



**HIPS Production Release 4.1.0
Evaluation Guide**

14 February 2014

Approved for external use

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Table of Contents

1. Purpose	5
1.1 Background.....	5
2. Testing	6
3. Evaluation Prerequisites	9
3.1 Registration to HI Service Vendor Environment	9
3.2 Registration to PCEHR SVT Environment	9
4. HIPS Demo Harness	10
4.1 Overview	10
4.2 Limitations.....	10
4.3 HIPS Demo Harness Configuration	10
4.4 SQL Connection Strings	11
4.5 Endpoint Addresses.....	11
4.6 Use of Demo Harness	12
5. Invoke HIPS services with soapUI.....	23
5.1 Adding WS-Addressing Header	23
5.2 Specialising the Patient Identifier Base	23
5.3 Example Call to IsPcehrAdvertised	24
5.4 Example Call to NotifyPasEvent	25
5.5 Example Call to GetValidatedIhi.....	26
5.6 Example Call to UploadOrSupersedeDocument	28
5.7 Example Call to GetOperationStatus.....	30
Appendix A HIPS Release 4.1.0 Architecture	32

1. Purpose

The purpose of this document is to provide an evaluation guide, so that Release 4.1.0 of the Healthcare Identifier and PCEHR communications solution developed by NEHTA can be integrated with local systems, CCA tested and deployed for production use by implementers in the eHealth space.

Please read this document before commencing installation.

1.1 Background

NEHTA has a strategic aim to support and facilitate the adoption of national eHealth foundations across the health sector. A key element of delivering on this objective is supporting the implementation of solutions that integrate with the national Healthcare Identifiers Service and the PCEHR system. NEHTA also seeks to collaborate through our implementations projects and, wherever possible, use the lessons learnt and knowledge gained to support the uptake of the national systems, and make that information available to a broader audience, where possible.

The eHealth Integration Sample Code provides implementers and software vendors with a sample implementation of a communications solution that enables patient administration systems and clinical information systems to interact with the Healthcare Identifiers Service and the personally controlled eHealth record system (PCEHR).

2. Testing

The software in this release has been through extensive testing and is now in production use at SA Health, Queensland Health and the Department of Health and Human Services (Tasmania), with more sites such as NT Health and WA Health planning their implementations. NEHTA CCA will require testing of some conformance requirements after integration with your internal systems.

For the purpose of software registration in the HI Service and PCEHR System, this release is known by the following key strings:

- HI Service Vendor name is "HIPS0001" and the PCEHR Vendor Name is "NEHTA".
- Product Name "NEHTA HIPS"
- Product Version "4.1"

Test Description	Jurisdictional Testing Required
• HL7 PAS Unit Tests	Completed
• HL7 EMPI Unit Tests	Completed
• PCEHR Service Unit Tests	Completed
• System Integration Test	Recommended
• Performance and Load Test	Recommended
• Security Test	Recommended
• Healthcare Identifiers CCA Test	Completed
◦ IHI Search: UC.005, UC.010 and UC.015	• Completed
◦ HPI-I Search: UC.131	• Deferred to future release
• PCEHR CIS CCA Test	Completed, however implementers will need to CCA test the following if the functionality is integrated into local clinical systems:
◦ 19048: Enter provider access consent code	• Required
◦ 19116: Display conditions of emergency access	• Required
◦ 19042: Withdraw consent	• Required
◦ 17839: Preclude automatic or require explicit upload	• Required
◦ 19377: Ability to remove previously uploaded docs	• Required
◦ 18721: Show date and time downloaded	• Required
◦ 19048: Allow user to save or print	• Required

Test Description	Jurisdictional Testing Required
○ 19048: Show user when hash value invalid	• Required
○ 19048: Show document list and version history list	• Recommended
○ 19119: Allow user to sort and filter document list	• Recommended
○ 19378: Show user when demographics do not match	• Recommended
○ CDAR_AS_01: Authoring Systems	• Required
○ CDAR_RS_01: Rendering Systems	• Required
○ CPCD_Common_Producer	• Required
○ CPCD_DS_Producer	• Required
○ CPCD_Common_Consumer	• Required
○ Amendment 1: Assisted Registration	• Required
• Healthcare Identifiers NOC Test	Completed for these services:
○ IHI Inquiry Search via B2B (TECH.SIS.HI.06)	• Completed
○ Search for Provider Individual Details (TECH.SIS.HI.31)	• Completed
○ Search Provider Individual Batch Async (TECH.SIS.HI.33)	• Completed
• PCEHR NOC Test	Completed for these services:
○ getChangeHistoryView	• Completed
○ getDocumentList	• Completed
○ doesPCEHRExist	• Completed
○ gainPCEHRAccess	• Completed
○ uploadDocument	<ul style="list-style-type: none"> • Discharge Summary • Specialist Letter • Event Summary • Shared Health Summary • PCEHR Prescription Record • PCEHR Dispense Record
○ getDocument	• Completed

Test Description	Jurisdictional Testing Required
○ removeDocument	• Completed
○ getView	• Prescription and Dispense View
○ RegisterPCEHR	• Completed

3. Evaluation Prerequisites

This section outlines the major prerequisites that receiving hospital groups will need to obtain for successful evaluation, integration and CCA testing of HIPS.

Although HIPS is registered software in the production environment of both HI Service and PCEHR Systems, for the purpose of integration and CCA testing, a connection is required into the testing environments.

3.1 Registration to HI Service Vendor Environment

The implementer will need to apply to Department of Human Services (DHS) for a DHS Site PKI Test Certificate for access to the HI Service Vendor Environment and ensure that DHS has configured the HI Service Vendor Environment to allow HIPS access using this certificate.

The following product details may need to be provided to DHS:

- Vendor ID: HIPS0001
- Product Name: NEHTA HIPS
- Product Version: 4.1

3.2 Registration to PCEHR SVT Environment

The implementer will need to contact DHS to obtain NASH-compliant HPI-O Test Certificates that are to be assigned to their group for their integration and CCA testing. The implementer will then need to request the National Infrastructure Operator (NIO) to configure the PCEHR SVT Environment to allow HIPS access using the certificates in the pack.

The following product details may need to be provided to the NIO:

- Vendor: NEHTA
- Product Name: NEHTA HIPS
- Product Version: 4.1

4. HIPS Demo Harness

4.1 Overview

The HIPS Demo Harness can be used to demonstrate and test a subset of HIPS functionality.

The demo harness connects to the HIPS application server using the HTTP web service bindings of the following services:

- Database Loader Service – to submit HL7 messages from PAS for patient registration, updating patient demographics, admit, transfer and discharge events.
- IHI Service – to retrieve the validated IHI information for a patient record, for use in a clinical document to be uploaded to PCEHR.
- Consent Service – to withdraw consent to upload documents for an episode of care, disclose existence of a PCEHR, or query patient participation status.
- PCEHR Service – to check whether a PCEHR is advertised, upload or supersede, remove, gain access, get document list, retrieve, and get change history.

The demonstration application also makes a direct connection to the PCEHR Data Store database, to show available patients and episodes, to show the information that is stored as a result of the IHI search and the audit records that are created.

4.2 Limitations

The demo harness does not expose all features and operating modes of the HIPS application server.

The demo harness operates with the following limitations:

- Test patients must be registered and admitted via HL7 messages.
- The demonstration HL7 messages have SA Health specific hospital codes (e.g. RAH or FMC) that must be changed to match the hospital codes you have configured for HIPS.
- Each IHI must be obtained from the HI Service vendor environment using the Medicare Number or DVA number, so test patients for which the Medicare or DVA number is unknown cannot be used
- HIPS services are invoked using MRN identifier, not using State Patient ID or Validated IHI
- Some HIPS services are not exposed in the demo harness (in particular: Get Operation Status, Reload Reference Data, Get Hospital Details, Check Consent and Check Disclosure, Assisted Registration, Prescription and Dispense View, HPI-I Search).

In order to evaluate the usage of HIPS with the Validated IHI parameter, an alternative web service testing tool, such as soap-UI, is required: See Section 6 for details.

4.3 HIPS Demo Harness Configuration

The files for the HIPS Demo Harness can be found in folder "Demo Harness Application".

HIPS Demo Harness configuration options are held in the file "HIPS.DemoHarness.exe.config". At a minimum, the highlighted items must be replaced with applicable values for the installation.

4.4 SQL Connection Strings

Name	Changes Required
PcehrDataStoreConnectionString	<p>Change the value after "Data Source" to the database server name</p> <p>Change the value after "Initial Catalog" to the database name</p> <p>If it is necessary to use SQL Server Authentication instead of Windows Authentication, change "Integrated Security" to false and add "User ID" and "Password" items.</p>
HIPS.DemoHarness.Properties.Settings. HL7DatabaseConnectionString	No Changes Required
HIPS.DemoHarness.Properties.Settings. PcehrDataStoreConnectionString	Apply the same changes to this connection string as were applied in the first connection string.

4.5 Endpoint Addresses

Four endpoints must be configured for each HIPS environment, being the Database Loader Service, IHI Service, PCEHR Service and Consent Service.

Multiple endpoints are configurable, using an underscore to separate the environment from the service. For example, the name "Development_DatabaseLoaderService" refers to the database loader service for the Development environment, while the name "SystemTest_ConsentService" refers to the consent service for the System Test environment.

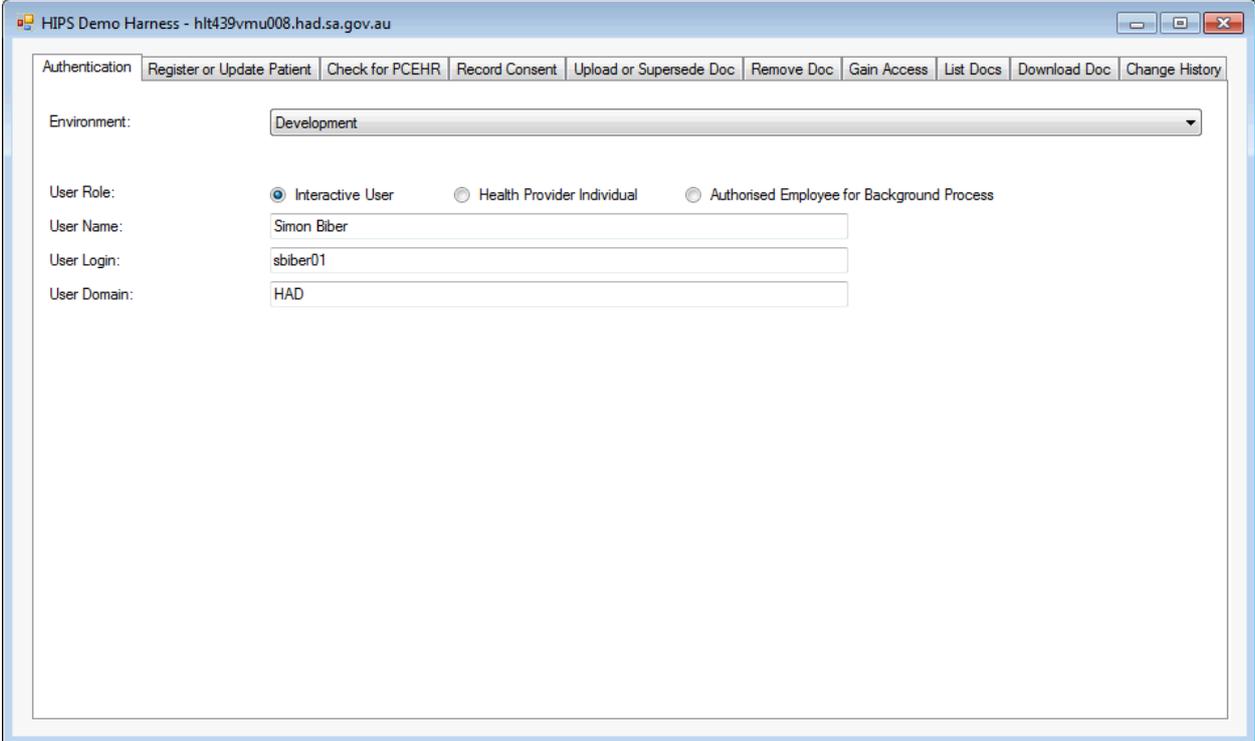
Replace hostname, port and ENV with the HIPS application server name, HTTP port and the environment identifier (DEV / SYSTEST / PREPROD / PROD) for each of the endpoints in the demo harness configuration file.

Section	Suggested Value	Description
Endpoints named Database Loader Service	http://hostname:port/HIPSServer_ENV/HIPS.Service.DatabaseLoaderService.svc/HIPS.Service.DatabaseLoaderService	The test harness will connect to the HIPS Database Loader Service using the web service at this URL.
Endpoints named IHI Service	http://hostname:port/HIPSServer_ENV/HIPS.Service.IHIService.svc/HIPS.Service.IHIService	The demo harness will connect to the HIPS IHI Service using the web service at this URL
Endpoints named PCEHR Service	http://hostname:port/HIPSServer_ENV/HIPS.Service.PCEHRService.svc/HIPS.Service.PCEHRService	The demo harness will connect to the HIPS PCEHR Service using the web service at this URL
Endpoints named Consent Service	http://hostname:port/HIPSServer_ENV/HIPS.Service.ConsentService.svc/HIPS.Service.ConsentService	The demo harness will connect to the HIPS Consent Service using the web service at this URL

4.6 Use of Demo Harness

4.6.1 Authentication Tab

Upon starting the Demo Harness it will show the Authentication tab. The Authentication tab can be used to select which of the environments in the configuration file will be used for the web service calls to HIPS, and to select which user role and details to assert to HIPS.



The screenshot shows a web browser window titled "HIPS Demo Harness - hlt439vmu008.had.sa.gov.au". The main content area is the "Authentication" tab, which contains a menu bar with the following options: "Register or Update Patient", "Check for PCEHR", "Record Consent", "Upload or Supersede Doc", "Remove Doc", "Gain Access", "List Docs", "Download Doc", and "Change History". Below the menu bar, there is a form with the following fields:

- Environment:** A dropdown menu currently set to "Development".
- User Role:** Three radio buttons: "Interactive User" (selected), "Health Provider Individual", and "Authorised Employee for Background Process".
- User Name:** A text input field containing "Simon Biber".
- User Login:** A text input field containing "siber01".
- User Domain:** A text input field containing "HAD".

Figure 1 – Selecting an application environment and user role

4.6.2 Register or Update Patient Tab

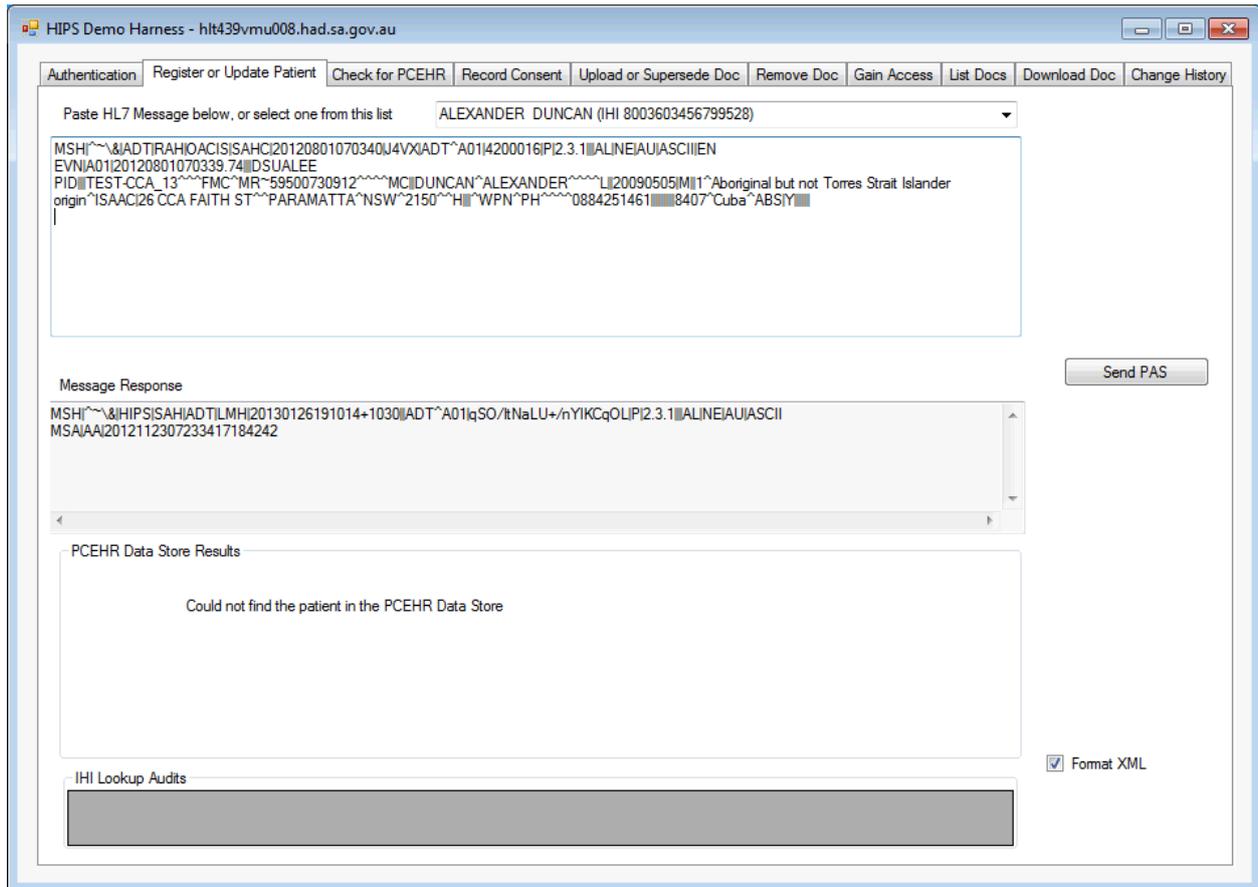


Figure 2 - Choose test PAS message from list or copy from another source

The Register or Update Patient tab of the demo harness can be used to submit HL7 messages to the Database Loader Service to register patients and demonstrate the automatic IHI lookup and PCEHR advertised check.

Jurisdictions evaluating HIPS should use this tab to register a patient whose demographics match a test patient from their PCEHR Vendor Pack, and admit the patient to create an episode.

This can be achieved by replacing the highlighted portions of the following message as indicated. Dates should be entered as yyyyMMddHHmmss, for example 20121231001122 for 12:11:22am on 31/12/2012.

The hospital code **LMH** must be replaced with a hospital code that is configured for a hospital in the HIPS database.

```

MSH|^~\&|ADT|LMH|HIB|HIB|20121123072334||ADT^A01|2012112307233417184242|P|2.3.1|||AL|NE|AU|ASCII|EN
EVN|A08|20121123072334
PID||StatePatientId^^^^SAUHI|MedicalRecordNumber^^^LMH^MR~MedicareCardNumberWithIrn^^022015^LMH^MC|
|FamilyName^FirstName^MiddleNames^^Title^^L^A||DateOfBirth|SexCode|TESTSURN^TESTFORE^TESTMDL^^^^A^A
|4^Neither Aboriginal or TSI^ISAAC^0C^No Client^LMH|10 Address
St^Suburb^SA^5012^^H||^PRN^^^^0412123123|^ORN^CP^^^^0412234234|1201^English^ABS^EN^ENGLISH^LMH|2^
Married/De facto^ISAAC^2^^LMH|7010^No Religion, nfd^ABS^NIL^NO RELIGION^LMH|439598-
1|MedicareCardNumber^IRN|||1100^Australia (includes External Territories) (nfd)^ABS^ABS1100^LMH
NK1||TestPerson^^^^^^L^A|^PARTNER^LMH^M^Spouse^STAN|10 ADDRESS
ST^BLAKEVIEW^SA^5114|^PRN^^^^0412345678
PV1||I^Inpatient^ISAAC|Ward^^Bed^0027^^OBST^0027^^WH-WOMEN'S HEALTH UNIT|4^Not
applicable^ISAAC^4^NOT
APPLICABLE^LMH|30019236^^^MB||128^ProviderOneSurname^ProviderOneFirstName^^^PROF^^^ADT&LMH^L^^^INT
ERNAL^LMH~234567F^ProviderOneSurname^ProviderOneFirstName^^^PROF^^^ADT&LMH^L^^^PROVIDER^LMH|1269^Pr
oviderTwoSurname^ProviderTwoFirstName^^^^^^ADT&LMH^^^INTERNAL^LMH~123456VJ^ProviderTwoSurname^Prov
iderTwoFirstName^^^^^^ADT&LMH^^^PROVIDER^LMH|128^ProviderOneSurname^ProviderOneFirstName^^^PROF^^^
ADT&LMH^L^^^INTERNAL^LMH~234567F^ProviderOneSurname^ProviderOneFirstName^^^PROF^^^ADT&LMH^L^^^PROVI
DER^LMH|OBST|||5^Outpatient Department^ISAAC^5^^LMH|||1^Overnight Stay^ISAAC^1^1 OVERNIGHT
STAY^LMH|30019236^^^MB|1|||1|||1|||1|||1^Home^ISAAC^1^^LMH|||0027|||AdmissionDate
PV2||^LABOUR|||20121122000000

```

4.6.2.1 Workaround if IHI Search Not Possible

If the information supplied for the patient does not include a Medicare card number or DVA file number, then HIPS will be unable to automatically obtain the IHI of the patient. In this case it is possible to work around by inserting a row into PatientMasterIhi with the required IHI. If the date last validated is more than the configured period (e.g. 24 hours) in the past, HIPS will validate the IHI before using it in any call to the PCEHR system.

This can be achieved by replacing the highlighted items in the following SQL command. The first is the primary key value of the newly created item in the PatientMaster table.

```

INSERT INTO hips.PatientMasterIhi (PatientMasterId, Ihi, IhiStatusId, IhiRecordStatusId,
RegisteredGivenName, RegisteredFamilyName, RegisteredSexId, DatelastValidated, DateCreated,
UserCreated, DateModified, UserModified) VALUES (n, '800360nnnnnnnnnn', 1, 1, 'Given Names', 'Family
Name', 1, '2012-11-01', GETDATE(), 'TestUser', GETDATE(), 'TestUser')

```

4.6.3 Check for PCEHR Tab

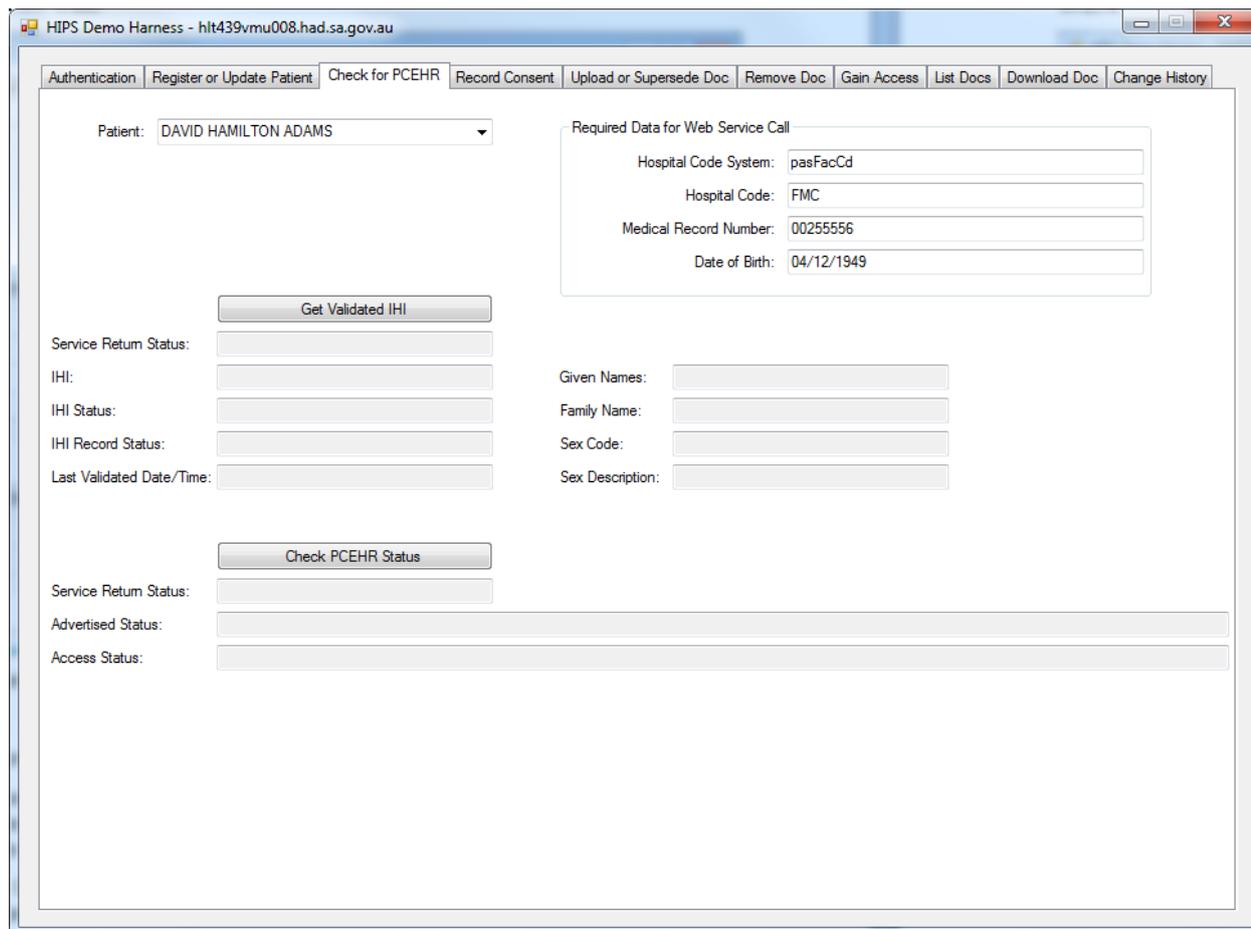


Figure 3 – After registering a patient, the patient may be selected from the database

The Check for PCEHR tab demonstrates the services that allow clinical systems to:

- **Get Validated IHI:** Retrieve a validated IHI for a patient, such as for use in a clinical document. The IHI retrieval will be immediate if it has been less than 24 hours (or the configured period) since the IHI was obtained or last validated.
- **Check PCEHR Status:** Check the PCEHR existence / access status for a patient at the healthcare provider organisation of a hospital.

The services demonstrated on this page and subsequent pages can accept any of the supported types of patient identifier, but only the MRN type is demonstrated in this application. The supported types are:

- Medical Record Number (MRN) allocated by the hospital,
- State/Territory Patient Identifier allocated by the Enterprise Master Patient Index (EMPI),
- Validated Individual Healthcare Identifier (IHI) including validation information, and
- Patient Master ID, being the internal primary key in the SQL database used by HIPS.

4.6.4 Consent and Participation Tab

Figure 4 - Choose a patient and episode to record consent, or just a patient to disclose PCEHR

The Consent page demonstrates the services that allow clinical systems to:

- **Record Upload Consent:** Record when a patient withdraws their consent to upload clinical documents for a particular episode of care, or reinstate this consent, or check the consent status for an episode.
- **Record PCEHR Disclosure:** Record when a patient who has chosen to hide the existence of his/her PCEHR nonetheless discloses the existence to a healthcare provider organisation and expects that documents should be uploaded, or rescinds this disclosure.
- **List Recent Patient Participation:** Query for a list of all patients who have changed participation status since a given point in time.
- **Check Single Patient Participation:** Query for a particular patient whether that patient is participating in PCEHR (either having an advertised PCEHR or having disclosed its existence to the organisation).

For the Record Upload Consent service, the Episode must be identified. For the operating mode using the MRN parameter, HIPS identifies the Episode using the admission date/time.

4.6.5 Upload or Supersede Document Tab

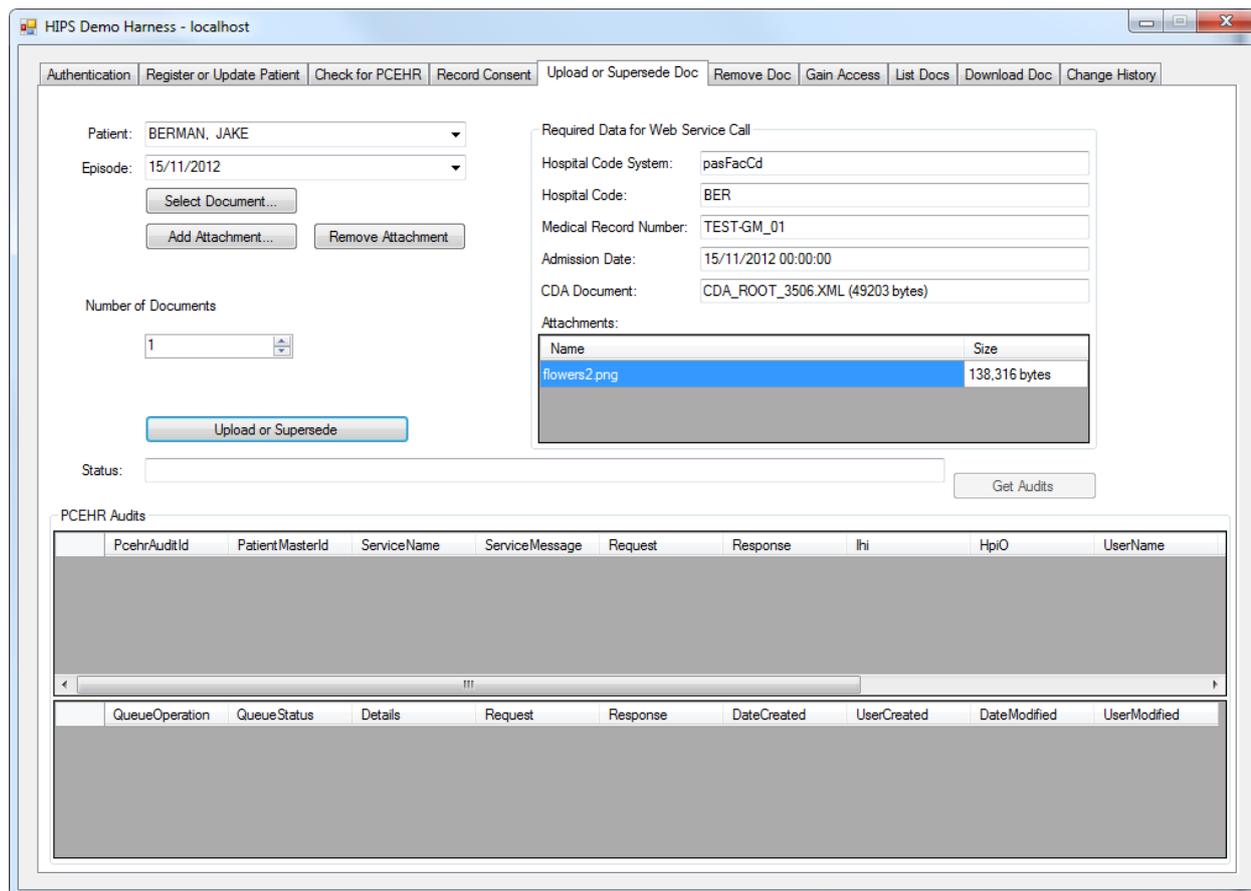


Figure 5 - Choose a patient and episode, select a CDA document and click 'Upload or Supersede'.

This tab demonstrates the service that allows a clinical system to submit a CDA document (XML and attachments) to be uploaded to the PCEHR. Key points from the business logic are demonstrated here:

- HIPS will sign the CDA document using the eHealth Record certificate of the healthcare provider organisation to which the discharging hospital belongs, and package the supplied document (as CDA_ROOT.XML), generated signature (as CDA_SIGN.XML) and any other supplied attachments, together with the logo for the hospital (as LOGO.PNG).
- If the patient has withdrawn consent to upload documents for the specified episode, then HIPS will refuse to queue the document for uploading.
- If HIPS has already uploaded a document instance for the same episode, with the same Set ID, then this version will supersede the previous version uploaded.
- If the document set had been removed from the PCEHR, then the upload of a new version in the set will cause all previous versions to become visible again.

For the Upload or Supersede Document service, the Episode must be identified. For the operating mode using the MRN parameter, HIPS identifies the Episode using the admission date/time. Note that the Validated IHI parameter (not usable in the demo harness) will create Episode stubs that are identified using the document set ID.

4.6.6 Remove Document Tab

The screenshot shows the 'Remove Doc' tab in the HIPS Demo Harness. The interface includes a navigation menu with options: Authentication, Register or Update Patient, Check for PCEHR, Record Consent, Upload or Supersede Doc, Remove Doc (selected), Gain Access, List Docs, Download Doc, and Change History.

The main form contains the following fields:

- Patient: BERMAN, JAKE
- Episode: 15/11/2012
- Document: 1.2.36.1.2001.1005.26.2.1^10
- Reason: Withdrawn
- Remove Discharge Summary button
- Status: (empty text field)

The 'Required Data for Remove Document Web Service Call' section includes the following input fields:

- Hospital Code System: pasFacCd
- Hospital Code: BER
- Medical Record Number: TEST-GM_01
- Admission Date: 15/11/2012 00:00:00
- Document Set ID: 1.2.36.1.2001.1005.26.2.1^10
- Reason Code: Withdrawn

The 'PCEHR Audits' table has the following columns: PcehrAuditId, PatientMasterId, ServiceName, ServiceMessage, Request, Response, Ihi, HpiO, and UserNa. The table body is currently empty.

Figure 6 - Choose a patient, episode and previously uploaded document to remove.

This tab demonstrates the service that allows a clinical system to 'remove' a document set that HIPS previously uploaded to the PCEHR. When removed, a document set remains visible to the authoring healthcare provider organisation but becomes invisible to the consumer and other healthcare provider organisations. It can be reinstated by uploading a new version of the document. One of two acceptable reasons for removal must be supplied (withdrawn by provider or incorrect identity).

4.6.7 Gain Access Tab

HIPS Demo Harness - localhost

Authentication Register or Update Patient Check for PCEHR Record Consent Upload or Supersede Doc Remove Doc Gain Access List Docs Download Doc Change History

Patient: BERMAN, JAKE

Check for PCEHR Status

Required Data for Web Service Call

Hospital Code System: pasFacCd

Hospital Code: BER

Medical Record Number: TEST-GM_01

Date of Birth: 08/06/1952

PCEHR Return Status: OK

Advertised Status: Yes, an advertised PCEHR exists.

Access Status: Your organisation has already gained access to this PCEHR.

Access Method

Access With Code AccessCode

Access Without Code

Emergency Access

IHI: 8003608000002519

IHI Status: Active

IHI Record Status: Verified

Access Permission: Permit

Gain Access

Status:OK

Figure 7 - Choose a patient, check for PCEHR existence and gain access to the PCEHR.

This tab demonstrates the services that allow a clinical system to:

- **Check for PCEHR Status:** Determine whether the health provider organisation has already gained access to the PCEHR for the selected patient, or if not, whether a code is required to gain access.
- **Gain Access with Code:** Gain access to a PCEHR by supplying an access code. If the patient gives his/her Record Access Code (RAC) then general access will be granted for 3 years. If the patient gives his/her Limited Document Access Code (LDAC) then restricted access will be granted, giving access to both general documents and restricted documents for 3 years.
- **Gain Access without Code:** Gain access to a PCEHR without supplying an access code, thus gaining general access for 3 years.
- **Gain Emergency Access:** Gain emergency access to a PCEHR, giving access to both general and restricted documents for 5 days.

4.6.8 List Documents Tab

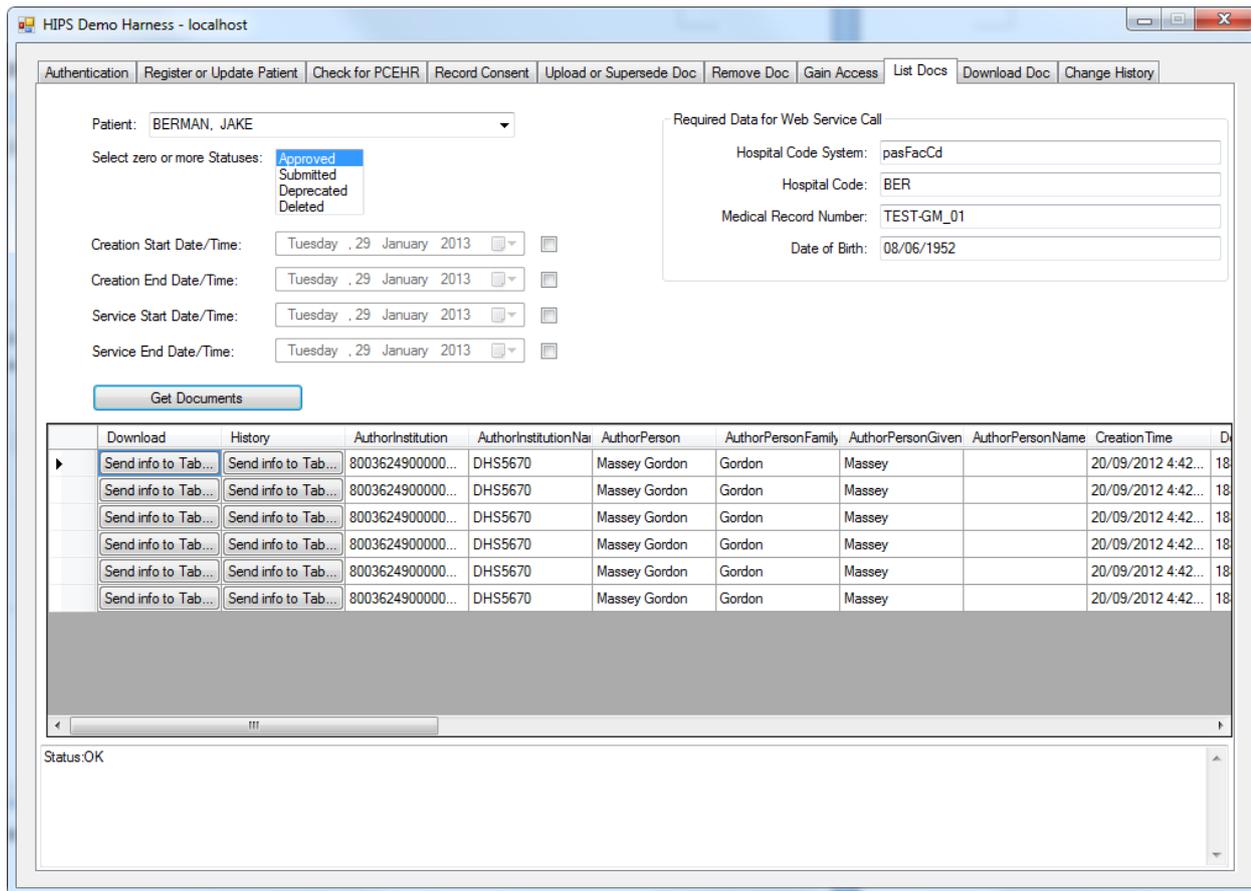


Figure 8 - Choose a patient and filter the list by document status and optionally by date range.

This page demonstrates the services that allow a clinical system to retrieve the metadata of clinical documents available to download from a patient’s PCEHR.

In order to download one of the documents in this tab, click the button in the Download column. This will copy the document Unique ID and Repository ID to the appropriate places in the Download Doc tab.

In order to retrieve the list of all versions of one of the documents, click the button in the History column. This will copy the document Unique ID to the appropriate place in the Change History tab.

NOTE: NOC requirements state that the Change History service must be invoked using the Document Entry UUID as the parameter, not the Document Unique ID. Although the demo harness still works using the Document Unique ID, be sure to use the Entry UUID when integrating HIPS with your clinical system.

4.6.9 Download Document Tab

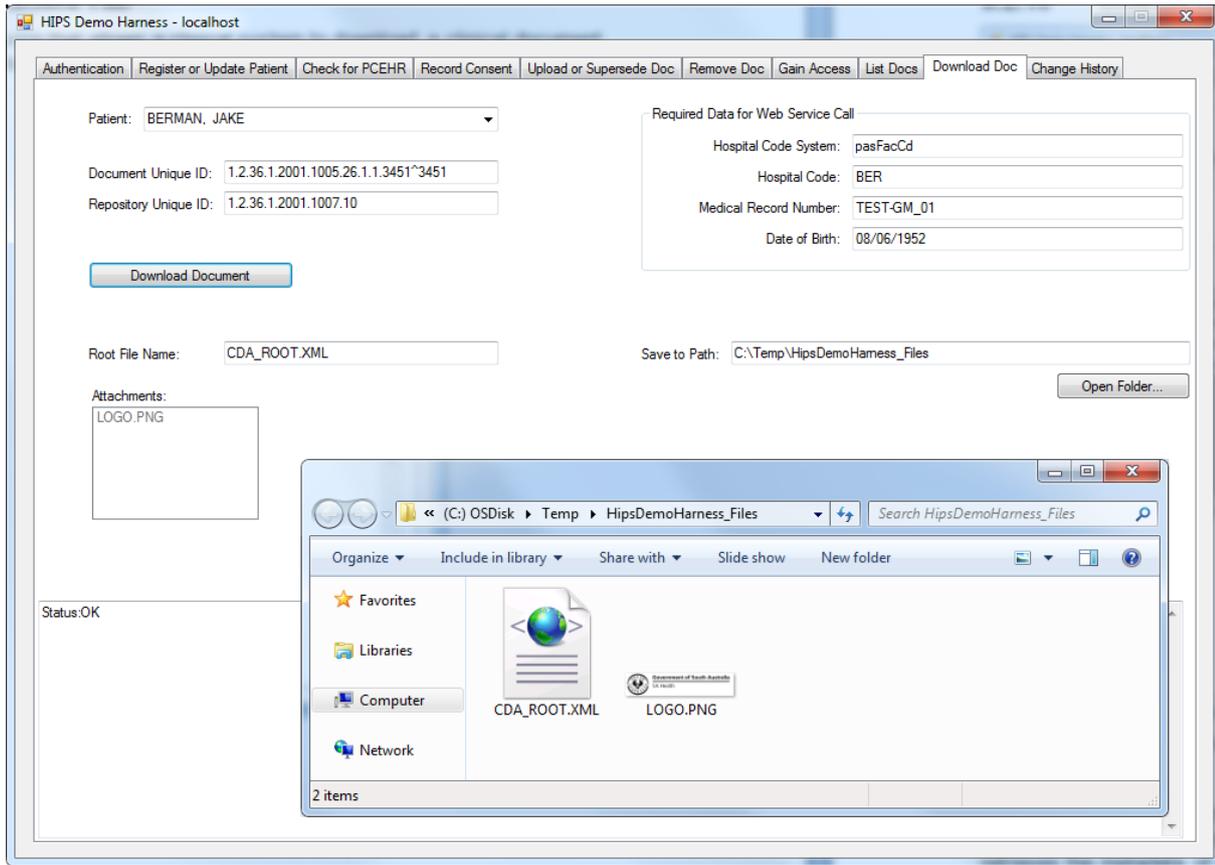


Figure 9 - Choose a patient and enter the Unique ID and Repository ID of a document to download.

This page demonstrates the service that allows a clinical system to download a clinical document using the Unique ID and Repository ID that appear in the list. The CDA document and any attachments will be saved into the local file system at the path specified.

4.6.10 Change History Tab

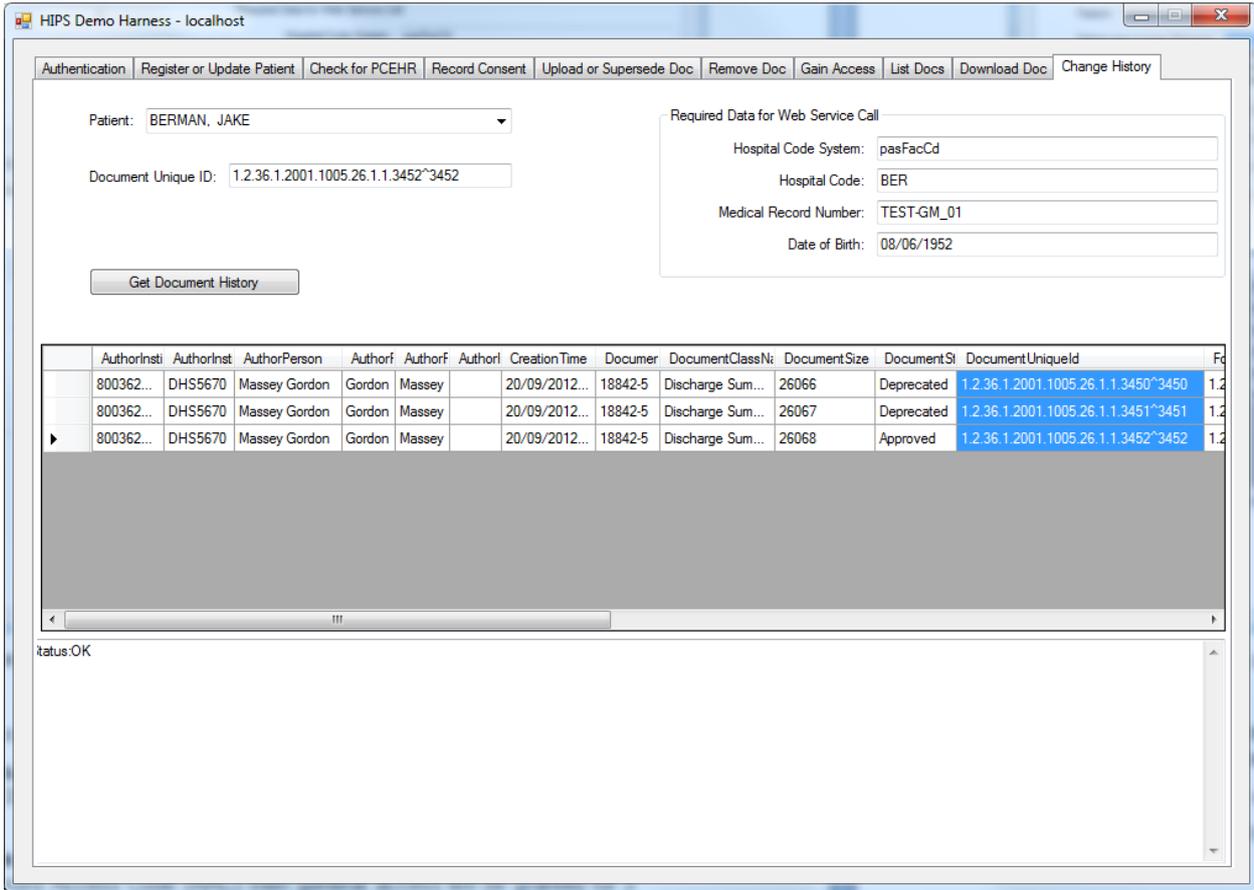


Figure 10 - Choose a patient and enter the ID of a document to list all versions.

This page demonstrates the service that allows a clinical system to check for updated versions of a document that has been downloaded. Given the Entry UUID of any document instance, the service retrieves the metadata of all instances within the same document set.

NOTE: NOC requirements state that the Change History service should be invoked using the Document Entry UUID as the parameter, not the Document Unique ID. Although the demo harness still works using the Document Unique ID, be sure to use the Entry UUID when integrating HIPS with your clinical system.

5. Invoke HIPS services with soapUI

SoapUI is an open source, cross-platform application for testing web services. The latest 32 or 64 bit Windows releases can be downloaded from:

- <http://sourceforge.net/projects/soapui/files/soapui/4.6.4/SoapUI-x32-4.6.4.exe/download> (32)
- <http://sourceforge.net/projects/soapui/files/soapui/4.6.4/SoapUI-x64-4.6.4.exe/download> (64)

Open SoapUI, create a new soapUI project, and copy the URL of the WSDL into the "Initial WSDL/WADL" box.

For PCEHR services (e.g. IsPcehrAdvertised or UploadOrSupersedeDocument) use:

- http://hostname:50500/HIPSServer_DEV/HIPS.Service.PCEHRService.svc?wsdl
- For IHI services (e.g. GetValidatedIhi) use:
- http://hostname:50500/HIPSServer_DEV/HIPS.Service.IHIService.svc?wsdl

For Consent services (e.g. RecordDisclosure, RecordConsent or GetPatientParticipationStatus) use:

- http://hostname:50500/HIPSServer_DEV/HIPS.Service.ConsentService.svc?wsdl

For HL7 Interface services (e.g. NotifyPasEvent) use:

- http://hostname:50500/HIPSServer_DEV/HIPS.Service.DatabaseLoaderService.svc?wsdl

5.1 Adding WS-Addressing Header

All of the HIPS services require a "wsa:To" header. The checkbox "Add default wsa:To" must be turned on in the "WS-A" tab at the bottom of the soapUI request window for each request that you create, otherwise an exception will be returned.

5.2 Specialising the Patient Identifier Base

Most of the HIPS services take a patientIdentifier parameter which is declared as the abstract base class PatientIdentifierBase, with specialisations of Mrn, StatePatientId, PatientMasterId or ValidatedIhi.

SoapUI assumes that you will pass in the declared type for all parameters, so you will need to manually modify the request to specify a subclass of PatientIdentifierBase and provide values for all the properties in the subclass.

For services that take a patientIdentifier parameter, you will need to specialise the class by adding a namespace declaration for XML Schema Instance:

```
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
```

Then specify the type of patient identifier using an xsi:type attribute on the patientIdentifier:

```
xsi:type="hips:ValidatedIhi"
```

Then add the remaining properties in the order declared in the XSD for the PatientIdentifier namespace, which can be retrieved from:

- http://hostname:57500/HIPSServer_DEV/HIPS.Service.PCEHRService.svc?xsd=xsd2

5.3 Example Call to IsPcehrAdvertised

If you already know the IHI for the patient and just want to check whether the patient has an advertised PCEHR, you can call IsPcehrAdvertised with a patient identifier of type "hips:ValidatedIhi". This is illustrated below for the test patient Augustus Heller with IHI 8003 6080 0001 2245.

5.3.1 Request

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
  xmlns:ns="http://schemas.HIPS/Services/2012/01"
  xmlns:hips="http://schemas.datacontract.org/2004/07/HIPS.CommonSchemas.PatientIdentifier"
  xmlns:hips1="http://schemas.datacontract.org/2004/07/HIPS.CommonSchemas"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soap:Header/>
  <soap:Body>
    <ns:IsPcehrAdvertised>
      <ns:patientIdentifier xsi:type="hips:ValidatedIhi">
        <hips:HospitalCode>FMC</hips:HospitalCode>
        <hips:HospitalCodeSystem>pasFacCd</hips:HospitalCodeSystem>
        <hips:DateOfBirth>1996-02-28</hips:DateOfBirth>
        <hips:FamilyName>Heller</hips:FamilyName>
        <hips:GivenName>Augustus</hips:GivenName>
        <hips:Ihi>8003608000012245</hips:Ihi>
        <hips:IhiLastValidated>2013-04-02T01:00:00Z</hips:IhiLastValidated>
        <hips:IhiRecordStatus>Verified</hips:IhiRecordStatus>
        <hips:IhiStatus>Active</hips:IhiStatus>
        <hips:Sex>Male</hips:Sex>
      </ns:patientIdentifier>
      <ns:dateOfBirth>1996-02-28</ns:dateOfBirth>
      <ns:user>
        <hips1:Domain>HAD</hips1:Domain>
        <hips1:Login>sbiber01</hips1:Login>
        <hips1:Name>Simon Biber</hips1:Name>
        <hips1:Role>InteractiveUser</hips1:Role>
      </ns:user>
    </ns:IsPcehrAdvertised>
  </soap:Body>
</soap:Envelope>
```

5.3.2 Response

In this response, the value "WithCode" indicates that the patient has an advertised PCEHR to which the organisation has not gained access, and that a Record Access Code will be required to gain access. However, keep in mind that you can upload documents to this PCEHR without needing to gain access first.

```
<Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope" xmlns:a="http://www.w3.org/2005/08/addressing">
  <Header>
    <Action s:mustUnderstand="1">
      http://schemas.HIPS/Services/2012/01/IPCEHRService/IsPcehrAdvertisedResponse
    </Action>
  </Header>
  <Body>
    <IsPcehrAdvertisedResponse xmlns="http://schemas.HIPS/Services/2012/01">
      <IsPcehrAdvertisedResult xmlns:b="http://schemas.datacontract.org/2004/07/HIPS.PcehrSchemas" xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
        <b:AccessCodeRequired>WithCode</b:AccessCodeRequired>
        <b:HipsResponse xmlns:c="http://schemas.datacontract.org/2004/07/HIPS.CommonSchemas">
          <c:HipsErrorMessage i:nil="true"/>
          <c:ResponseCode i:nil="true"/>
          <c:ResponseCodeDescription i:nil="true"/>
          <c:ResponseCodeDetails i:nil="true"/>
          <c:Status>OK</c:Status>
        </b:HipsResponse>
        <b:PcehrExists>true</b:PcehrExists>
      </IsPcehrAdvertisedResult>
    </IsPcehrAdvertisedResponse>
  </Body>
</Envelope>
```

5.4 Example Call to NotifyPasEvent

If you have a patient with a Medicare Card Number or DVA File Number, and want HIPS to use those to search for the IHI, you can call NotifyPasEvent with an HL7 message in the format below, then call GetValidatedIhi to retrieve the IHI.

The key information that should be changed for each message is highlighted in yellow, being:

- The sending facility (**FMC**) and message control ID (**4200018**) for identification of this message.
- The state/territory patient identifier (**12345**), identified with the code "SAUHI".
- The MRN (**TEST-CCA_13**), identified with the code "MR".
- The assigning hospital for the MRN (**FMC**), as configured in HospitalCode.Code where CodeSystem.Code is "pasFacCd". This determines which HPI-O / certificate is used to connect to Medicare HI Service and PCEHR B2B Gateway.
- The Medicare card number with or without IRN (**59500730912**), identified by "MC".
- The DVA file number (**N394932**), identified by "DVA".
- The family name (**DUNCAN**)
- The given name (**ALEXANDER**)
- The date of birth (**20090505**) in YYYYMMDD format

- The sex code (M) being one of M – Male, F – Female, O – Other or U – Unknown. These are mapped to M – Male, F – Female, I – Intersex or Indeterminate and N – Not Specified respectively.

Of these, the state/territory patient identifier, Medicare and DVA are optional, however at least one of Medicare or DVA must be provided if an IHI search is to be performed.

5.4.1 Request

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
  xmlns:ns="http://schemas.HIPS/Services/2012/01"
  xmlns:hips="http://schemas.datacontract.org/2004/07/HIPS.CommonSchemas">
  <soap:Header/>
  <soap:Body>
    <ns:NotifyPasEvent>
      <ns:messageForm><![CDATA[MSH|^~\&|PMI|FMC|HIPS|NEHTA|20130402070340|J4VX|ADT^A28|4200018|P|2.3.1|||AL|NE|A
U|ASCII|EN
EVN|A01|20130402070339.74|||SBIBER
PID||12345^^^SAUHI|TEST-
CCA_13^^^FMC^MR~59500730912^^^MC~N394932^^^DVA||DUNCAN^ALEXANDER^^^L||20090505|M||1^Aboriginal but not
Torres Strait Islander origin^ISAAC|26 CCA FAITH
ST^^PARAMATTA^NSW^2150^^H||^WPN^PH^^^0884251461|||||||8407^Cuba^ABS|Y|||||
]]></ns:messageForm>
      <ns:user>
        <hips:Role>AuthorisedEmployee</hips:Role>
      </ns:user>
    </ns:NotifyPasEvent>
  </soap:Body>
</soap:Envelope>
```

5.4.2 Response

The response contains an HL7 acknowledgement. Here the acknowledgement code is "AA" indicating that the message was processed successfully. You should get an "AA" acknowledgement regardless of whether an IHI was found or not.

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
  xmlns:a="http://www.w3.org/2005/08/addressing">
  <s:Header>
    <a:Action s:mustUnderstand="1">
      http://schemas.HIPS/Services/2012/01/DatabaseLoaderService/NotifyPasEventResponse
    </a:Action>
  </s:Header>
  <s:Body>
    <NotifyPasEventResponse xmlns="http://schemas.HIPS/Services/2012/01">
      <NotifyPasEventResult>
        MSH|^~\&|HIPS|SAH|ADT|RAH|20130402134634+1030|J4VX|ADT^A01|k6b5DsqqHzEuSjkQPnmnX|P|2.3.1|||AL|NE|AU|ASCII
MSA|AA|4200016
      </NotifyPasEventResult>
    </NotifyPasEventResponse>
  </s:Body>
</s:Envelope>
```

5.5 Example Call to GetValidatedIhi

After registering the patient using NotifyPasEvent, you can retrieve the IHI for use in a clinical document using the service GetValidatedIhi. Here, the patient identifier has type "hips:Mrn" with value "TEST-CCA_13" which matches the MRN in the HL7 message. The date of birth is a mandatory parameter to increase the chance that the intended patient record is matched.

5.5.1 Request

```
<soap:Envelope
  xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
  xmlns:ns="http://schemas.HIPS/Services/2012/01"
  xmlns:hips="http://schemas.datacontract.org/2004/07/HIPS.CommonSchemas.PatientIdentifier"
  xmlns:hips1="http://schemas.datacontract.org/2004/07/HIPS.CommonSchemas"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soap:Header/>
  <soap:Body>
    <ns:GetValidatedIhi>
      <ns:patientIdentifier xsi:type="hips:Mrn">
        <hips:HospitalCode>FMC</hips:HospitalCode>
        <hips:HospitalCodeSystem>pasFacCd</hips:HospitalCodeSystem>
        <hips:Value>TEST-CCA_13</hips:Value>
      </ns:patientIdentifier>
      <ns:dateOfBirth>2009-05-05</ns:dateOfBirth>
      <ns:user>
        <hips1:Domain>HAD</hips1:Domain>
        <hips1:Login>sbiber01</hips1:Login>
        <hips1:Name>Simon Biber</hips1:Name>
        <hips1:Role>InteractiveUser</hips1:Role>
      </ns:user>
    </ns:GetValidatedIhi>
  </soap:Body>
</soap:Envelope>
```

5.5.2 Response

```

<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing">
  <s:Header>
    <a:Action s:mustUnderstand="1">
      http://schemas.HIPS/Services/2012/01/IHIService/GetValidatedIhiResponse
    </a:Action>
  </s:Header>
  <s:Body>
    <GetValidatedIhiResponse xmlns="http://schemas.HIPS/Services/2012/01">
      <GetValidatedIhiResult
        xmlns:b="http://schemas.datacontract.org/2004/07/HIPS.IhiSchemas.Schemas"
        xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
        <b:HipsResponse xmlns:c="http://schemas.datacontract.org/2004/07/HIPS.CommonSchemas">
          <c:HipsErrorMessage i:nil="true"/>
          <c:ResponseCode i:nil="true"/>
          <c:ResponseCodeDescription i:nil="true"/>
          <c:ResponseCodeDetails i:nil="true"/>
          <c:Status>OK</c:Status>
        </b:HipsResponse>
        <b:Mrn
          xmlns:c="http://schemas.datacontract.org/2004/07/HIPS.CommonSchemas.PatientIdentifier">
          <c:HospitalCode>FMC</c:HospitalCode>
          <c:HospitalCodeSystem>pasFacCd</c:HospitalCodeSystem>
          <c:Value>TEST-CCA_13</c:Value>
        </b:Mrn>
        <b:StatePatientId
          xmlns:c="http://schemas.datacontract.org/2004/07/HIPS.CommonSchemas.PatientIdentifier">
          <c:HospitalCode>FMC</c:HospitalCode>
          <c:HospitalCodeSystem>pasFacCd</c:HospitalCodeSystem>
          <c:Value i:nil="true"/>
        </b:StatePatientId>
        <b:ValidatedIhi
          xmlns:c="http://schemas.datacontract.org/2004/07/HIPS.CommonSchemas.PatientIdentifier">
          <c:HospitalCode>FMC</c:HospitalCode>
          <c:HospitalCodeSystem>pasFacCd</c:HospitalCodeSystem>
          <c:DateOfBirth>2009-05-05T00:00:00</c:DateOfBirth>
          <c:FamilyName>DUNCAN</c:FamilyName>
          <c:GivenName>ALEXANDER</c:GivenName>
          <c:Ihi>8003603456799528</c:Ihi>
          <c:IhiLastValidated>2013-04-02T13:41:31.91</c:IhiLastValidated>
          <c:IhiRecordStatus>Verified</c:IhiRecordStatus>
          <c:IhiStatus>Active</c:IhiStatus>
          <c:Sex>Male</c:Sex>
        </b:ValidatedIhi>
      </GetValidatedIhiResult>
    </GetValidatedIhiResponse>
  </s:Body>
</s:Envelope>

```

5.6 Example Call to UploadOrSupersedeDocument

In this example, a CDA document is provided to HIPS for packaging and uploading to PCEHR. The full CDA document, encoded as Base64, must be provided – it has been omitted for space reasons here.

In Soap-UI a CDA document may be inserted by right-clicking at the appropriate spot and selecting "Insert File as Base-64".

5.6.1 Request

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
  xmlns:ns="http://schemas.HIPS/Services/2012/01"
  xmlns:hips="http://schemas.datacontract.org/2004/07/HIPS.CommonSchemas.PatientIdentifier"
  xmlns:hips1="http://schemas.datacontract.org/2004/07/HIPS.CommonSchemas"
  xmlns:hips2="http://schemas.datacontract.org/2004/07/HIPS.PcehrSchemas"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soap:Header/>
  <soap:Body>
    <ns:UploadOrSupersedeDocument>
      <ns:cdaDocument>
        PD94bwWgdmVyc2lvcj0iMS4wIiB1bmNvZGluz0iVVRGLTgiPz4NCjxDbGluawNhbERvY3Vt
        ...
        PC9jb21wb251bnQ+DQo8L0Nsaw5pY2FsRG9jdW11bnQ+
      </ns:cdaDocument>
      <ns:patientIdentifier xsi:type="hips:ValidatedIhi">
        <hips:HospitalCode>FMC</hips:HospitalCode>
        <hips:HospitalCodeSystem>pasFacCd</hips:HospitalCodeSystem>
        <hips:DateOfBirth type="xs:dateTime">1977-01-01</hips:DateOfBirth>
        <hips:FamilyName>BERMAN</hips:FamilyName>
        <hips:GivenName>JAKE</hips:GivenName>
        <hips:Ihi>800360800002519</hips:Ihi>
        <hips:IhiLastValidated type="xs:dateTime">2013-04-03</hips:IhiLastValidated>
        <hips:IhiRecordStatus>Verified</hips:IhiRecordStatus>
        <hips:IhiStatus>Active</hips:IhiStatus>
        <hips:Sex>Male</hips:Sex>
      </ns:patientIdentifier>
      <ns:user>
        <hips1:Domain>HAD</hips1:Domain>
        <hips1:Login>sbiber01</hips1:Login>
        <hips1:Name>Simon Biber</hips1:Name>
        <hips1:Role>InteractiveUser</hips1:Role>
      </ns:user>
      <ns:attachments>
      </ns:attachments>
      <ns:admissionDate>2013-04-02T16:01:00</ns:admissionDate>
    </ns:UploadOrSupersedeDocument>
  </soap:Body>
</soap:Envelope>
```

5.6.2 Response

The following response with status "OK" indicates that the request was successfully placed on the queue to be processed later. You can call `GetOperationStatus` to determine whether the document was uploaded.

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
  xmlns:a="http://www.w3.org/2005/08/addressing">
  <s:Header>
    <a:Action s:mustUnderstand="1">
      http://schemas.HIPS/Services/2012/01/IPCEHRService/UploadOrSupersedeDocumentResponse</a:Action>
    </s:Header>
  <s:Body>
    <UploadOrSupersedeDocumentResponse xmlns="http://schemas.HIPS/Services/2012/01">
      <UploadOrSupersedeDocumentResult
        xmlns:b="http://schemas.datacontract.org/2004/07/HIPS.CommonSchemas"
        xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
        <b:HipsErrorMessage i:nil="true"/>
        <b:ResponseCode i:nil="true"/>
        <b:ResponseCodeDescription i:nil="true"/>
        <b:ResponseCodeDetails i:nil="true"/>
        <b>Status>OK</b>Status>
      </UploadOrSupersedeDocumentResult>
    </UploadOrSupersedeDocumentResponse>
  </s:Body>
</s:Envelope>
```

5.7 Example Call to GetOperationStatus

This service allows a calling system to query all the pending or failed queued operations (upload or remove), and any uploaded documents for a specified patient and episode.

5.7.1 Request

```
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
  xmlns:ns="http://schemas.HIPS/Services/2012/01"
  xmlns:hips="http://schemas.datacontract.org/2004/07/HIPS.CommonSchemas.PatientIdentifier"
  xmlns:hips1="http://schemas.datacontract.org/2004/07/HIPS.CommonSchemas"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soap:Header/>
  <soap:Body>
    <ns:GetOperationStatus>
      <ns:patientIdentifier xsi:type="hips:ValidatedIhi">
        <hips:HospitalCode>FMC</hips:HospitalCode>
        <hips:HospitalCodeSystem>pasFacCd</hips:HospitalCodeSystem>
        <hips:DateOfBirth type="xs:dateTime">1977-01-01</hips:DateOfBirth>
        <hips:FamilyName>BERMAN</hips:FamilyName>
        <hips:GivenName>JAKE</hips:GivenName>
        <hips:Ihi>800360800002519</hips:Ihi>
        <hips:IhiLastValidated type="xs:dateTime">2013-04-03</hips:IhiLastValidated>
        <hips:IhiRecordStatus>Verified</hips:IhiRecordStatus>
        <hips:IhiStatus>Active</hips:IhiStatus>
        <hips:Sex>Male</hips:Sex>
      </ns:patientIdentifier>
      <ns:admissionDate>2013-04-02T16:01:00</ns:admissionDate>
      <ns:user>
        <hips1:Domain>HAD</hips1:Domain>
        <hips1:Login>sbiber01</hips1:Login>
        <hips1:Name>Simon Biber</hips1:Name>
        <hips1:Role>InteractiveUser</hips1:Role>
      </ns:user>
    </ns:GetOperationStatus>
  </soap:Body>
</soap:Envelope>
```

5.7.2 Response

In this response, the number of QueuedOperations is zero, so the operation must have been successful and removed from the queue. There is one UploadedDocument and one UploadedDocumentVersion. The full package is also included in the response, which has been abbreviated here.

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
  xmlns:a="http://www.w3.org/2005/08/addressing">
  <s:Header>
    <a:Action s:mustUnderstand="1">
      http://schemas.HIPS/Services/2012/01/IPCEHRService/GetOperationStatusResponse
    </a:Action>
  </s:Header>
  <s:Body>
    <GetOperationStatusResponse xmlns="http://schemas.HIPS/Services/2012/01">
      <GetOperationStatusResult
        xmlns:b="http://schemas.datacontract.org/2004/07/HIPS.PcehrSchemas"
        xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
        <b:QueuedOperations
          xmlns:c="http://schemas.datacontract.org/2004/07/HIPS.PcehrDataStore.Schemas"/>
        <b:Response xmlns:c="http://schemas.datacontract.org/2004/07/HIPS.CommonSchemas">
          <c:HipsErrorMessage i:nil="true"/>
          <c:ResponseCode i:nil="true"/>
          <c:ResponseCodeDescription i:nil="true"/>
          <c:ResponseCodeDetails i:nil="true"/>
          <c:Status>OK</c:Status>
        </b:Response>
        <b:UploadedDocumentVersions
          xmlns:c="http://schemas.datacontract.org/2004/07/HIPS.PcehrDataStore.Schemas">
          <c:ClinicalDocumentVersion>
            <IsDirty xmlns="http://schemas.datacontract.org/2004/07/HIPS.Base.Schemas">
              false</IsDirty>
            <DateCreated xmlns="http://schemas.datacontract.org/2004/07/HIPS.Base.Schemas">
              2013-04-02T16:17:49.86</DateCreated>
            <DateModified xmlns="http://schemas.datacontract.org/2004/07/HIPS.Base.Schemas">
              2013-04-02T16:17:49.86</DateModified>
            <Id xmlns="http://schemas.datacontract.org/2004/07/HIPS.Base.Schemas">1</Id>
            <UserCreated xmlns="http://schemas.datacontract.org/2004/07/HIPS.Base.Schemas">
              HAD/sbiber01</UserCreated>
            <UserModified xmlns="http://schemas.datacontract.org/2004/07/HIPS.Base.Schemas">
              HAD/sbiber01</UserModified>
            <c:ClinicalDocumentId>1</c:ClinicalDocumentId>
            <c:ClinicalDocumentVersionId>1</c:ClinicalDocumentVersionId>
            <c:Package>UE..</c:Package>
            <c:SourceSystemDocumentId>
              1.2.36.1.2001.1005.26.1.1.3900^3900</c:SourceSystemDocumentId>
            <c:SupersededDate i:nil="true"/>
            <c:UploadedDate>2013-04-02T16:17:48.873</c:UploadedDate>
          </c:ClinicalDocumentVersion>
        </b:UploadedDocumentVersions>
        <b:UploadedDocuments
          xmlns:c="http://schemas.datacontract.org/2004/07/HIPS.PcehrDataStore.Schemas">
          <c:ClinicalDocument>
            <IsDirty xmlns="http://schemas.datacontract.org/2004/07/HIPS.Base.Schemas">
              false</IsDirty>
            <DateCreated xmlns="http://schemas.datacontract.org/2004/07/HIPS.Base.Schemas">
              2013-04-02T16:17:49.63</DateCreated>
            <DateModified xmlns="http://schemas.datacontract.org/2004/07/HIPS.Base.Schemas">
              2013-04-02T16:17:49.63</DateModified>
            <Id xmlns="http://schemas.datacontract.org/2004/07/HIPS.Base.Schemas">1</Id>
            <UserCreated xmlns="http://schemas.datacontract.org/2004/07/HIPS.Base.Schemas">
              HAD/sbiber01</UserCreated>
            <UserModified xmlns="http://schemas.datacontract.org/2004/07/HIPS.Base.Schemas">
              HAD/sbiber01</UserModified>
            <c:ClinicalDocumentId>1</c:ClinicalDocumentId>
            <c:ClinicalDocumentStatusId>1</c:ClinicalDocumentStatusId>
            <c:DocumentTypeCode>18842-5</c:DocumentTypeCode>
            <c:DocumentTypeDescription>Discharge Summary</c:DocumentTypeDescription>
            <c:DocumentTypeId>1</c:DocumentTypeId>
            <c:EpisodeId>2</c:EpisodeId>
            <c:RemovalReasonDescription>Not Removed</c:RemovalReasonDescription>
            <c:RemovalReasonId>-1</c:RemovalReasonId>
            <c:RemovedDate i:nil="true"/>
            <c:SourceSystemSetId>1.2.36.1.2001.1005.26.2.1^36</c:SourceSystemSetId>
          </c:ClinicalDocument>
        </b:UploadedDocuments>
      </GetOperationStatusResult>
    </GetOperationStatusResponse>
  </s:Body>
</s:Envelope>
```

Appendix A HIPS Release 4.1.0 Architecture

Rapid Integration to the PCEHR
 HIPS 4.1.0 Jurisdictional Release
 February 2014

