>
<td>Data Element</td>
<td>Description</td>
<td>CCDA Location</td>
<td>Value Set</td>
</tr>
<tr>
<td>-------------------</td>
<td>--------------------------------------------------</td>
<td>-----------------------------</td>
<td>---------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Route</td>
<td>Code indicating the route of administration</td>
<td>routeCode/@code</td>
<td>Medication Route FDA Value Set 2.16.840.1.113883.3.88.12.3221.8.7</td>
</tr>
<tr>
<td>Dose</td>
<td>Dose</td>
<td>doseQuantity/@value</td>
<td></td>
</tr>
<tr>
<td>Dose Units</td>
<td>Dose Units</td>
<td>doseQuantity/@unit</td>
<td></td>
</tr>
<tr>
<td>Product Form</td>
<td>Code indicating the product form</td>
<td>administrationUnitCode/@code</td>
<td>Medication Product Form 2.16.840.1.113883.3.88.12.3221.8.11</td>
</tr>
<tr>
<td>Hold Text</td>
<td>Hold reason</td>
<td>Narrative only</td>
<td></td>
</tr>
<tr>
<td>Refills Remaining</td>
<td>Number of refills remaining</td>
<td>Narrative only</td>
<td></td>
</tr>
<tr>
<td>Coded Product Name</td>
<td>RxNorm code indicating the medication prescribed</td>
<td>consumable/manufacturedProduct/manufacturedMaterial/code/@code</td>
<td></td>
</tr>
<tr>
<td>Display Product Name</td>
<td>Display name of the medication</td>
<td>consumable/manufacturedProduct/manufacturedMaterial/code/displayName</td>
<td>Medication Clinical Drug 2.16.840.1.113883.3.88.12.80.17</td>
</tr>
<tr>
<td>Free Text Product Name</td>
<td>Human-readable name of the medication</td>
<td>consumable/manufacturedProduct/manufacturedMaterial/code/originalText/reference/@value (pointer)</td>
<td></td>
</tr>
<tr>
<td>Drug Manufacturer</td>
<td>Name of the drug manufacturer</td>
<td>consumable/manufacturedProduct/manufacturer/Organization/name</td>
<td></td>
</tr>
<tr>
<td>Order Number</td>
<td>Order identifier</td>
<td>entryRelationship/supply/id/@extension</td>
<td></td>
</tr>
<tr>
<td>Order Expiration Date/Time</td>
<td>Order expiration</td>
<td>entryRelationship/supply/effectiveTime/high/@value</td>
<td></td>
</tr>
<tr>
<td>Quantity Ordered Value</td>
<td>Quantity ordered</td>
<td>entryRelationship/supply/quantity/@value</td>
<td></td>
</tr>
<tr>
<td>Quantity Ordered Units</td>
<td>Quantity ordered units</td>
<td>entryRelationship/supply/quantity/@unit</td>
<td></td>
</tr>
<tr>
<td>Order Date/Time</td>
<td>Date/time of order</td>
<td>entryRelationship/supply/author/time/@value</td>
<td></td>
</tr>
<tr>
<td>Ordering Provider</td>
<td>Provider placing the order</td>
<td>entryRelationship/supply/author/assignedAuthor/assignedPerson/name</td>
<td></td>
</tr>
</tbody>
</table>
### B.10 Plan of Care

The Plan of Care section does not contain a structured data section, so all elements are narrative only.

<table>
<thead>
<tr>
<th>Data Element</th>
<th>Description</th>
<th>CCDA Location</th>
<th>Value Set</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Code specifying whether the item is a goal or a plan of care.</td>
<td></td>
<td>Narrative only</td>
</tr>
<tr>
<td>Text</td>
<td>Goal or care plan text</td>
<td></td>
<td>Narrative only</td>
</tr>
<tr>
<td>Organizer: Text</td>
<td>Problem name for problem-based instructions</td>
<td></td>
<td>Narrative only</td>
</tr>
</tbody>
</table>
### B.11 Problem

CCDA locations in this section are assumed to be under the `/ClinicalDocument/component/structuredBody/component/section/entry/act` element.

<table>
<thead>
<tr>
<th>Data Element</th>
<th>Description</th>
<th>CCDA Location</th>
<th>Value Set</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem ID</td>
<td>Problem identifier</td>
<td>id/@extension</td>
<td></td>
</tr>
<tr>
<td>POV</td>
<td>Purpose of visit flag</td>
<td>Narrative only</td>
<td></td>
</tr>
<tr>
<td>Status</td>
<td>Problem status</td>
<td>statusCode/@code</td>
<td>ProblemAct statusCode 2.16.840.1.113883.11.2 0.9.19</td>
</tr>
<tr>
<td>Effective Time</td>
<td>Problem start date</td>
<td>effectiveTime/low/@value</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>entryRelationship/observation/effectiveTime/low/@value</td>
<td></td>
</tr>
<tr>
<td>Resolve Date</td>
<td>Problem resolution date</td>
<td>effectiveTime/high/@value</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>entryRelationship/observation/effectiveTime/high/@value</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Code indicating the type of problem</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Text</td>
<td>Text description of the problem</td>
<td>entryRelationship/observation/value/@displayName entryRelationship/observation/value/translation/@displayName entryRelationship/observation/text/reference/@value (pointer)</td>
<td></td>
</tr>
<tr>
<td>Coded Value</td>
<td>Code indicating the problem</td>
<td>entryRelationship/observation/value/@code entryRelationship/observation/value/translation/@code</td>
<td>Problem Type 2.16.840.1.113883.3.88.12.3221.7.2</td>
</tr>
<tr>
<td>Coded Value Code System</td>
<td>OID of the code system of the Coded Value</td>
<td>entryRelationship/observation/value/@codeSystem entryRelationship/observation/value/translation/@codeSystem</td>
<td></td>
</tr>
<tr>
<td>Data Element</td>
<td>Description</td>
<td>CCDA Location</td>
<td>Value Set</td>
</tr>
<tr>
<td>---------------</td>
<td>--------------------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Age At Onset</td>
<td>Patient age at onset of problem</td>
<td>entryRelationship/observation/observation/entryRelationship/value/@value</td>
<td></td>
</tr>
</tbody>
</table>

**B.12  Procedure**

CCDA locations in this section are assumed to be under the

<table>
<thead>
<tr>
<th>Data Element</th>
<th>Description</th>
<th>CCDA Location</th>
<th>Value Set</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procedure ID</td>
<td>Procedure identifier</td>
<td>id/@extension</td>
<td></td>
</tr>
<tr>
<td>Date/Time</td>
<td>Date/time of procedure</td>
<td>effectiveTime/@value</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Code indicating the procedure performed</td>
<td>code/@code</td>
<td>code/translation/@code</td>
</tr>
<tr>
<td>Code System</td>
<td>OID of the code system for the Code</td>
<td>code/@codeSystem</td>
<td>code/translation/@codeSystem</td>
</tr>
<tr>
<td>Code Description</td>
<td>Description of the procedure</td>
<td>code/@displayName</td>
<td>code/translation/@displayName</td>
</tr>
<tr>
<td>Performer ID</td>
<td>Identifier of the person performing the procedure</td>
<td>performer/assignedEntity/id/@extension</td>
<td></td>
</tr>
<tr>
<td>Performer Address</td>
<td>Address of the person performing the procedure</td>
<td>performer/assignedEntity/addr</td>
<td></td>
</tr>
<tr>
<td>Performer Phone</td>
<td>Telephone number of the person performing the procedure</td>
<td>performer/assignedEntity/telecom/@value</td>
<td></td>
</tr>
<tr>
<td>Current Facility</td>
<td>Flag indicating whether the procedure was performed at the current facility</td>
<td>Used to sort the procedures in the narrative</td>
<td></td>
</tr>
</tbody>
</table>

**B.13  Result**

CCDA locations in this section are assumed to be under the
/ClinicalDocument/component/structuredBody/component/section/entry/organizer element.
<table>
<thead>
<tr>
<th>Data Element</th>
<th>Description</th>
<th>CCDA Location</th>
<th>Value Set</th>
</tr>
</thead>
<tbody>
<tr>
<td>Result ID</td>
<td>Result identifier</td>
<td>component/observation/id/@extension</td>
<td></td>
</tr>
<tr>
<td>Type Code</td>
<td>LOINC code indicating the type of result</td>
<td>component/observation/code/@code</td>
<td></td>
</tr>
<tr>
<td>Type Code System</td>
<td>OID of the code system for Type Code</td>
<td>component/observation/code/@codeSystem</td>
<td></td>
</tr>
<tr>
<td>Type Name</td>
<td>Text indicating the type of result</td>
<td>component/observation/code/@displayName</td>
<td></td>
</tr>
<tr>
<td>Date/Time</td>
<td>Date/time of the result</td>
<td>component/observation/effectiveTime/@value</td>
<td></td>
</tr>
<tr>
<td>Value</td>
<td>Result value</td>
<td>component/observation/value/@value</td>
<td></td>
</tr>
<tr>
<td>Unit</td>
<td>Result units</td>
<td>component/observation/value/@unit</td>
<td></td>
</tr>
<tr>
<td>Interpretation Code</td>
<td>Result interpretation code</td>
<td>component/observation/interpretationCode/@code</td>
<td></td>
</tr>
<tr>
<td>Reference Range</td>
<td>Result reference range</td>
<td>component/observation/referenceRange/observationRange/text</td>
<td></td>
</tr>
<tr>
<td>Organizer: Organizer ID</td>
<td>Panel or individual test identifier</td>
<td>id/@extension</td>
<td></td>
</tr>
<tr>
<td>Organizer: Code</td>
<td>LOINC code indicating the panel or individual test</td>
<td>code/@code</td>
<td></td>
</tr>
<tr>
<td>Organizer: Code System</td>
<td>OID of the code system for Code</td>
<td>code/@codeSystem</td>
<td></td>
</tr>
<tr>
<td>Organizer: Name</td>
<td>Name of the panel or individual test</td>
<td>code/@displayName</td>
<td></td>
</tr>
<tr>
<td>Organizer: Group Type</td>
<td>Code indicating whether the group is a panel, individual test, or skin test</td>
<td>Used to sort results in the narrative</td>
<td></td>
</tr>
</tbody>
</table>
### B.14 Social History

CCDA locations in this section are assumed to be under the 

<table>
<thead>
<tr>
<th>Data Element</th>
<th>Description</th>
<th>CCDA Location</th>
<th>Value Set</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoking Status Start Date</td>
<td>Date the patient started smoking</td>
<td>effectiveTime/low/@value</td>
<td></td>
</tr>
<tr>
<td>Smoking Status End Date</td>
<td>Date the patient stopped smoking</td>
<td>effectiveTime/high/@value</td>
<td></td>
</tr>
<tr>
<td>Smoking Status Code</td>
<td>Code indicating the patient’s smoking status</td>
<td>value/@code</td>
<td>Smoking Status 2.16.840.1.113883.10.2 2.4.78</td>
</tr>
<tr>
<td>Smoking Status Comment</td>
<td>Comment associated with patient’s smoking status</td>
<td>Narrative only</td>
<td></td>
</tr>
</tbody>
</table>

### B.15 Vital Sign

CCDA locations in this section are assumed to be under the 
/ClinicalDocument/component/structuredBody/component/section/entry/organizer element.

<table>
<thead>
<tr>
<th>Data Element</th>
<th>Description</th>
<th>CCDA Location</th>
<th>Value Set</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement Date</td>
<td>Date of measurement</td>
<td>effectiveTime/@value</td>
<td></td>
</tr>
<tr>
<td>Vital Sign ID</td>
<td>Vital sign identifier</td>
<td>component/observation/id/@extension</td>
<td></td>
</tr>
<tr>
<td>Result Type</td>
<td>LOINC code indicating the type of measurement</td>
<td>component/observation/code/@code</td>
<td>HITSP Vital Sign Result Type 2.16.840.1.113883.3.88.12.80.62</td>
</tr>
<tr>
<td>Measurement Date/Time</td>
<td>Date/time of measurement</td>
<td>component/observation/effectiveTime/@value</td>
<td></td>
</tr>
<tr>
<td>Unit</td>
<td>Measurement units</td>
<td>component/observation/value/@value</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>component/observation/text/reference/@value (pointer)</td>
<td></td>
</tr>
<tr>
<td>Value</td>
<td>Measurement value</td>
<td>component/observation/value/@unit</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>component/observation/text/reference/@value (pointer)</td>
<td></td>
</tr>
</tbody>
</table>
Appendix C: List of CCDA Classes

C.1 Audit

The BCCD.Audit classes support the auditing of CCDA requests and the throttling of errors within the CCDA extract process.

- BCCD.Audit.AuditLog
- BCCD.Audit.ErrorThrottle

C.2 CCDA

The BCCD.CCDA classes were generated from the HL7 XML schema via Ensemble’s XML Schema Wizard. The classes are used to support the generation of the document XML.

- BCCD.CCDA.ActClass
- BCCD.CCDA.ActClassComposition
- BCCD.CCDA.ActClassCondition
- BCCD.CCDA.ActClassContract
- BCCD.CCDA.ActClassControlAct
- BCCD.CCDA.ActClassDocument
- BCCD.CCDA.ActClassEntry
- BCCD.CCDA.ActClassExtract
- BCCD.CCDA.ActClassFinancialContract
- BCCD.CCDA.ActClassObservation
- BCCD.CCDA.ActClassObservationSeries
- BCCD.CCDA.ActClassOrganizer
- BCCD.CCDA.ActClassPublicHealthCase
- BCCD.CCDA.ActClassROI
- BCCD.CCDA.ActClassRoot
- BCCD.CCDA.ActClassSupply
- BCCD.CCDA.ActClinicalDocument
- BCCD.CCDA.ActContainer
- BCCD.CCDA.ActMood
• BCCD.CCDA.ActMoodCompletionTrack
• BCCD.CCDA.ActMoodIntent
• BCCD.CCDA.ActMoodPredicate
• BCCD.CCDA.ActRelationshipAccounting
• BCCD.CCDA.ActRelationshipConditional
• BCCD.CCDA.ActRelationshipCostTracking
• BCCD.CCDA.ActRelationshipExcerpt
• BCCD.CCDA.ActRelationshipFulfills
• BCCD.CCDA.ActRelationshipHasComponent
• BCCD.CCDA.ActRelationshipObjective
• BCCD.CCDA.ActRelationshipOutcome
• BCCD.CCDA.ActRelationshipPertains
• BCCD.CCDA.ActRelationshipPosting
• BCCD.CCDA.ActRelationshipReason
• BCCD.CCDA.ActRelationshipReplacement
• BCCD.CCDA.ActRelationshipSequel
• BCCD.CCDA.ActRelationshipType
• BCCD.CCDA.AD
• BCCD.CCDA.AdditionalLocator
• BCCD.CCDA.AddressPartType
• BCCD.CCDA.AddressUse
• BCCD.CCDA.ADXP
• BCCD.CCDA.adxp.additionalLocator
• BCCD.CCDA.adxp.buildingNumberSuffix
• BCCD.CCDA.adxp.careOf
• BCCD.CCDA.adxp.censusTract
• BCCD.CCDA.adxp.city
• BCCD.CCDA.adxp.country
• BCCD.CCDA.adxp.county
• BCCD.CCDA.adxp.delimiter
- BCCD.CCDA.adxp.deliveryAddressLine
- BCCD.CCDA.adxp.deliveryInstallationArea
- BCCD.CCDA.adxp.deliveryInstallationQualifier
- BCCD.CCDA.adxp.deliveryInstallationType
- BCCD.CCDA.adxp.deliveryMode
- BCCD.CCDA.adxp.deliveryModeIdentifier
- BCCD.CCDA.adxp.direction
- BCCD.CCDA.adxp.houseNumber
- BCCD.CCDA.adxp.houseNumberNumeric
- BCCD.CCDA.adxp.postalCode
- BCCD.CCDA.adxp.postBox
- BCCD.CCDA.adxp.precinct
- BCCD.CCDA.adxp.state
- BCCD.CCDA.adxp.streetAddressLine
- BCCD.CCDA.adxp.streetName
- BCCD.CCDA.adxp.streetNameBase
- BCCD.CCDA.adxp.streetNameType
- BCCD.CCDA.adxp.unitID
- BCCD.CCDA.adxp.unitType
- BCCD.CCDA.ANY
- BCCD.CCDA.ANYNonNull
- BCCD.CCDA.ApplicationMediaType
- BCCD.CCDA.AskedButUnknown
- BCCD.CCDA.AudioMediaType
- BCCD.CCDA.BIN
- BCCD.CCDA.bin1
- BCCD.CCDA.BinaryDataEncoding
- BCCD.CCDA.bl
- BCCD.CCDA.BL1
- BCCD.CCDA.bn
• BCCD.CCDA.BN1
• BCCD.CCDA.BuildingNumber
• BCCD.CCDA.BXITCD
• BCCD.CCDA.BXITIVLPQ
• BCCD.CCDA.CalendarCycle
• BCCD.CCDA.CalendarCycleOneLetter
• BCCD.CCDA.CalendarCycleTwoLetter
• BCCD.CCDA.CD
• BCCD.CCDA.CE
• BCCD.CCDA.CE1
• BCCD.CCDA.Classes
• BCCD.CCDA.CommunicationFunctionType
• BCCD.CCDA.CompressionAlgorithm
• BCCD.CCDA.ContextControl
• BCCD.CCDA.ContextControlAdditive
• BCCD.CCDA.ContextControlNonPropagating
• BCCD.CCDA.ContextControlOverriding
• BCCD.CCDA.ContextControlPropagating
• BCCD.CCDA.CR
• BCCD.CCDA.cs
• BCCD.CCDA.CS1
• BCCD.CCDA.Currency
• BCCD.CCDA.CV
• BCCD.CCDA.DeliveryAddressLine
• BCCD.CCDA.ED
• BCCD.CCDA.EIVL.event
• BCCD.CCDA.EIVLPPDTS
• BCCD.CCDA.EIVLTS
• BCCD.CCDA.EN
• BCCD.CCDA.en.delimiter
- BCCD.CCDA.en.family
- BCCD.CCDA.en.given
- BCCD.CCDA.en.prefix
- BCCD.CCDA.en.suffix
- BCCD.CCDA.EntityClass
- BCCD.CCDA.EntityClassContainer
- BCCD.CCDA.EntityClassDevice
- BCCD.CCDA.EntityClassLivingSubject
- BCCD.CCDA.EntityClassManufacturedMaterial
- BCCD.CCDA.EntityClassMaterial
- BCCD.CCDA.EntityClassNonPersonLivingSubject
- BCCD.CCDA.EntityClassOrganization
- BCCD.CCDA.EntityClassPlace
- BCCD.CCDA.EntityClassRoot
- BCCD.CCDA.EntityDeterminer
- BCCD.CCDA.EntityDeterminerDetermined
- BCCD.CCDA.EntityNamePartQualifier
- BCCD.CCDA.EntityNamePartType
- BCCD.CCDA.EntityNameSearchUse
- BCCD.CCDA.EntityNameUse
- BCCD.CCDA.ENXP
- BCCD.CCDA.GLISTPQ
- BCCD.CCDA.GLISTTS
- BCCD.CCDA.GregorianCalendarCycle
- BCCD.CCDA.hasSupport
- BCCD.CCDA.HomeAddressUse
- BCCD.CCDA.HXITCE
- BCCD.CCDA.HXITPQ
- BCCD.CCDA.II
- BCCD.CCDA.ImageMediaType
• BCCD.CCDA.int
• BCCD.CCDA.INT1
• BCCD.CCDA.IntegrityCheckAlgorithm
• BCCD.CCDA.IVLINT
• BCCD.CCDA.IVLMO
• BCCD.CCDA.IVLPDPQ
• BCCD.CCDA.IVLPPDT
• BCCD.CCDA.IVLPQ
• BCCD.CCDA.IVLREAL
• BCCD.CCDA.IVLTS
• BCCD.CCDA.IVXBINT
• BCCD.CCDA.IVXBMO
• BCCD.CCDA.IVXBPPDPQ
• BCCD.CCDA.IVXBPPDT
• BCCD.CCDA.IVXBPPQ
• BCCD.CCDA.IVXBREAL
• BCCD.CCDA.IVXBTS
• BCCD.CCDA.LicensedEntityRole
• BCCD.CCDAListComponent
• BCCD.CCDA.MediaType
• BCCD.CCDA.MO
• BCCD.CCDA.ModelMediaType
• BCCD.CCDA.MultipartMediaType
• BCCD.CCDA.NamePseudonymUse
• BCCD.CCDA.NameRepresentationUse
• BCCD.CCDA.NoInformation
• BCCD.CCDA.NullFlavor
• BCCD.CCDA.oid
• BCCD.CCDA.ON
• BCCD.CCDA.OrganizationNamePartQualifier
- BCCD.CCDA.OrganizationNameUse
- BCCD.CCDA.Other
- BCCD.CCDA.ParticipationAncillary
- BCCD.CCDA.ParticipationIndirectTarget
- BCCD.CCDA.ParticipationInformationGenerator
- BCCD.CCDA.ParticipationInformationRecipient
- BCCD.CCDA.ParticipationPhysicalPerformer
- BCCD.CCDA.ParticipationTargetDevice
- BCCD.CCDA.ParticipationTargetDirect
- BCCD.CCDA.ParticipationTargetLocation
- BCCD.CCDA.ParticipationTargetSubject
- BCCD.CCDA.ParticipationType
- BCCD.CCDA.ParticipationVerifier
- BCCD.CCDA.PersonNamePartAffixTypes
- BCCD.CCDA.PersonNamePartChangeQualifier
- BCCD.CCDA.PersonNamePartMiscQualifier
- BCCD.CCDA.PersonNamePartQualifier
- BCCD.CCDA.PersonNameUse
- BCCD.CCDA.PIVLPPDTS
- BCCD.CCDA.PIVLTS
- BCCD.CCDA.PN
- BCCD.CCDA.POCDMT000040.Act
- BCCD.CCDA.POCDMT000040.AssignedAuthor
- BCCD.CCDA.POCDMT000040.AssignedCustodian
- BCCD.CCDA.POCDMT000040.AssignedEntity
- BCCD.CCDA.POCDMT000040.AssociatedEntity
- BCCD.CCDA.POCDMT000040.Authenticator
- BCCD.CCDA.POCDMT000040.Author
- BCCD.CCDA.POCDMT000040.AuthoringDevice
- BCCD.CCDA.POCDMT000040.Authorization
• BCCD.CCDA.POCDMT000040.Birthplace
• BCCD.CCDA.POCDMT000040.ClinicalDocument
• BCCD.CCDA.POCDMT000040.Component1
• BCCD.CCDA.POCDMT000040.Component2
• BCCD.CCDA.POCDMT000040.Component3
• BCCD.CCDA.POCDMT000040.Component4
• BCCD.CCDA.POCDMT000040.Component5
• BCCD.CCDA.POCDMT000040.Consent
• BCCD.CCDA.POCDMT000040.Consumable
• BCCD.CCDA.POCDMT000040.Criterion
• BCCD.CCDA.POCDMT000040.Custodian
• BCCD.CCDA.POCDMT000040.CustodianOrganization
• BCCD.CCDA.POCDMT000040.DataEnterer
• BCCD.CCDA.POCDMT000040.Device
• BCCD.CCDA.POCDMT000040.DocumentationOf
• BCCD.CCDA.POCDMT000040.EncompassingEncounter
• BCCD.CCDA.POCDMT000040.Encounter
• BCCD.CCDA.POCDMT000040.EncounterParticipant
• BCCD.CCDA.POCDMT000040.Entity
• BCCD.CCDA.POCDMT000040.Entry
• BCCD.CCDA.POCDMT000040.EntryRelationship
• BCCD.CCDA.POCDMT000040.ExternalAct
• BCCD.CCDA.POCDMT000040.ExternalDocument
• BCCD.CCDA.POCDMT000040.ExternalObservation
• BCCD.CCDA.POCDMT000040.ExternalProcedure
• BCCD.CCDA.POCDMT000040.Guardian
• BCCD.CCDA.POCDMT000040.HealthCareFacility
• BCCD.CCDA.POCDMT000040.Informant12
• BCCD.CCDA.POCDMT000040.InformationRecipient
• BCCD.CCDA.POCDMT000040.InfrastructureRoot.typeId
• BCCD.CCDA.POCDMT000040.InFulfillmentOf
• BCCD.CCDA.POCDMT000040.IntendedRecipient
• BCCD.CCDA.POCDMT000040.LabeledDrug
• BCCD.CCDA.POCDMT000040.LanguageCommunication
• BCCD.CCDA.POCDMT000040.LegalAuthenticator
• BCCD.CCDA.POCDMT000040.Location
• BCCD.CCDA.POCDMT000040.MaintainedEntity
• BCCD.CCDA.POCDMT000040.ManufacturedProduct
• BCCD.CCDA.POCDMT000040.Material
• BCCD.CCDA.POCDMT000040.NonXMLBody
• BCCD.CCDA.POCDMT000040.Observation
• BCCD.CCDA.POCDMT000040.ObservationMedia
• BCCD.CCDA.POCDMT000040.ObservationRange
• BCCD.CCDA.POCDMT000040.Order
• BCCD.CCDA.POCDMT000040.Organization
• BCCD.CCDA.POCDMT000040.OrganizationPartOf
• BCCD.CCDA.POCDMT000040.Organizer
• BCCD.CCDA.POCDMT000040.ParentDocument
• BCCD.CCDA.POCDMT000040.Participant1
• BCCD.CCDA.POCDMT000040.Participant2
• BCCD.CCDA.POCDMT000040.ParticipantRole
• BCCD.CCDA.POCDMT000040.Patient
• BCCD.CCDA.POCDMT000040.PatientRole
• BCCD.CCDA.POCDMT000040.Performer1
• BCCD.CCDA.POCDMT000040.Performer2
• BCCD.CCDA.POCDMT000040.Person
• BCCD.CCDA.POCDMT000040.Place
• BCCD.CCDA.POCDMT000040.PlayingEntity
• BCCD.CCDA.POCDMT000040.Precondition
• BCCD.CCDA.POCDMT000040.Procedure
- BCCD.CCDA.POCDMT000040.Product
- BCCD.CCDA.POCDMT000040.RecordTarget
- BCCD.CCDA.POCDMT000040.Reference
- BCCD.CCDA.POCDMT000040.ReferenceRange
- BCCD.CCDA.POCDMT000040.RegionOfInterest
- BCCD.CCDA.POCDMT000040.RegionOfInterest.value
- BCCD.CCDA.POCDMT000040.RelatedDocument
- BCCD.CCDA.POCDMT000040.RelatedEntity
- BCCD.CCDA.POCDMT000040.RelatedSubject
- BCCD.CCDA.POCDMT000040.ResponsibleParty
- BCCD.CCDA.POCDMT000040.Section
- BCCD.CCDA.POCDMT000040.ServiceEvent
- BCCD.CCDA.POCDMT000040.Specimen
- BCCD.CCDA.POCDMT000040.SpecimenRole
- BCCD.CCDA.POCDMT000040.StructuredBody
- BCCD.CCDA.POCDMT000040.Subject
- BCCD.CCDA.POCDMT000040.SubjectPerson
- BCCD.CCDA.POCDMT000040.SubstanceAdministration
- BCCD.CCDA.POCDMT000040.Supply
- BCCD.CCDA.PostalAddressUse
- BCCD.CCDA.PPDPQ
- BCCD.CCDA.PPDTS
- BCCD.CCDA.PQ
- BCCD.CCDA.PQR
- BCCD.CCDA.probability
- BCCD.CCDAProbabilityDistributionType
- BCCD.CCDA.QTY
- BCCD.CCDA.real
- BCCD.CCDA.REAL1
- BCCD.CCDA.RelatedLinkType
- BCCD.CCDA.RoleClass
- BCCD.CCDA.RoleClassAgent
- BCCD.CCDA.RoleClassAssignedEntity
- BCCD.CCDA.RoleClassAssociative
- BCCD.CCDA.RoleClassContact
- BCCD.CCDA.RoleClassDistributedMaterial
- BCCD.CCDA.RoleClassEmployee
- BCCD.CCDA.RoleClassInactiveIngredient
- BCCD.CCDA.RoleClassIngredientEntity
- BCCD.CCDA.RoleClassInvestigationSubject
- BCCD.CCDA.RoleClassIsSpeciesEntity
- BCCD.CCDA.RoleClassLocatedEntity
- BCCD.CCDA.RoleClassManufacturedProduct
- BCCD.CCDA.RoleClassMutualRelationship
- BCCD.CCDA.RoleClassOntological
- BCCD.CCDA.RoleClassPartitive
- BCCD.CCDA.RoleClassPassive
- BCCD.CCDA.RoleClassRelationshipFormal
- BCCD.CCDA.RoleClassRoot
- BCCD.CCDA.RoleClassServiceDeliveryLocation
- BCCD.CCDA.RoleClassSpecimen
- BCCD.CCDA.RoleLinkType
- BCCD.CCDA.RTOMOPQ
- BCCD.CCDA.RTOPQPQ
- BCCD.CCDA.RTOQTYQTY
- BCCD.CCDA.ruid
- BCCD.CCDA.SC
- BCCD.CCDA.setEntityNamePartQualifier
- BCCD.CCDA.setEntityNameUse
- BCCD.CCDA.SetOperator
• BCCD.CCDA.setPostalAddressUse
• BCCD.CCDA.setTelecommunicationAddressUse
• BCCD.CCDA.SLISTPQ
• BCCD.CCDA.SLISTTS
• BCCD.CCDA.st
• BCCD.CCDA.ST1
• BCCD.CCDA.State
• BCCD.CCDA.StreetAddressLine
• BCCD.CCDA.StreetName
• BCCD.CCDA.StrucDoc.Br
• BCCD.CCDA.StrucDoc.Caption
• BCCD.CCDA.StrucDoc.Col
• BCCD.CCDA.StrucDoc.Colgroup
• BCCD.CCDA.StrucDoc.Content
• BCCD.CCDA.StrucDoc.Footnote
• BCCD.CCDA.StrucDoc.FootnoteRef
• BCCD.CCDA.StrucDoc.Item
• BCCD.CCDA.StrucDoc.LinkHtml
• BCCD.CCDA.StrucDoc.List
• BCCD.CCDA.StrucDoc.Paragraph
• BCCD.CCDA.StrucDoc.RenderMultiMedia
• BCCD.CCDA.StrucDoc.Sub
• BCCD.CCDA.StrucDoc.Sup
• BCCD.CCDA.StrucDoc.Table
• BCCD.CCDA.StrucDoc.Tbody
• BCCD.CCDA.StrucDoc.Td
• BCCD.CCDA.StrucDoc.Text
• BCCD.CCDA.StrucDoc.Tfoot
• BCCD.CCDA.StrucDoc.Th
• BCCD.CCDA.StrucDoc.Thead
- BCCD.CCDA.StrucDoc.Title
- BCCD.CCDA.StrucDoc.TitleContent
- BCCD.CCDA.StrucDoc.TitleFootnote
- BCCD.CCDA.StrucDoc.Tr
- BCCD.CCDA.SXCMCD
- BCCD.CCDA.SXCMINT
- BCCD.CCDA.SXCMMO
- BCCD.CCDA.SXCMPDPDQ
- BCCD.CCDA.SXCMPPDTS
- BCCD.CCDA.SXCMPPDTS
- BCCD.CCDA.SXCMREAL
- BCCD.CCDA.SXCMTS
- BCCD.CCDA.SXPRTS
- BCCD.CCDA.TEL
- BCCD.CCDA.TelecommunicationAddressUse
- BCCD.CCDA.TemporallyPertains
- BCCD.CCDA.TextMediaType
- BCCD.CCDA.thumbnail
- BCCD.CCDA.TimingEvent
- BCCD.CCDA.TN
- BCCD.CCDA.ts
- BCCD.CCDA.TS1
- BCCD.CCDA.uid
- BCCD.CCDA.Unknown
- BCCD.CCDA.url
- BCCD.CCDA.URL1
- BCCD.CCDA.URLScheme
- BCCD.CCDA.uuid
- BCCD.CCDA.UVPTS
- BCCD.CCDA.VideoMediaType
- BCCD.CCDA.WorkPlaceAddressUse
- BCCD.CCDA.xActClassDocumentEntryAct
- BCCD.CCDA.xActClassDocumentEntryOrganizer
- BCCD.CCDA.xActMoodDefEvn
- BCCD.CCDA.xActMoodDefEvnRqoPrmsPrp
- BCCD.CCDA.xActMoodDocumentObservation
- BCCD.CCDA.xActMoodEvnOrdPrmsPrp
- BCCD.CCDA.xActMoodIntentEvent
- BCCD.CCDA.xActMoodOrdPrms
- BCCD.CCDA.xActMoodOrdPrmsEvn
- BCCD.CCDA.xActMoodRqoPrpAptArq
- BCCD.CCDA.xActRelationshipDocument
- BCCD.CCDA.xActRelationshipEntry
- BCCD.CCDA.xActRelationshipEntryRelationship
- BCCD.CCDA.xActRelationshipExternalReference
- BCCD.CCDA.xActRelationshipPatientTransport
- BCCD.CCDA.xActRelationshipPertinentInfo
- BCCD.CCDA.xDeterminerInstanceKind
- BCCD.CCDA.xDocumentActMood
- BCCD.CCDA.xDocumentEncounterMood
- BCCD.CCDA.xDocumentEntrySubject
- BCCD.CCDA.xDocumentProcedureMood
- BCCD.CCDA.xDocumentSubject
- BCCD.CCDA.xDocumentSubstanceMood
- BCCD.CCDA.xEncounterParticipant
- BCCD.CCDA.xEncounterPerformerParticipation
- BCCD.CCDA.xEntityClassDocumentReceiving
- BCCD.CCDA.xEntityClassPersonOrOrgReceiving
- BCCD.CCDA.xInformationRecipient
- BCCD.CCDA.xInformationRecipientRole
• BCCD.CCDA.xOrganizationNamePartType
• BCCD.CCDA.xParticipationAuthorPerformer
• BCCD.CCDA.xParticipationEntVrf
• BCCD.CCDA.xParticipationPrfEntVrf
• BCCD.CCDA.xParticipationVrfRespSprfWit
• BCCD.CCDA.xPersonNamePartType
• BCCD.CCDA.xRoleClassAccommodationRequestor
• BCCD.CCDA.xRoleClassCoverage
• BCCD.CCDA.xRoleClassCoverageInvoice
• BCCD.CCDA.xRoleClassCredentialedEntity
• BCCD.CCDA.xRoleClassPayeePolicyRelationship
• BCCD.CCDA.xServiceEventPerformer

C.3 Install
The BCCD.Install classes support the installation of the CCDA application.
• BCCD.Install.Installer
• BCCD.Install.PostInstallTask
• BCCD.Install.PreInstallTask
• BCCD.Install.ProductionSettings

C.4 Prod
The BCCD.Prod classes support the CCDA document generation and transmission, the Ensemble production, and the alert process.
• BCCD.Prod.Adapters.AlertInbound
• BCCD.Prod.Adapters.CompiledRecordInbound
• BCCD.Prod.Adapters.ErrorRecordInbound
• BCCD.Prod.Adapters.ErrorThrottleInbound
• BCCD.Prod.Adapters.SuspendedRecordInbound
• BCCD.Prod.Alert.AlertItem
• BCCD.Prod.Build.CCD
• BCCD.Prod.Build.DTL.AllergyComponent
- BCCD.Prod.Build.DTL.AllergyEntry
- BCCD.Prod.Build.DTL.CareTeamComponent
- BCCD.Prod.Build.DTL.CareTeamDocumentationOf
- BCCD.Prod.Build.DTL.CareTeamEncounterParticipant
- BCCD.Prod.Build.DTL.CareTeamPerformer
- BCCD.Prod.Build.DTL.ClinicalDocument
- BCCD.Prod.Build.DTL.FunctionalStatusComponent
- BCCD.Prod.Build.DTL.Functions
- BCCD.Prod.Build.DTL.HospDischargeInstComponent
- BCCD.Prod.Build.DTL.ImmunizationComponent
- BCCD.Prod.Build.DTL.ImmunizationEntry
- BCCD.Prod.Build.DTL.InstructionComponent
- BCCD.Prod.Build.DTL.InstructionEntry
- BCCD.Prod.Build.DTL.MedFrequencyFunctions
- BCCD.Prod.Build.DTL.MedicationComponent
- BCCD.Prod.Build.DTL.MedicationEntry
- BCCD.Prod.Build.DTL.ModuleContext
- BCCD.Prod.Build.DTL.PlanOfCareComponent
- BCCD.Prod.Build.DTL.ProblemComponent
- BCCD.Prod.Build.DTL.ProblemEntry
- BCCD.Prod.Build.DTL.ProblemObservation
- BCCD.Prod.Build.DTL.ProcedureComponent
- BCCD.Prod.Build.DTL.ProcedureEntry
- BCCD.Prod.Build.DTL.ReasonForReferralComponent
- BCCD.Prod.Build.DTL.ReasonForVisitComponent
- BCCD.Prod.Build.DTL.ResultComponent
- BCCD.Prod.Build.DTL.ResultEntry
- BCCD.Prod.Build.DTL.ResultObservation
- BCCD.Prod.Build.DTL.SocialHistoryComponent
- BCCD.Prod.Build.DTL.SocialHistoryEntry
- BCCD.Prod.Build.DTL.VitalSignComponent
- BCCD.Prod.Build.DTL.VitalSignEntry
- BCCD.Prod.Build.DTL.VitalSignObservation
- BCCD.Prod.Build.Main
- BCCD.Prod.Messages.ErrorResponse
- BCCD.Prod.Messages.QueueIdRequest
- BCCD.Prod.Messages.StreamRequest
- BCCD.Prod.Processes.Alert
- BCCD.Prod.Processes.Alert.Thread1
- BCCD.Prod.Processes.BuildDoc
- BCCD.Prod.Processes.BuildDoc.Thread1
- BCCD.Prod.Processes.TransmitPush
- BCCD.Prod.Production
- BCCD.Prod.PushWS.ns.DocumentComplexType
- BCCD.Prod.PushWS.ns.DocumentContent
- BCCD.Prod.PushWS.ns.DocumentType
- BCCD.Prod.PushWS.PatientRecordReceiverPort
- BCCD.Prod.PushWS.PatientRecordReceiverPort.PatientRecordReceiverOperation
- BCCD.Prod.PushWS.xmime.base64Binary
- BCCD.Prod.PushWS.xmime.hexBinary
- BCCD.Prod.Services.Alert
• BCCD.Prod.Services.CompiledRecord
• BCCD.Prod.Services.ErrorRecord
• BCCD.Prod.Services.ErrorThrottle
• BCCD.Prod.Services.SuspendedRecord

C.5 Tasks
The BCCD.Tasks classes consist of tasks that can be scheduled to run periodically or invoked from the RPMS namespace to run in the CCDA namespace. The classes support the weekly purge process and the ability to start the Ensemble production from the RPMS namespace.
• BCCD.Tasks.Purge
• BCCD.Tasks.UpdateProductionState

C.6 Xfer
The BCCD.Xfer classes support the extraction of data from RPMS.
• BCCD.Xfer.Address
• BCCD.Xfer.Allergy
• BCCD.Xfer.AllergyCode
• BCCD.Xfer.AllergyReaction
• BCCD.Xfer.CareTeam
• BCCD.Xfer.CCDMain
• BCCD.Xfer.CCDPopulate
• BCCD.Xfer.FieldTransformations
• BCCD.Xfer.FunctionalStatus
• BCCD.Xfer.GeneralHeader
• BCCD.Xfer.HospitalDischargeInstruction
• BCCD.Xfer.Immunization
• BCCD.Xfer.Instruction
• BCCD.Xfer.InstructionOrganizer
• BCCD.Xfer.MedDispense
• BCCD.Xfer.MedFrequency
- BCCD.Xfer.Medication
- BCCD.Xfer.Patient
- BCCD.Xfer.PerformanceData
- BCCD.Xfer.PersonName
- BCCD.Xfer.PlanOfCare
- BCCD.Xfer.PlanOfCareOrganizer
- BCCD.Xfer.PopAllergy
- BCCD.Xfer.PopCareTeam
- BCCD.Xfer.PopDischargeInstructions
- BCCD.Xfer.PopFunctionalStatus
- BCCD.Xfer.PopGeneralHeader
- BCCD.Xfer.PopImmunization
- BCCD.Xfer.PopInstructions
- BCCD.Xfer.PopMedication
- BCCD.Xfer.PopPatient
- BCCD.Xfer.PopPlanOfCare
- BCCD.Xfer.PopProblem
- BCCD.Xfer.PopProcedure
- BCCD.Xfer.PopReasonForReferral
- BCCD.Xfer.PopReasonForVisitHosp
- BCCD.Xfer.PopResult
- BCCD.Xfer.PopSocialHistory
- BCCD.Xfer.PopVitalSign
- BCCD.Xfer.Problem
- BCCD.Xfer.Procedure
- BCCD.Xfer.PushQueue
- BCCD.Xfer.Queue
- BCCD.Xfer.Result
- BCCD.Xfer.ResultOrganizer
- BCCD.Xfer.SocialHistory
- BCCD.Xfer.VitalSign
Appendix D: Web Service API

This section summarizes the Web Service Application Programming Interface (API) provided for requesting CCDA documents from the EHR GUI and, potentially, other outside applications. Its goal is to assist RPMS sites and outside developers in understanding what the web service is and how to use it to retrieve CCDA documents from RPMS.

D.1 Web Service

The CCDA web service provides an API for requesting and retrieving a Clinical Summary or Transitions of Care CCDA document from RPMS. To access the web service, it is necessary to develop a web client. Instructions for developing a web client are beyond the scope of this document. However, there are a number of tools available for generating a web client from a WSDL for major platforms, such as Java and .NET. Once a web client has been developed it may be used to request a CCDA document by means of sending a SOAP request containing a Patient ID, one or more Visit IDs, and a Document Type to the web service and receiving a SOAP response containing the CCDA document.

The web service is accessed via HTTP. HTTPS (HTTP Secure or HTTP over SSL/TLS) is not currently supported, so it is the responsibility of the site to address security between the web client and the web service.

D.1.1 Request Message

A sample SOAP request is provided in Section D.3. The request consists of a SOAP header and a SOAP body. The request header must include a WS-Security section containing a valid access code/verify code pair. The request body has four required elements: the patient ID, one or more visit IDs, the requested document type, and the RPMS DUZ value of the person making the request.

The access code/verify code pair consists of the access code and verify code for a user in the RPMS NEW PERSON file. The codes are sent encoded just as they are stored in RPMS; they are not sent in plaintext. The access code is sent as the WS-Security username, and the verify code is sent as the WS-Security password.

The patient ID is the patient IEN in the RPMS namespace. It is a unique identifier within an RPMS namespace, but might not be unique across namespaces. To ensure the correct patient record is retrieved, there is one web service for each RPMS namespace; the web client must access the web service corresponding to the RPMS namespace that contains the patient IEN being requested.

The list of visit IDs contains one or more visit IENs in the RPMS namespace. Like the patient IEN, each visit IEN is a unique identifier within an RPMS namespace.
The requested document type is a code to indicate whether the web client is requesting a Clinical Summary or Transitions of Care document. For a Clinical Summary, document type CS is sent. For a Transitions of Care document, document type TC is sent.

The requestor DUZ value must contain the RPMS IEN value of the person making the request. The value is stored in the CCDA audit log to meet CCDA auditing requirements. The value is required and must be a valid user identifier in RPMS.

D.1.2 Response Message

Unlike the C32 web service, the CCDA web service is synchronous, i.e., the response message is returned on the same session as the request. A portion of a sample response message is provided in Section D.4.

The response body contains the actual CCDA document. The document contains information about the patient’s demographics, visit information, and medical history to meet CCD and MU2 requirements. Details about each of the data elements in the CCDA document are included in Appendix B. While all of the information is encoded in XML, some of the information is also encoded in narrative blocks to allow it to be transformed into HTML to be used in generating a web page to make it easier for a person to read the information.

If there is a problem with the request, such as a missing or invalid value in the request, or a problem generating the document, then the response contains error information instead of the CCDA document. A sample error response is provided in Section D.5. The error information consists of two elements: an error code and error text. The error code can be used by the web client to determine the cause of the error. A list of error codes is provided in Appendix E. The error text supplements the error code, providing more information about the cause of the error. Because the error text may vary, it is recommended that the web client use the error code when determining whether the error was caused by an improper request message or by an issue in document generation. Certain types of errors, such as a request that is not a valid SOAP message, may result in Ensemble returning a SOAP fault. In this case, the response will contain a standard SOAP fault and will not contain a CCDA document or the error code/error text pair.

D.2 WSDL Considerations

The following changes to the CCDA WSDL are required to produce a WSDL that corresponds to the web service at a given site:

Replace:
<service name="ClinicalDocumentService">
 <port name="ClinicalDocumentServiceSoap" binding="s0:ClinicalDocumentServiceSoap">
...
D.3 Sample Request

```xml
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/
xmlns:urn="urn:hl7-org:v3">
  <soapenv:Header>
    <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
      <wsse:UsernameToken wsu:Id="UsernameToken-4" xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd">
        <wsse:Username>64D'odY4g0k}h#}mCY4p</wsse:Username>
        <wsse:Password Type="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-username-token-profile-1.0#PasswordText">nPv7(FwcTgU,G[m=10a</wsse:Password>
      </wsse:UsernameToken>
    </wsse:Security>
  </soapenv:Header>
  <soapenv:Body>
    <urn:RetrieveDocument>
      <urn:DocumentRequest>
        <urn:DocumentType>CS</urn:DocumentType>
        <urn:RequestorDUZ>116</urn:RequestorDUZ>
        <urn:PatientId>2163</urn:PatientId>
        <urn:VisitId>
          <urn:VisitIdItem>3126</urn:VisitIdItem>
        </urn:VisitId>
      </urn:DocumentRequest>
    </urn:RetrieveDocument>
  </soapenv:Body>
</soapenv:Envelope>
```

D.4 Sample Response: Valid

```xml
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:s="http://www.w3.org/2001/XMLSchema">
  <SOAP-ENV:Body>
    <RetrieveDocumentResponse xmlns="urn:hl7-org:v3">
      <ClinicalDocumentResponse>
        <ClinicalDocument xsi:schemaLocation="urn:hl7-org:v3 CDA.xsd" xmlns:sdtc="urn:hl7-org:sdtc"/>
    </ClinicalDocumentResponse>
  </RetrieveDocumentResponse>
</SOAP-ENV:Body>
```
D.5 Sample Response: Error

```
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:s="http://www.w3.org/2001/XMLSchema">
  <SOAP-ENV:Body>
    <RetrieveDocumentResponse xmlns="urn:hl7-org:v3">
      <ClinicalDocumentResponse>
        <Error>
          <ErrorCode>124</ErrorCode>
          <ErrorText>No VisitId in request.</ErrorText>
        </Error>
        <ClinicalDocumentResponse>
        </RetrieveDocumentResponse>
      </ClinicalDocumentResponse>
    </RetrieveDocumentResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

D.6 Additional Web Service Resources

W3Schools:
- Web Services tutorial: http://www.w3schools.com/webservices/default.asp
- SOAP introduction: http://www.w3schools.com/webservices/ws_soap_intro.asp
- WSDL introduction: http://www.w3schools.com/webservices/ws_wdsl_intro.asp
- XML tutorial: http://www.w3schools.com/xml/default.asp

Wikipedia:
- API: http://en.wikipedia.org/wiki/Application_programming_interface
- HTTPS: http://en.wikipedia.org/wiki/HTTP_Secure
• SOAP: http://en.wikipedia.org/wiki/SOAP
• Web Service: http://en.wikipedia.org/wiki/Web_service
• WSDL: http://en.wikipedia.org/wiki/Web_Services_Description_Language
## Appendix E: CCDA Error Codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>111</td>
<td>CCDA for the requested document type disabled</td>
</tr>
<tr>
<td>120</td>
<td>No Document Request sent</td>
</tr>
<tr>
<td>121</td>
<td>Missing or invalid Requestor DUZ value in request</td>
</tr>
<tr>
<td>122</td>
<td>Missing or invalid Document Type value in request</td>
</tr>
<tr>
<td>123</td>
<td>Missing or invalid Patient ID value in request</td>
</tr>
<tr>
<td>124</td>
<td>Missing or invalid Visit ID value in request</td>
</tr>
<tr>
<td>125</td>
<td>Missing DirectoryPath (Data Portability only)</td>
</tr>
<tr>
<td>130</td>
<td>Unable to instantiate Queue record</td>
</tr>
<tr>
<td>150</td>
<td>Repository Timeout</td>
</tr>
<tr>
<td>151</td>
<td>Unable to acquire document stream</td>
</tr>
<tr>
<td>201</td>
<td>Error in data extraction</td>
</tr>
<tr>
<td>202</td>
<td>Unable to save extracted data</td>
</tr>
<tr>
<td>203</td>
<td>Error trapped by BCCDTSK (background processor)</td>
</tr>
<tr>
<td>301</td>
<td>Error in data transformation</td>
</tr>
<tr>
<td>302</td>
<td>Error in document generation business process</td>
</tr>
<tr>
<td>303</td>
<td>Error in document transmission</td>
</tr>
<tr>
<td>310</td>
<td>Document in “Compile Started” status for more than 10000 seconds</td>
</tr>
</tbody>
</table>
Appendix F: CCDA Ensemble Configuration and Management

F.1 Creation of CCDA Database, Namespace, and Mappings

The CCDA application adds a new Ensemble database, namespace, CSP application, and set of global and package mappings to each RPMS namespace on the system. The new database and its settings are created by the KIDS build automatically and should not require manual intervention. This section describes, for reference purposes, how the same settings can be created manually.

F.1.1 Creating the CCDA Namespace

If the CCDA namespace has already been created, skip this step. RPMS users can remain on the system during this operation.

F.1.1.1 Naming the CCDA Namespace

The CCDA application resides in a separate Ensemble namespace. There is one CCDA namespace for every RPMS namespace in the instance. If there are multiple RPMS namespaces running within the same Ensemble instance, create a separate CCDA namespace for each RPMS namespace.

To determine the name of the new namespace, concatenate CCDA with the name of the RPMS namespace associated with it. For example, if the RPMS namespace is named TST, then the CCDA namespace should be named CCDATST. If there is a second RPMS namespace named CHI, then its associated CCDA namespace should be named CCDACHI.

Note: This naming convention is relied upon by the CCDA application. The CCDA application will not work if the CCDA namespace is given a different name.

F.1.1.2 Naming the CCDA Database

Each CCDA namespace will have an underlying Ensemble/Caché database. To avoid confusion, give the database the same name as the associated CCDA namespace, unless there is a specific reason to use a different name. Table 11-1 provides a sample table that may be used by sites with multiple RPMS namespaces to record the database information. Sites should enter data for one RPMS namespace per row.
Table 11-1: Sample table for recording namespace, database, and directory information

<table>
<thead>
<tr>
<th>RPMS namespace name</th>
<th>CCDA namespace name</th>
<th>CCDA database name</th>
<th>OS directory for CCDA database</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

F.1.1.3 Choosing the Storage Location

See the Disk Space section of the CCDA installation manual for instructions for estimating the amount of disk space needed to accommodate the new CCDA database.

Based on the estimated disk space requirements and on how much disk space is available on the storage subsystem, select the disk drive (Windows) or file system (Unix) where each new CCDA database will be installed. Select the directory path and name to be used on that drive or file system. If the directory does not exist, create it and verify that Ensemble can read from it and write to it.

F.1.1.4 Creating a New Ensemble Database

1. Navigate to the Local Databases page in Ensemble’s Management Portal as follows:
   b. Select System Administration at the bottom of the left column, then select Configuration, then select System Configuration, then select Local Databases.
   c. Click Go to go to the Local Databases page.

   The Local Databases page displays.

2. Select Create New Database. The Database Wizard dialog appears.
3. In the **Enter the name of your database** field, type the database name determined in Section F.2.2, e.g., **CCDATST**.

4. The **Management Portal** will display the default directory name where Ensemble will store the main CACHE.DAT file for this database. (This functionality may not be available depending on browser settings.) Change this directory to the directory set up in Section F.2.3.

5. Click **Next**. The **Database Details** dialog displays.
6. In the Initial Size (MB) field, type 15.

7. In the Journal globals field select No.

   **Note:** This is a very important setting. Double check that No is selected.

8. Check the Encrypt database? checkbox if the site uses database encryption.

9. Click Next. The Database Resource dialog displays.
10. Choose the database resource for this new database. If the site does not have a policy on database resources, accept the default, **Use the default resource, %DB_%DEFAULT**.

11. Click **Next**. The **Review Settings** dialog displays.
12. Review the values and, if they are correct, click **Finish**. To correct any mistakes, click **Back**. It may take a few seconds for Ensemble to create the database. When it finishes, the new database displays in the **Local Databases** list.

13. If the Ensemble instance hosts multiple RPMS namespaces, repeat these steps for all new CCDA databases to be created.

F.1.1.5 Creating a New Ensemble Namespace

1. Navigate to the **Namespaces** page in Ensemble’s Management Portal as follows:
   b. Select **System Administration** from the bottom of the left column, then select **Configuration**, then select **System Configuration**, then select **Namespaces**.
   c. Click **Go** to go to the **Namespaces** page.

   The **Namespaces** page displays.
2. Select **Create New Namespace** at the top of the page. The **New Namespace** page displays.

![New Namespace Wizard](image)

Figure F-5: **New Namespace** Wizard

3. In the **Name of the namespace** field, type the name of the namespace established in Section F.2.1.

4. In the **The default database for this namespace is a** field, select **Local Database**.

5. In the **Select an existing database** list, select the database created in Section F.2.4.

6. Leave the **Copy namespace mappings from** field blank.

7. Click **Save**. It will take Ensemble a few seconds to create the new namespace.

8. If the Ensemble instance hosts multiple RPMS namespaces, repeat these steps for all new CCDA namespaces to be created.

**F.1.2 Creating New Global Mappings**

1. Navigate to the **Namespaces** page as follows:
   a. Access Ensemble’s Management Portal and sign on as the administrator.
   b. Select **System Administration** from the bottom of the left column, then select **Configuration**, then select **System Configuration**, then select **Namespaces**.
   c. Click **Go** to go to the **Namespaces** page.

The **Namespaces** page displays.
2. In the leftmost column, find the RPMS namespace associated with the new CCDA namespace created in Section F.2.5.

Note: This is the pre-existing RPMS namespace, not the newly created CCDA namespace.


![Figure F-6: Global Mappings](image)

5. In the **Global database location** list, select the name of the Caché database created in Section F.2.4.

6. In the **Global name** field type `BCCD.Xfer.*`; make sure to include the asterisk.

7. Leave the **Global subscripts to be mapped** field blank.

8. Click **Apply**.

9. Click **Close**. The **Global Mappings** page displays.

10. Click **New Global Mapping**, located near the top of the page. The **Global Mapping** dialog appears.

11. In the **Global database location** list, select the name of the Caché database created in Section F.2.4.

12. In the **Global name** field type `BCCD.Audit.*`; make sure to include the asterisk.

13. Leave the **Global subscripts to be mapped** field blank.

14. Click **Apply**.
15. Click Close. The **Global Mappings** page displays.

16. Select **Save Changes** at the top of the page.

17. Click **Namespaces** in the blue line which reads [Home] > [Configuration] > [Namespaces] > [Global Mappings] at the top of the page. This will return to the **Namespaces** page.

18. In the leftmost column, find the name of the CCDA namespace created in Section F.2.5. This is the name of the newly created CCDA namespace rather than the name of the RPMS namespace selected in Step 2.

19. Select **Global Mappings** for the identified namespace. The **Global Mappings** page displays.

20. Click **New Global Mapping** at the top of the page. The **Global Mapping** dialog displays.

21. In the **Global database location** field, select the name of the RPMS database associated with this CCDA namespace.

22. In the **Global name** field type **BCCDS**.

23. Leave the **Global subscripts to be mapped** field blank.

24. Click **Apply**.

25. Click **Close**. The **Global Mappings** page displays.


27. In the **Global database location** list, select the name of the RPMS database associated with this CCDA namespace.

28. In the **Global name** field type **VA**.

29. In the **Global subscripts to be mapped** field type **(200)**.

30. Click **Apply**.

31. Click **Close**. The **Global Mappings** page displays.

32. Click **Save Changes**.

33. Repeat steps 2-28 for each CCDA namespace added to the Ensemble instance.

**F.1.3 Creating New Package Mappings**

1. Navigate to the **Namespaces** page as follows:
2. In the leftmost column, find the RPMS namespace associated with the new CCDA namespace created in Section F.2.5. This should be the pre-existing RPMS namespace, not the newly created CCDA namespace.


5. In the Package database location list, select the newly created CCDA namespace associated with this RPMS namespace.

6. In the Package name list, do not select from the list; rather, click the New Package link to the right of the list. A new field called New package name will display.

   **Note:** Because New Package is not underlined, it may not look like a hyperlink.

7. In the New package name field, type BCCD.

8. Click Apply.


10. Click Save Changes at the top of the page.

11. Find the row containing the package mapping for the BMW package. Make a note of the value in the Database column for this row. This value will need to be entered in Step 15 below.
12. Select **Namespaces** in the thin blue line which reads **Home > Configuration > Namespaces > Package Mappings** at the top of the page. The **Namespaces** page displays. Find the name of the newly created CCDA namespace in the leftmost column.

13. Select **Package Mappings** for the identified namespace. The **Package Mappings** dialog displays.

14. Click **New Package Mapping** at the top of the page. The **Package Mapping** dialog displays.

15. In the **Package database location** list, select the BMW database noted in Step 11.

16. In the **Package name** list, do not select from the list; rather, click the **New Package** link to the right of the list. A new field called **New package name** will display.

   **Note**: Because **New Package** is not underlined or highlighted, it may not look like a hyperlink.

17. In the **New package name** field, type **BMW**.

18. Click **Apply**.

19. Click **Close**. The **Package Mappings** page displays.

20. Click **Save Changes** at the top of the page.

21. Repeat Steps 5-20 for each CCDA namespace added to the Ensemble instance.

At this point the new CCDA database(s) and namespace(s) are fully configured. Use the site’s backup configuration process to add the newly added database(s) to the list of backed up databases.

### F.2 Managing CCDA Ensemble Production

As described in Section 1.4, CCDA documents are generated using the CCDA Ensemble production in response to requests via the web service, from the Data Portability API, or by the nightly HIE task.

The CCDA Ensemble production is automatically started whenever Ensemble is started or when CCDA is started via the **MANG** option on the RPMS CCDA menu. During normal business operations, the CCDA Ensemble production will remain running and will not require maintenance. If it is ever necessary to stop or start the CCDA Ensemble production manually, follow the instructions in Sections F.3.1 and F.3.2.
F.2.1 Stopping the CCDA Ensemble Production

1. Sign on to Ensemble’s Management Portal as an administrator. At the top center, the main Management Portal page displays the server name, the current user, the current namespace, license and instance information, and a Switch link.

2. Click the Switch link. The Namespace Chooser dialog displays.

3. Select the appropriate CCDA namespace. The namespace consists of CCDA followed by the name of the RPMS namespace. For example, if the RPMS namespace is named TEST5, then the associated CCDA namespace will be named CCDATEST5.

4. Click OK to select the namespace. The namespace displayed on the Management Portal page is updated to reflect the selection.

5. Select Ensemble in the left column, then select Configure, then select Production.

6. When the View, Edit, Start, or Stop a Production option appears, click Go to display the Production Configuration page.

7. Above the Services column on the left, the words Ensemble Running will be displayed. If the words Ensemble Stopped are displayed, then the production is already stopped. Otherwise, click Stop. The Stop Production dialog displays.

   It might take the production a few seconds to stop. When it stops, the message Production ‘BCCD.Prod.Production’ stopped displays, followed by the message Done. There might be additional messages on this screen if it takes Ensemble more than a few seconds to stop all associated processes.

8. Click OK to return to the Production Configuration screen.

F.2.2 Starting the CCDA Ensemble Production

1. Sign on to Ensemble’s Management Portal as an administrator. At the top center, the main Management Portal page displays the server name, the current user, the current namespace, license and instance information, and a Switch link.

2. Click the Switch link. The Namespace Chooser dialog displays.

3. Select the appropriate CCDA namespace. The namespace consists of CCDA followed by the name of the RPMS namespace. For example, if the RPMS namespace is named TEST5, then the associated CCDA namespace will be named CCDATEST5.

4. Click OK to select the namespace. The namespace displayed on the Management Portal page is updated to reflect the selection.
5. Select **Ensemble** in the left column, then select **Configure**, then select **Production**.

6. When the **View, Edit, Start, or Stop a Production** option appears, click **Go** to display the **Production Configuration** page.

7. Above the **Services** column on the left, the words **Ensemble Stopped** will be displayed. If the words **Ensemble Running** are displayed, then the production is already running; skip the rest of this section. Otherwise, click **Start**. The **Start Production** dialog displays.

A dialog will appear and ask **Do you wish to start this Production?**. Click **OK**. It might take the production a few seconds to start. When it starts, the message **Production ‘BCCD.Prod.Production’ started** displays, followed by the message **Done**. There might be additional messages on this screen.

8. Click **OK** to return to the **Production Configuration** screen.

### F.3 Encrypting the CCDA Database

The installation process for the CCDA application automatically creates a new Caché database for the CCDA Ensemble production. The installation process does not automatically encrypt the new database. Sites that have encryption enabled in Ensemble need to encrypt the new database. This section provides instructions for preparing the CCDA Ensemble production and Caché database before encrypting and for returning the database and production back to a running state afterward.

#### F.3.1 Stop CCDA Transmissions

1. Navigate to the CCDA menu in RPMS. If you cannot access this menu from the “**OPTION NAME**” prompt in RPMS, you will need to add it to your user settings.

<table>
<thead>
<tr>
<th>Select OPTION NAME: BCCD MENU</th>
<th>CCDA Menu</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDIT  Edit CCDA Site Parameters</td>
<td></td>
</tr>
<tr>
<td>ONE   Generate CCD for a single patient</td>
<td></td>
</tr>
<tr>
<td>ALL    Generate CCD documents for all patients in RPMS</td>
<td></td>
</tr>
<tr>
<td>MANG   Manage CCDA transmissions</td>
<td></td>
</tr>
</tbody>
</table>

Select CCDA Menu Option:

Figure F.F-10: Accessing the CCDA Menu

2. From the CCDA menu, select the **MANG** option.

3. The option will first check whether CCDA is running. If it is not running, you do not need to make any changes. If it is running, then answer **Y** at the “Stop CCDA?” prompt.
Select CCDA Menu Option: MANG  Manage CCDA transmissions
CCDA status:
No configuration problems found
CCDA processing task is running
Stop CCDA? No// Y  (Yes)
Attempting to stop CCDA...CCDA stopped

Figure F.11: Stop CCDA Transmissions via the MANG option

4. You will receive a message indicating whether CCDA Messaging was stopped. If CCDA could not be stopped, contact the Help Desk for assistance.

F.3.2 Unschedule the Nightly Upload Task

1. Navigate to the CCDA menu in RPMS.

2. From the CCDA menu, select the EDIT option.

3. At the “TIME TO RUN NIGHTLY TASK” prompt, if there is a time entered for this field, make a note of the time as it will be needed in section F.4.7. Then type @ to delete the time. At the “SURE YOU WANT TO DELETE?” prompt, answer Y to confirm deletion.

4. Press ENTER at the remaining prompts.

Select CCDA Menu Option: EDIT  Edit CCDA Site Parameters
Now editing CCDA parameters:
TIME TO RUN NIGHTLY TASK: 23:00// @
SURE YOU WANT TO DELETE? y  (Yes)

Now editing CCD (Summarization of Episode Note)-specific parameters:
ADD SOCIAL ENVIRONMENT PROB: YES//
ADD INACTIVE PERS HISTORY PROB: YES//
DISCHARGE PLANNER PROV TYPE: WOMEN'S HEALTH CASE MANAGER
//
Select ALLOWED CS PROVIDER CLASS: OSTEOPATHIC MEDICINE
//
DAYS KEEP TRANSMISSION ENTRIES: 30//
REPOSITORY LOCATION: http://www.nowhere.com  Replace
ENABLED: YES//

Figure F.12: Unscheduling the CCDA Nightly Task via the EDIT option

F.3.3 Stop the CCDA Production

1. Sign on to Ensemble’s Management Portal as an administrator.

2. At the top center, the main Management Portal page displays the server name, the current user, the current namespace, license and instance information, and a Switch link. Click the Switch link.
In the **Namespace Chooser** box, choose the appropriate CCDA namespace. The namespace will consist of “CCDA” concatenated with the name of your RPMS namespace. For example, if your RPMS namespace is called “GOLD4”, then the associated CCDA namespace will be called “CCDAGOLD4”. Click **OK** to choose the namespace. The namespace displayed on the **Management Portal** page will be updated to reflect your selection.
3. On the main Management Portal page, select Ensemble in the left column, then select Configure >>, then select Production. When the View, Edit, Start, or Stop a Production option appears, click Go to display the Production Configuration page.
4. Above the **Services** column on the left, the words **Ensemble Running** will be displayed. If the words **Ensemble Stopped** are displayed, then the production is already stopped and you should skip to section F.4.4.

Click the **Stop** button. It might take the production a few seconds to stop. When it stops, you will see the text in Figure 11.8 appear on the screen. There might be additional messages on this screen if it takes Ensemble more than a few seconds to stop all associated processes.
5. Click **OK** to return to the **Production Configuration** screen.

### F.3.4 Dismount the CCDA Database

1. Sign on to Ensemble’s Management Portal.

2. Click on **System Operation** in the left column. Then click **Databases**.

![Image of Ensemble production stop process]

Figure F.17: Stopping the Ensemble production
3. On the **Databases** screen, locate the CCDA database and click **Dismount** for that database.

4. At the “Are you sure you want to dismount database CCDAXXX?” prompt, click **OK**.
F.3.5 Encrypt the Database

Encrypt the database following the instructions provided in the “How to Encrypt an RPMS Database” document. If you need a copy of the document, contact OIT.

F.3.6 Re-mount the Database

1. Sign on to Ensemble’s Management Portal.

2. Click on System Operation in the left column. Then click Databases.

3. On the Databases screen, locate the CCDA database and click Mount for that database.
4. On the **Mount Databases** dialog, verify that the **Read Only** checkbox is unchecked, then click **OK**.
F.3.7 Reschedule the Nightly CCDA Task

If you unscheduled the nightly CCDA task in section F.4.2, then you should reschedule the task. If you did not unschedule the task, then you should skip this section and proceed to section F.4.8.

1. Navigate to the CCDA menu in RPMS.
2. From the CCDA menu, select the EDIT option.
3. At the "TIME TO RUN NIGHTLY TASK" prompt, enter the time that was deleted in section F.4.2. In the example below, '23:00' was entered.
4. Press ENTER at the remaining prompts.

F.3.8 Restart CCDA

The steps in this section will start both the CCDA transmissions task and the CCDA Ensemble production.

1. Navigate to the CCDA menu in RPMS.
2. From the CCDA menu, select the MANG option.
3. The option will first check whether CCDA is running. If it is running, you do not need to make any changes. If it is not running, then answer Y at the “Start CCDA?” prompt.

<table>
<thead>
<tr>
<th>Select CCDA Menu Option: MANG  Manage CCDA transmissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCDA status:</td>
</tr>
<tr>
<td>No configuration problems found</td>
</tr>
<tr>
<td>CCDA processing task is not running</td>
</tr>
<tr>
<td>Start CCDA? No// Y  (Yes)</td>
</tr>
<tr>
<td>Attempting to start CCDA  (MAY 01, 2014@12:00:00)..CCDA started</td>
</tr>
</tbody>
</table>

Figure F.25: Start CCDA Transmissions via the MANG option

4. You will receive a message indicating whether CCDA Messaging was started. If CCDA could not be started, contact the Help Desk for assistance.
Appendix G: Restoring CCDA from Backup

This appendix contains instructions for restoring the CCDA environment from a backup.

G.1 Create CCDA Database, Namespace, and Mappings

The specific steps required to create the CCDA database, namespace, and mappings depend on the nature of the restoration effort. If it is necessary to re-install the CCDA KIDS build in the RPMS environment, then the installation process will automatically create the CCDA database, namespace, and mappings.

However, if the CCDA KIDS build is not to be re-installed, then you must create the database, namespace, and mappings manually. Follow the steps in section F.1 to set up the CCDA database, namespace, and mappings.

G.2 Restore CACHE.DAT File

Regardless of the method used to create the CCDA database, namespace, and mappings in section G.1, the new database will be created with a new CACHE.DAT file in the database directory. In order to restore the CCDA database, it is necessary to restore the CCDA database’s CACHE.DAT file from the backup.

G.2.1 Dismount CCDA Database

1. Sign on to Ensemble’s Management Portal.

2. Click on System Operation in the left column, then click Databases.
3. On the **Databases** screen, locate the CCDA database and make a note of the value in the **Directory** column. You will need this value in section G.2.2.

4. Click **Dismount** in the row for the CCDA database. At the “Are you sure you want to dismount database CCDAXXX?” prompt, click **OK**.
G.2.2 Restore the CACHE.DAT File

In the operating system (Windows or Unix), restore the CACHE.DAT file for the CCDA database from the backup into the CCDA database directory. The CCDA database directory location can be found on the Databases screen in Ensemble’s Management Portal (Figure G.2) and was noted in step 3 of section G.2.1. If you need assistance restoring the file from backup, please contact the OIT Help Desk.

G.2.3 Remount CCDA Database

1. Sign on to Ensemble’s Management Portal.

2. Click on System Operation in the left column, then click Databases.

3. On the Databases screen, locate the CCDA database and click Mount for that database.

Figure G-3: Ensemble Management Portal, Databases option
4. On the **Mount Databases** dialog, verify that the **Read Only** checkbox is unchecked, then click **OK**.
G.3 Verify Settings

The production settings and purge task schedule should be restored with the environment. However, you should double check these settings to ensure they were restored successfully, as they are important for CCDA to work properly.

G.3.1 Verify Custom Production Settings

1. Navigate to the Production Configuration screen in Ensemble’s Management Portal.

2. For each item that had custom production settings, for example EmailAlert, click that item in the middle of the screen and verify that the setting has the correct value. If any settings need to be changed, enter the correct settings in the box on the right side of the screen. After changing the value for each item, click Apply at the top left of the settings box to save the settings.

Figure G-6: Applying production settings

G.3.2 Verify Purge Task Schedule

1. Navigate to the main Management Portal page. If you are on the Production Configuration page, navigate back to the main Management Portal page by clicking the Home link near the top left of the page.
2. Check whether the purge task is already scheduled by clicking **System Operation**, then clicking **Task Manager >>**, then click **Task Manager** >, then click **Task Schedule**, then click **Go**. Look for a task named **Auto-Purge CCDA in CCDAXXX**, where “CCDAXXX” is the name of your CCDA namespace. If there is a task by that name, then the purge task is already scheduled and you should skip the rest of this section.

![Figure G-7: View Task Schedule screen with a CCDA purge task already scheduled](image)

3. Navigate back to the main **Management Portal** by clicking on the **Task Manager** link near the top center of the page.

4. Navigate to the **Task Scheduler Wizard** by clicking **New Task**.

5. In the **Task Scheduler Wizard**, enter the following values, substituting the name of your CCDA namespace for “CCDAXXX”:

   **Task name**: **Auto-Purge Task in CCDAXXX**

   **Description**: **Automatically purge messages**

   **Namespace to run task in**: **CCDAXXX**

   **Task type**: **BCCD.Tasks.Purge**

   **BodiesToo**: **checked**

   **KeepIntegrity**: **checked**

   **NumberOfDaysToKeep**: **7**
TypesToPurge: **Messages**

Task priority: **Priority Normal**

Run task as this user: **select a user with the %All role in Ensemble**

Open output file when task is running: **No**

Output file: **(blank)**

Reschedule task after system restart: **Yes**

---

**Figure G-8: First Screen on the Task Scheduler Wizard**

6. Click **Next >** to navigate to the next screen.

7. On the **Schedule** screen, enter the following values:
   
   How often do you want the Task Manager to execute this task: **Weekly**
   
   Every ___ weeks: **1**
   
   Monday-Saturday: **unchecked**
   
   Sunday: **checked**
   
   Start Date: **today's date**
   
   End Date: **(blank)**
Run once at this time: checked, 00:00:00

Remaining fields: do not change

![Second screen of the Task Scheduler Wizard](image)

Figure G-9: Second screen of the Task Scheduler Wizard

Click Finish to schedule the task. The View Task Schedule screen will display with the CCDA purge task added to the list of tasks.

### G.4 Start CCDA

At this point, the CCDA environment has been restored. Once any non-CCDA restoration tasks have been completed and TaskMan is running, CCDA processing may be started by following the steps in this section.

1. Navigate to the CCDA menu in RPMS.

   ![CCDA Menu](image)

   Select OPTION NAME: BCCD MENU
   
<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDIT</td>
<td>Edit CCDA Site Parameters</td>
</tr>
<tr>
<td>ONE</td>
<td>Generate CCD for a single patient</td>
</tr>
<tr>
<td>ALL</td>
<td>Generate CCD documents for all patients in RPMS</td>
</tr>
<tr>
<td>MANG</td>
<td>Manage CCDA transmissions</td>
</tr>
</tbody>
</table>

   Figure G-10: Accessing the CCDA Menu

2. From the CCDA menu, select the **MANG** option.
3. The option will first check whether CCDA is running. If it is running, you do not need to make any changes. If it is not running, then answer Y at the “Start CCDA?” prompt.

```
Select CCDA Menu Option: MANG  Manage CCDA transmissions
CCDA status:
No configuration problems found
CCDA processing task is not running
Start CCDA? No// Y (Yes)
Attempting to start CCDA (MAY 01, 2014@12:00:00)..CCDA started
```

Figure G-11: Start CCDA Transmission via the MANG option

4. You will receive a message indicating whether CCDA Messaging was started. If CCDA could not be started, contact the Help Desk for assistance.
Glossary

API
Application Programming Interface; an interface provided by a software application to allow other applications to interact with it.

BCCD
RPMS namespace for CCDA files, routines, and classes.

HTTP
Hypertext Transfer Protocol; a widely used communication protocol on the World Wide Web.

SOAP
Simple Object Access Protocol; the communication protocol and message format used in communicating with web services.

Taxonomy
In RPMS, a grouping of functionally related data elements, such as ICD codes. For CCDA, taxonomies are used to list procedures, test results and other data elements with non-standard data extraction criteria.

Web client
An application that consumes (accesses) a web service.

Web service
An API that allows communication with an application via SOAP messages over HTTP.

WSDL
Web Service Description Language; a file that describes a web service’s API.

XML
Extensible Markup Language; a set of rules for encoding data in a machine-readable form.
## Acronym List

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>API</td>
<td>Application Programming Interface</td>
</tr>
<tr>
<td>CCDA</td>
<td>Consolidated Clinical Document Architecture</td>
</tr>
<tr>
<td>EHR</td>
<td>Electronic Health Record</td>
</tr>
<tr>
<td>FM2C</td>
<td>FileMan-to-Class utility; prior to FM2C version 1.0, the abbreviation stood for FileMan-to-Caché mapper</td>
</tr>
<tr>
<td>HIE</td>
<td>Health Information Exchange</td>
</tr>
<tr>
<td>HL7</td>
<td>Health Level Seven</td>
</tr>
<tr>
<td>IHS</td>
<td>Indian Health Service</td>
</tr>
<tr>
<td>KIDS</td>
<td>Kernel Installation and Distribution System</td>
</tr>
<tr>
<td>PHR</td>
<td>Personal Health Record</td>
</tr>
<tr>
<td>RPMS</td>
<td>Resource and Patient Management System</td>
</tr>
<tr>
<td>WSDL</td>
<td>Web Services Description Language</td>
</tr>
<tr>
<td>XML</td>
<td>Extensible Markup Language</td>
</tr>
</tbody>
</table>
Contact Information

If you have any questions or comments regarding this distribution, please contact the
OIT Help Desk (IHS).

Phone:  (888) 830-7280 (toll free)
Web: http://www.ihs.gov/helpdesk/
Email: support@ihs.gov