**Virtual Lifetime Electronic Record (VLER)   
Health Information Exchange (VHIE)  
Agile Development**

**VHIE Portal**

**Consent Management Services**

**VHIE EHX TO VDIF-EP Migration**

**VHIE Consent Management API**



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# Introduction

This document describes the Application Programming Interface (API) that VDIF-EP will provide to other systems in VA to manage the VHIE consent preferences of Veterans. VDIF-EP is implemented on the InterSystems HealthShare platform which provides a robust mechanism for managing patient consent. The product supports consent management via graphical user interfaces (GUI) and proprietary HealthShare APIs. It supports both Opt-In and Opt-Out modes of consent management policies. When the Opt-In mode is used, patients must provide explicit consent for VA to share their data with external partners. The Opt-Out model is the opposite; that is, patient data is shared by default and the patient must revoke Consent for VA to stop sharing their data with partners.

VDIF-EP is a platform that will be shared by numerous projects within VA. The scope of the VHIE Consent Management API will be limited to the reading and writing of patient consent as it relates to sharing data on Health Information Exchanges (HIE) on which VHIE participates. As of this writing, VHIE is a member of the eHealth Exchange. In the future, VHIE will participate in other exchanges such as CommonWell and CareEQuality. The data that is manipulated by the VHIE Consent Management API serves as input to the consent evaluation process that enforces VA policies regarding the sharing of data with external entities. Consult “VHIE EHX to VDIF-EP Migration – System Design Document” for details on these policies.

A patient can have zero, one or more active Consent policies assigned to them at any given time. If a patient has no active Consent policies, then the default system wide policies will apply. The default policies are illustrated in Table 1.

|  |  |  |
| --- | --- | --- |
| Purpose Of Use | Mode | Policy |
| Treatment | Opt-Out | Share |
| Coverage | Opt-In | Don’t Share |
| Emergency | Opt-Out | Share – this policy is not overridable. |

Table 1 Default System-wide Consent Policies

# Implementation Overview

The VHIE Consent Management API (VCMAPI) is based on the Fast Health Interoperability Resources (FHIR) Release 3 (STU) specification. FHIR provides a **RE**presentational **S**tate **T**ransfer (REST) API that exposes clinical concepts as resources. Examples of resources include Patient, AllergyIntolerance, Medication, Condition, and Consent. The resources are structured in a standard way to simplify interoperability. A resource can be projected as either XML or JSON. VCMAPI will use JSON.

The driving resource exposed by VCMAPI is named *Consent*. The resource provides a record of a patient’s policy choices that will either permit or deny a requesting entity to see the patient’s data for a given purpose of use and period of time. This API does not provide a complete FHIR implementation; therefore, it will only provide direct access to *Consent* resources. Other resources and resource references within the *Consent* resource will not be directly accessible via a URL.

Table 2 shows the interactions that form the basis of the VCMAPI. These interactions are documented in Section 2.21.0 RESTful API of the FHIR specification (<http://hl7.org/fhir/http.html>).

|  |  |  |
| --- | --- | --- |
| Operation | Type | Description |
| create | Type | HTTP POST request that creates a new resource and returns its ID. |
| read | Instance | HTTP GET request that requests a specific Consent resource using its ID. |
| search | Type | HTTP GET request that searches across all Consent resources using a given set of criteria passed as query parameters. |

Table 2 Operations allowed on Consent Resources

These interactions support the CMAPI Operations shown in Table 3.

|  |  |
| --- | --- |
| Operation Name | Description |
| Store Consent Directive | Stores a new consent directive for a given patient and purpose of use. |
| Query for Consent Directives | Search for consent directives given a set of filters. |
| Retrieve Consent Directive | Retrieve a single consent directive. |

Table 3 VCMAPI Operations

# Consent Resource

The FHIR Consent resource provides the mechanism by which the patient’s consent policy preferences are managed. VCMAPI uses the Privacy Consent Directive model described in Section 6.2.1 of the FHIR Consent specification (<http://hl7.org/fhir/consent.html#scope>). A Privacy Consent Directive can be used to either allow or restrict sharing of clinical information for a given patient and purpose of use. The consent directive can also specify a time range within which the directive is *active,* but *this is only applicable at present for the SSA Authorization consent type*, and is **required** for this consent type. Section 6.2.4 of the FHIR Consent specification (<http://hl7.org/fhir/consent.html#resource>) provides detailed descriptions of the properties that comprise the Consent resource. Table 4 shows the properties that VCMAPI will utilize. When submitting a new SSA Authorization Consent resource with the COVERAGE purpose of use, all of these properties are required, but only *resourceType*, *status, patient, purpose, policyRule, dateTime, organization,* and *sourceAttachment* are required for new Consent resources for the TREAT purpose of use. The *id* and *text* properties are optional.

|  |  |  |
| --- | --- | --- |
| Property | Description | Accepted Values |
| resourceType | Identifies the type of FHIR Resource. | Consent |
| status | Indicates the current state of the consent. Possible values are active and inactive. | active | inactive |
| patient | Patient ID of the patient to whom this Consent applies. Values in this field are Patient references. | Patient/<ICN\_OF\_PATIENT> |
| purpose | Purpose Of Use for which the shared information is to be used and to which is consent is given. | (For purpose.code value: )  TREAT | COVERAGE |
| actor | Contains a reference to the Organization which will receive the shared information. This is only application to and is required for the SSA Authorization consent type, and with the COVERAGE purpose of use. It shall not be used with the other TREAT purpose of use consent types. | Contains: role of IRCP, and organization.reference of Organization/2.16.840.1.113883.3.184 |
| policyRule | Policy to which this Consent consents applies. | <http://hl7.org/fhir/ConsentPolicy/opt-out> - no access is allowed to patient data.  <http://hl7.org/fhir/ConsentPolicy/opt-in> - access is allowed to access data. |
| datePeriod | Timeframe this Consent policy will be active. This property is only applicable to and is required for the SSA Authorization consent type requests. It shall not be used with the other TREAT purpose of use consent types. | Start and End dates when the policy will be active. |
| dateTime | Date representing the Signature Date of the consent directive – i.e. must match the signature date in any included signed Consent Policy document included in the payload. | YYYY-MM-DDThh:mm:ss+zz:zz |
| organization | The organization which serves as the custodian of the Consent, i.e. Dept. of Veterans Affairs. | Contains: organization.reference with value of: Organization/2.16.840.1.113883.4.349 |
| sourceAttachment | Source document that triggered the creation of this Consent. These documents are typically electronically signed PDFs that prove a patient authorized a change to their consent policy. | Base64-encoded document. |

Table 4 Consent Resource Relevant Fields

# Operations

## 4.1 Store Consent Directive

The **Store Consent Directive** operation is used to store a consent directive for a given patient and purpose of use. The SSA Authorization/COVERAGE purpose of use consent directive must include a start and end time in which the policy will be active. All other consent directive types, i.e. the TREAT purpose of use consent directives, do not have a start and end time. There can only be one active consent directive for any given patient and purpose of use, so invoking this operation will override any currently active consent policy with the same patient ID and purpose of use. Note: At the time of the writing of this document, a “COVERAGE” purpose of use is only used with the Social Security Administration organization, and with the SSA Authorization consent type.

**Store Consent Directive** is a FHIR create interaction which creates a Consent resource. The operation is invoked by sending an HTTP POST to /<context\_root>/FHIR/Consent with a Consent resource in the message body, which **must** have the “Content-Type” value of “application/fhir+json;charset=utf-8”. If successful, VCMAPI will respond with HTTP status of *201 Created,* and the *Location* HTTP response header. The URL at which the resource can be accessed will be in the *Location* header of the response. All *422 Unprocessable Entity* error response payloads will have the *Content-Type* of “*application/fhir+json;charset=utf-8*”. Table 5 describes the possible responses. See Appendices A and B for more information on Requests and Responses.

|  |  |
| --- | --- |
| Response | Description |
| 201 Created | The Consent resource was successfully created. The *Location* header of the HTTP response will contain the URL where the resource can be read. |
| 401 Not Authorized | Authorization is required. |
| 404 Not Found | (Consent) Resource type not found. |
| 422 Unprocessable Entity | The resource was not stored because it failed validation due to not meeting applicable FHIR profile, or because required data is missing or in an incorrect format, or an incorrect data set was provided for a specific consent type. The response will contain an *OperationOutcome* resource that provides additional details. Note that an invalid Patient ID/Patient ICN value error response will have this HTTP status. |
| 500 Internal Server Error | Internal error has occurred; including Inactive Patient Load error. |
| 503 Service Not Available | VCMAPI processing is temporary unavailable – try again later. |

Table 5 Store Consent Directive Responses

See section 2.21.0.14 of the FHIR API specification for more details (<http://hl7.org/fhir/http.html#create>).

See Appendix A for complete request specifics and examples. See Appendix B for response specifics and examples.

Note: the “dateTime” element with the FHIR date-time value given in the “Store” request payload will be stored as the **“Signature Date”** for the given Consent Resource inside of VDIF-EP, and should be set as the current date-time value when the request is created by the client.

Note: It is the policy of the VA to stop sharing all information through eHealth Exchange to external Partner Organizations for deceased Veterans *6 months after their deceased date*. It is also VA policy not accept any new consent policy changes after the Veteran is listed as deceased, so no new Store operations will be permitted after the deceased date listed in VDIF-EP.

## 4.2 Query for Consent Directives

The **Query for Consent Directives** operation is used to query for a list of Consent resources that match a given set of criteria. The operation can be used to get a list of the active consents for a given patient.

**Query for Consent Directives** is a FHIR search interaction which returns a bundle of Consent resources that match a given set of query parameters. The operation is invoked by sending an HTTP GET to /<context\_root>/FHIR/Consent and including applicable criteria as query parameters. VCMAPI will respond with HTTP status 200 OK and a bundle of Consent resource summaries that match the query parameters in the response body. The Consent summaries will only contain a subset of the entire Consent directive. Clients will have to invoke the **Retrieve Consent Directive** operation to see the full consent directive. Only *patient* and *purpose* are supported as query parameters at this time, and *patient* is **required**. All response payloads will have the *Content-Type* of “*application/fhir+json;charset=utf-8*”. Table 6 describes the possible responses. Appendices A and B for more information on Requests and Responses.

|  |  |
| --- | --- |
| Response | Description |
| 200 OK | Search successfully executed. The body of the response will contain a FHIR Bundle resource with 0 or more Consent resource summaries that matched the search criteria. |
| 400 Bad Request | Search could not be processed due to a problem with the request. The response will contain an *OperationOutcome* resource that provides additional details. |
| 401 Not Authorized | Authorization is required. |
| 404 Not Found | Resource type not supported, or specified resource does not exist. Note that an invalid Patient ID/Patient ICN value error response will have this HTTP status. |
| 500 Internal Server Error | Internal error has occurred; including Inactive Patient Load error. |
| 503 Service Not Available | VCMAPI processing is temporary unavailable – try again later. |

Table 6 Query for Consent Directives Responses

See Section 2.21.0.15 of the FHIR API specification for more details (<http://hl7.org/fhir/http.html#search>).

See Appendix A for complete request specifics and examples. See Appendix B for response specifics and examples.

Note: Note: It is the policy of the VA to stop sharing all information through eHealth Exchange to external Partner Organizations for deceased Veterans *6 months after their deceased date*. This means that the patient policies set before the deceased date will still appear to have a “*status”* value of “*active”*, but will still not result in documents being shared through eHealth Exchange 6 months after deceased date.

## 4.3 Retrieve Consent Directive

The **Retrieve Consent Directive** operation is used to get the full details about a single Consent resource. The results of this operation can be used for consent evaluation and for displaying the full status of a directive to authorized operators.

**Retrieve Consent Directive** is a FHIR read interaction which returns a single Consent resource given an ID. The operation is invoked by sending an HTTP GET to /<context\_root>/FHIR/Consent. The ID is specified as part of the URL so the full URL is /<context\_root>/FHIR/Consent/:ID. Note that the :ID value is assigned to the Consent resource when it is stored as in the *Store Consent Directive* operation. VCMAPI will respond with HTTP status *200 OK* and the full contents of the Consent resource in the response body, which will be in the Content-Type of “application/fhir+json;charset=utf-8”. Table 7 describes the possible responses. Appendices A and B for more information on Requests and Responses.

|  |  |
| --- | --- |
| Response | Description |
| 200 OK | Resource successfully retrieved. The body of the response will contain the full Consent directive resource. |
| 400 Bad Request | Read could not be processed due to a problem with the request. |
| 401 Not Authorized | Authorization is required. |
| 404 Not Found | Resource type not supported, or Consent resource not found because an unknown ID was given in the URL. |
| 500 Internal Server Error | Internal error has occurred. |
| 503 Service Not Available | VCMAPI processing is temporary unavailable – try again later. |

Table 7 Retrieve Consent Directive Responses

See Section 2.21.0.8 of the FHIR API specification for more details (<http://hl7.org/fhir/http.html#read>).

See Appendix A for complete request specifics and examples. See Appendix B for response specifics and examples.

Note: It is the policy of the VA to stop sharing all information through eHealth Exchange to external Partner Organizations for deceased Veterans *6 months after their deceased date*. This means that the patient policies set before the deceased date will still appear to have a “*status”* value of “*active”*, but will still not result in documents being shared through eHealth Exchange 6 months after deceased date.

# Appendix A – Operation Request Details

1. Store Consent Directive:

*Request Method:*

POST

*Required Authorization:*

* Authorization Method: Basic Authorization
* Must include “Username” and “Password” values set for a valid VDIF-EP Cache user in the HSACCVHIEP Production

*Required Request Headers*

Content-Type: application/fhir+json;charset=utf-8

Accept: application/fhir+json;charset=utf-8

*URL Pattern:*

https://<host>:<port>/<context\_root>/FHIR/Consent

Request URL Example(s):

https://<host>:<port>/<context\_root>/FHIR/Consent

Request Payload Example(s):



1. Query For Consent Directives:

*Request Method:*

GET

*Required Authorization:*

* Authorization Method: Basic Authorization
* Must include “Username” and “Password” values set for a valid VDIF-EP Cache user in the HSACCVHIEP Production

*Required Request Headers:*

Accept: application/fhir+json;charset=utf-8

*URL Pattern:*

https://<host>:<port>/<context\_root>/FHIR/Consent?patient=[ICNValue]{&purpose=[POUCodeValue]}

*Request URL Example(s):*

https://<host>:<port>/<context\_root>/FHIR/Consent?patient=Patient/1012581676V377802

https://<host>:<port>/<context\_root>/FHIR/Consent?patient=Patient/1012581676V377802&purpose=TREAT

https://<host>:<port>/<context\_root>/FHIR/Consent?patient=Patient/1012581676V377802&purpose=COVERAGE

*Request Payload Example(s):*

N/A

1. Retrieve Consent Directive:

*Request Method:*

GET

*Required Authorization:*

* Authorization Method: Basic Authorization
* Must include “Username” and “Password” values set for a valid VDIF-EP Cache user in the HSACCVHIEP Production

*Required Request Headers:*

Accept: application/fhir+json;charset=utf-8

*URL Pattern:*

https://<host>:<port>/<context\_root>/FHIR/Consent/[ID]

*Request URL Example(s):*

https://<host>:<port>/<context\_root>/FHIR/Consent/6B46F7DA-5D73-11EA-818A-005056011DB9

*Request Payload Example(s):*

N/A

# Appendix B – Operation Response Details

1. Store Consent Directive:
   1. Key Response Header(s)
      1. Content-Type: application/fhir+json;charset=utf-8

* + 1. Location:
* Returned for *201/Created* success responses only:

Value Pattern: /<context\_root>/FHIR/Consent/uniqueidvalue1

Value Example: /csp/vcmapi/v1/fhir/Consent/536717B4-5D94-11EA-818A-005056011DB9

Note: For the COVERAGE Purpose Of Use Opt-in/SSA Authorization requests, repeat requests are successful and return a 201/Created status with a Location header when the given “Expiration Date”, or “period.end” value in the request is later than the existing “expiration date” value in the system.

* 1. Success Response Payload Example(s)

N/A

* 1. Error Response Payload Example(s)

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **HTTP**  **Status** | **Description** | **Filename (see .zip file below)** |
| Repeat Of Default Consent Status (TREATMENT or COVERAGE/SSA) | 200/OK | Re-opt-ins for the TREATMENT Purpose Of Use, or Re-SSA-Revocations for the COVERAGE Purpose Of Use | N/A – no payload returned |
| Bad or Missing HTTP “Accept” Request Header | 406/Not Acceptable | “Accept” HTTP request header was not included or didn’t have the value above – i.e. the default response type for HealthShare’s FHIR service is XML | 406NotAcceptable- AcceptHeaderNotIncludedOrCorrect.xml |
| Deceased Patient | 422/Unprocessable Entity | Patient has a Deceased Time value set in the VDIF-EP Patient Registry, so no new consent policies may be set | 422UnprocesableEntity- DeceasedPatient.json |
| Invalid ICN Value | 422/Unprocessable Entity | Patient ICN in the request payload is unknown to VDIF-EP/VA MVI | 422UnprocessableEntity-InvalidICN- UnknownICNValue.json |
| Missing Or Invalid Required Request Payload Error Example | 422/Unprocessable Entity | Any required request payload element or value that is missing or invalid will return an error like this – example provided is for a missing “patient.reference” element which contains the ICN value | 422UnprocessableEntity- MissingOrInvalidRequiredValueExample.json |
| Repeat COVERAGE/SSA Authorization with older Expiration Date Error | 422/Unprocessable Entity | Patient is currently Authorized to share for the COVERAGE/SSA consent type, and a repeat request with an older “expiration date” or “period.end” value than exists was attempted (see above for “newer expiration date” response) | 422UnprocessableEntity- RepeatCOVERAGESSAAuthorization.json |
| Repeat TREATMENT Opt-out Error | 422/Unprocessable Entity | Patient is currently Opt-out from sharing for the TREATMENT consent type, and a repeat request was attempted | 422UnprocessableEntity- RepeatTREATPOUOptout.json |
| Inactive Patient Load Triggered | 500/Internal Server Error | Patient data is currently in the “Inactive Patient Load” storage in VDIF-EP, and request has triggered it to be loaded into the active consent data locations within the system – the next request after a short period of time should receive a successful or appropriate “Repeat” error response as above once the data is loaded | 500InternalServerError- InactivePatientLoad.json |
| Random Internal Server Error Example | 500/Internal Server Error | An example is provided of the default, internal error response for any unexpected error within the VDIF-EP system | 500InternalServerError- RandomInternalErrorExample.json |



1. Query For Consent Directives
   1. Key Response Header(s):

Content-Type: application/fhir+json;charset=utf-8

* 1. Success Response Payload Example(s):



* 1. Error Response Payload Example(s):

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **HTTP**  **Status** | **Description** | **Filename (see .zip file below)** |
| Invalid “patient” query parameter value | 400/Bad Request | “patient” query parameter value provided is for a patient ICN value that is unknown to VDIF-EP/VA MVI | 400BadRequest-InvalidICN-UnknownICNValue.json |
| Invalid “purpose” query parameter value | 400/Bad Request | “purpose” query parameter value provided is neither “TREAT” or “COVERAGE” | 400BadRequest-InvalidPurposeOfUseQueryParameter.json |
| Bad or Missing HTTP “Accept” Request Header | 406/Not Acceptable | “Accept” HTTP request header was not included or didn’t have the value above – i.e. the default response type for HealthShare’s FHIR service is XML | 406NotAcceptable-AcceptHeaderNotIncludedOrCorrect.xml |
| Inactive Patient Load Triggered | 500/Internal Server Error | Patient data is currently in the “Inactive Patient Load” storage in VDIF-EP, and request has triggered it to be loaded into the active consent data locations within the system – the next request after a short period of time should receive a successful or appropriate “Repeat” error response as above once the data is loaded | 500InternalServerError-InactivePatientLoad.json |
| Random Internal Server Error Example | 500/Internal Server Error | An example is provided of the default, internal error response for any unexpected error within the VDIF-EP system | 500InternalServerError-RandomInternalErrorExample.json |



1. Retrieve Consent Directive
   1. Key Response Header(s):

Content-Type: application/fhir+json;charset=utf-8

* 1. Success Response Payload Example(s):



* 1. Error Response Payload Example(s):

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **HTTP**  **Status** | **Description** | **Filename (see .zip file below)** |
| Invalid “patient” query parameter value | 400/Bad Request | ICN value provided in that “Consent ID” portion of the request URL for the valid “default” consent document is for a patient ICN value that is unknown to VDIF-EP/VA MVI | 400BadRequest- UnknownOrInvalidICNForValidDefaultConsentRead.json |
| Invalid Consent “ID” path value | 404/Not Found | Consent resource “ID” value provided in request URL is unknown | 404NotFound-UnknownConsentResourceID.json |
| Bad or Missing HTTP “Accept” Request Header | 406/Not Acceptable | “Accept” HTTP request header was not included or didn’t have the value above – i.e. the default response type for HealthShare’s FHIR service is XML | 406NotAcceptable-AcceptHeaderNotIncludedOrCorrect.xml |
| Random Internal Server Error Example | 500/Internal Server Error | An example is provided of the default, internal error response for any unexpected error within the VDIF-EP system | 500InternalServerError-RandomInternalErrorExample.json |

