RESOURCE AND PATIENT MANAGEMENT SYSTEM

# Consolidated Clinical Document Architecture (CCDA)

(BCCD)

## Technical Manual

Version 2.0 Patch 5
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Office of Information Technology
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# Revision History

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| 1.0 | July 31, 2020 | OIT Developers | All | All | Initial Version |
| 1.1 | May 1, 2022 | OIT Developers | Multiple | Multiple | Updated for p1 |
| 1.2 | February 2, 2023 | OIT Developers | Multiple | Multiple | Updated for p2 |
| 1.3 | May 17, 2023 | OIT Developers | Multiple | Multiple | Updated for p3 |
| 1.4 | February 26, 2024 | OIT Developers | 2.1, 3.1, C.7 | 4, 9, 71 | Updated for p4 |
| 1.4 | February 26, 2024 | OIT Developers | 4.0, 7.3 | 10, 18 | Changed name and description of ERR option |
| 1.4 | February 26, 2024 | OIT Developers | B.8, B.25, C.8 | 34, 47, 74 | Updated to reflect changes to data structures |
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| 1.5 | July 22, 2025 | OIT Developers | 1.2, App. B, App. C | 1-2, 28-57, 73-80 | Updated to reflect changes to data structures |

# Preface

The purpose of this manual is to provide technical information about the Consolidated Clinical Document Architecture (CCDA) v2.0 p5 (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 August 2015 Draft Standard for Trial Use (DSTU) standard, further restricted by 2015 Certified Health Information Technology (CHIT), 21st Century Cures Act (Cures), and USCDI v3.0 requirements; the Health Data, Technology, and Interoperability (HTI-1) final rule; and Companion Guide Release 4.1 guidelines.

These documents can be transmitted to Indian Health Service (IHS) Health Information Exchange (HIE) repositories, retrieved by the Electronic Health Record (EHR) graphical user interface (GUI) using web services, or viewed as export summary documents.

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# 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 Export summary, Health Information Exchange (HIE), and Case Reporting documents that meet the Health Level Seven (HL7) August 2015 DSTU standard; 2015 CHIT, 21st Century Cures, and USCDI v3.0 specifications; the Health Data, Technology, and Interoperability (HTI-1) final rule; the USCDI v3.0 requirements; and Companion Guide Release 4.1 guidelines.

Clinical Summary and Transitions of Care documents are retrieved by the EHR GUI using web services. Data Export summary documents are requested via an RPMS application programming interface (API). HIE documents are generated by a nightly background job or via an RPMS menu option and are transmitted to IHS HIE repositories via web services. Case Reporting documents are requested by the iCare (BQI) application, which retrieves completed documents for transmission.

## 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 healthcare 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
- Assessment and Plan
- Care Team
- Case Reporting
- Chief Complaint and Reason for Visit (Case Reporting only)

- Consultation Notes
- Contacts
- Discharge Diagnoses (inpatient visits only)
- Discharge Summary Notes (inpatient visits only)
- Electronic Initial Case Report (eICR) (Case Reporting Reportability Response only)
- Encounters
- Functional/Disability Status
- Goals
- Health Concerns
- Health Insurance
- History and Physical Notes
- History of Present Illness (Case Reporting only)
- Hospital Course (inpatient visits only)
- Hospital Discharge Instructions (displayed for observation [O] and day surgery [S] visits, in addition to inpatient visits)
- Immunizations
- Instructions
- Medical Equipment
- Medications
- Medications Administered (Case Reporting only)
- Mental Status
- Patient
- Problems/Encounter Diagnoses
- Procedures (includes Procedure Notes)
- Progress Notes
- Reason for Hospitalization (inpatient visits only)
- Reason for Referral (ambulatory visits only)
- Reason for Visit (ambulatory visits only)
- Reportability Response Subject (Case Reporting Reportability Response only)
- Reportability Response Summary (Case Reporting Reportability Response only)

- Results
- Security and Privacy Prohibitions
- Social History
- 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, HealthShare 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 HealthShare classes, productions, and data transformations are contained in the HealthShare 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 four mechanisms for initiating CCDA documents. At sites running EHR v1.1, p28 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, HIE documents are automatically generated by a nightly background task for all patients whose data has changed since the previous nightly upload. Data Export summary documents can be generated for specific patients or for all patients via an RPMS API. Case Reporting documents are generated by the iCare (BQI) application.

## 1.5 Patient Preferred Name (PPN)

This application uses the AUPN DISPLAY PPN parameter functionality and is defaulted OFF until Patient Preferred Name (PPN) is available across the enterprise.

> **Note:** While this parameter is turned off, Patient Preferred Name will not display in this application. This allows the Patient Preferred Name to be turned on at once without requiring a coordinated release of all applications. Once all applications support the display of the PPN, instructions will be sent out on how to enable this parameter system-wide.

# 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 the OS configuration file, designating a directory where the new CCDA database will reside, mapping BMW globals, and stopping CCDA.
3. Install CCDA 2.0.
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.
5. Install BCCD*2.0*1, following the instructions in the patch notes.
6. Install BCCD*2.0*2, following the instructions in the patch notes.
7. Configure the maximum number of threads time ranges as described in the p2 patch notes.
8. Install BCCD*2.0*3, following the instructions in the patch notes.
9. Install BCCD*2.0*4, following the instructions in the patch notes.
10. Install BCCD*2.0*5, following the instructions in the patch notes.

See the *CCDA Installation Manual* for further details on the installation and configuration steps for CCDA 2.0.

## 2.2 Architecture

CCDA processing can be initiated in four ways. If EHR v1.1 p28 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 HIE documents are generated nightly for all patients whose data has changed since the previous nightly upload. Data 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 the **Edit CCDA Site Parameters** option. 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 Export summary documents, the site manager accesses an RPMS API. In order to prevent unintended initiation of Data Export 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 Export documents on an "as needed" basis.

Case Reporting documents are requested and processed by the iCare (BQI) application. If directed to in the request, the CCDA application will generate a Case Reporting Reportability Response document immediately after generating a Case Reporting document. Details on the Case Reporting request process are outside the scope of this document. For further information, consult the appropriate iCare documentation.

The only difference between CCDA requests created by these four 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 CCDA 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 (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 creates a background job to extract the data for that document.

The background job changes the request's status to CS (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, the background job changes the status of the request to CE (Compile Ended).

After creating the background job to extract the data, BCCD BACKGROUND JOB 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 (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 Export and Case Reporting, the production saves this document to a file. For HIE documents, the production transmits it to an IHS HIE. Finally, the production changes the status of the request to T (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, HealthShare objects, and FM2C (BMW) classes.

Table 3-1 shows the prerequisite patch requirements for CCDA v2, Table 3-2 shows the prerequisite patch requirements for p1, and Table 3-3 shows the prerequisite patch requirements for p2.

Table 3-1: Prerequisite packages and descriptions for CCDA 2.0

| Package and Version | Associated Patch Designation | Brief Patch Description |
|---|---|---|
| C32 (BJMD) 1.0 p4 | BJMD*1.0*4 | Disables C32 functionality has the application has been replaced by CCDA. This patch is required only if C32 has previously been installed |
| EHR 1.1 p28 | EHR*1.1*28 | Updates in order to meet 2015 Certified Health Information Technology (CHIT) Certification |
| BJPC 2.0 p 24 | BJPC*2.0*24 | Updates in order to meet 2015 Certified Health Information Technology (CHIT) Certification |
| LR 5.2 p 1047 | LR*5.2*1047 | Updates in order to meet 2015 Certified Health Information Technology (CHIT) Certification |
| RA 5.0 p 1008 | RA*5.0*1008 | Updates in order to meet 2015 Certified Health Information Technology (CHIT) Certification |
| AUM 20.0 p3 | AUM*20.0*3 | Updates in order to meet 2015 Certified Health Information Technology (CHIT) Certification |
| AG 7.1 p15 | AG*7.1*15 | Updates in order to meet 2015 Certified Health Information Technology (CHIT) Certification |
| BCQM 1.0 p6 | BCQM*1.0*6 | Updates in order to meet 2015 Certified Health Information Technology (CHIT) Certification |

Table 3-2: Prerequisite packages and descriptions for patch 1

| Package and Version | Associated Patch Designation | Brief Patch Description |
|---|---|---|
| CCDA 2.0 | BCCD 2.0 | Contains the CCDA application. |

| Package and Version | Associated Patch Designation | Brief Patch Description |
|---|---|---|
| AUM v21.0 p5 | AUM*21.0*5 | Updates in order to meet 21st Century Cures Act certification. |
| BJPC v2.0 p 26 | BJPC*2.0*26 | Updates in order to meet 21st Century Cures Act certification. |
| BMW v2022.3 or later | BMW 2022.3 | Updates in order to meet 21st Century Cures Act certification. |
| EHR v1.1 p 34 | EHR*1.1*34 | Updates in order to meet 21st Century Cures Act certification. |
| DTS cycle 50 | DTS cycle 50 | Updates in order to meet 21st Century Cures Act certification. |

Table 3-3: Prerequisite packages and descriptions for p2

| Package and Version | Associated Patch Designation | Brief Patch Description |
|---|---|---|
| BCCD v2.0 p 1 | BCCD*2.0*1 | Contains CCDA patch 1. |
| AUPN v99.1 p 29 | AUPN*99.1*29 | Contains the Patient Preferred Name (PPN) APIs. |

Table 3-4: Prerequisite packages and descriptions for p3

| Package and Version | Associated Patch Designation | Brief Patch Description |
|---|---|---|
| BCCD v2.0 p 2 | BCCD*2.0*2 | Contains CCDA patch 2. |
| AUM v23.0 p 4 | AUM*23.0*4 | Adds food insecurity health factors. |
| TIU v1.0 p 1028 | TIU*1*1028 | Adds cross-references to support a trigger on TIU notes. |
| Optional: EHR p35 | BGO*1.1*33 | This patch is not strictly required. However, it fixes several issues with the display of CCDA documents in EHR, so sites are strongly encouraged to install it. |

Table 3-5: Prerequisite packages and descriptions for p4

| Package and Version | Associated Patch Designation | Brief Patch Description |
|---|---|---|
| BCCD v2.0 patch 3 | BCCD*2.0*3 | Contains CCDA patch 3. |

Table 3-6: Prerequisite packages and descriptions for p5

| Package and Version | Associated Patch Designation | Brief Patch Description |
|---|---|---|
| BCCD v2.0 p 4 | BCCD*2.0*4 | Contains CCDA p4. |
| BMW v2025.3 | N/A | Contains updated classes used by CCDA. |

## 3.2 System Requirements

Table 3-7: System requirements by module and minimum version

| Module | Minimum Version |
|---|---|
| BMW | The BMW application generates HealthShare classes that are distributed in a CACHE.DAT file. These classes must be installed and must be version 2025.3 or later. |
| VA FileMan (DI) | v22.0 p1020 or later |
| VA Kernel (XU) | v8.0 p1020 or later |
| CCDA (BCCD) | v2.0 p4 |

## 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 3-8: Package variables and descriptions

| Variable | Brief Description |
|---|---|
| %DFN | Internal entry number (IEN) of the requested patient; also known as the DFN |
| %BCCDQID | Internal ID of the CCDA queue record being processed |

## 3.4 Security Keys

The security key BCCDZCLIN controls access to the **BCCD EDIT CLINICAL PARAMETERS** option. The remaining BCCD options are controlled with the XUMGR security key.

# 4.0 CCDA Menu

The CCDA application has one RPMS menu used by site managers, CCDA MENU (BCCD MENU), which comprises the following eight menu options:

- Edit CCDA Site Parameters (**BCCD EDIT SITE PARAMETERS**)
- Edit CCDA Clinical Site Parameters (**BCCD EDIT CLINICAL PARAMETERS**)
- Generate CCD for a single patient (**BCCD CCDGENONE**)
- Generate CCD documents for all patients in RPMS (**BCCD CCDALLGEN**)
- Generate CCD documents for a specified date range (**BCCD GEN CCD DATE RANGE**)
- Manage CCDA transmissions (**BCCD CCDA MGR**)
- Purge or Resubmit Error Documents (**BCCD ERROR PROCESSING**)
- Display the CCDA application status report (**BCCD APP STATUS**)
- Display the note type definitions as defined in the Edit Clinical Site Parameters option (**BCCD NOTES DEFINITION REPORT**)

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

# 5.0 Routine Descriptions

## 5.1 Routine List

Table 5-1: Routine list

| Routine | Routine | Routine |
|---|---|---|
| BCCD2E00 | BCCD2E01 | BCCD2P00 |
| BCCD2P01 | BCCD2P02 | BCCD2P03 |
| BCCD2P04 | BCCD2P05 | BCCDCLAS |
| BCCDDPT | BCCDDPT1 | BCCDEDIT |
| BCCDHIE | BCCDMON | BCCDNRPT |
| BCCDPAT | BCCDPUSH | BCCDSTAT |
| BCCDTSK | BCCDTX | BCCDTXA |
| BCCDTXAB | BCCDTXAC | BCCDTXAD |
| BCCDUTIL | BCCDUTL1 | BCCDUTL2 |

## 5.2 Routines with Description

Table 5-2: Routines and descriptions

| Routine | Description |
|---|---|
| BCCD2E00 | KIDS environmental check routine for BCCD 2.0 |
| BCCD2E01 | KIDS environmental check routine for p1 |
| BCCD2P00 | KIDS post-installation routine for BCCD 2.0 |
| BCCD2P01 | KIDS post-install routine for p1 |
| BCCD2P02 | KIDS post-install routine for p2 |
| BCCD2P03 | KIDS post-install routine for p3 |
| BCCD2P04 | KIDS post-install routine for p4 |
| BCCD2P05 | KIDS post-install routine for p5 |
| BCCDCLAS | Used by the post-installation routine to decrypt and decompress HealthShare class definitions |
| BCCDDPT | API for requesting Data Export summary documents |
| BCCDDPT1 | Contains additional Data Export subroutines |
| BCCDEDIT | Edit CCDA site-specific parameters |
| BCCDHIE | APIs for uploading documents for a given date range or for a given visit |
| BCCDMON | Application monitor |
| BCCDNRPT | Notes definition report |
| BCCDPAT | RPMS options for requesting one patient upload to HIE, requesting all patients upload to HIE, and starting and stopping CCDA |

| Routine | Description |
|---|---|
| BCCDPUSH | TaskMan task active only if the site participates in the IHE HIE; identifies recently modified patient records that need new CCD documents generated |
| BCCDSTAT | API for displaying the application status and for reprocessing errors |
| BCCDTSK | TaskMan task that monitors the CCDA queue for new requests and extracts data from RPMS |
| BCCDTX | Creates the BCCD NO LIMIT LOINC CODES Taxonomy |
| BCCDTXA | Continuation of BCCDTX |
| BCCDTXAB | Continuation of BCCDTX |
| BCCDTXAC | Continuation of BCCDTX |
| BCCDTXAD | Continuation of BCCDTX |
| BCCDUTIL | Contains utility subroutines used by the extract process |
| BCCDUTL1 | Contains additional utility subroutines used by the extract process |
| BCCDUTL2 | Contains additional utility subroutines used by the extract process |

# 6.0 Files and Tables

## 6.1 File List

Table 6-1: File numbers, names, and descriptions

| File # | Filename | Description |
|---|---|---|
| 90310.01 | BCCD SITE PARAMETERS | Contains site-specific CCDA parameters |
| 90310.02 | BCCD MESSAGE TYPE | Contains message type-specific CCDA parameters |
| 90310.03 | BCCD CLASS TRANSPORT | Contains packed HealthShare classes, which are used to transfer class definitions via a KIDS build |
| 90310.04 | BCCD DP QUEUE DEFINITIONS | Contains saved Data Export definitions |

## 6.2 File Access

Table 6-2: File access by number and filename

| File # | Filename | GL | RD | WR | LYG | DD | DEL |
|---|---|---|---|---|---|---|---|
| 90310.01 | BCCD SITE PARAMETERS | ^BCCDS(90310.01, | @ | @ | @ | @ | @ |
| 90310.02 | BCCD MESSAGE TYPE | ^BCCDS(90310.02, | @ | @ | @ | @ | @ |
| 90310.03 | BCCD CLASS TRANSPORT | ^BCCDCLS( | @ | @ | @ | @ | @ |
| 90310.04 | BCCD DP QUEUE DEFINITIONS | ^BCCDDPQ( | @ | @ | @ | @ | @ |

## 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

90310.24 (EXCLUDE CODE FROM PROBLEMS)

.01 EXCLUDE CODE FROM PROBLEMS

B regular cross reference

90310.25 (CLINICAL NOTE)

.01 CLINICAL NOTE

B regular cross reference

90310.26 (SITE NOTE EXCLUSION)

.01 SITE NOTE EXCLUSION

B regular cross reference

90310.027 (MAX THREADS SCHEDULE)

.01 START TIME

B regular cross reference

90310.03 (BCCD CLASS TRANSPORT)

.01 PACKAGE NAME

B regular cross reference

90310.04 (BCCD DP QUEUE DEFINITIONS)

.01 QUEUE DEFINITION

B regular cross reference

AT01 MUMPS cross reference

.02 VISIT RANGE BEGIN DATE

AT02 MUMPS cross reference

.03 VISIT RANGE END DATE

AT03 MUMPS cross reference

.04 EXPORT OUTPUT LOCATION

AT04 MUMPS cross reference

.05 QUEUED TO RUN AT WHAT TIME

AT05 MUMPS cross reference

.06 RESCHEDULING FREQUENCY

AT06 MUMPS cross reference

.07 USER LAST MODIFIED

AT07 MUMPS cross reference

.08 DATE/TIME LAST MODIFIED

AT08 MUMPS cross reference

.09 DEFINITION STATUS

AT09 MUMPS cross reference

.1 PATIENT SELECTION

AT10 MUMPS cross reference

.11 VISIT RANGE SELECTOR

AT11 MUMPS cross reference

.12 TIMEFRAME

AT12 MUMPS cross reference

90310.41 (PATIENT LIST)

.01 PATIENT

B regular cross reference

AT1 MUMPS cross reference

## 6.4 Table File

**File: 90310.01 BCCD SITE PARAMETERS**

**Global: ^BCCDS(90310.01,**

| Field # | Field Name | Subscript | Piece | Type |
|---|---|---|---|---|
| .01 | HOME SITE | D0,0 | 1 | F |
| .02 | BACKGROUND JOB DELAY | D0,0 | 2 | N |
| .03 | RECORD GLOBAL REFERENCES | D0,0 | 3 | S |
| .04 | CCDA ENABLED | D0,0 | 4 | S |
| .05 | DATE CCDA INSTALLED | D0,0 | 5 | D |
| .06 | TIME TO RUN NIGHTLY TASK | D0,0 | 6 | F |
| .07 | LAST DP SCHEDULE CHEK | D0,0 | 7 | D |
| 1 | BCCD MGR START FAILURE MESSAGE | D0,1 | 1 | F |

**File: 90310.02 BCCD MESSAGE TYPE**

**Global: ^BCCDS(90310.02,**

| Field # | Field Name | Subscript | Piece | Type |
|---|---|---|---|---|
| .01 | MESSAGE TYPE | D0,0 | 1 | S |
| .02 | LAST PUSH DATE TIME | D0,0 | 2 | D |
| .03 | DESCRIPTION | D0,0 | 3 | F |
| .04 | DAYS KEEP TRANSMISSION ENTRIES | D0,0 | 4 | N |
| .05 | ENABLED | D0,0 | 5 | S |
| 1 | REPOSITORY LOCATION | D0,1 | 1 | F |
| 2.01 | ADD SOCIAL ENVIRONMENT PROB | D0,2 | 1 | S |
| 2.02 | ADD INACTIVE PERS HISTORY PROB | D0,2 | 2 | S |
| 2.03 | DISCHARGE PLANNER PROV TYPE | D0,2 | 3 | P |
| 2.04 | DATE DISPLAY FOR SMOKING STS | D0,2 | 4 | S |
| 2.05 | USE VISIT INFO FOR AUTHOR DATA | D0,2 | 5 | SI |
| 3 | ALLOWED CS PROVIDER CLASS | D0,3,D1,0 | 1 | P |
| 4 | EXCLUDE CODE FROM PROBLEMS | D0,4,D1,0 | 1 | MF |
| 5 | CLINICAL NOTE | D0,5,D1,0 | 1 | MSIX |
| 6 | SITE NOTE EXCLUSION | D0,6,D1,0 | 1 | MP |
| 7 | MAX THREADS SCHEDULE | D0,7,D1,0 | 1 | MFX |

**File: 90310.03 BCCD CLASS TRANSPORT**

**Global: ^BCCDCLS(**

| Field # | Field Name | Subscript | Piece | Type |
|---|---|---|---|---|
| .01 | PACKAGE NAME | D0,0 | 1 | F |
| 1.02 | RPMS STATUS | D0,1 | 2 | S |
| 1.03 | RPMS DATE/TIME INSTALLED | D0,1 | 3 | D |
| 10 | XML | D0,10,D1,0 | 1 | W |
| 11 | CLASS | D0,2,D1,0 | 1 | F |

**File: 90310.04 BCCD DP QUEUE DEFINITIONS**

**Global: ^BCCDDPQ(**

| Field # | Field Name | Subscript | Piece | Type |
|---|---|---|---|---|
| .01 | QUEUE DEFINITION | D0,0 | 1 | F |
| .02 | VISIT RANGE BEGIN DATE | D0,0 | 2 | D |
| .03 | VISIT RANGE END DATE | D0,0 | 3 | D |
| .04 | EXPORT OUTPUT LOCATION | D0,0 | 4 | F |
| .05 | QUEUED TO RUN AT WHAT TIME | D0,0 | 5 | D |
| .06 | RESCHEDULING FREQUENCY | D0,0 | 6 | F |
| .07 | USER LAST MODIFIED | D0,0 | 7 | P |
| .08 | DATE/TIME LAST MODIFIED | D0,0 | 8 | D |
| .09 | DEFINITION STATUS | D0,0 | 9 | S |
| .1 | PATIENT SELECTION | D0,0 | 10 | S |
| .11 | VISIT RANGE SELECTOR | D0,0 | 11 | S |
| .12 | TIMEFRAME | D0,0 | 12 | F |
| 1 | PATIENT LIST | D0,1,D1,0 | 1 | P |

# 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 7-1: Published entry point and description

| Routine | Description |
|---|---|
| AUDITHIE^BCCDUTIL | Returns the first successful HIE transmission date/time for a visit |

## 7.3 Exported Options

Table 7-2: Exported option names and descriptions

| Option Name | Description |
|---|---|
| BCCD APP STATUS | Option to display the CCDA application status report |
| BCCD BACKGROUND JOB | Main CCDA background processor; runs continuously in the background when CCDA is running |
| BCCD EDIT CLINICAL PARAMETERS | Option to edit CCDA clinical parameters, accessible by a clinician |
| BCCD EDIT SITE PARAMETERS | Option to edit CCDA site parameters, accessible by the site manager |
| BCCD ERROR PROCESSING | Option to resubmit or purge old error documents |
| BCCD GEN ALL | Option to generate HIE requests for all patients in RPMS |
| BCCD GEN CCD DATE RANGE | Option to generate HIE requests for a given date range |
| BCCD GEN ONE | Option to generate an HIE request for one patient in RPMS |
| BCCD MENU | Main CCDA menu; contains options accessible by the site manager. This menu should only be assigned to site managers. |
| BCCD MGR | Option to start and stop CCDA |
| BCCD NHIE PUSH JOB | 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 |
| BCCD NOTES DEFINITION REPORT | Option to display the note type definitions as defined in the Edit Clinical Site Parameters option |

# 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**, **ALL**, and DAT options on **CCDA Menu** can be accessed when CCDA is stopped. For the **ONE** and **DAT** options, 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 successfully transmitted 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.

Queue entries for documents that received an error are not purged by the purge task. These entries may be purged via the ERR (View and Purge Error Documents) option. This option will display the most recent error messages and will offer the option to purge old error records. The user may enter the minimum age to purge, from 0 to 365 days. Only error records older than the entered value will be purged.

# 10.0 Documentation Resources

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

## 10.1 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 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, as described in Table 10-1.

Table 10-1: Online help

| **Typing . . .** | **Displays . . .** |
|---|---|
| one question mark (**?**) | a list of all options accessible from the current option. |
| two question marks (**??**) | a list of all accessible options and their formal names |
| three question marks (**???**) | a brief description for each option in a menu. |
| one question mark (**?**) followed by an option name (**?OPTION**) | extended help, if available, for that option |

## 10.3 HealthShare Online Help

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

## 10.4 HealthShare Class Documentation

Online documentation is available for HealthShare 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 HealthShare 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 HealthShare 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 HealthShare Class Development and Deployment

## A.1 Description of Development Environment

The CCDA application was developed using RPMS routines, HealthShare 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 HealthShare 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 HealthShare namespace using class package mapping.

## A.2 CCDA Server Requirements

The CCDA application requires HealthShare 2017 or later to run. It does not run under 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 (v2022.3 or later).

## A.3 Deployment of CCDA Classes

All HealthShare 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: Consolidated CDA Templates for Clinical Notes (US Realm), Draft Standard for Trial Use, August 2015, updated June 2019 specification, further restricted by 2015 Certified Health Information Technology (CHIT), 21st Century Cures Act (Cures), and USCDI v3.0 requirements; the Health Data, Technology, and Interoperability (HTI-1) final rule; and Companion Guide Release 4.1 guidelines. Individual data elements are listed in this appendix by section.

## B.1 General Header

Patient and care team information is located in the general header in the CCDA document. However, the application handles general header, patient, and care team data separately, so they are documented as separate sections in this manual. CCDA locations in this section are assumed to be under the /ClinicalDocument element.

Table B-1: General Header

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

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Author Model Name | Name of the device generating the document | author/assignedAuthor/assignedAuthoringDevice/manufacturerModelName<br>custodian/assignedCustodian/representedCustodianOrganization/name | N/A |
| Author Software Name | Name of the software generating the document | author/assignedAuthor/assignedAuthoringDevice/softwareName | N/A |
| Instance ID | Identifier of the RPMS database instance | componentOf/encompassingEncounter/location/healthCareFacility/id[3]/@extension | N/A |
| Facility Name | Name of the facility generating the document | part of title | N/A |
| Visit Location ID | Identifier for the facility where the visit took place | componentOf/encompassingEncounter/location/healthCareFacility/id[1]/@extension | N/A |
| Visit Location Name | Name of the facility where the visit took place | componentOf/encompassingEncounter/location/healthCareFacility/location/name | N/A |
| Visit Location Address | Address of the facility where the visit took place | componentOf/encompassingEncounter/location/healthCareFacility/location/addr | N/A |
| Visit Location Email Address | Email address of the facility where the visit took place | Comment with the format <!-- telecom=”x” --> | N/A |
| Visit Location Clinic Stop Code | Stop code of the facility where the visit took place | componentOf/encompassingEncounter/location/healthCareFacility/code/@code | N/A |
| Visit Location Station Number | Station number of the facility where the visit took place | componentOf/encompassingEncounter/location/healthCareFacility/id[2]/@extension | N/A |

## B.2 Patient

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

Table B-2: Patient

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| CCD ID | Patient identifier | id/@extension | N/A |
| CCD HRN | Patient health record number | id/@extension | N/A |

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Name | Patient's primary or legal name | patient/name | N/A |
| Other Names | Other patient names | patient/name | N/A |
| Home Address | Patient's home address | addr | N/A |
| Work Address | Patient's work address | addr | N/A |
| Temporary Address | Patient's temporary address | addr | N/A |
| Previous Address | Patient's previous address | addr | N/A |
| Home Phone | Patient's home telephone number | telecom | N/A |
| Work Phone | Patient's work telephone number | telecom | N/A |
| Mobile Phone | Patient's mobile telephone number | telecom | N/A |
| Age | Patient age | N/A | N/A |
| Date of Birth | Patient's date of birth | patient/birthTime/@value | N/A |
| Email Address | Patient's email address | telecom | N/A |
| Marital Status | Patient's marital status | patient/maritalStatus/@code | HL7 Marital Status: 2.16.840.1.113883.1.11.12212 |
| RaceCategory | Patient's first race category | patient/raceCode/@code | Race Category Excluding Nulls: 2.16.840.1.113883.3.2074.1.1.3 |
| RaceDetail | Patient's race and additional race categories | patient/sdtc:raceCode/@code | Race Value Set: 2.16.840.1.113883.1.11.14914 |
| EthnicityCategory | Patient's first ethnicity category | patient/ethnicGroupCode/@code | Ethnicity: 2.16.840.1.114222.4.11.837 |
| EthnicityDetail | Patient's ethnicity and additional ethnicity categories | patient/sdtc:ethnicGroupCode/@code | Detailed Ethnicity: 2.16.840.1.114222.4.11.877 |
| Language | Patient's preferred language | patient/languageCommunication/languageCode/@code | Language: 2.16.840.1.113883.1.11.11526 |
| Communication Method | Patient's preferred communication method | Comment with the format <!-- PreferredCommunicationMethod="x" --> | N/A |
| Preferred Name | Patient's Preferred First Name | patient/name/given | N/A |

## B.3 Allergy

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

Table B-3: Allergy

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Allergy ID | Allergy identifier | id/@extension | N/A |
| Start Date | Date when the allergy began | entryRelationship/observation/effectiveTime/low/@value | N/A |
| Adverse Event Type | SNOMED code for the allergy/adverse event type | entryRelationship/observation/value/@code | Allergy and Intolerance Type: 2.16.840.1.113883.3.88.12.3221.6.2 |
| Product Free Text | Name of the allergen | entryRelationship/observation/participant/participantRole/playingEntity/code/originalText/reference/@value (pointer) | N/A |
| Status | Status of the allergy | statusCode/@code | HL7ActStatus: 2.16.840.1.113883.5.14 |
| Severity | SNOMED code corresponding to the severity of the allergy | Narrative only | Reaction Severity 2.16.840.1.113883.3.88.12.3221.6.8 |
| Comment | Additional information about the allergy | Narrative only | N/A |
| No Allergy Code | Code indicating whether there was an allergy assessment | N/A | N/A |
| Allergy Reaction: Reaction ID | Allergy reaction identifier | entryRelationship/observation/entryRelationship/observation/id/@extension | N/A |
| Allergy Reaction: Reaction | Text indicating the reaction | Narrative only | N/A |
| Allergy Reaction: Code | SNOMED code of the reaction | entryRelationship/observation/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 | Substance Reactant for Intolerance: 2.16.840.1.113762.1.4.1010.1 |
| Allergy Code: Product Code System | OID of the code system for the product code | entryRelationship/observation/participant/participantRole/playingEntity/code/@codeSystem | N/A |

## B.4 Assessment and Plan

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

Table B-4: Assessment and Plan

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Assessment and Plan ID | Identifier | id/@extension | N/A |
| Text | Text of the assessment/plan | Narrative only | N/A |
| Type | Code indicating whether the item displays under the Assessment/Care Plan, Plan of Treatment, or Ordered Tests subheading | Narrative only | N/A |
| Date/Time | Date/time of the item | effectiveTime/ @value | N/A |
| Code | SDOH intervention code | code/@code | N/A |
| Organizer: Type | Code indicating whether the item displays under a problem subheading or the Summary List of Ordered Tests (not yet performed) or Tests awaiting results, Referrals and Consultations, Future Appointments, or Additional Instructions heading | Narrative only | N/A |
| Organizer: Text | Problem name | Narrative only | N/A |
| Organizer: Confidential | Flag indicating whether the problem is confidential | Narrative only | N/A |
| Organizer: DateTime | Date/time of the problem | Used for sorting the problems in the narrative | N/A |

## B.5 Care Team

CCDA locations in this section marked with [1] are assumed to be under both the /ClinicalDocument/documentationOf/serviceEvent/performer/assignedEntity and /ClinicalDocument/componentOf/encompassingEncounter/encounterParticipant/assignedEntity elements, and CCDA locations marked with [2] are assumed to be under /ClinicalDocument/component/structuredBody/component/section/entry/organizer/component/act element unless otherwise specified.

Table B-5: Care Team

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Provider ID | Provider Identifier | [1]/id/@extension<br>[2]/id/@extension | N/A |
| 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 [1]/id/@root and [2]/id/@root | N/A |
| Label | Label used in the narrative | Narrative only | N/A |
| NUCC Provider Code | NUCC provider taxonomy | [1]/code/@code | Healthcare Provider Taxonomy (NUCC - HIPAA) 2.16.840.1.114222.4.11.1066 |
| Address | Provider address | [1]/addr | N/A |
| Phone | Provider telephone number | [1]/telecom/@value | N/A |
| Phone Use | Code indicating the type of telephone number in the Phone field | [1]/telecom/@use | Telecom Use (US Realm Header) 2.16.840.1.113883.11.20.9.20 |
| Email | Provider email address | [1]/telecom/@value | N/A |
| Email Use | Code indicating the type of email address in the Email field | [1]/telecom/@use | Telecom Use (US Realm Header) 2.16.840.1.113883.11.20.9.20 |
| Name | Provider name | [1]/assignedPerson/name<br>[2]/performer/assignedEntity/assignedPerson/name | N/A |
| Referral Number | Referral number (for referring providers) | Narrative only | N/A |
| Provider Role | Provider role | [2]/sdtc:functionCode | Care Team Member Function: 2.16.840.1.113762.1.4.1099.30 |
| Start Time | Effective start time for the provider | [2]/effectiveTime/low/@value | N/A |

## B.6 Case Reporting

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

Table B-6: Case Reporting

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Trigger | Indicates what triggered the document to be created | component/structuredBody/component/section/entry/observation/value | N/A |
| Version | Version number | component/structuredBody/component/section/entry/observation/id/@root | N/A |
| County | Patient's county of residence | recordTarget/patientRole/addr/county | N/A |
| Community Of Residence | Patient's community of residence | recordTarget/patientRole/addr/precinct | N/A |
| Asufac | ASUFAC of the facility | Component/structuredBody/component/section/entry/observation/id/@extension | N/A |

## B.7 Consultation Note

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

Table B-7: Consultation Note

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Date/Time | Timestamp of the note | effectiveTime/@value | N/A |
| Text | Note text | text/reference/@value (pointer) | N/A |
| Title | Note title | Narrative only | N/A |
| Organizer: Date Time | Timestamp of the organizer | Narrative only | N/A |
| Organizer: Text | Organizer note text | Narrative only | N/A |
| Organizer: Title | Organizer note title | Narrative only | N/A |
| Addendum: Date/Time | Timestamp of the addendum | Narrative only | N/A |
| Addendum: Text | Addendum text | Narrative only | N/A |

## B.8 Contacts

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

Table B-8: Contacts

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Name | Contact name | Narrative only | N/A |
| Type of Relation | Type of relation, e.g., next of kin | Narrative only | N/A |
| Relationship | Relationship to the patient, e.g., parent | Narrative only | N/A |
| Address | Address of contact | Narrative only | N/A |
| Home phone | Home phone number | Narrative only | N/A |
| Work phone | Work phone number | Narrative only | N/A |
| Cell phone | Cell phone number | Narrative only | N/A |
| Email address | Email address | Narrative only | N/A |

## B.9 Discharge Diagnosis

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

Table B-9: Discharge Diagnosis

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Label | Label for the diagnosis | Narrative only | N/A |
| Text | Text of the diagnosis | Narrative only | N/A |
| Confidential | Whether the problem associated with the diagnosis is marked for non-redisclosure | Narrative only | N/A |

## B.10 Discharge Summary Note

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

Table B-10: Discharge Summary Note

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Date/Time | Timestamp of the note | effectiveTime/@value | N/A |
| Text | Note text | text/reference/@value (pointer) | N/A |
| Title | Note title | Narrative only | N/A |

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Addendum: Date/Time | Timestamp of the addendum | Narrative only | N/A |
| Addendum: Text | Addendum text | Narrative only | N/A |

## B.11 Encounter

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

Table B-11: Encounter

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Encounter ID | Encounter identifier | id/@extension | N/A |
| Code | Encounter type code | code/@code | EncounterTypeCode: 2.16.840.1.113883.3.88.12.80.32 |
| Effective Time | Date/time of the encounter | effectiveTime/low/@value | N/A |
| Performer Name | Primary provider | performer/assignedEntity/assignedPerson/name | N/A |
| Performer Address | Provider address | performer/assignedEntity/addr | N/A |
| Performer Phone | Provider phone | performer/assignedEntity/telecom/@value | N/A |
| Location Code | Encounter location type code | participant/participantRole/code/@code | HealthcareServiceLocation: 2.16.840.1.113883.1.11.20275 |
| Location Name | Encounter location name | participant/participantRole/playingEntity/name | N/A |
| Location Address | Encounter location address | participant/participantRole/addr | N/A |
| Location Phone | Encounter location phone | participant/participantRole/telecom/@value | N/A |
| Disposition | Encounter disposition | dischargeDispositionCode | NUBC: 2.16.840.1.113883.6.301.5 |
| Encounter Diagnosis: Problem Id | Problem identifier | entryRelationship/act/entryRelationship/observation/id/@root | N/A |

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Encounter Diagnosis: Problem Code | SNOMED or ICD10 problem code | entryRelationship/act/entryRelationship/observation/value/@code if in valueset, otherwise entryRelationship/act/entryRelationship/observation/value/translation/@code | Problem: 2.16.840.1.113883.3.88.12.3221.7.4 |
| Encounter Diagnosis: Code Status | Code indicating whether the problem code is active or inactive | Used to determine whether the problem code is in the value or translation element | N/A |
| Encounter Diagnosis: Text | Problem description | Narrative only | N/A |
| Encounter Diagnosis: Confidential | Flag indicating whether the diagnosis is confidential | Confidentiality information in entryRelationship/act/entryRelationship/observation/entryRelationship | N/A |

## B.12 Functional Status

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

Table B-12: Functional Status

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Value | Functional status text | Narrative only | N/A |
| Date | Functional status date | effectiveTime/@value | N/A |
| Code | SNOMED code for functional statuses related to problems | Narrative only | N/A |
| Status | Active/inactive status | Narrative only | N/A |
| Confidential | Flag indicating whether the functional status is confidential | Narrative only | N/A |
| Assessment Id | Identifier of the functional/disability status | id/@extension | |
| Assessment Code | Code indicating the type of functional/disability status being reported | code/@code | |

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Assessment Value | Value of the function/disability status | value | N/A |

## B.13 Goal

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

Table B-13: Goal

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Goal Id | Goal identifier | id/@extension | N/A |
| Type | Code indicating whether the goal is a patient goal or provider/team goal | Narrative only | N/A |
| Code | Code indicating the type of goal | code/@code | N/A |
| Text | Text of the goal | Narrative only | N/A |
| Effective Time | Goal date/time | effectiveTime/@value | N/A |
| Problem | Problem description for provider/team goals | Narrative only | N/A |
| Goal Value | Code indicating the goal value | value/@code | N/A |
| Confidential | Flag indicating whether the problem is confidential | Confidentiality information in entryRelationship | N/A |

## B.14 Health Concern

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

Table B-14: Health Concern

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Health Concern ID | Health concern identifier | id/@extension | N/A |

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Type | Code indicating whether the health concern is a problem or goal | Narrative only | N/A |
| Text | Health concern text | Narrative only | N/A |
| Effective Time | Date/time of the health concern | effectiveTime/@value | N/A |
| POV | Flag indicating whether the health concern was a purpose of visit | Narrative only | N/A |
| Severity | Level of severity | Narrative only | N/A |
| Healing | Healing value associated with the health concern | Narrative only | N/A |
| Exam Findings | Exam findings associated with the health concern | Narrative only | N/A |
| Classification Control | Classification and control value associated with the health concern | Narrative only | N/A |
| Confidential | Flag indicating whether the health concern is confidential | Confidentiality information in entryRelationship | N/A |
| Parent ID | Identifier of the parent health concern (problems only) | Used to identify problems that are children of a health concern | N/A |
| Problem Code | Code indicating the type of problem (problems only) | entryRelationship/observation/value/@code or entryRelationship/observation/value/translation/@code | N/A |
| Problem Code Status | Indicates whether the problem code is active or inactive | Used to determine the location of Problem Code | N/A |
| Problem ID | Identifier of the health concern's corresponding problem | entryRelationship/act/id/@extension | N/A |

## B.15 Health Insurance

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

Table B-15: Health Insurance

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| RPMS Insurance Type | RPMS insurance type | Used to sort policies in the narrative | N/A |
| Coverage ID | Unique identifier for the insurance | id/@extension | N/A |
| Coverage Time | Date/time the insurance was verified | effectiveTime/@value | N/A |
| Policy ID | Policy identifier, such as group number | entryRelationship/act/id/@extension | N/A |
| Group Name | Group name | Narrative only | N/A |
| Insurance Type | Insurance type code | entryRelationship/act/code/@code | Health Insurance Type: 2.16.840.1.113883.3.88.12.3221.5.2 |
| Payer Type | Payer type code | entryRelationship/act/code/translation/@code | Payer: 2.16.840.1.114222.4.11.3591 |
| Payer ID | Payer identifier | entryRelationship/act/performer/assignedEntity/id/@extension | N/A |
| Financially Responsible Party Type | Financially responsible party type code | entryRelationship/act/performer/assignedEntity/code/@code | Financially Responsible Party Type: 2.16.840.1.113883.1.11.10416 |
| Payer Address | Payer address | entryRelationship/act/performer/assignedEntity/addr | N/A |
| Payer Phone | Payer phone | entryRelationship/act/performer/assignedEntity/telecom/@value | N/A |
| Payer Name | Payer name | entryRelationship/act/performer/assignedEntity/representedOrganization/name | N/A |
| Covered Party Start Time | Coverage start date | entryRelationship/act/participant/time/low/@value | N/A |
| Covered Party End Time | Coverage end date | entryRelationship/act/participant/time/high/@value | N/A |
| Covered Party ID | Member identifier | entryRelationship/act/participant/participantRole/id/@extension | N/A |
| Covered Party Coverage Role Type | Coverage role type code | entryRelationship/act/participant/participantRole/code/@code | Coverage Role Type: 2.16.840.1.113883.1.11.18877 |

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Covered Party Address | Member address | entryRelationship/act/participant/participantRole/addr | N/A |
| Covered Party Name | Member name | entryRelationship/act/participant/participantRole/playingEntity/name | N/A |
| Covered Party Birth Time | Member date of birth | entryRelationship/act/participant/participantRole/playingEntity/birthtime | N/A |
| Subscriber Is Patient | Flag indicating whether the patient is the subscriber | Used to determine whether to populate subscriber template | N/A |
| Subscriber ID | Subscriber identifier if not the patient | entryRelationship/act/participant/participantRole/id/@extension | N/A |
| Subscriber Address | Subscriber address if not the patient | entryRelationship/act/participant/participantRole/addr | N/A |
| Subscriber Name | Subscriber name if not the patient | Narrative only | N/A |
| Plan ID | Insurance plan identifier | entryRelationship/act/entryRelationship/act/id/@extension | N/A |
| Plan Description | Insurance plan description | entryRelationship/act/entryRelationship/act/text | N/A |
| BIN Number | BIN number (pharmacy insurance) | Narrative only | N/A |
| PCN Number | PCN number (pharmacy insurance) | Narrative only | N/A |

## B.16 History and Physical Note

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

Table B-16: Health and Physical Note

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Date/Time | Timestamp of the note | effectiveTime/@value | N/A |
| Text | Note text | text/reference/@value (pointer) | N/A |
| Title | Note title | Narrative only | N/A |
| Addendum: Date/Time | Timestamp of the addendum | Narrative only | N/A |
| Addendum: Text | Addendum text | Narrative only | N/A |

## B.17 Hospital Course

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

Table B-17: Hospital Course

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Date/Time | Hospital course date/time | Narrative only | N/A |
| Text | Hospital course text | Narrative only | N/A |
| Title | Hospital course title | Narrative only | N/A |
| Hospital Course Addendum: Date/Time | Date/time of an addendum to the hospital course | Narrative only | N/A |
| Hospital Course Addendum: Text | Text of an addendum to the hospital course | Narrative only | N/A |

## B.18 Hospital Discharge Instructions

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

Table B-18: Hospital Discharge Instructions

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Date/Time | Date/time for one line of the instructions | Narrative only | N/A |
| Text | Text of one line of the instructions | Narrative only | N/A |
| Title | Title of the instruction | Narrative only | N/A |
| Hospital Discharge Instructions Addendum: Date/Time | Date/time for an addendum to a hospital discharge instruction | Narrative only | N/A |
| Hospital Discharge Instructions Addendum: Text | Text of an addendum to a hospital discharge instruction | Narrative only | N/A |

## B.19 Immunization

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

Table B-19: Immunization

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Immunization ID | Immunization identifier | id/@extension | N/A |
| Refusal | Boolean value indicating whether the immunization was refused | Used to determine @negationInd | N/A |
| Mood Code | Mood code indicating whether the immunization was given or is planned | @moodCode | MoodCodeEvnInt 2.16.840.1.113883.1 1.20.9.18 |
| Free Text Product Name | Name of the immunization | text/reference/@value (pointer) | N/A |
| Administered Date | Date the immunization was administered | effectiveTime | N/A |
| Coded Product Name | CVX code of the vaccine | consumable/manufacturedProduct/manufacturedMaterial/code/@code if active, otherwise consumable/manufacturedProduct/manufacturedMaterial/code/translation/@code | CVX Vaccines Administered Vaccine Set: 2.16.840.1.113762.1.4.1010.6 |
| Code Status | Code indicating whether the CVX code is active or inactive | Used to determine whether the coded product name is in the code or translation element | N/A |
| NDC Code | National Drug Code (NDC) code | consumable/manufacturedProduct/manufacturedMaterial/.code/translation/@code | N/A |
| Due Date | Recommended date for a future immunization | effectiveTime | N/A |
| Dose Quantity | Immunization dose | doseQuantity/@value | N/A |
| Lot Number | Lot number of the vaccine | consumable/manufacturedProduct/manufacturedMaterial/lotNumberText | N/A |
| Drug Manufacturer | Manufacturer of the vaccine | consumable/manufacturedProduct/manufactureOrganization/name | N/A |
| Performer | Provider administering the immunization | performer/assignedEntity/AssignedPerson/name | N/A |
| Refusal Reason Code | Code indicating the reason for refusal | entryRelationship/observation/code/@code | No Immunization Reason: 2.16.840.1.113883.1.11.19717 |
| Refusal SNOMED | SNOMED code indicating the reason for refusal | Narrative only | N/A |

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Is Trigger | Flag indicating whether the immunization is a case reporting trigger | Used to determine whether to include the trigger template ID | N/A |
| Trigger Value Set | Value set and value set version of the trigger | consumable/manufacturedProduct/manufacturedMaterial/code/@valueSet and @valueSetVersion | N/A |

## B.20 Medical Equipment

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

Table B-20: Medical Equipment

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Device ID | Unique Device Identification (UDI) or Device Identifier (DI) of the medical device | participant/participantRole/id/@extension | N/A |
| Device ID Issuing Agency | Code indicating the agency that issued the device ID | participant/participantRole/id/assigningAuthorityName | N/A |
| Device Code | SNOMED code of the device | participant/participantRole/playingDevice/code/@code | N/A |
| Device Name | Name of the device | Participant/participantRole/playingDevice/code/displayName | N/A |
| Text | Text description of the device | Narrative only | N/A |
| Medical Equipment Procedure: Procedure ID | Procedure identifier | id/@extension | N/A |
| Medical Equipment Procedure: Procedure Code | Code of the associated procedure | procedure/code/@code | N/A |
| Medical Equipment Procedure: Procedure Code System | OID of the code system of the procedure code | procedure/code/@codeSystem | N/A |

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Medical Equipment Procedure: Procedure Code Description | Description associated with the procedure code | procedure/code/@displayName | N/A |
| Medical Equipment Procedure: Implanted Date | Date the device was implanted | effectiveTime/low/@value | N/A |
| Medical Equipment Procedure: Target Site Code | Body site where the device was implanted | targetSiteCode/@code | N/A |
| Medical Equipment Procedure: Target Site Description | Description of the body site | targetSiteCode/@displayName | N/A |
| Medical Equipment Procedure: Performer ID | Performer identifier | performer/assignedEntity/id/@extension | N/A |
| Medical Equipment Procedure: Performer Address | Address of the performer | performer/assignedEntity/addr | N/A |
| Medical Equipment Procedure: Performer Phone | Phone number of the performer | performer/assignedEntity/telecom/@value | N/A |
| Medical Equipment Procedure: Performer Name | Name of the performer | performer/assignedEntity/assignedEntity/representedOrganization/name | N/A |

## B.21 Medication

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

Table B-21: Medication

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Type of Medication | Specifies the type of medication | Used to group medications in the narrative | N/A |
| Medication ID | Medication identifier | id/@extension | N/A |
| Mood Code | Mood code indicating whether the medication was taken in the past or is intended to be taken in the future | @moodCode | MoodCodeEvnInt 2.16.840.1.113883.11.20.9.18 |
| Sig | Medication sig. | text/reference/@value (pointer) | N/A |
| Status | Medication status (HL7) | statusCode/@code | Medication Status: 2.16.840.1.113762.1.4.1099.11 |
| RPMS Status | Medication status (RPMS) | In a comment in the narrative | N/A |
| Started Date/Time | Date medication was started | effectiveTime/low/@value | N/A |
| Stopped Date/Time | Date medication was stopped | effectiveTime/high/@value | N/A |
| Fills | Number of administrations or number of allowed administrations | repeatNumber/@value | N/A |
| Route | Code indicating the route of administration | routeCode/@code | Medication Route FDA Value Set 2.16.840.1.113883.3.88.12.3221.8.7 |
| Dose | Dose | doseQuantity/@value | N/A |
| Dose Units | Dose Units | doseQuantity/@unit | N/A |
| Refills Remaining | Number of refills remaining | Narrative only | N/A |
| Coded Product Name | RxNorm code indicating the medication prescribed | consumable/manufacturedProduct/manufacturedMaterial/code/@code | Medication Clinical Drug: 2.16.840.1.113762.1.4.1010.4 |
| Display Product Name | Display name of the medication | consumable/manufacturedProduct/manufacturedMaterial/code/@displayName | N/A |
| Free Text Product Name | Human-readable name of the medication | consumable/manufacturedProduct/manufacturedMaterial/code/originalText/reference/@value (pointer) | N/A |

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Drug Manufacturer | Name of the drug manufacturer | consumable/manufacturedProduct/manufacturerOrganization/name | N/A |
| Include Med Supply Template | Flag indicating whether to include the Medication Supply Order template in the coded data | Used to determine whether to include the Medication Supply Order template | N/A |
| Order Number | Order identifier | entryRelationship/supply/id/@extension | N/A |
| Order Expiration Date/Time | Order expiration | entryRelationship/supply/effectiveTime/high/@value | N/A |
| Quantity Ordered Value | Quantity ordered | entryRelationship/supply/quantity/@value | N/A |
| Quantity Ordered Units | Quantity ordered units | entryRelationship/supply/quantity/@unit | N/A |
| Order Date/Time | Date/time of order | entryRelationship/supply/author/time/@value | N/A |
| Ordering Provider | Provider placing the order | entryRelationship/supply/author/assignedAuthor/assignedPerson/name | N/A |
| Med Frequency: Conjunction | Conjunction linking medication frequencies | effectiveTime/@operator | N/A |
| Med Frequency: Frequency | Text indicating the medication frequency | effectiveTime | N/A |
| Med Frequency: Order | Number indicating the order of med frequency items | Used to sort the medication frequency items | N/A |
| Med Dispense: Prescription Number | Prescription number | entryRelationship/supply/id/@extension | N/A |
| Med Dispense: Dispense Status | Code indicating whether the prescription was filled | entryRelationship/supply/statusCode/@code | Medication Dispense Status: 2.16.840.1.113883.4.642.3.1312 |
| Med Dispense: Dispense Date | Date the medication was dispensed | entryRelationship/supply/effectiveTime/@value | N/A |
| Med Dispense: Fill Number | Number indicating which fill is being documented | entryRelationship/supply/repeatNumber/@value | N/A |
| Med Dispense: Quantity Dispensed | Quantity dispensed | entryRelationship/supply/quantity/@value | N/A |

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Med Dispense: Provider | Entity performing the dispensation | entryRelationship/supply/performer/assignedEntity/representedOrganization/name | N/A |
| Med Dispense: Location | Address of the dispensing entity | entryRelationship/supply/performer/assignedEntity/addr | N/A |
| Med Dispense: Station Number | Station number of the dispensing entity | entryRelationship/supply/fperformer/assignedEntity/id/@extension | N/A |
| Med Dispense: Days Supply | Days supply dispensed | entryRelationship/supply/expectedUseTime/width/@value | N/A |
| Med Class Code: VA Drug Classification | Description of the VA drug class code | entryRelationship/supply/product/manufacturedMaterial/code/translation/@displayName | N/A |
| Med Class Code: VA Drug Code | VA drug class code | entryRelationship/supply/product/manufacturedMaterial/code/translation/@code | N/A |
| Indication ID | Identifier of the indication | entryRelationship/observation/id/@extension | N/A |
| Indication ID Is Pointer | Flag indicating whether Indication ID points to a problem in the Problem section | Used for determining which fields to populate in the Indication entry | N/A |
| Indication Start Date/Time | Start date/time of the indication | entryRelationship/observation/effectiveTime/low/@value | N/A |
| Indication End Date/Time | End date/time of the indication | entryRelationship/observation/effectiveTime/high/@value | N/A |
| Indication Value | Indication code | entryRelationship/observation/value/@code or entryRelationship/observation/value/translation/@code | N/A |
| Indication Value Status | Code indicating whether the indication value is active or inactive | Used to determine whether the indication value is in the value or translation element | N/A |
| Is Trigger | Flag indicating whether the medication is a case reporting trigger | Used to determine whether to include the trigger template ID | N/A |

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Trigger Value Set | Value set and value set version of the trigger | consumable/manufacturedProduct/manufacturedMaterial/code/@valueSet and @valueSetVersion; or consumable/manufacturedProduct/manufacturedMaterial/code/translation/@valueset and @valueSetVersion | N/A |
| Anesthesia | Flag indicating whether the drug is anesthesia | Used to determine whether to report the medication in a case reporting document | N/A |

## B.22 Mental Status

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

Table B-22: Mental Status

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Value | Mental status text | Narrative only | N/A |
| Date | Mental status date | Narrative only | N/A |
| Code | SNOMED code for mental statuses related to problems | Narrative only | N/A |
| Status | Active/inactive status | Narrative only | N/A |
| Confidential | Flag indicating whether this mental status is confidential | Narrative only | N/A |

## B.23 Problem

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

Table B-23: Problem

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Problem ID | Problem identifier | id/@extension | N/A |
| POV | Purpose of visit flag | Narrative only | N/A |

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Status | Problem status | statusCode/@code | ProblemAct statusCode 2.16.840.1.113883.11.20.9.19 |
| Date of Diagnosis | Problem diagnosis date | effectiveTime/low/@value | N/A |
| Date of Onset | Problem onset date | entryRelationship/observation/effectiveTime/low/@value | N/A |
| Resolve Date | Problem resolution date | entryRelationship/observation/effectiveTime/high/@value | N/A |
| Code | Code indicating the type of problem | N/A | N/A |
| Text | Text description of the problem | entryRelationship/observation/value/@displayName if active SNOMED, otherwise entryRelationship/observation/value/translation/@displayName entryRelationship/observation/text/reference/@value (pointer) | N/A |
| Coded Value | Code indicating the problem | entryRelationship/observation/value/@code if active SNOMED, otherwise entryRelationship/observation/value/translation/@code | Problem: 2.16.840.1.113883.3.88.12.3221.7.4 |
| Coded Value Code System | OID of the code system of the Coded Value | entryRelationship/observation/value/@codeSystem entryRelationship/observation/value/translation/@codeSystem | N/A |
| Code Status | Flag indicating whether the code is active or inactive | Used to determine whether the coded value goes in the value or translation element | N/A |
| Age At Onset | Patient age at onset of problem | entryRelationship/observation/observation/entryRelationship/value/@value | N/A |
| Confidential | Flag indicating whether this problem is confidential | Confidentiality information in entryRelationship/observation/entryRelationship | N/A |
| Is Trigger | Flag indicating whether the problem is a case reporting trigger | Used to determine whether to include the trigger template ID | N/A |

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Trigger Value Set | Value set and value set version of the trigger | entryRelationship/observation/value/@valueSet and @valueSetVersion or entryRelationship/observation/value/translation/@valueSet and @valueSetVersion | N/A |

# B.24 Procedure

The Procedure section of the document consists of two subsets of data: procedures and procedure notes. Procedures are displayed first, followed by any procedure notes.

## B.24.1 Procedure

CCDA locations in this subsection are assumed to be under the /ClinicalDocument/component/structuredBody/component/section/entry/procedure (procedures) or /ClinicalDocument/component/structuredBody/component/section/entry/act (patient education) element.

Table B-24: Procedure

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Procedure ID | Procedure identifier | id/@extension | N/A |
| Date/Time | Date/time of procedure | effectiveTime/@value | N/A |
| Code | Code indicating the procedure performed | code/@code<br>code/translation/@code | N/A |
| Code System | OID of the code system for the Code | code/@codeSystem<br>code/translation/@codeSystem | N/A |
| Code Description | Description of the procedure | code/@displayName<br>code/translation/@displayName<br>code/originalText/reference/@value (pointer) | N/A |
| Performer ID | Identifier of the person performing the procedure | performer/assignedEntity/id/@extension | N/A |
| Performer Address | Address of the person performing the procedure | performer/assignedEntity/addr | N/A |
| Performer Phone | Telephone number of the person performing the procedure | performer/assignedEntity/telecom/@value | N/A |

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Type | Type of procedure | Used to determine the procedure template (Procedure Activity Procedure vs. Procedure Activity Act) | N/A |
| Status Code | Procedure status | statusCode | N/A |
| Confidential | Flag indicating whether the problem is confidential | Confidentiality information in entryRelationship | N/A |

### B.24.2 Procedure Note

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

Table B-25: Procedure Note

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Date/Time | Timestamp of the note | effectiveTime/@value | N/A |
| Text | Note text | text/reference/@value (pointer) | N/A |
| Title | Note title | Narrative only | N/A |
| Addendum: Date/Time | Timestamp of the addendum | Narrative only | N/A |
| Addendum: Text | Addendum text | Narrative only | N/A |

## B.25 Progress Note

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

Table B-26: Progress Note

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Date/Time | Timestamp of the note | effectiveTime/@value | N/A |
| Text | Note text | text/reference/@value (pointer) | N/A |
| Title | Note title | Narrative only | N/A |
| Addendum: Date/Time | Timestamp of the addendum | Narrative only | N/A |
| Addendum: Text | Addendum text | Narrative only | N/A |

## B.26 Reason for Referral

The Reason for Referral section does not contain a structured data section, so all elements are narrative only.

Table B-27: Reason for Referral

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Reason for Referral | Reason for referral text | Narrative only | N/A |
| Confidential | Flag indicating whether the reason for referral is confidential | Narrative only | N/A |

## B.27 Reason for Visit/Hospitalization

The Reason for Visit/Hospitalization section does not contain a structured data section, so all elements are narrative only.

Table B-28: Reason for Visit/Hospitalization

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Label | Label for the reason | Narrative only | N/A |
| Text | Text of the reason | Narrative only | N/A |
| Confidential | Whether the problem associated with the reason is marked for non-redisclosure | Narrative only | N/A |

## B.28 Result

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

Table B-29: Result

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Result ID | Result identifier | component/observation/id/@extension | N/A |
| Type Code | LOINC code indicating the type of result | component/observation/code/@code | N/A |
| Type Code System | OID of the code system for Type Code | component/observation/code/@codeSystem | N/A |

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Type Name | Text indicating the type of result | component/observation/code/@displayName<br>component/observation/text/reference/@value (pointer) | N/A |
| Value | Result value | component/observation/value/@value | N/A |
| Unit | Result units | component/observation/value/@unit | UnitsOfMeasureCaseSensitive: 2.16.840.1.113883.1.11.12839 |
| Value Code | Coded result value | component/observation/value/@value | N/A |
| Interpretation Code | Result interpretation code | component/observation/interpretationCode/@code | Observation Interpretation (HL7): 2.16.840.1.113883.1.11.78 |
| Reference Range Low | Result reference low value | component/observation/referenceRange/observationRange/value/low/@value | N/A |
| Reference Range High | Reference range high value | component/observation/referenceRange/observationRange/value/high/@value | N/A |
| Reference Range Critical Low | Critical reference range low value | component/observation/referenceRange/observationRange/value/low/@value | N/A |
| Reference Range Critical High | Critical reference range high value | component/observation/referenceRange/observationRange/value/high/@value | N/A |
| Specimen | SNOMED code of the specimen | component/observation/specimen/specimenRole/specimenPlayingEntity/code/@code | N/A |
| SiteSpecimen | Description of the specimen | Narrative only | N/A |
| Report Text | Result report | Narrative only | N/A |
| Impression Text | Result impression | Narrative only | N/A |
| Is Trigger | Flag indicating whether the result is a case reporting trigger | Used to determine whether to include the trigger template ID | N/A |
| Trigger Value Set | Value set and value set version of the trigger | component/observation/code/@valueSet and @valueSetVersion or component/observation/code/translation/@valueSet and @valueSetVersion | N/A |

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Organizer: Organizer ID | Panel or individual test identifier | id/@extension | N/A |
| Organizer: Code | LOINC code indicating the panel or individual test | code/@code | N/A |
| Organizer: Code System | OID of the code system for Code | code/@codeSystem | N/A |
| Organizer: Name | Name of the panel or individual test | code/@displayName | N/A |
| Organizer: Group Type | Code indicating whether the group is a panel, individual test, or skin test | Used to sort results in the narrative | N/A |
| Organizer: Date/Time | Date/time of the result | component/observation/effectiveTime/@value | N/A |
| Organizer: Testing Lab ID | Testing lab identifier | performer/assignedEntity/id/@extension | N/A |
| Organizer: Testing Lab Name | Name of the testing lab | performer/assignedEntity/representedOrganization/name | N/A |
| Organizer: Testing Lab Address | Address of the testing lab | performer/assignedEntity/representedOrganization/addr | N/A |
| Organizer: Testing Lab Phone | Phone number of the testing lab | performer/assignedEntity/representedOrganization/telecom | N/A |
| Organizer: Comment | Comment about the test or panel of tests | component/observation/entryRelationship/act/text/reference/@value (pointer) | N/A |

## B.29 Security and Privacy Prohibitions

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

Table B-30: Security and Privacy Prohibitions

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Prod Flag | Flag indicating whether the database is production or test/training | Not reported directly but used to determine the behavior of multiple aspects of the section | N/A |

# B.30 Social History

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

Table B-31: Social History

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Preferred Language | Patient's preferred language | value/@code | N/A |
| Smoking Status: Item ID | Smoking status identifier | id/@extension | N/A |
| Smoking Status: Start Date | Date the patient's smoking status became effective | effectiveTime/@value | N/A |
| Smoking Status: End Date | Date the patient's smoking status stopped being effective | Narrative only | N/A |
| Smoking Status: Code | Code indicating the patient's smoking status | value/@code | Smoking Status: 2.16.840.1.113883.11.20.9.38 |
| Smoking Status: Comment | Comment associated with patient's smoking status | Narrative only | N/A |
| Smoking Status History: Item ID | Historical smoking status identifier | id/@extension | N/A |
| Smoking Status History: Start Date | Date the patient's historical smoking status became effective | effectiveTime/low/@value | N/A |
| Smoking Status History: End Date | Date the patient's historical smoking status stopped being effective | effectiveTime/high/@value | N/A |
| Smoking Status History: Code | Code indicating the patient's historical smoking status | value/@code | Tobacco Use: 2.16.840.1.113883.11.20.9.41 |
| Smoking Status History: Comment | Comment associated with patient's historical smoking status | Narrative only | N/A |
| Ecigarette Status: Start Date | E-cigarette usage start date | effectiveTime/low/@value | N/A |
| Ecigarette Status: End Date | E-cigarette usage end date | effectiveTime/high/@value | N/A |

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Ecigarette Status: Code | Code indicating the patient's e-cigarette status | value/@code | N/A |
| Ecigarette Status: Comment | Comment associated with patient's e-cigarette status | Narrative only | N/A |
| Assessment: Organizer Id | Assessment identifier | id/@extension | N/A |
| Assessment: Code | Code indicating the type of assessment | code/@code | N/A |
| Assessment: Effective Date | Date of the assessment | effectiveTime/@value | N/A |
| Assessment: Value | Assessment score | value | N/A |
| Assessment Item: Item Id | Individual assessment item identifier | entryRelationship/observation/id/@extension | N/A |
| Assessment Item: Code | Code for the specific assessment item | entryRelationship/observation/code/@code | N/A |
| Assessment Item: Coded Value | Value of the specific assessment item | entryRelationship/observation/value/@code | N/A |
| Pregnancy Status: Item ID | Pregnancy status identifier | id/@extension | N/A |
| Pregnancy Status: Effective Date | Date of the pregnancy status observation | effectiveTime/@value | N/A |
| Pregnancy Status: Coded Value | Pregnancy status code | value/@code | N/A |
| Occupation: Organizer ID | Occupation identifier | id/@extension | N/A |
| Occupation: Code | Occupation code | value/@code or value/translation/@code | Occupation ONETSOC Detail (ODH): 2.16.840.1.114222.4.11.7901 |
| Occupation: Effective Date | Occupation observation date | effectiveTime/low/@extension | N/A |
| Occupation Item: Item ID | Industry identifier | entryRelationship/observation/id/@extension | N/A |
| Occupation Item: Effective Date | Industry observation date | entryRelationship/observation/effectiveTime/low/@value | N/A |
| Occupation Item: Code | Industry code | entryRelationship/observation/value/@code or entryRelationship/observation/value/translation/@code | Industry NAICS Detail (ODH): 2.16.840.1.114222.4.11.7901 |

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Tribal Affiliation: Item ID | Tribal affiliation identifier | id/@extension | N/A |
| Tribal Affiliation: Effective Date | Tribal affiliation observation date | effectiveTime/@value | N/A |
| Tribal Affiliation: Code | Tribal affiliation code | value/@code | TribalEntityUS: 2.16.840.1.113883.1.11.11631 |

## B.31 Vital Sign

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

Table B-32: Vital Sign

| Data Element | Description | CCDA Location | Value Set |
|---|---|---|---|
| Vital Sign ID | Vital sign identifier | component/observation/id/@extension | N/A |
| Result Type | LOINC code indicating the type of measurement | component/observation/code/@code | Vital Sign Result Type: 2.16.840.1.113883.3.88.12.80.62 |
| Measurement Date/Time | Date/time of measurement | component/observation/effectiveTime/@value | N/A |
| Unit | Measurement units | component/observation/value/@value | N/A |
| Value | Measurement value | component/observation/value/@unit | N/A |
| Organizer: Organizer ID | Vital sign organizer identifier | id/@extension | N/A |
| Organizer: Date/Time | Date of measurement | effectiveTime/@value | N/A |

# 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
- BCCD.Audit.ProductionStatus

## C.2 CCDA

The BCCD.CCDA classes were generated from the HL7 XML schema via HealthShare'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.IVLPPDPQ
- BCCD.CCDA.IVLPPDTS
- BCCD.CCDA.IVLPQ
- BCCD.CCDA.IVLREAL
- BCCD.CCDA.IVLTS
- BCCD.CCDA.IVXBINT
- BCCD.CCDA.IVXBMO
- BCCD.CCDA.IVXBPPDPQ
- BCCD.CCDA.IVXBPPDTS
- BCCD.CCDA.IVXBPQ
- BCCD.CCDA.IVXBREAL
- BCCD.CCDA.IVXBTS
- BCCD.CCDA.LicensedEntityRole
- BCCD.CCDA.listint
- 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.CCDA.ProbabilityDistributionType
- 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.SXCMPPDPQ
- BCCD.CCDA.SXCMPPDTS
- BCCD.CCDA.SXCMPQ
- 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.ConvertAuditLog
- BCCD.Install.Installer
- BCCD.Install.PostInstallTask
- BCCD.Install.PostInstallV2
- BCCD.Install.PreInstallTask
- BCCD.Install.PreInstallV2
- BCCD.Install.ProductionSettings

## C.4 Manage

The BCCD.Manage classes support management of the CCDA application.

- BCCD.Management.ApplicationStatus
- BCCD.Management.Documents

## C.5 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.CRR
- BCCD.Prod.Build.DTL.AllergyComponent
- BCCD.Prod.Build.DTL.AllergyEntry
- BCCD.Prod.Build.DTL.AssessmentAndPlanComponent
- BCCD.Prod.Build.DTL.AssessmentAndPlanPlannedProc
- BCCD.Prod.Build.DTL.CareTeamAct
- BCCD.Prod.Build.DTL.CareTeamComponent
- BCCD.Prod.Build.DTL.CareTeamDocumentationOf
- BCCD.Prod.Build.DTL.CareTeamEncounterParticipant
- BCCD.Prod.Build.DTL.CareTeamEntry
- BCCD.Prod.Build.DTL.CareTeamPerformer
- BCCD.Prod.Build.DTL.CareReportingComponent
- BCCD.Prod.Build.DTL.ClinicalDocument
- BCCD.Prod.Build.DTL.ConsultationNoteComponent
- BCCD.Prod.Build.DTL.ConsultationNoteEntry
- BCCD.Prod.Build.DTL.ContactComponent
- BCCD.Prod.Build.DTL.CRRElecInitCRComponent
- BCCD.Prod.Build.DTL.CRRSubjectComponent
- BCCD.Prod.Build.DTL.CRRSummaryComponent
- BCCD.Prod.Build.DTL.DischargeDiagnosisComponent
- BCCD.Prod.Build.DTL.DischargeSummaryNoteComponent

- BCCD.Prod.Build.DTL.DischargeSummaryNoteEntry
- BCCD.Prod.Build.DTL.EncounterComponent
- BCCD.Prod.Build.DTL.EncounterEntry
- BCCD.Prod.Build.DTL.EncounterObservation
- BCCD.Prod.Build.DTL.FunctionalStatusComponent
- BCCD.Prod.Build.DTL.FunctionalStatusEntry
- BCCD.Prod.Build.DTL.Functions
- BCCD.Prod.Build.DTL.GoalComponent
- BCCD.Prod.Build.DTL.GoalEntry
- BCCD.Prod.Build.DTL.HealthConcernComponent
- BCCD.Prod.Build.DTL.HealthConcernEntry
- BCCD.Prod.Build.DTL.HealthConcernProblemObs
- BCCD.Prod.Build.DTL.HealthInsuranceComponent
- BCCD.Prod.Build.DTL.HealthInsuranceEntry
- BCCD.Prod.Build.DTL.HistoryAndPhysicalComponent
- BCCD.Prod.Build.DTL.HistoryAndPhysicalEntry
- BCCD.Prod.Build.DTL.HospDischargeInstComponent
- BCCD.Prod.Build.DTL.HospitalCourseComponent
- BCCD.Prod.Build.DTL.ImmunizationComponent
- BCCD.Prod.Build.DTL.ImmunizationEntry
- BCCD.Prod.Build.DTL.InterventionComponent
- BCCD.Prod.Build.DTL.InterventionEntry
- BCCD.Prod.Build.DTL.MedFrequencyFunctions
- BCCD.Prod.Build.DTL.MedicalEquipmentComponent
- BCCD.Prod.Build.DTL.MedicalEquipmentEntry
- BCCD.Prod.Build.DTL.MedicationComponent
- BCCD.Prod.Build.DTL.MedicationEntry
- BCCD.Prod.Build.DTL.MentalStatusComponent
- BCCD.Prod.Build.DTL.ModuleContext
- BCCD.Prod.Build.DTL.OutcomeComponent

- BCCD.Prod.Build.DTL.OutcomeEntry
- BCCD.Prod.Build.DTL.ProblemComponent
- BCCD.Prod.Build.DTL.ProblemEntry
- BCCD.Prod.Build.DTL.ProcedureComponent
- BCCD.Prod.Build.DTL.ProcedureEntry
- BCCD.Prod.Build.DTL.ProcedureNoteEntry
- BCCD.Prod.Build.DTL.ProgressNoteComponent
- BCCD.Prod.Build.DTL.ProgressNoteEntry
- BCCD.Prod.Build.DTL.ReasonForReferralComponent
- BCCD.Prod.Build.DTL.ReasonForVisitComponent
- BCCD.Prod.Build.DTL.ResultComponent
- BCCD.Prod.Build.DTL.ResultEntry
- BCCD.Prod.Build.DTL.ResultNoteEntry
- BCCD.Prod.Build.DTL.ResultObservation
- BCCD.Prod.Build.DTL.SocialHistoryComponent
- BCCD.Prod.Build.DTL.SocialHistoryEntry
- BCCD.Prod.Build.DTL.SocialHistoryMultEntry
- BCCD.Prod.Build.DTL.SocialHistoryOrgEntry
- BCCD.Prod.Build.DTL.VitalSignComponent
- BCCD.Prod.Build.DTL.VitalSignEntry
- BCCD.Prod.Build.DTL.VitalSignObservation
- BCCD.Prod.Build.Main
- BCCD.Prod.Messages.DocumentRequest
- BCCD.Prod.Messages.DocumentResponse
- BCCD.Prod.Messages.ErrorResponse
- BCCD.Prod.Messages.QueueIdRequest
- BCCD.Prod.Messages.StreamRequest
- BCCD.Prod.Operations.CaseReporting
- BCCD.Prod.Operations.FileDoc
- BCCD.Prod.Processes.Alert

- BCCD.Prod.Processes.Alert.Context
- BCCD.Prod.Processes.Alert.Thread1
- BCCD.Prod.Processes.BuildDoc
- BCCD.Prod.Processes.BuildDoc.Context
- 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.Op.PatientRecordReceiverOperationRequest
- BCCD.Prod.PushWS.Op.PatientRecordReceiverOperationResponse
- BCCD.Prod.PushWS.Op.PatientRecordReceiverPort
- 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.ClinicalDocumentService
- BCCD.Prod.Services.ClinicalDocumentService.RetrieveDocument
- BCCD.Prod.Services.CompiledRecord
- BCCD.Prod.Services.ErrorRecord
- BCCD.Prod.Services.ErrorThrottle
- BCCD.Prod.Services.SuspendedRecord

## C.6 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 application monitor, the weekly purge process, and the ability to start the Ensemble production from the RPMS namespace.

- BCCD.Tasks.ApplicationMonitor

- BCCD.Tasks.Purge
- BCCD.Tasks.UpdateProductionState

## C.7 Version

The BCCD.Version classes support tracking the version of the installed classes.

- BCCD.Version.V2
- BCCD.Version.V2P1
- BCCD.Version.V2P2
- BCCD.Version.V2P3
- BCCD.Version.V2P4
- BCCD.Version.V2P5

## C.8 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.AssessmentAndPlan
- BCCD.Xfer.AssessmentAndPlanOrganizer
- BCCD.Xfer.CareTeam
- BCCD.Xfer.CaseReporting
- BCCD.Xfer.CCDMain
- BCCD.Xfer.CCDPopulate
- BCCD.Xfer.CodedValue
- BCCD.Xfer.ConsultationNote
- BCCD.Xfer.ConsultationNoteAddendum
- BCCD.Xfer.ConsultationNoteOrganizer
- BCCD.Xfer.DischargeSummaryNote
- BCCD.Xfer.DischargeSummaryNoteAddendum
- BCCD.Xfer.Encounter

- BCCD.Xfer.EncounterDiagnosis
- BCCD.Xfer.FieldTransformations
- BCCD.Xfer.FunctionalStatus
- BCCD.Xfer.GeneralHeader
- BCCD.Xfer.Goal
- BCCD.Xfer.HealthConcern
- BCCD.Xfer.HealthInsurance
- BCCD.Xfer.HistoryAndPhysical
- BCCD.Xfer.HistoryAndPhysicalAddendum
- BCCD.Xfer.HospitalCourse
- BCCD.Xfer.HospitalCourseAddendum
- BCCD.Xfer.HospitalDischargeInstruction
- BCCD.Xfer.HospitalDischargeInstructionAddendum
- BCCD.Xfer.Immunization
- BCCD.Xfer.Intervention
- BCCD.Xfer.MedClassCode
- BCCD.Xfer.MedDispense
- BCCD.Xfer.MedFrequency
- BCCD.Xfer.MedicalEquipment
- BCCD.Xfer.MedicalEquipmentProcedure
- BCCD.Xfer.Medication
- BCCD.Xfer.MentalStatus
- BCCD.Xfer.Outcome
- BCCD.Xfer.Patient
- BCCD.Xfer.PerformanceData
- BCCD.Xfer.PersonName
- BCCD.Xfer.PopAllergy
- BCCD.Xfer.PopAssessmentAndPlan
- BCCD.Xfer.PopCareTeam
- BCCD.Xfer.PopCaseReporting

- BCCD.Xfer.PopConsultation
- BCCD.Xfer.PopDischargeDiagnosis
- BCCD.Xfer.PopEncounter
- BCCD.Xfer.PopFunctionalStatus
- BCCD.Xfer.PopGeneralHeader
- BCCD.Xfer.PopGoal
- BCCD.Xfer.PopHealthConcern
- BCCD.Xfer.PopHealthInsurance
- BCCD.Xfer.PopImmunization
- BCCD.Xfer.PopIntervention
- BCCD.Xfer.PopMedicalEquipment
- BCCD.Xfer.PopMedication
- BCCD.Xfer.PopMentalStatus
- BCCD.Xfer.PopNote
- BCCD.Xfer.PopOutcome
- BCCD.Xfer.PopPatient
- 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.ProcedureNote
- BCCD.Xfer.ProcedureNoteAddendum
- BCCD.Xfer.ProgressNote
- BCCD.Xfer.ProgressNoteAddendum
- BCCD.Xfer.PushQueue

- BCCD.Xfer.PushQueueDateRange
- BCCD.Xfer.Queue
- BCCD.Xfer.ReasonForReferral
- BCCD.Xfer.RelatedPerson
- BCCD.Xfer.RFVCode
- BCCD.Xfer.Result
- BCCD.Xfer.ResultOrganizer
- BCCD.Xfer.SocialHistory
- BCCD.Xfer.SocialHistoryItem
- BCCD.Xfer.SocialHistoryOrganizer
- BCCD.Xfer.TextWithLabel
- BCCD.Xfer.Trigger
- BCCD.Xfer.ValueSet
- BCCD.Xfer.VitalSign
- BCCD.Xfer.VitalSignOrganizer

# 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, CHIT, and Cures 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">
            <soap:address
location="http://10.24.196.43:57775/csp/healthshare/ccdagold4/BCCD.Prod.Ser
vices.ClinicalDocumentService.cls"/>
        </port>
    </service>

With:
    <service name="ClinicalDocumentService">
        <port name="ClinicalDocumentServiceSoap"
binding="s0:ClinicalDocumentServiceSoap">
            <soap:address location="http://(IP
address):(port)/csp/healthshare/(CCDA
namespace)/BCCD.Prod.Services.ClinicalDocumentService.cls"/>
        </port>
    </service>
```

Figure D-1: WSDL Considerations

## D.3 Sample Request

```
<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=l0a</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>
```

Figure D-2: Sample Request

## D.4 Sample Response: Valid

```
<SOAP-ENV:Envelope xmlns:SOAP-
ENV="http://schemas.xmlsoap.org/soap/envelope/"
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">
               <!--DFN=2163; VIEN=3126; QID=139; VisitType=Outpatient-->
               <realmCode code="US"/>
               <typeId root="2.16.840.1.113883.1.3"
extension="POCD_HD000040"/>
               <templateId root="2.16.840.1.113883.10.20.22.1.1"
extension="2015-08-01" assigningAuthorityName="US Realm"></templateId>
               <templateId root="2.16.840.1.113883.10.20.22.1.2"
extension="2015-08-01" assigningAuthorityName="CCD"></templateId>
               <templateId
root="2.16.840.1.113883.10.20.22.1.1"></templateId>
               <templateId
root="2.16.840.1.113883.10.20.22.1.2"></templateId>
               <id root="CCA231F5-34A1-4304-BFE7-076274B4F9B3"/>
               <code code="34133-9" codeSystem="2.16.840.1.113883.6.1"
codeSystemName="LOINC" displayName="Summarization of Episode Note"></code>
               <title>Clinical Summary from SAMPLE FACILITY</title>
<!-- The rest of the document has been removed for brevity -->
            </ClinicalDocument>
         </ClinicalDocumentResponse>
      </RetrieveDocumentResponse>
   </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

Figure D-3: Sample Response: Valid

## D.5 Sample Response: Error

```
<SOAP-ENV:Envelope xmlns:SOAP-
ENV="http://schemas.xmlsoap.org/soap/envelope/"
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>
   </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

Figure D-4: Sample Response: Error

## D.6 Additional Web Service Resources

W3Schools:

- Web Services tutorial: https://www.w3schools.com/xml/xml_services.asp
- SOAP introduction: https://www.w3schools.com/xml/xml_soap.asp
- WSDL introduction: https://www.w3schools.com/xml/xml_wsdl.asp
- XML tutorial: https://www.w3schools.com/xml/default.asp

Wikipedia:

- API: http://en.wikipedia.org/wiki/Application_programming_interface
- HTTP: http://en.wikipedia.org/wiki/Hypertext_Transfer_Protocol
- HTTPS: https://en.wikipedia.org/wiki/HTTPS
- 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
- XML: http://en.wikipedia.org/wiki/XML

# Appendix E CCDA Error Codes

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

# Appendix F CCDA HealthShare Configuration and Management

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

The CCDA application adds a new HealthShare 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 HealthShare namespace. There is one CCDA namespace for every RPMS namespace in the instance. If there are multiple RPMS namespaces running within the same HealthShare 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 must be named CCDATST. If there is a second RPMS namespace named CHI, then its associated CCDA namespace must 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 HealthShare 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 F-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 F-1: Sample table for recording namespace, database, and directory information

| RPMS Namespace Name | CCDA Namespace Name | CCDA Database Name | OS Directory for CCDA Database |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

### 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 HealthShare can read from it and write to it.

### F.1.1.4 Creating a New HealthShare Database

1. Navigate to the **Local Databases** page in HealthShare's Management Portal as follows:

   a. Access HealthShare's Management Portal and login as an administrator.

   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 displays.

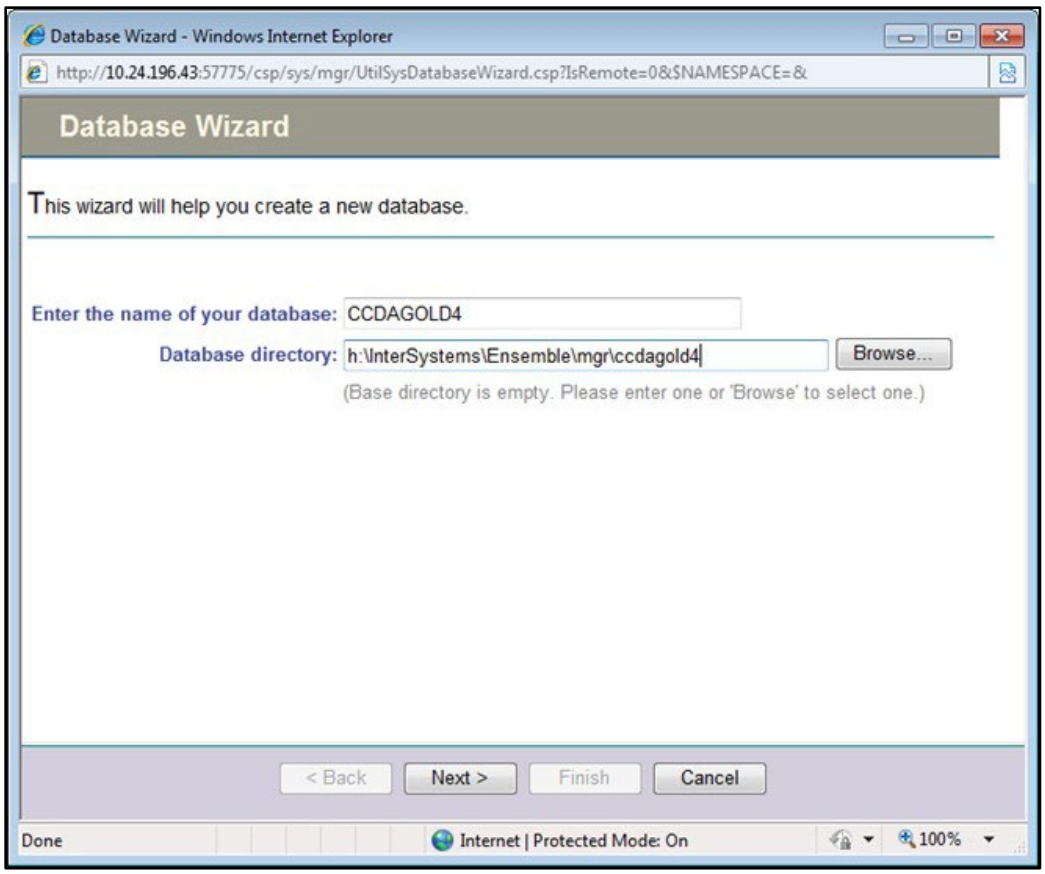


Figure F-1: Database Wizard

3. In the **Enter the name of your database** field, type the database name determined in Section F.1.1.2, e.g., **CCDATST**.

4. The **Management Portal** will display the default directory name where HealthShare 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.1.1.3.

5. Click **Next**. The **Database Details** dialog displays.

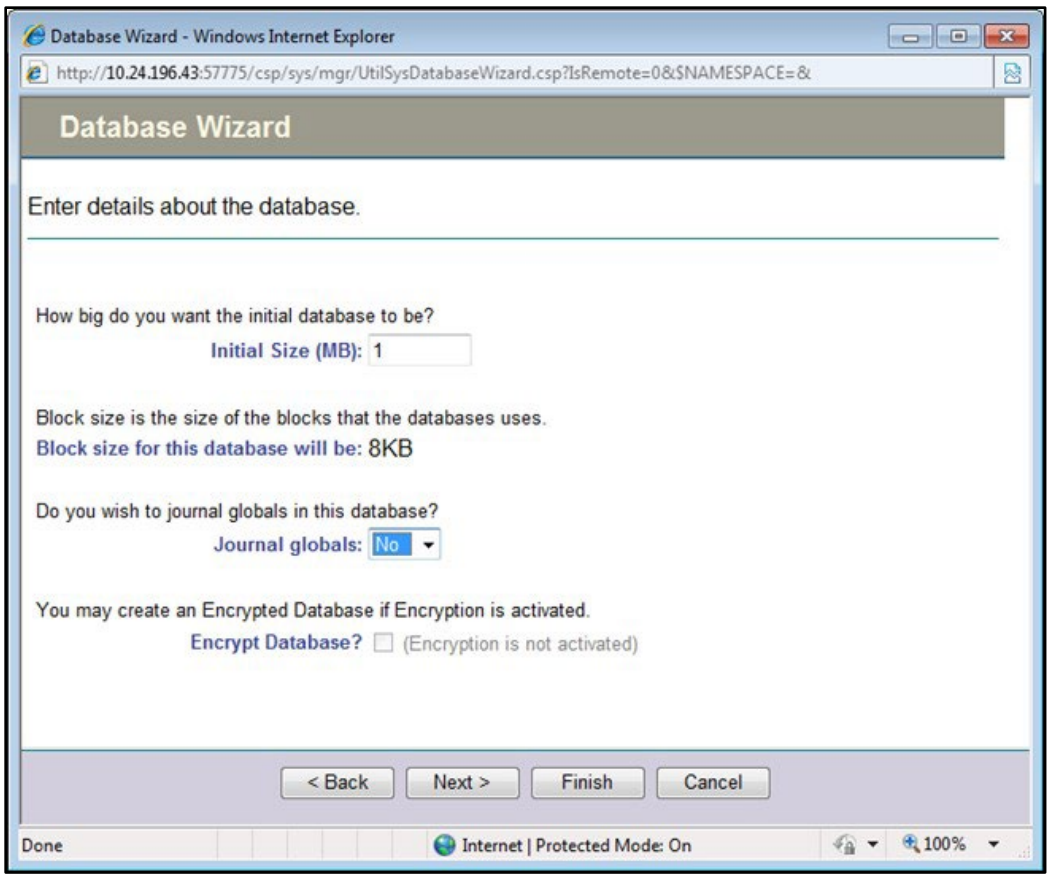


Figure F-2: Database Wizard, database details

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?** check box if the site uses database encryption.
9. Click **Next**. The **Database Resource** dialog displays.

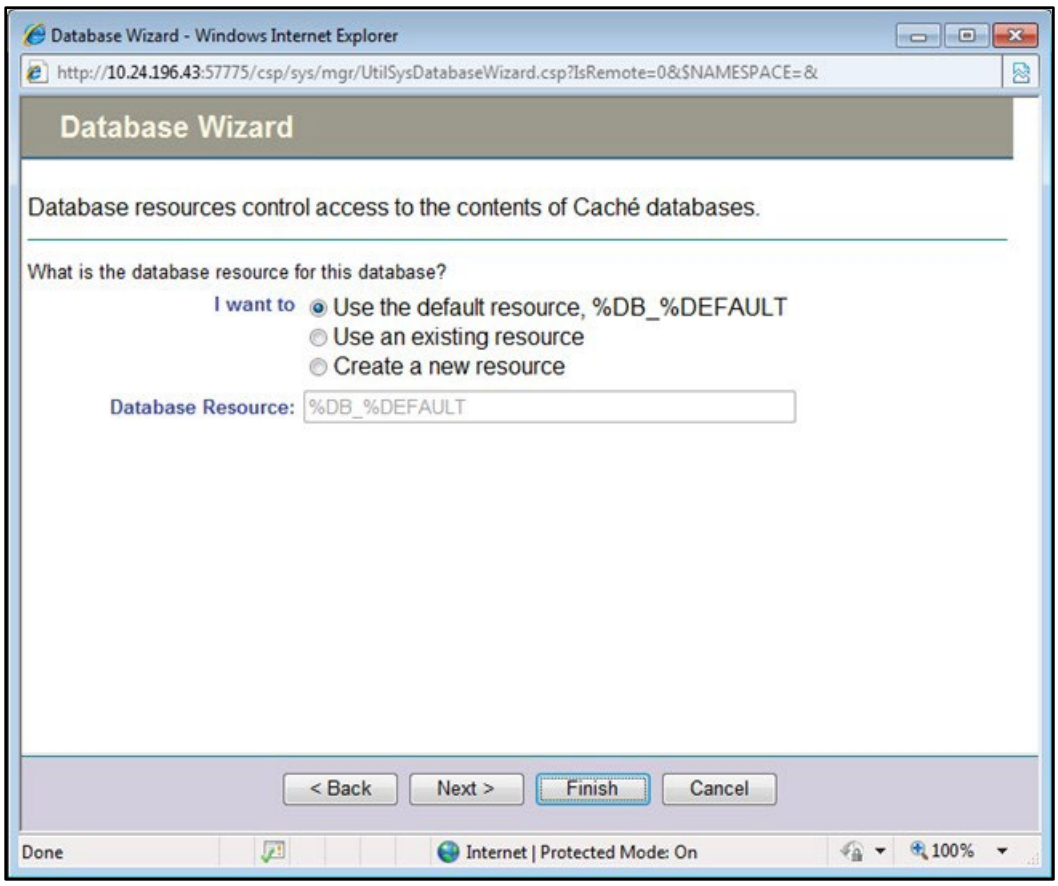


Figure F-3: Database Wizard, database resource

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.

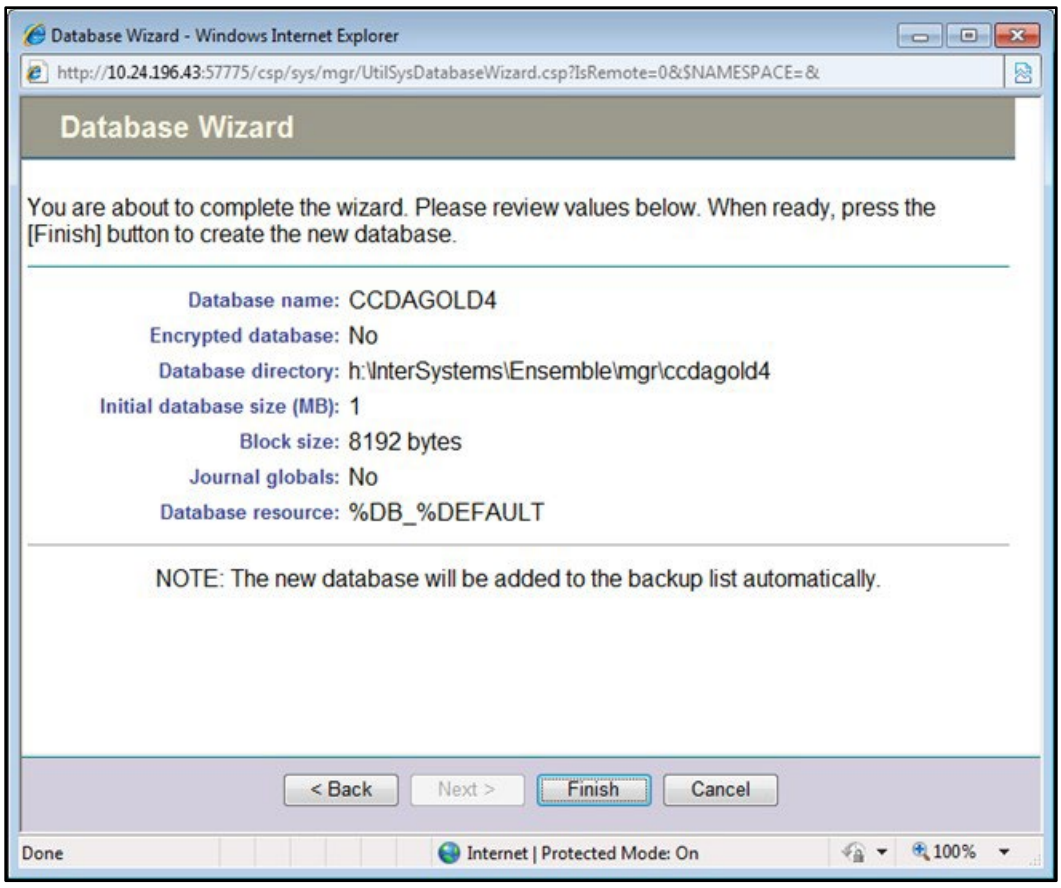


Figure F-4: Database Wizard, review settings

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

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

### F.1.1.5 Creating a New HealthShare Namespace

1. Navigate to the **Namespaces** page in HealthShare's Management Portal as follows:

   a. Access HealthShare's Management Portal and sign on as an 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. Select **Create New Namespace** at the top of the page. **The New Namespace** page displays.

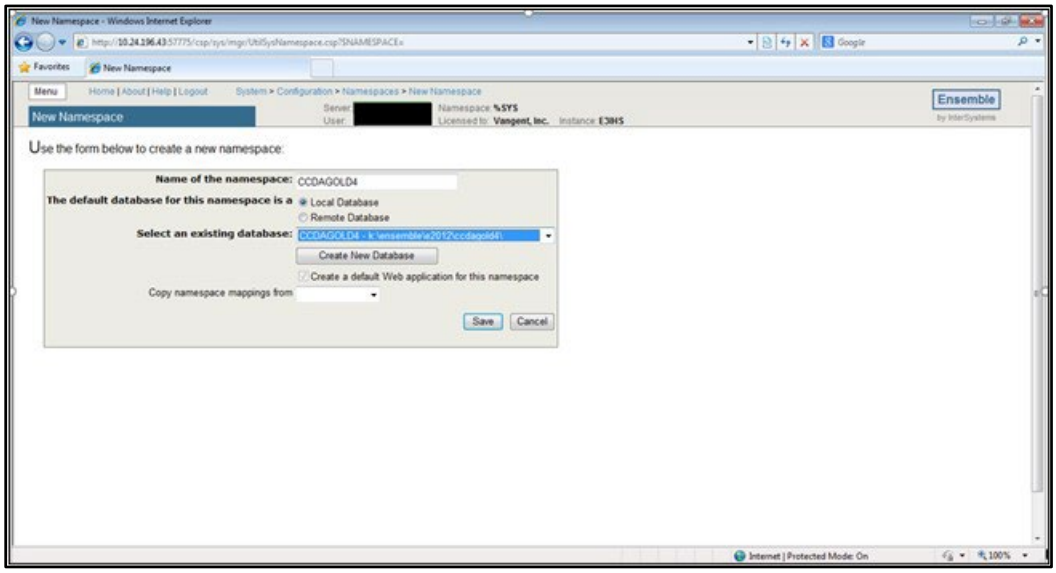


Figure F-5: New Namespace wizard

3. In the **Name of the namespace field**, type the name of the namespace established in Section F.1.1.1.
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.1.1.4.
6. Leave the **Copy namespace mappings from field** blank.
7. Click **Save**. It will take HealthShare a few seconds to create the new namespace.
8. If the HealthShare 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 HealthShare'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.1.1.5.

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

3. Select Global Mappings for the identified namespace. The Global Mappings page displays.

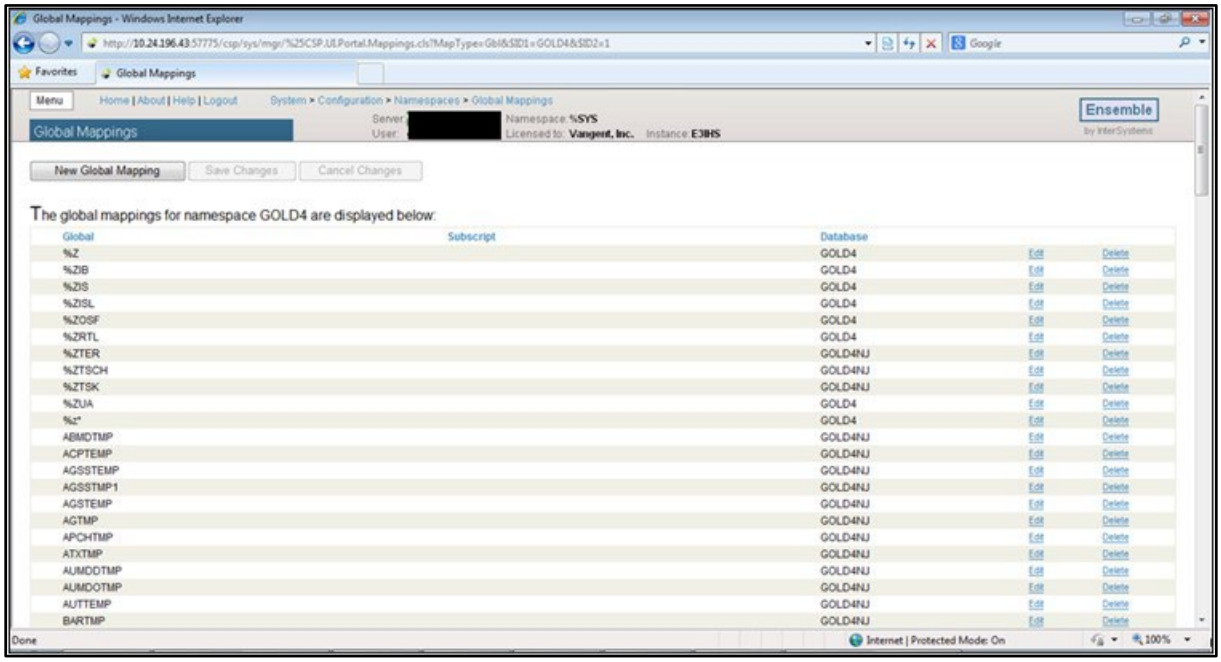


Figure F-6: Global Mappings

4. Click **New Global Mapping**, located near the top of the page. The **Global Mapping** dialog displays.

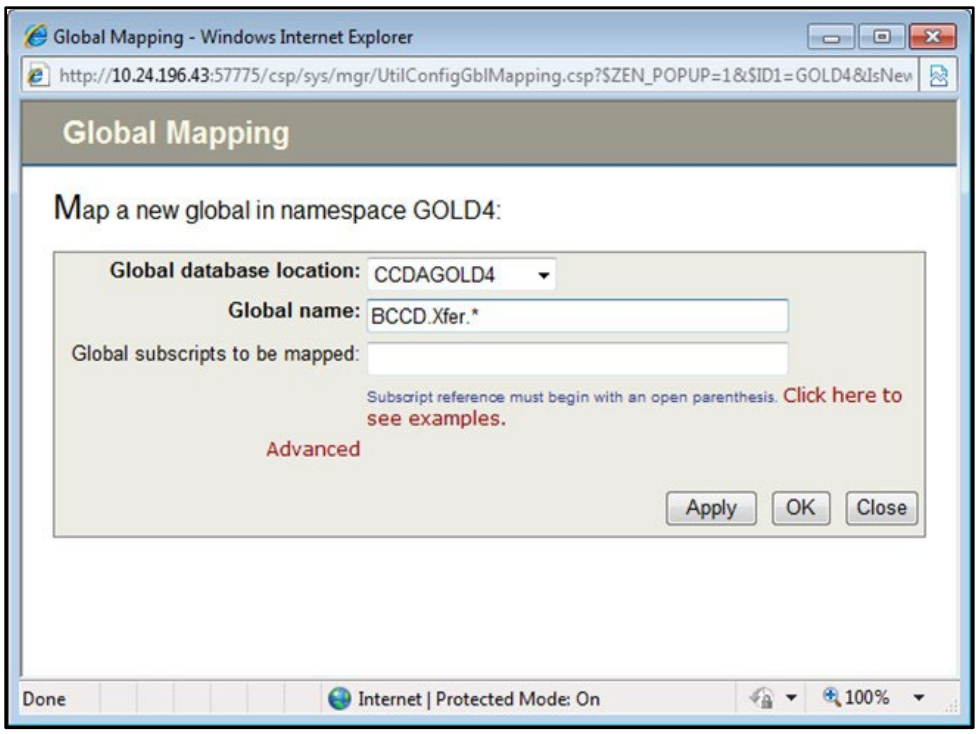


Figure F-7: Global Mapping dialog

5. In the **Global database location** list, select the name of the HealthShare database created in Section F.1.1.4.
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. Select **Save Changes** at the top of the page.
11. 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.
12. In the leftmost column, find the name of the CCDA namespace created in Section F.1.1.5. This is the name of the newly created CCDA namespace rather than the name of the RPMS namespace selected in Step 2.
13. Select **Global Mappings** for the identified namespace. The **Global Mappings** page displays.
14. Click **New Global Mapping** at the top of the page. The **Global Mapping** dialog displays.

15. In the **Global database location** field, select the name of the RPMS database associated with this CCDA namespace.
16. In the **Global name field** type **BCCDS**.
17. Leave the **Global subscripts to be mapped** field blank.
18. Click **Apply**.
19. Click **Close**. The **Global Mappings** page displays.
20. Click **New Global Mapping**, located near the top of the page. The **Global Mapping** dialog displays.
21. In the **Global database location** list, select the name of the HealthShare database created in Section F.1.1.4.
22. In the **Global name** field type **BCCD.Audit.***; make sure to include the asterisk.
23. Leave the **Global subscripts to be mapped** field blank.
24. Click **Apply**.
25. Click **Close**. The **Global Mappings** page displays.
26. Click **New Global Mapping**, located near the top of the page. The **Global Mapping** dialog 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 2-32 for each CCDA namespace added to the HealthShare instance.

### F.1.3 Creating New Package Mappings

1. Navigate to the **Namespaces** page as follows:
    a. Access HealthShare'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.1.1.5. This should be the pre-existing RPMS namespace, not the newly created CCDA namespace.

3. Select **Package Mappings** for the identified namespace. The **Package Mappings** page displays.

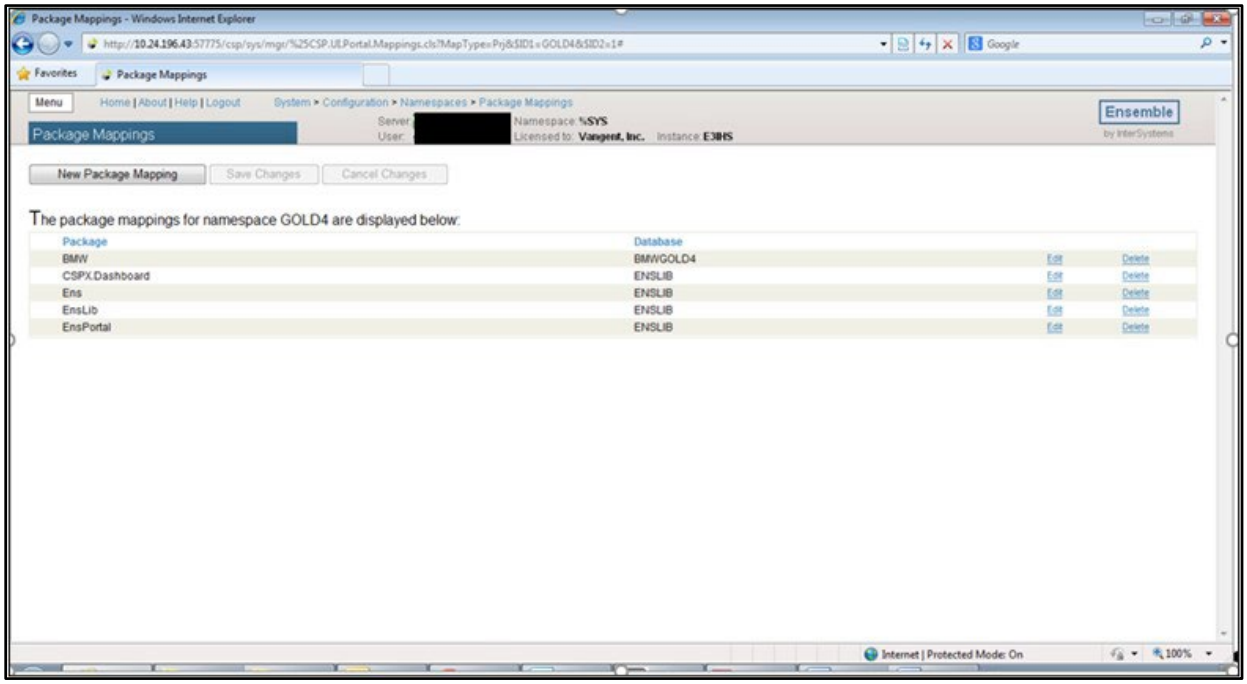


Figure F-8: Package Mapping

4. Click **New Package Mapping** at the top of the Package Mappings window. The **Package Mapping** dialog displays.

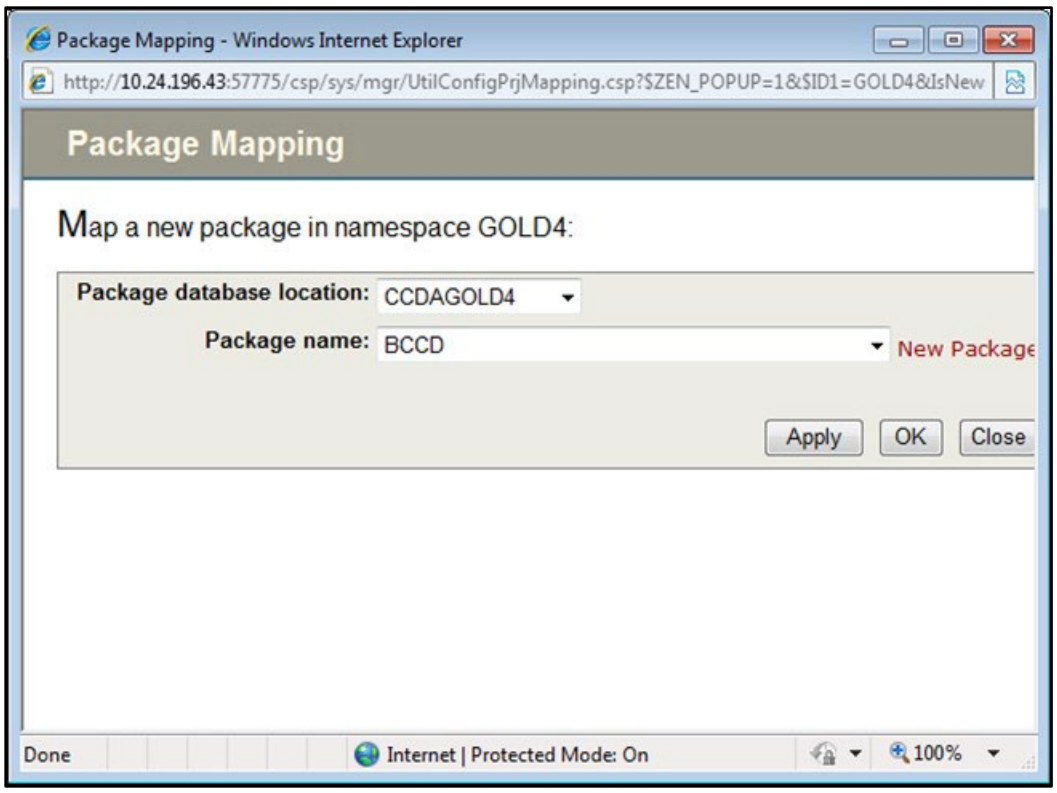


Figure F-9: Package Mapping dialog

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**.

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

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 HealthShare 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 Export API, by the nightly HIE task, or from iCare.

The CCDA Ensemble production is automatically started whenever HealthShare 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.2.1 and F.2.2.

### F.2.1 Stopping the CCDA Ensemble Production

1. Sign on to HealthShare'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 displays, click **Go** to display the **Production Configuration** page.

7. Above the Services column on the left, the words **Production Running** will be displayed. If the words **Production 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 HealthShare'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 displays, click **Go** to display the **Production Configuration** page.

7. Above the **Services** column on the left, the words **Production Stopped** will be displayed. If the words **Production 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 HealthShare database for the CCDA Ensemble production. The installation process does not automatically encrypt the new database. Sites that have encryption enabled in HealthShare need to encrypt the new database. This section provides instructions for preparing the CCDA Ensemble production and HealthShare 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 this menu cannot be accessed from the "OPTION NAME" prompt in RPMS, it will need to added to the user settings.

```
Select OPTION NAME: BCCD MENU       CCDA Menu


   EDIT   Edit CCDA Site Parameters
   CLIN   Edit CCDA Clinical Site Parameters
   ONE    Generate CCD for a single patient
   ALL    Generate CCD documents for all patients in RPMS
   DAT    Generate CCD documents for a specified date range
   MANG   Manage CCDA transmissions
   ERR    View and Purge Error Documents
   STAT   Display the CCDA application status report

Select CCDA Menu Option:
```

Figure 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, do not 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. The system will display 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.3.7. 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:

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 HealthShare'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.

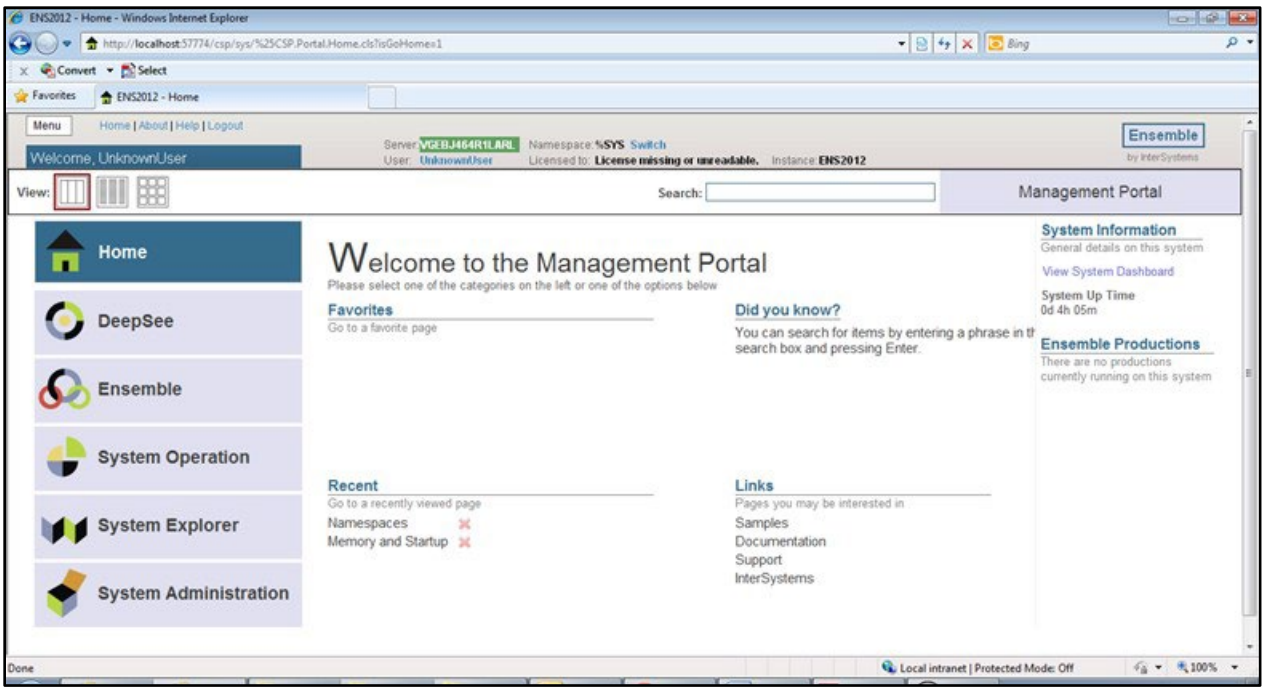


Figure F-13: Management Portal

In the **Namespace Chooser** box, choose the appropriate CCDA namespace. The namespace will consist of CCDA concatenated with the name of the RPMS namespace. For example, if the 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 the selection.

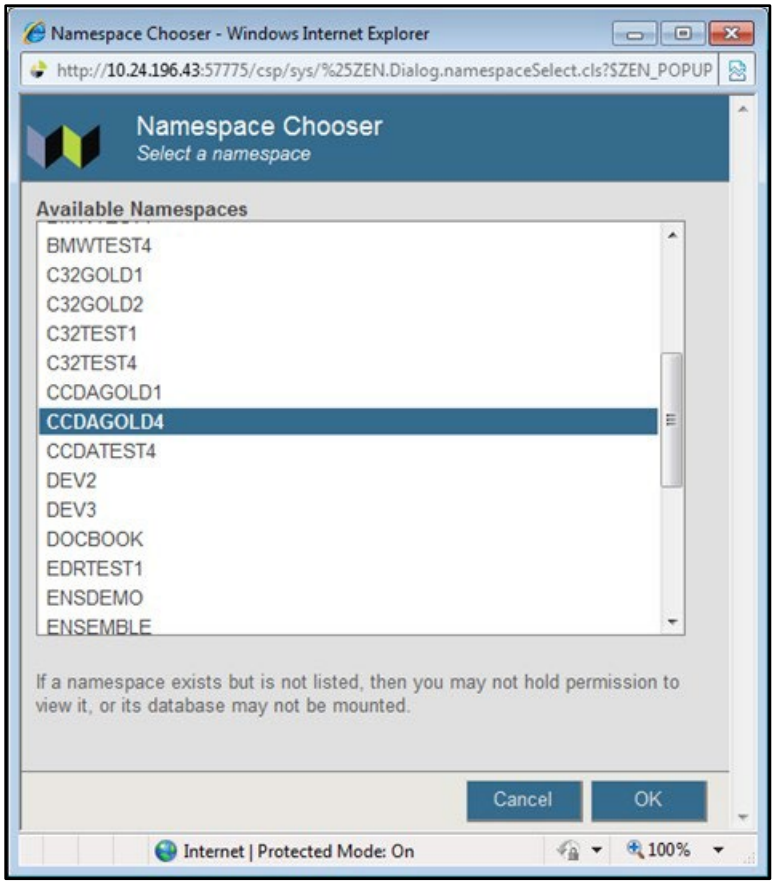


Figure F-14: Namespace Chooser

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 displays, click Go to display the Production Configuration page.

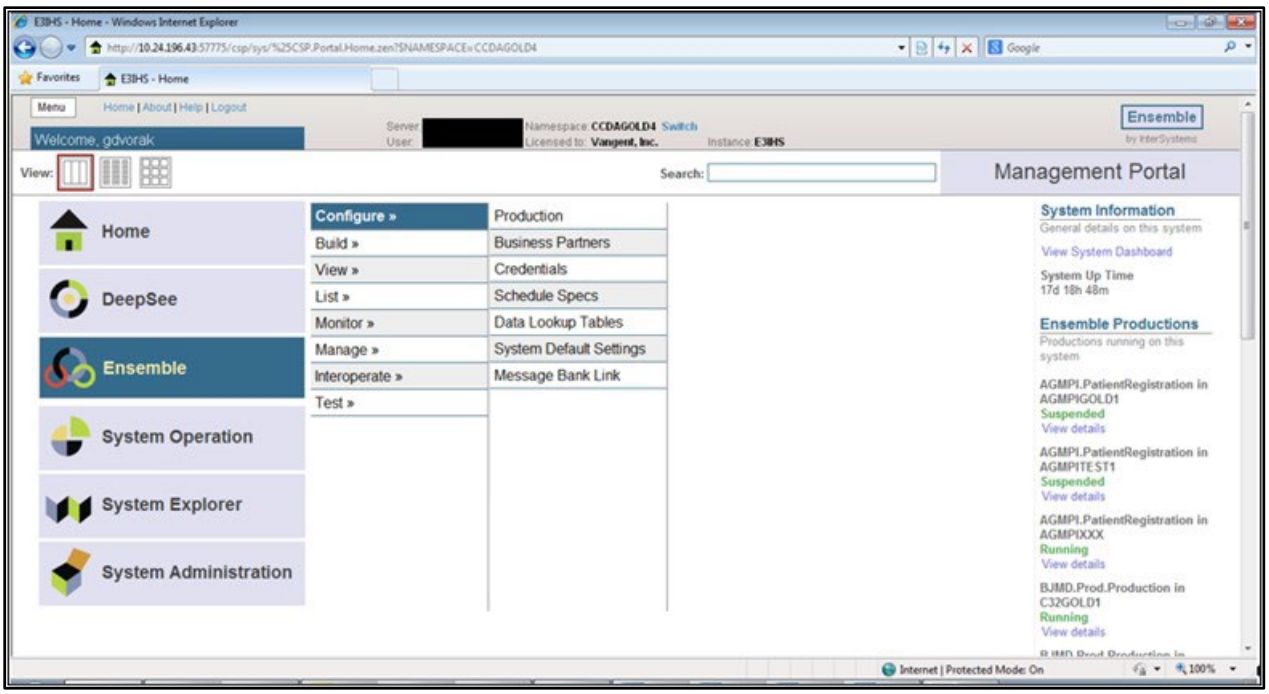


Figure F-15: Management Portal

4. Above the **Services** column on the left, the words **Production Running** will be displayed. If the words **Production Stopped** are displayed, the production is already stopped, skip to section F.3.4.

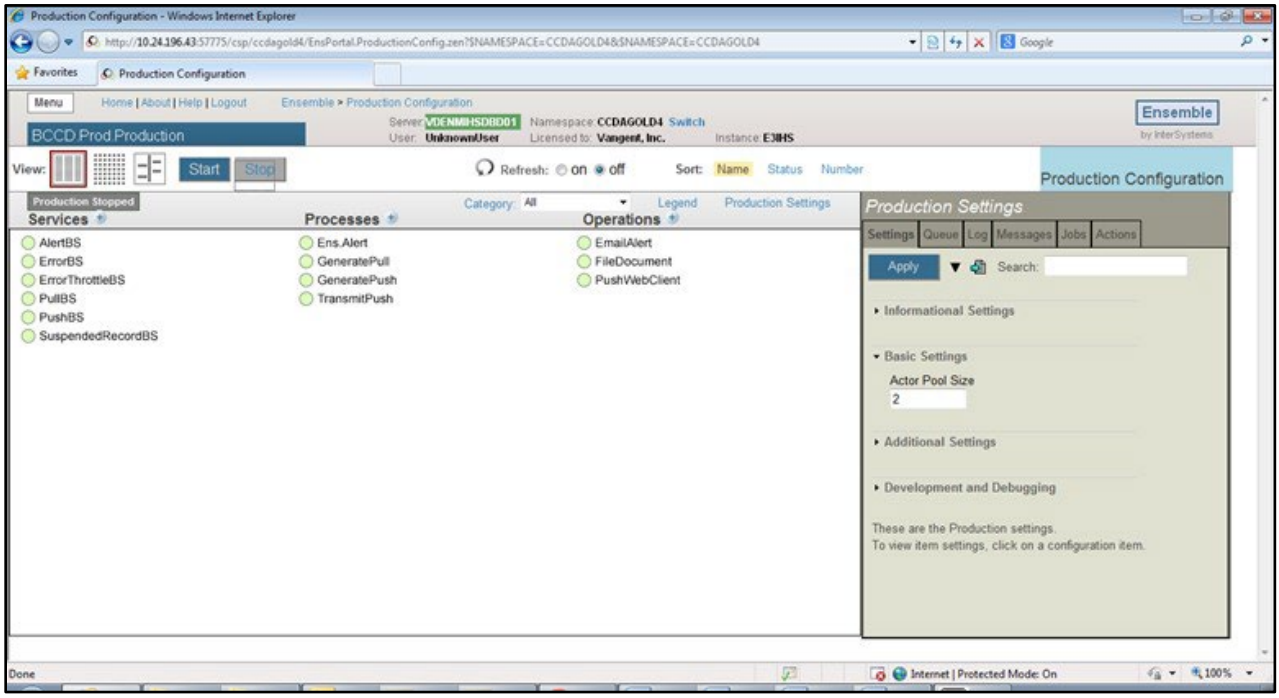


Figure F-16: Ensemble production in a stopped state

Click the **Stop** button. It might take the production a few seconds to stop. When it stops, the text in Figure F-17will display 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.

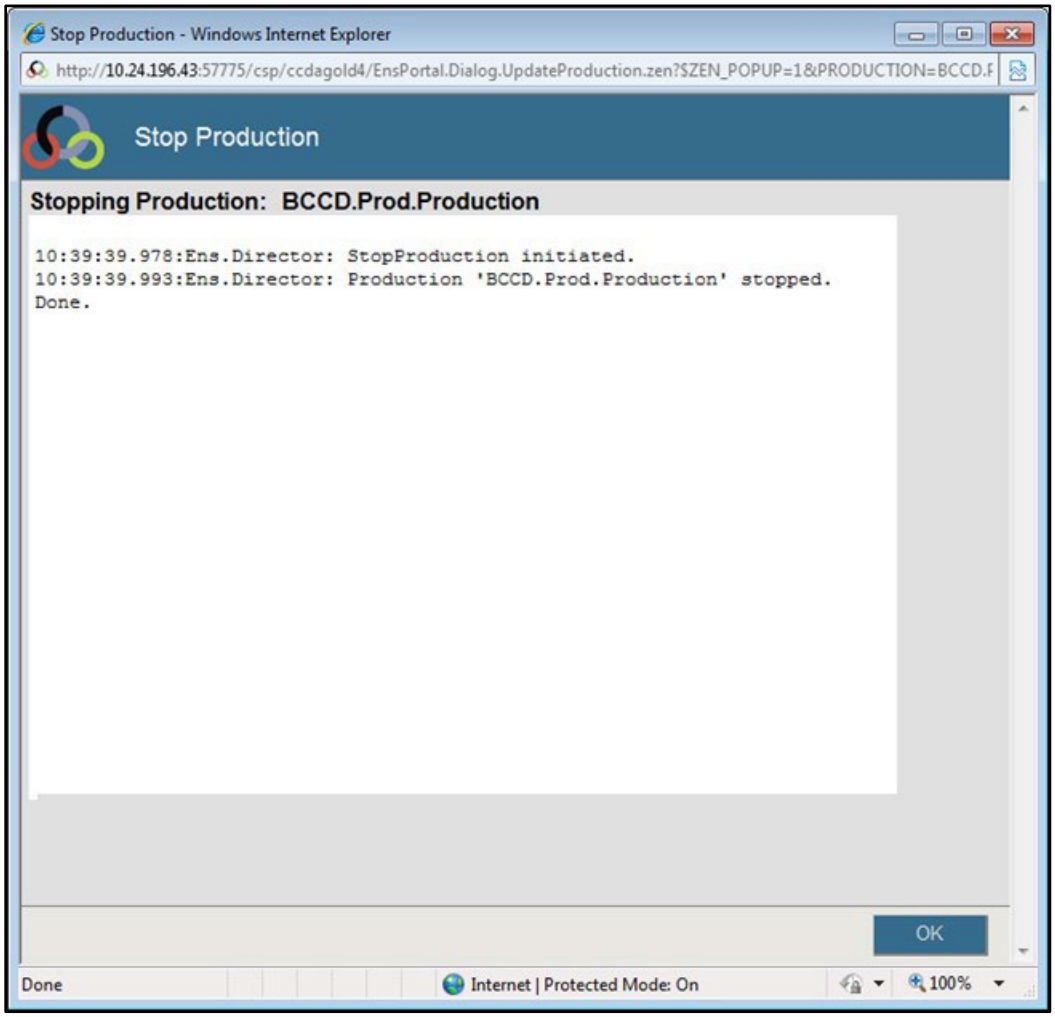


Figure F-17: Stopping the Ensemble production

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

## F.3.4 Dismount the CCDA Database

1. Sign on to HealthShare's Management Portal.
2. Click on **System Operation** in the left column. Then click **Databases**.

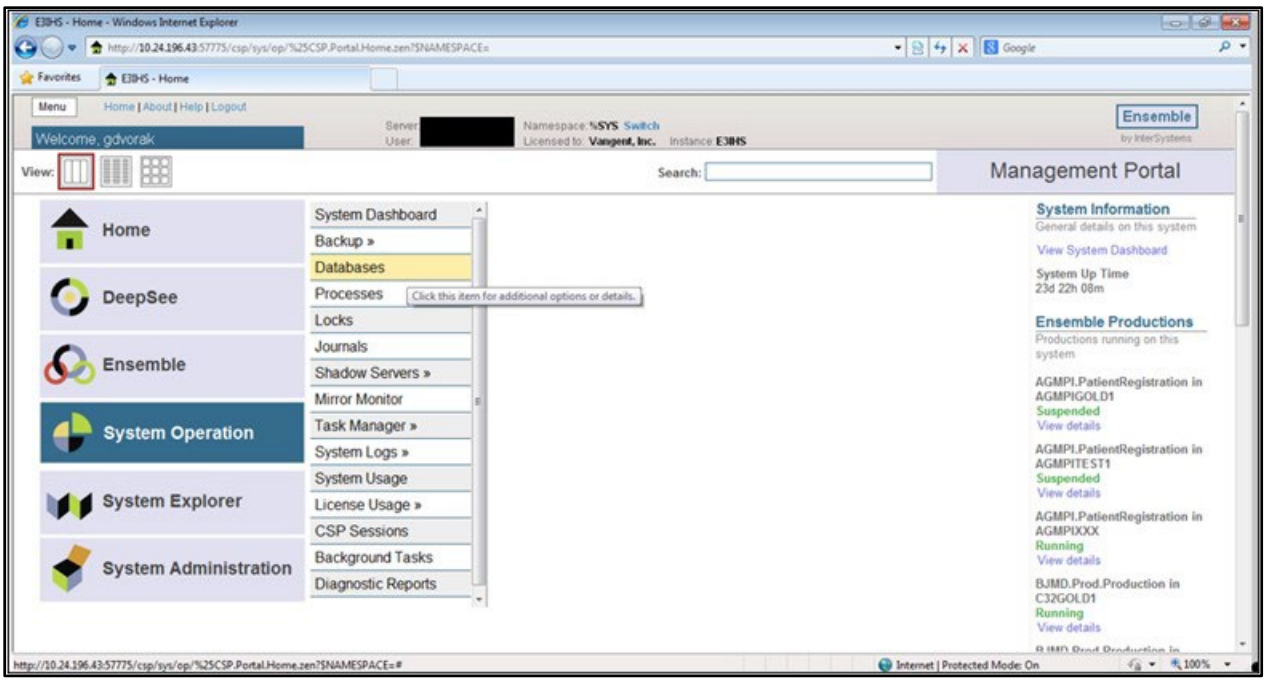


Figure F-18: HealthShare's Management Portal, Databases option

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

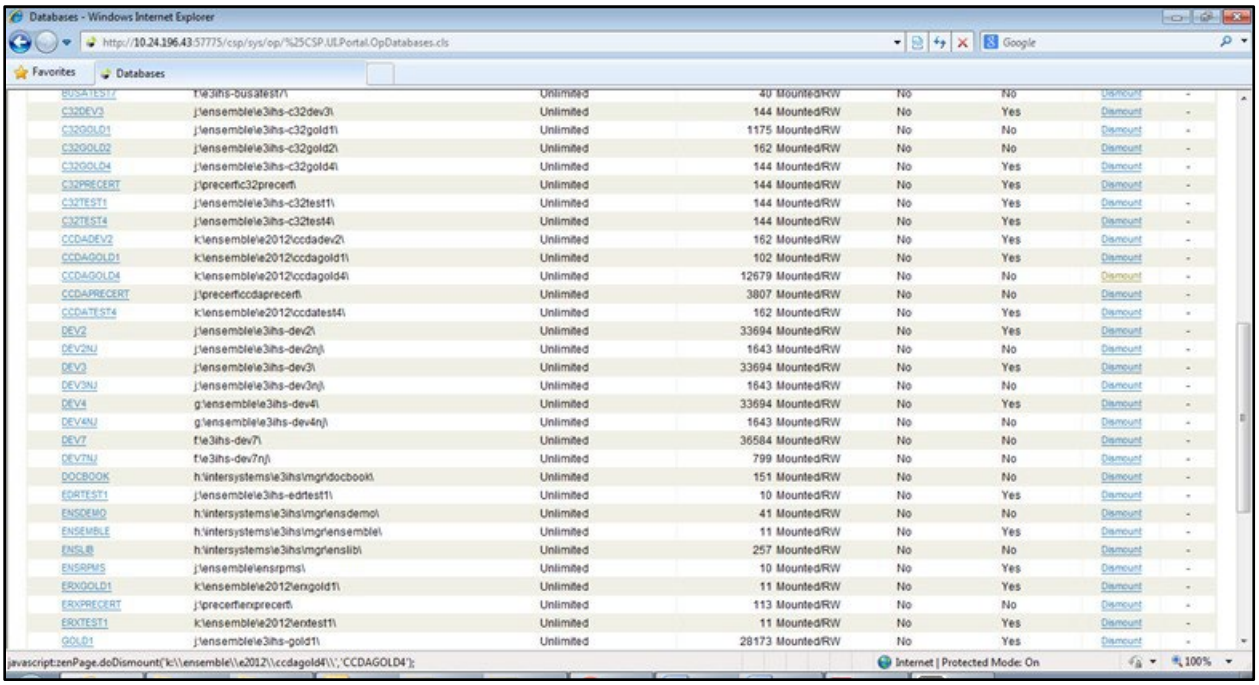

Figure F-19: Databases

4. At the "Are you sure you want to dismount database CCDAXXXX?" 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. To obtain a copy of the document, contact OIT.

### F.3.6 Re-mount the Database

1. Sign on to HealthShare's Management Portal.
2. Click on **System Operation** in the left column. Then click **Databases**.

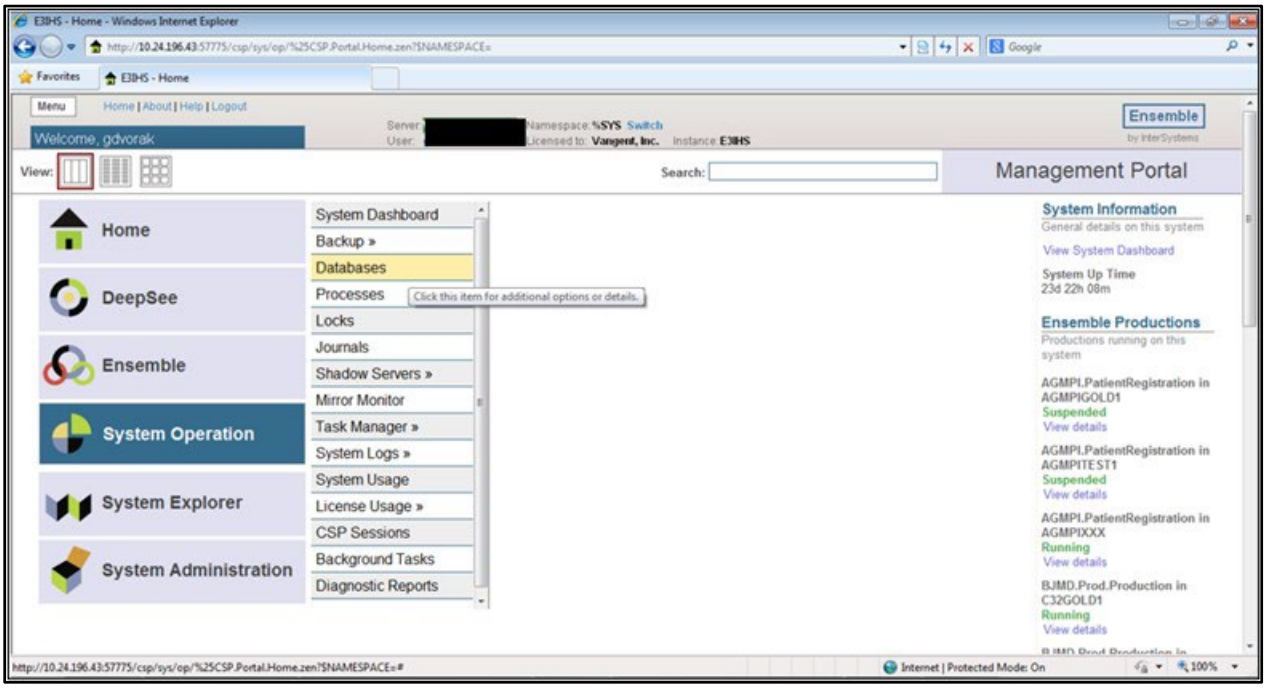


Figure F-20: HealthShare's Management Portal, Databases option

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

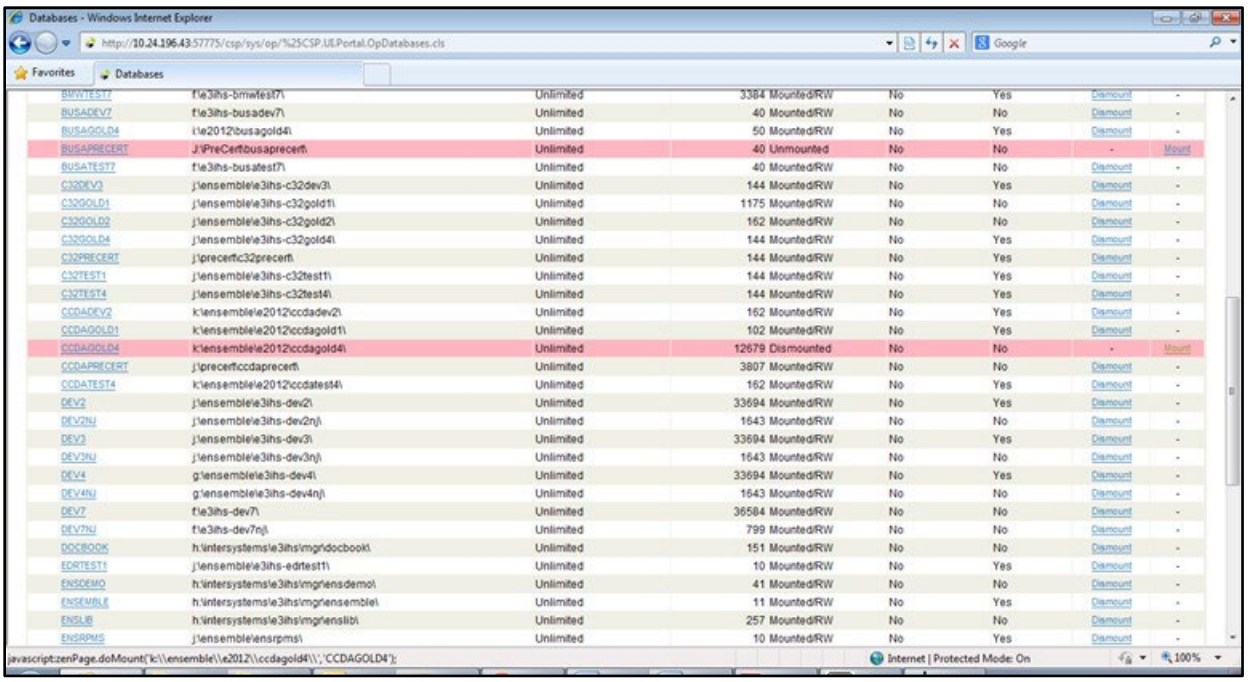


Figure F-21: Databases

4. On the **Mount Databases** dialog, verify that the Read Only check box is unchecked, then click **OK**.

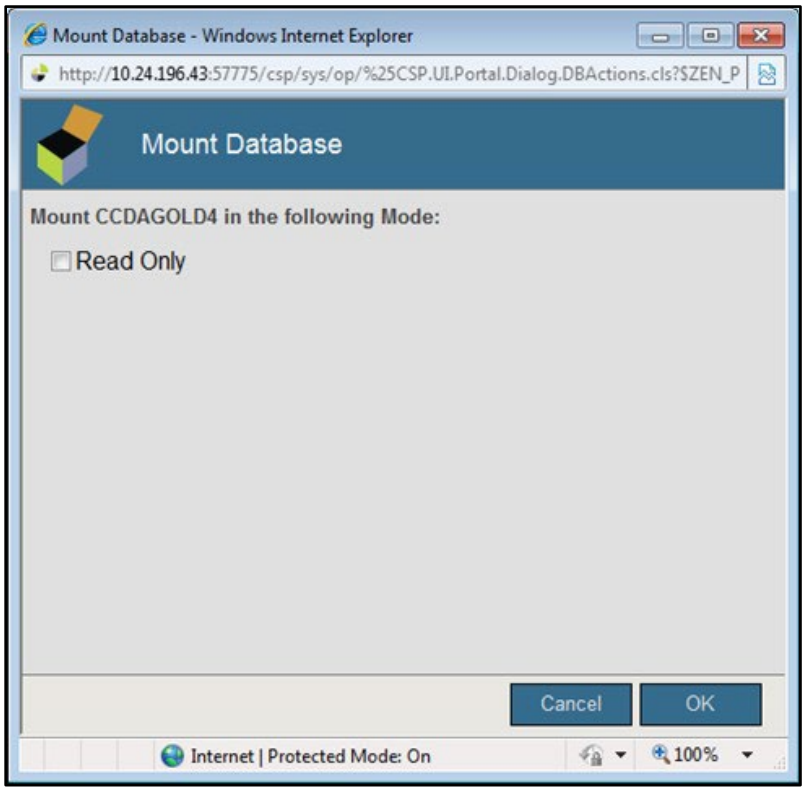


Figure F-22: Mount Databases

### F.3.7 Reschedule the Nightly CCDA Task

If the nightly CCDA task was unscheduled in Section F.3.2, then reschedule the task. If the task was not unscheduled, then skip this section and proceed to Section F.3.8.

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.3.2. In the example below, "23:00" was entered.
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

Now editing CCD (Summarization of Episode Note)-specific parameters:

DAYS KEEP TRANSMISSION ENTRIES: 30//
REPOSITORY LOCATION: http://www.nowhere.com  Replace
ENABLED: YES//
```

Figure F-23: Re-scheduling the CCDA Nightly Task via the EDIT option

### 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.

```
Select OPTION NAME: BCCD MENU       CCDA Menu


   EDIT   Edit CCDA Site Parameters
   CLIN   Edit CCDA Clinical Site Parameters
   ONE    Generate CCD for a single patient
   ALL    Generate CCD documents for all patients in RPMS
   DAT    Generate CCD documents for a specified date range
   MANG   Manage CCDA transmissions
   ERR    View and Purge Error Documents
   STAT   Display the CCDA application status report

Select CCDA Menu Option:
```

Figure F-24: 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, do not 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 F-25: Start CCDA Transmissions via the MANG option

4. The system will display a message indicating whether CCDA Messaging was started. If CCDA could not be started, contact the IT Service 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 the database, namespace, and mappings must be created 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 HealthShare's Management Portal.
2. Click on **System Operation** in the left column, then click **Databases**.

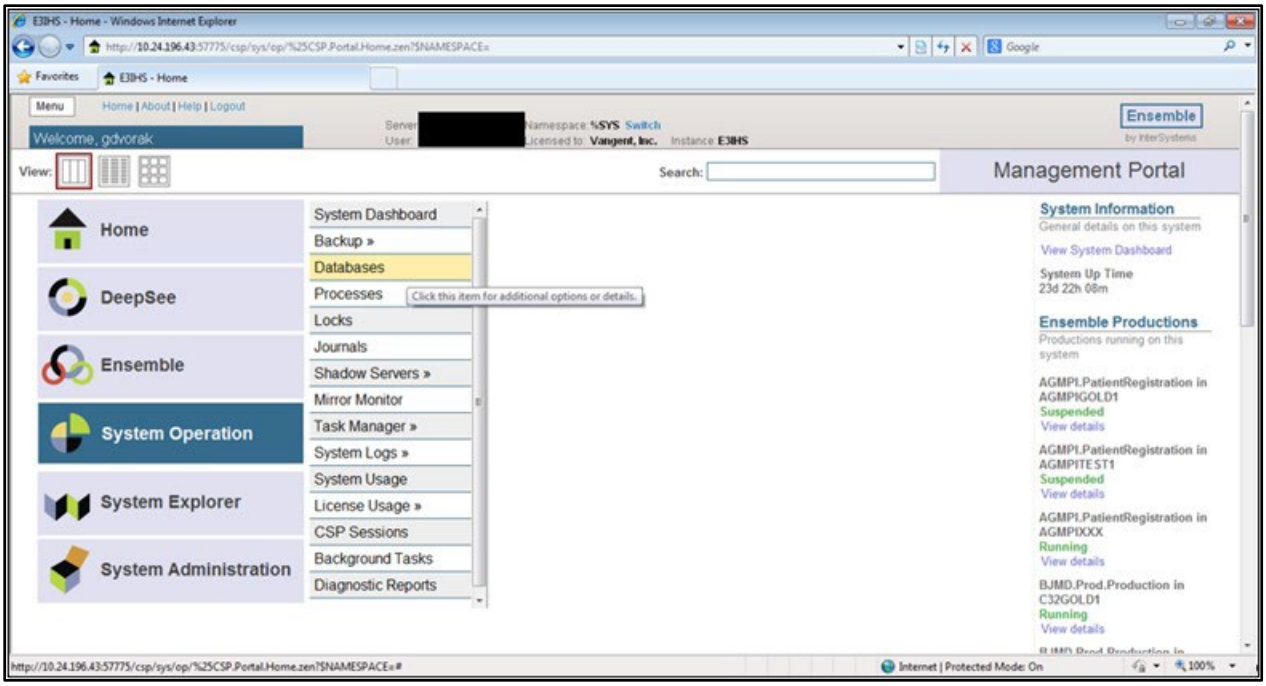


Figure G-1: HealthShare's Management Portal, Databases option

3. On the **Databases** screen, locate the CCDA database and make a note of the value in the **Directory** column. This value will be needed in Section G.2.2.

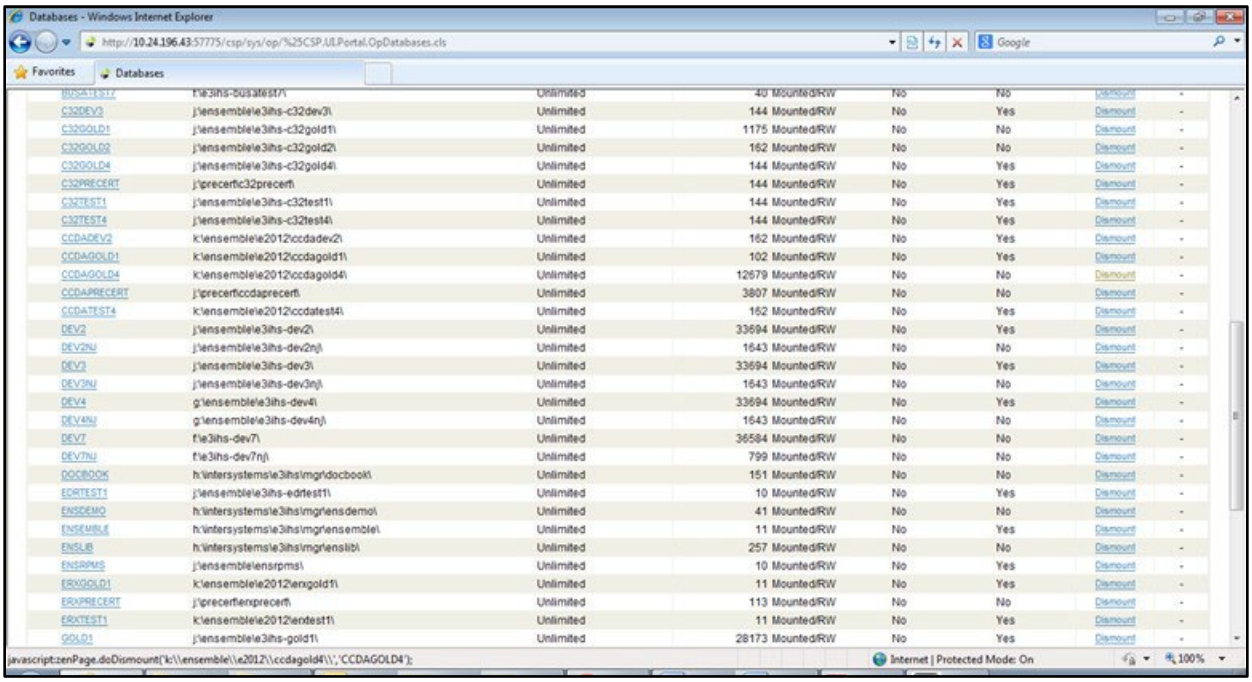


Figure G-2: Databases

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 HealthShare's Management Portal (Figure G-2) and was noted in step 3 of Section G.2.1. For assistance restoring the file from backup, please contact the OIT Help Desk.

## G.2.3 Remount CCDA Database

1. Sign on to HealthShare's Management Portal.
2. Click on **System Operation** in the left column, then click **Databases**.

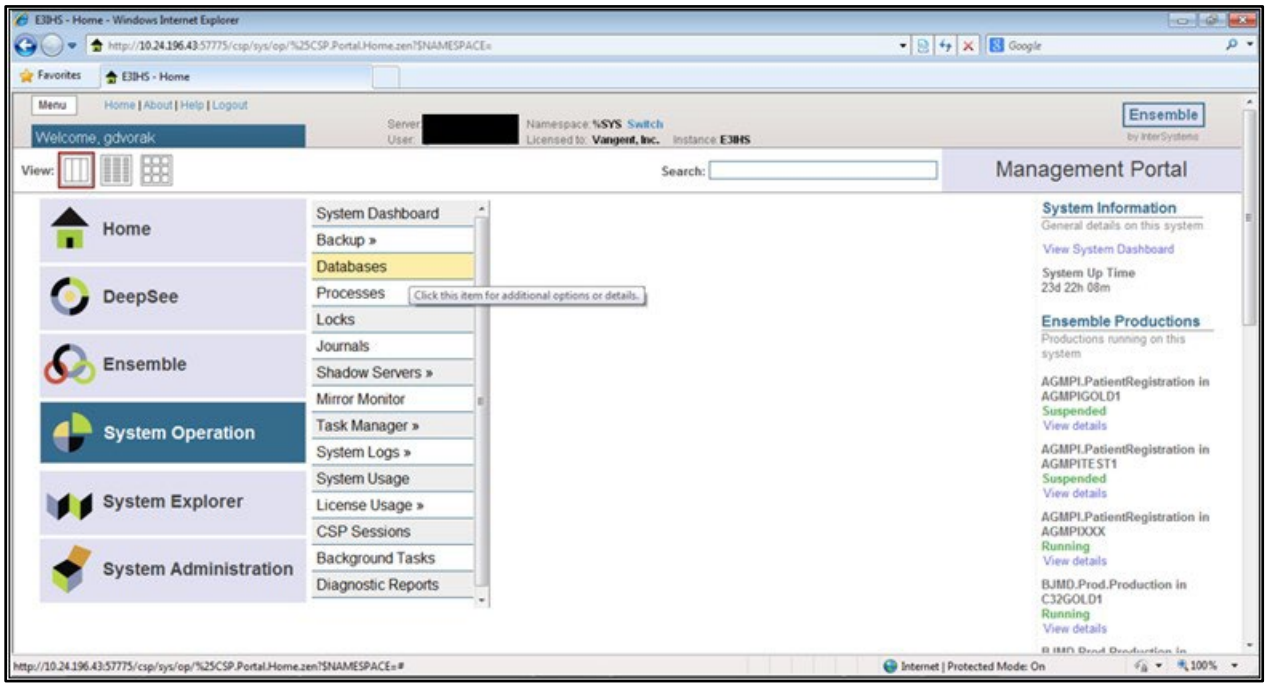


Figure G-3: HealthShare's Management Portal, Databases option

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

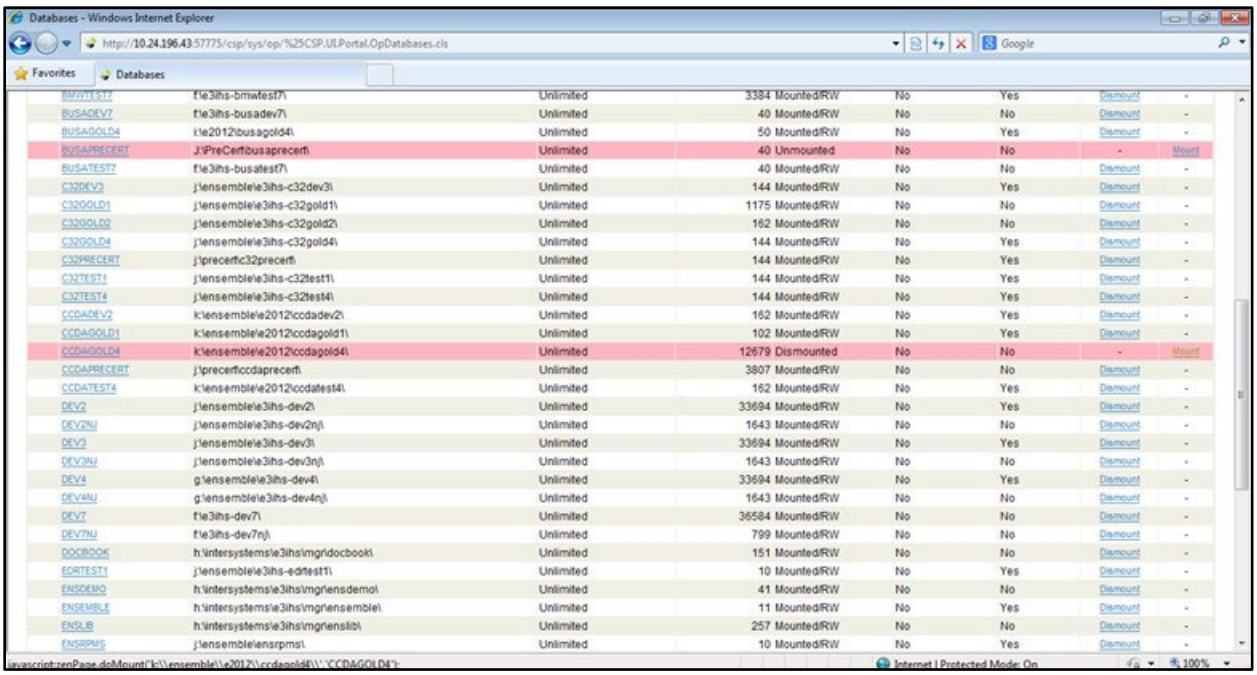


Figure G-4: Databases

4. On the **Mount Databases** dialog, verify that the **Read Only** check box is unchecked, then click **OK**.

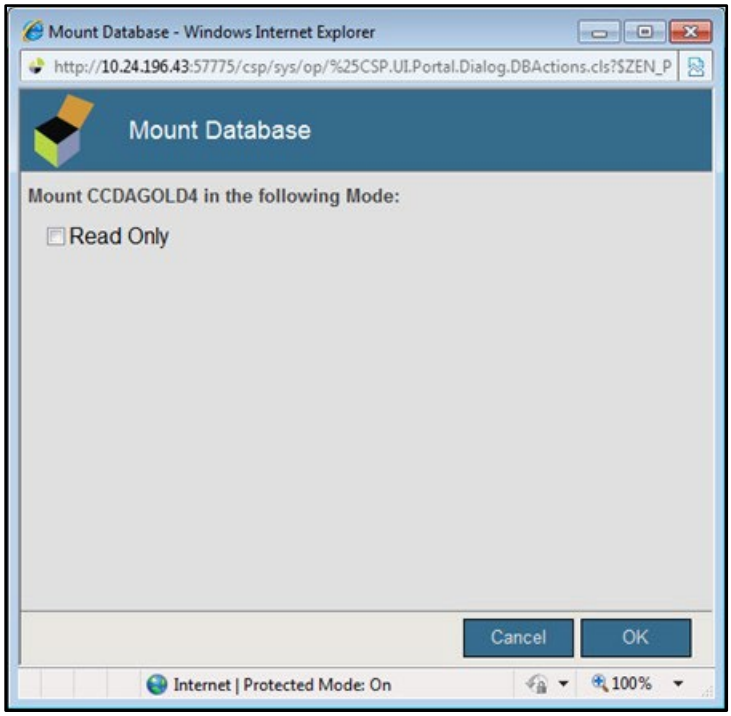


Figure G-5: Mount Databases

# G.3 Verify Settings

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

## G.3.1 Verify Custom Production Settings

1. Navigate to the **Production Configuration** screen in HealthShare'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.

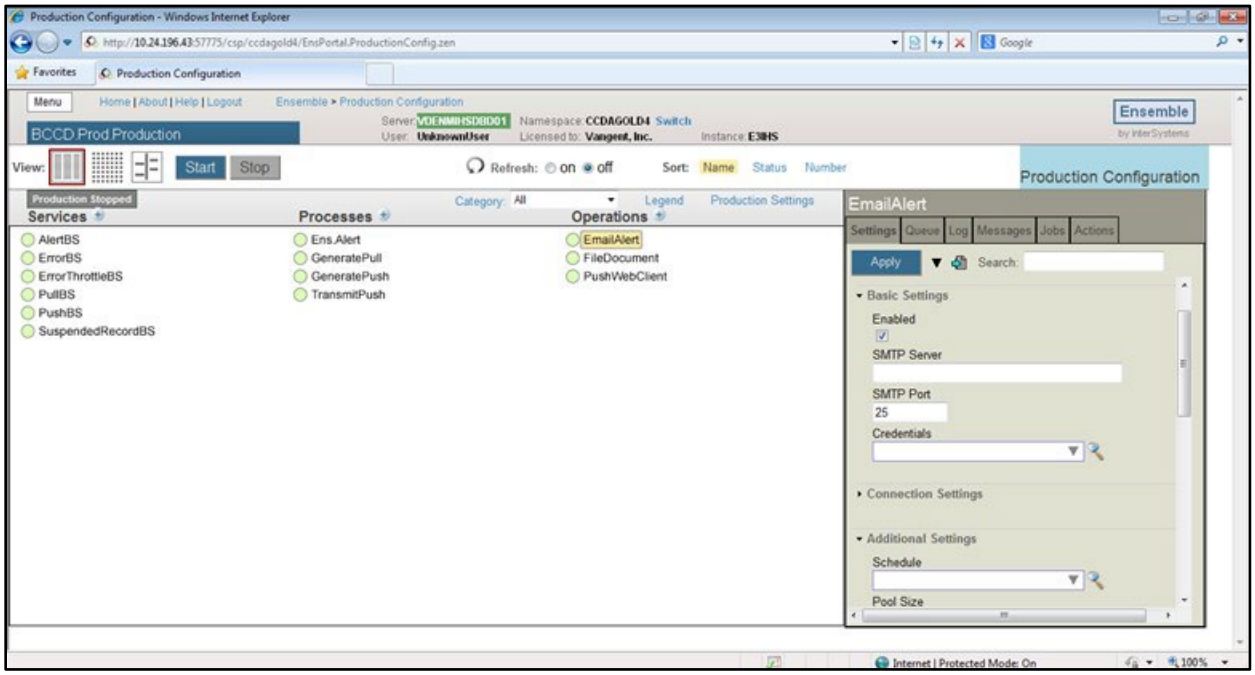


Figure G-6: Applying production settings

## G.3.2 Verify Purge Task Schedule

1. Navigate to the main **Management Portal** page. From 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 Schedule**, then click **Go**. Look for a task named **Auto-Purge CCDA in CCDAXXX**, where "CCDAXXX" is the name of the CCDA namespace. If there is a task by that name, then the purge task is already scheduled, so skip the rest of this section.

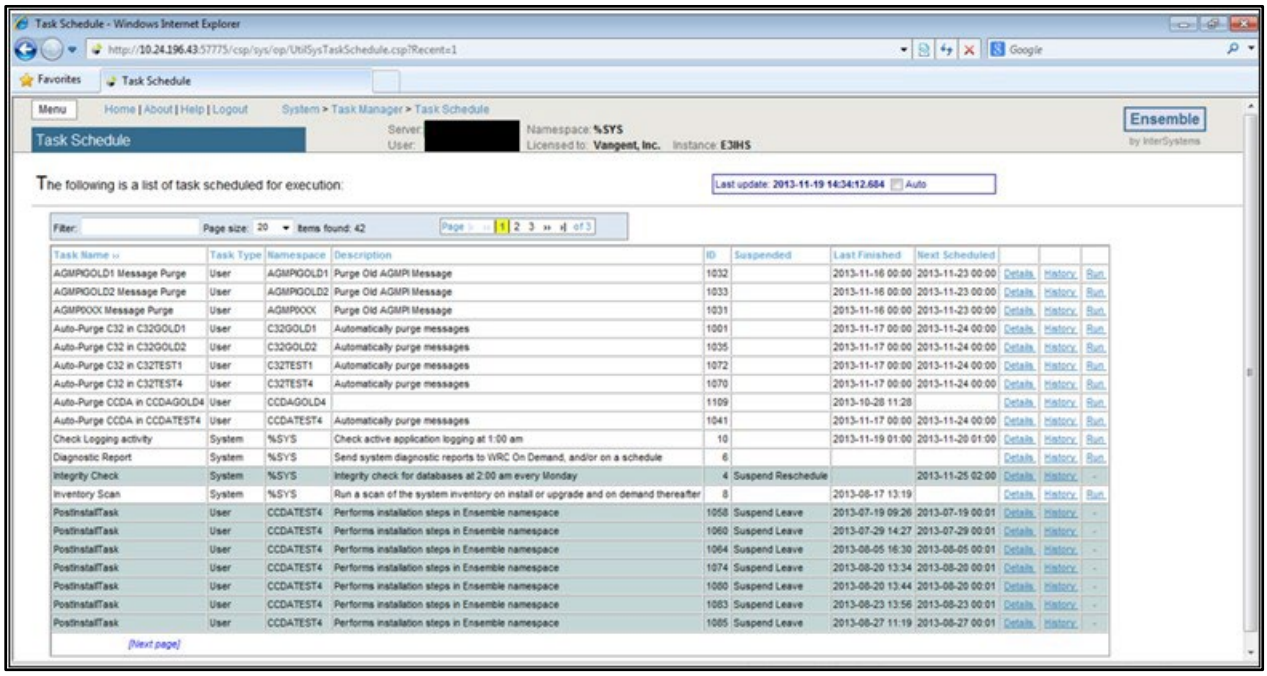


Figure G-7: View Task Schedule screen with a CCDA purge task already scheduled

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 the 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 HealthShare**
- Open output file when task is running: **No**
- Output file: **(blank)**
- Reschedule task after system restart: **Yes**

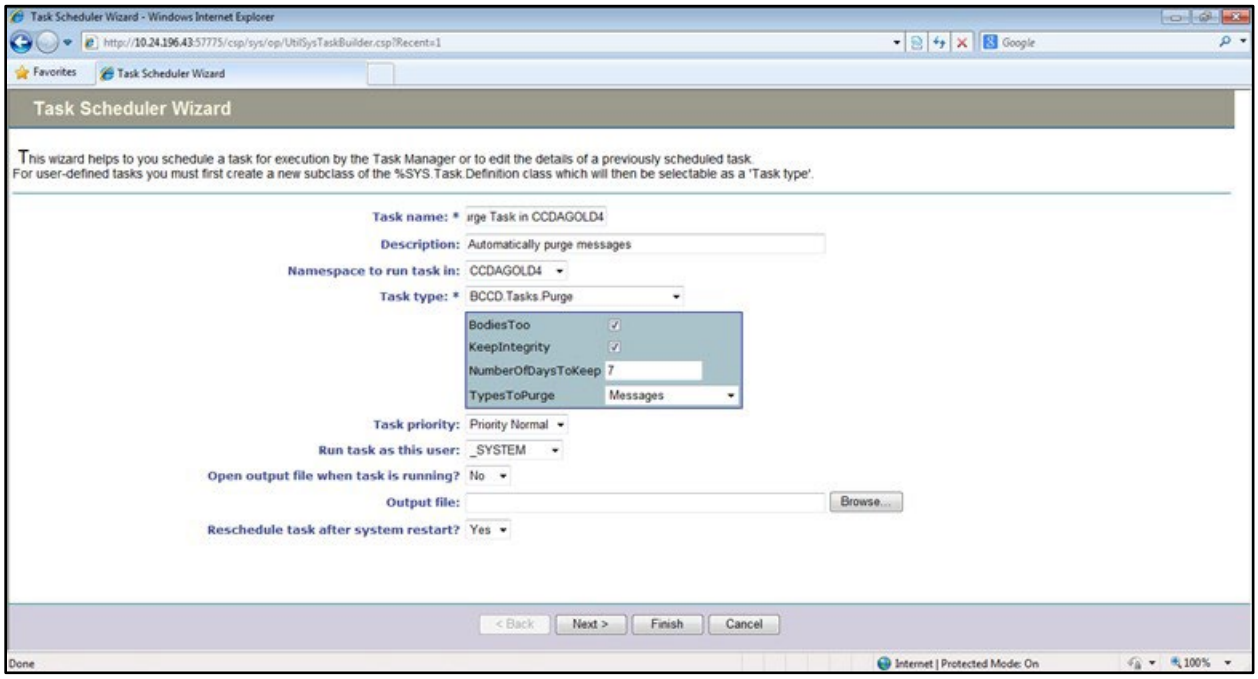


Figure G-8: First Screen on the Task Scheduler Wizard

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

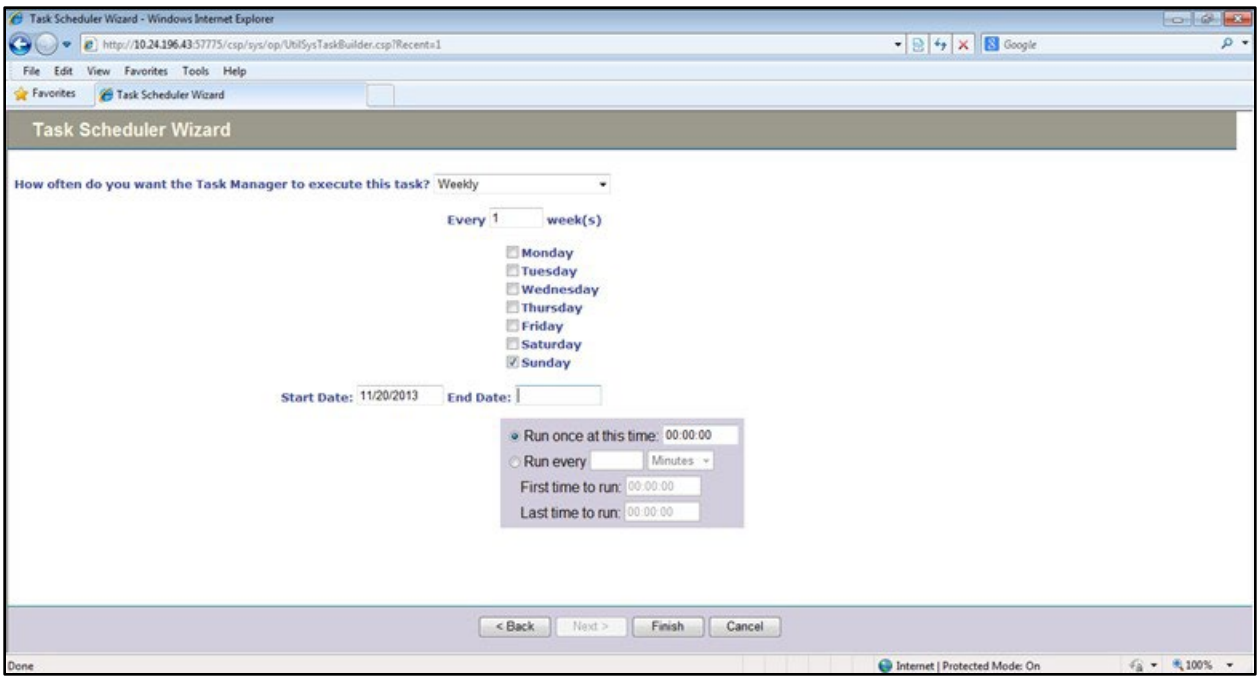


Figure G-9: Second screen of the Task Scheduler Wizard

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.

```
Select OPTION NAME: BCCD MENU       CCDA Menu


   EDIT   CCDA Site Parameters
   CLIN   Edit CCDA Clinical Site Parameters
   ONE    Generate CCD for a single patient
   ALL    Generate CCD documents for all patients in RPMS
   DAT    Generate CCD documents for a specified date range
   MANG   Manage CCDA transmissions
   ERR    View and Purge Error Documents
   STAT   Display the CCDA application status report

Select CCDA Menu Option:
```

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, do not 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. The system will display a message indicating whether CCDA Messaging was started. If CCDA could not be started, contact the IT Service 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

| Acronym | Term Meaning |
|---|---|
| API | Application Programming Interface |
| CCDA | Consolidated Clinical Document Architecture |
| CHIT | Certified Health Information Technology |
| DSTU | Draft Standard for Trial Use |
| EHR | Electronic Health Record |
| FM2C | FileMan-to-Class utility; prior to FM2C version 1.0, the abbreviation stood for FileMan-to-Caché mapper |
| GUI | Graphical User Interface |
| HIE | Health Information Exchange |
| HL7 | Health Level Seven |
| HTTP | Hypertext Transfer Protocol |
| HTTPS | Hypertext Transfer Protocol Secure |
| ICD | International Classification of Diseases |
| IHS | Indian Health Service |
| KIDS | Kernel Installation and Distribution System |
| PHR | Personal Health Record |
| RPMS | Resource and Patient Management System |
| SDOH | Social Determinant of Health |
| SOAP | Simple Object Access Protocol |
| SNOMED | Systematized Nomenclature of Medicine |
| SSL | Secure Sockets Layer |
| TLS | Transport Layer Security |
| WSDL | Web Services Description Language |
| XML | Extensible Markup Language |

# Contact Information

If you have any questions or comments regarding this distribution, please contact the IHS IT Service Desk.

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