

Department of Veterans Affairs
Health Eligibility Case Management System
(HECMS)
Developer's Guide



Version 3.12

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Product Development

Revision History

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Date	Version	Description	Project Manager	Author
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Health Eligibility Case Management System (HECMS) V3.12

Orientation

N/A

Introduction

HECMS V3.12 is the Health_eVet replacement system for the product known as HEC Legacy. It is both a re-host of HEC Legacy and in some instances (use cases/features), a re-engineering. HECMS allows staff at the Health Eligibility Center (HEC) to work more efficiently and determine patient eligibility in a timelier manner. Messaging with the VA Medical Center (VAMC) allows updates to the enterprise enrollment system to be shared with the field.

It is one component of the "system of systems" needed to implement the Health_eVet REE (Registration, Eligibility and Enrollment) environment.

The Enrollment Veterans Health Information Systems and Technology Architecture (VistA) Changes (EVC) Release 2 project was undertaken to support technology and business changes that were occurring with the implementation of the HECMS V3.0 project. Some modified and new business functionality was included in the new system, and corresponding changes were necessary in VistA for preliminary determination of the veteran's Enrollment and Eligibility status. The EVC R2 project was released just prior to the HECMS V3.0 project.

New features of the EVC R2 project were as follows:

1. Enhance Data Sharing between VistA and HECMS

The following fields were added to the HL7 Z07 message builder:

- Temporary Address Province
- Temporary Address Postal Code
- Temporary Address Country
- Spouse Inactivation Date
- Dependent Inactivation Date
- Agency/Allied Country

The following fields were added to the HL7 Z11 message receiver:

- Prisoner of War (POW) From Date
- POW To Date
- POW Location
- Permanent and Totally (P&T) Effective Date
- Agency/Allied Country

The following fields were added to the HL7 Z05 message receiver:

- Province

- Postal Code
- Country
- Bad Address Indicator
- Email Address
- Email Address Change Date/Time
- Email Address Change Site
- Email Address Change Source
- Cellular Number
- Cellular Number Change Date/Time
- Cellular Number Change Site
- Cellular Number Change Source
- Pager Number
- Pager Number Change Date/Time
- Pager Number Change Site
- Pager Number Change Source
- Street Address Line 3

The following fields were added to the HL7 Z10 message receiver:

- Social Security Number (SSN) Verification Status (spouse/dependent)
- Spouse Inactivation Date
- Dependent Inactivation Date

2. Changes to Agent Orange Exposure Processing

The Agent Orange Exposure Location field (#.3213) in the Patient file (#2) was modified. A new Exposure Location of OTHER was added.

A change was made to the Enrollment priority algorithm. Only veterans with an Agent Orange Exposure Location of Vietnam are eligible for priority group 6.

3. Add P&T Disabled Effective Date

A new field, P&T Effective Date (#.3013), was added to the Patient file (#2). This field is edited and displayed on Screen 7 of Registration next to the P&T indicator field.

Once the patient's eligibility has been verified by HEC, the P&T indicator and the P&T Effective Date is no longer be editable.

4. Receive POW Information from HEC

POW From and To Dates, and POW Location are sent from HEC. Once the patient's eligibility record is verified by HEC, POW data is no longer editable.

5. Locking of SSN Once Verified

A new field, SSN Verification Status (#.0907), was added to the Patient file (#.02). A new field, SSN Verification Status (#.11), was added to the Income Person file (#408.13).

Once the SSN Verification Status has been given a status of Verified, the SSN for the patient,

spouse, or dependent is no longer editable.

6. Address Sharing Functionality

Support for foreign addresses in patient Permanent, Temporary and Confidential address was added.

New fields were added to the Patient File (#2). They are:

- Province (#.1171)
- Postal Code (#.1172)
- Country (#.1173)
- Temporary Address Province (#.1221)
- Temporary Address Postal Code (#.1222)
- Temporary Address Country (#.1223)
- Confidential Addr Province (#.14114)
- Confidential Addr Postal Code (#.14115)
- Confidential Addr Country (#.14116)

Consistency checks were modified to check for patient's permanent address country.

Registration, Enrollment and Patient Inquiry Screens were modified to prompt and/or display country, postal code and province for foreign countries. For United States, the country field was added. The other address fields were unchanged.

The following functionality was modified to support foreign address:

- Report - All Address Changes [DG All Address Change Report]
- Report - All Address Change with Rx [DG All Address Change with RX]
- View Patient Address [EAS VIEW PATIENT ADDRESS]
- Zero Day Letters Print [EAS MT 0 DAY LETTER PRINT]
- Thirty Day Letters Print [EAS MT 30 DAY LETTER PRINT]
- Sixty Day Letters Print [EAS MT 60 DAY LETTER PRINT]
- IVM Address Change Log Report [IVM ADDRESS CHANGE LOG REPORT]

The Application Program Interface (API) ADD^VADPT was modified.

The new nodes for the address array (VAPA()) are as follows.

- VAPA(23) - permanent or temporary Province (if temp address is current and active, it's temp)
- VAPA(24) - permanent or temporary Postal Code (if temp address is current and active, it's temp)
- VAPA(25) - permanent or temporary Country (if temp address is current and active, it's temp)
- VAPA(26) - confidential Province
- VAPA(27) - confidential Postal Code
- VAPA(28) - confidential Country

Addresses will not be converted, but a country will be required when the patient permanent, temporary, or confidential address is edited.

7. Share Inactivation Date for Spouse and Dependent

Prior to EVC release 2, inactive dependents that were not on a current means test, were not shared. With EVC R2, inactive dependents are shared, even if they are not on a current means test.

8. Share Non-Veteran Information

The Agency/Allied Country field for Patient Types Allied Veteran and Non-Veteran Other are shared with the HEC. Additionally, VistA no longer changes the service connection value when uploading from the HEC.

9. Modify Means Test Data Collection

Means Test data collection in VistA was aligned with the February 2005 1010EZ form.

A means test version indicator was created to support the display and collection of Means Test information for both the 1010EZ form prior to Feb. 2005 and the 1010EZ form from Feb. 2005. The changes outlined for this patch regard those that support the Feb 2005 form. Means Test information collected prior to installation of this patch will continue to be collected, printed, and displayed in the pre-Feb. 2005 format.

The Means Test Version indicator was evaluated in the following VistA options:

- Load/Edit Patient [DG LOAD PATIENT DATA]
- Register a Patient [DG REGISTER PATIENT]
- Add a New Means Test [DG MEANS TEST ADD]
- Complete a Required Means Test [DG MEANS TEST COMPLETE]
- Edit an Existing Means Test [DG MEANS TEST EDIT]
- View a Past Means Test [DG MEANS TEST VIEW TEST]
- Purge Duplicate Income Tests [DG CLEANUP INCOME TEST DUPES]
- Add a Copay Exemption Test [DG CO PAY TEST ADD]
- Edit an Existing Copay Exemption Test [DG CO PAY TEST EDIT]
- View a Past Copay Test [DG CO PAY TEST VIEW TEST]

Income Available Response collected for Dependent Child(ren) now supports collection of children Net Worth Dollar Amounts (for Feb. 2005 form). Children Net Worth Dollar amounts are collected with the new form.

A limit of 19 dependent children is now collected for a Means test. This limit applies to those dependents with relationships of son, daughter, step-son, and step-daughter.

The collection of Previous Calendar Year Gross Annual Income with Feb 2005 Data Format was changed to collect 3 data elements, rather than the 10 data elements collected with the pre-Feb. 2005 format.

Means Test data collection now collects the Gross Medical Expenses dollar amount, within

Deductible Expenses, labeled as "Total Non-Reimbursed Medical Expenses".

February 2005 1010EZ form Means Test data collection no longer requires a spouse or dependent child (associated with the Means Test) to collect Funeral and Burial expenses.

The collection of Previous Calendar Year Net Worth with Feb 2005 Data Format was changed to collect 3 data elements, rather than the 5 data elements collected with the pre-Feb. 2005 format.

The system continues displaying the summary Income, Net Worth, and Deductible Expenses amounts in the Feb 2005 Data Collection Format as was displayed with the pre-Feb 2005 data collection format. The system continues calculating the summary Income, Net Worth, and Deductible Expense amounts in the Feb 2005 Data Collection Format with the same formulas as with the Existing Data Collection format.

Entry of means test information in the Feb 2005 Data Collection format produces the same means test status that results when the means test information is entered with the Existing Data Collection format.

The "Copy Data" function was removed from the Means Test user interface for both Feb 2005 form and pre-Feb 2005 form. The "Copy Data" function is still performed by the Means Test system when done automatically. For example, if the Primary Eligibility Code changes from Non-Service Connected to Service Connected, a Pharmacy Copay test will automatically be created. When this "automatic" copy occurs, the Annual Income information is checked for the data collection form. If that data is in pre-Feb 2005 form, it converts to the Feb 2005 form to match the newly created Pharmacy Copay Test.

More information can be found at the project's VistA Documentation Library (VDL) web site and the Technical Services Project Repository (TSPR) project notebook web site. They are as follows:

VDL: <http://www.va.gov/vdl/application.asp?appid=183>

TSPR: <http://10.4.237.3/warboard/anotebk.asp?proj=884&Type=Active> (this is an internal link accessible only on the VA network)

The HECMS application is located at the following URL:

HECMS v3.12: <https://vaww.esr.aac.va.gov/esr/> (this is an internal link accessible only on the VA network)

Purpose

This document provides information for Java developers to integrating their code with Enrollment System Redesign (ESR) synchronous interfaces. These APIs use Java 2 Enterprise Edition (J2EE) Enterprise Java Beans (EJB) and are currently designed to work with a J2EE 1.3 compliant application server.

Scope

This document describes the APIs included in the ESR Internal Release R3/R4.

Acronyms and Descriptions

Acronym	Description
ADR	Administrative Data Repository
API	Application Program Interface
CAIP	Cross-Application Integration Protocol
DOD	Date of Death
EE	Eligibility and Enrollment
EJB	Enterprise Java Bean
ESR	Enrollment System Redesign
EVC	Enrollment VistA Changes
HEC	Health Eligibility Center
HECMS	Health Eligibility Case Management System
HL7	Health Level Seven
JAR	Java Archive
JDBC	Java Database Connectivity
J2EE	Java 2 Enterprise Edition
NDS	Naming Directory Services
P&T	Permanent & Total
POJO	Plain Old Java Object
POW	Prisoner of War
PS	Person Service
PSIM	Person Service Identity Management
SSN	Social Security Number
TSPR	Technical Services Project Repository
VAMC	VA Medical Center
VBR	Veteran's Benefit Repository
VistA	Veterans Health Information Systems and Technology Architecture
VDL	VistA Documentation Library
VOA	Veterans Online Application
VPID	Veterans Affairs Person Identifier

Target Audience

The target audience for this document is Health_Vet application developers needing to access the ESR external APIs.

Related Documentation

- 3.12 (HECMS) Security Guide (<http://www.va.gov/vdl/application.asp?appid=183>)
- 3.12 (HECMS) Installation Guide (<http://www.va.gov/vdl/application.asp?appid=183>)
- 3.12 (HECMS) Systems Management Guide (<http://www.va.gov/vdl/application.asp?appid=183>)
- 3.12 (HECMS) User Manual (<http://www.va.gov/vdl/application.asp?appid=183>)
- 3.12 (HECMS) Release Notes (<http://www.va.gov/vdl/application.asp?appid=183>)
- ESR 3.0 Deployment - Phase 2 - Software Sequencing Plan (SSP)
- [ESR 3.0 Operations Guide – Operations Guide](#) (this is an internal link accessible only on the VA network)
- PSIM Operations Guide – Operations Guide

***Person Service Identity Management** (PSIM) documentation can be found on the TSPR project notebook page by clicking [here](#).

*Links to other **Common Services** used in the HECMS application can be found at the *CS - ADR - ESR Integrated Project Home* SharePoint site by clicking [here](#) (username and password required).

Public Interfaces

Exposed Health_Vet Interfaces

The APIs that can be accessed by other Health_Vet applications are documented here. They are grouped into the below services and registered in Naming Directory Services (NDS) with these groupings.

Demographics Services

Notify ESR of an ADR Demographics Update - This is critical such that ESR can interject its business processing. This includes 1) potentially recalculating the enrollment status, 2) sending the appropriate communication letters, and 3) transmitting the appropriate HL7 messages to applicable Vista sites.

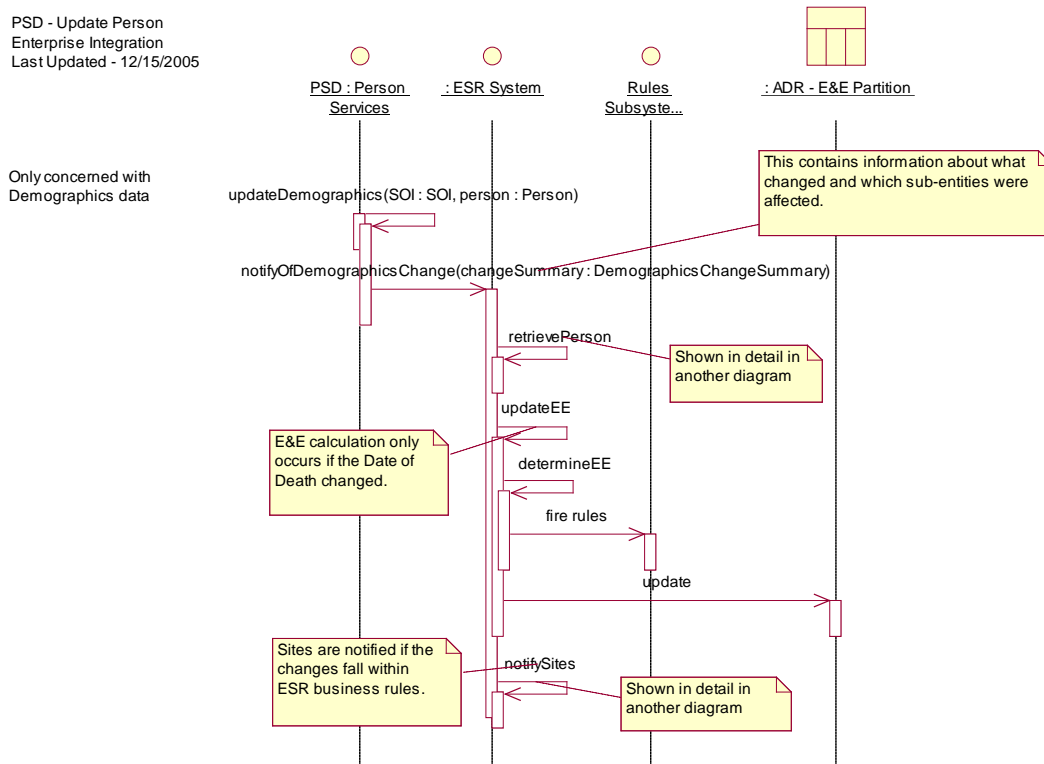
```
public void notifyOfDemographicsChange( DemographicsChangeSummary
demographicsChangeSummary ) throws ESRException;
```

In order to create a DemographicsChangeSummary, the following attributes are required.

- VPIDentityKey

- At least one DemographicChangeEvent

Here is an example of a client invocation:



Person Services

Veterans Affairs Person Identifier (VPID) Link – This API is essentially a notification to ESR that a link event has occurred at the identity level. In lieu of a decision for IP5 to use Delivery Services, this API will serve as the synchronous integration point for enrollment data.

```
public void link( VPIDentityKey deprecatedVPID, VPIDentityKey
survivingVPID ) throws ESRException;
```

VPID Move – This API is essentially a notification to ESR that a move event has occurred at the identity level. In lieu of a decision for IP5 to use Delivery Services, this API will serve as the synchronous integration point for enrollment data.

```
public void move( String dfn, String stationNumber, VPIDentityKey
fromVPID, VPIDentityKey toVPID) throws ESRException;
```

Eligibility Summary – This API allows the HealthVet enterprise to synchronously retrieve the Eligibility and Enrollment Summary for a Person via their VPID. Current data returned has been largely driven by HealthVet requirements of clients.

```
public EligibilitySummary getEligibilitySummary(VPIDentityKey VPID)
throws ESRException;
```

Web Services

ESR provides a set of web services for external clients to consume.

E&E web service – provides the comprehensive view of Veteran's enrollment and eligibility data.

VBR web service – provides the ability to store and retrieve handbook related artifacts in VBR

VOA web service – provides the ability to submit 1010EZ form for processing by ESR.

Please refer to the

E&E service description document, VBR web service description document and VOA web service description document for the details regarding web services.

Component Details

In order to send information to an API, or receive information from an API, a set of classes has been defined to compliment the Java provided classes. These Java Value Object classes are serializable across the network.

EntityKey

Interface representing an entity's identifier.

VPIDEntityKey

Interface representing an enumerated Person's VPID.

EntityKeyFactory

Factory component to create an EntityKey instance for various business objects.

EligibilitySummary

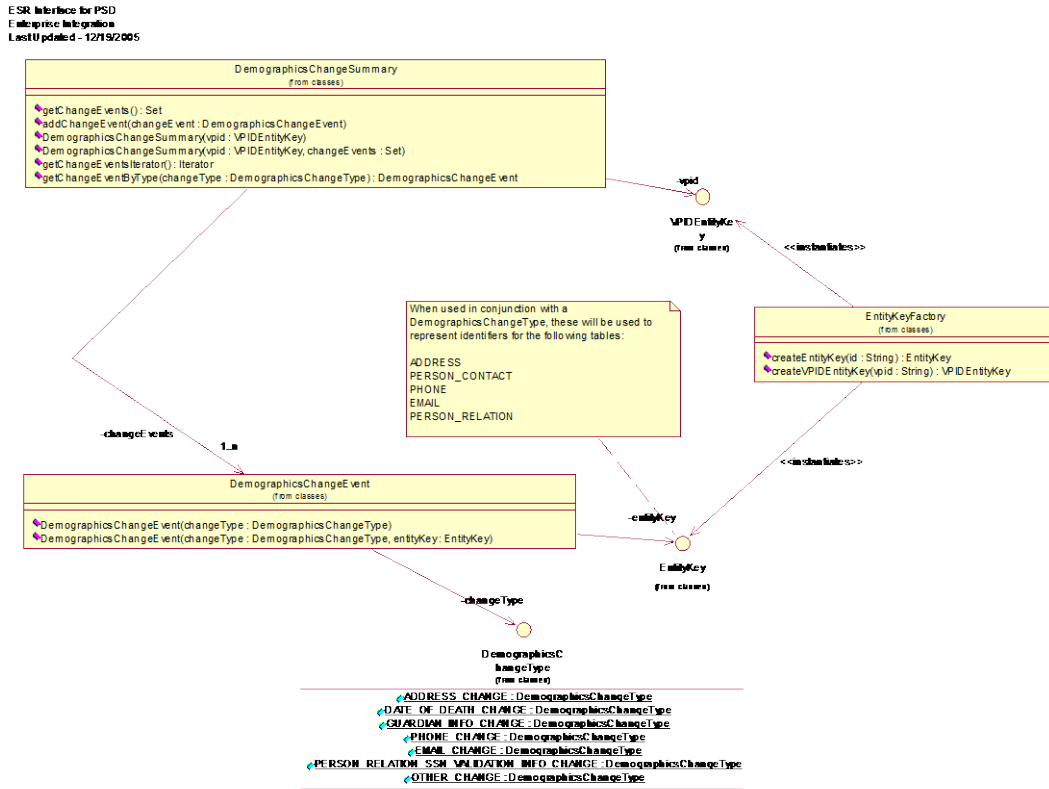
This POJO aggregates Eligibility and Enrollment (EE) data regarding a Person. This data set can be grouped in the following groupings.

- EE data (Primary Eligibility Code, etc.)
- Military Service data (POW Status Indicated, Service Branch, Period of Service, etc.)
- Financial data (Legal dependents name on income statements, etc.)
- Death data (DOD source of notification, etc.)

DemographicsChangeSummary

A DemographicsChangeSummary aggregates information regarding focused changes to the demographic data of an enumerated Person. It provides support for multiple updates to the same Person, encapsulated within each DemographicsChangeEvent object.

The class diagram is as follows:

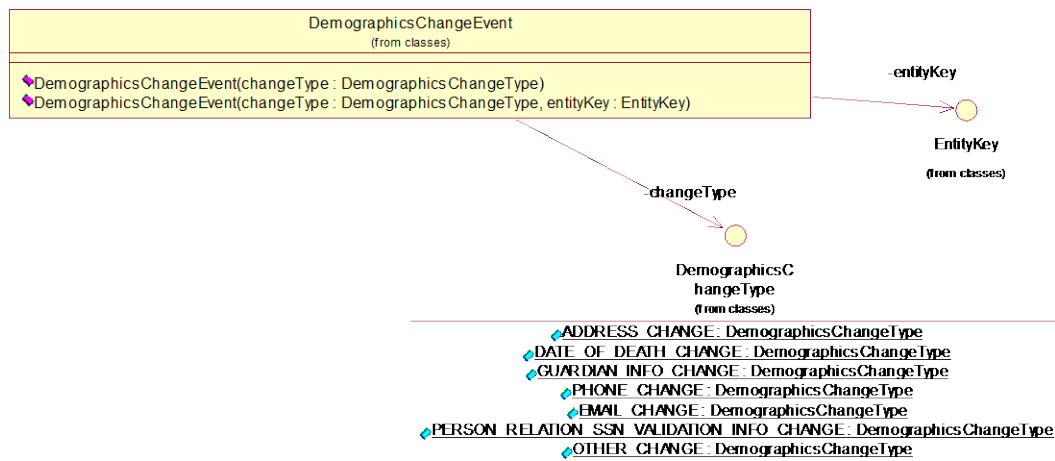


vpid – Strongly typed object representing the identifier for the enumerated Person.
changeEvents – Contains the multiple change events.

DemographicsChangeEvent

Encapsulates a specific demographics change event. This includes the type of change, and an optional identifier representing the specific object that was changed.

The class diagram is as follows:



entityKey – Strongly typed object representing the identifier for the specific object that changed (e.g., Permanent Address Id).

changeType – Strongly typed object representing the finite set of classifications (from which ESR is concerned) of change types.

DemographicsChangeType

Represents the finite set of classifications of change types from which ESR is concerned. Because ESR business rules are different depending on what actually changed, it is paramount that the details of the change be articulated.

ADDRESS_CHANGE – Any change to an Address. Since there can be multiple Addresses for an enumerated Person, the associated EntityKey for the record in ADR.ADDRESS is required.

DATE_OF_DEATH_CHANGE – Any change to the data of death, including blanking it out.

DATE_OF_DEATH_ADD – Special case of change of Date of Death for cases when there was no previous Date of Death and a non-null value has been provided.

GUARDIAN_INFO_CHANGE - Any change to Guardian Info. Since there can be multiple Guardians for an enumerated Person, the associated EntityKey for the record in ADR.PERSON_CONTACT is required.

PHONE_CHANGE - Any change to a Phone number. Since there can be multiple Phone numbers for an enumerated Person, the associated EntityKey for the record in ADR.PHONE is required.

EMAIL_CHANGE - Any change to an Email address. Since there can be multiple Email addresses for an enumerated Person, the associated EntityKey for the record in ADR.EMAIL is required.

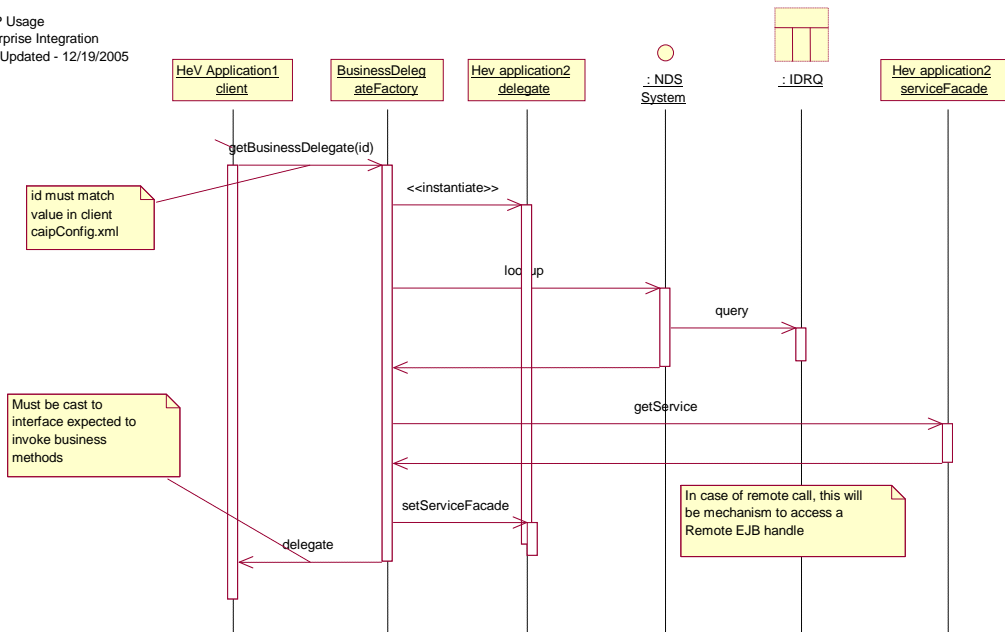
PERSON_RELATION_SSN_VALIDATION_INFO_CHANGE - Any change to the SSN Validation Info for a Person Relation (only ones currently supported are Dependent and Spouse). Since there can be multiple Person Relations for an enumerated Person, the associated EntityKey for the record in ADR.PERSON_RELATION is required.

OTHER_CHANGE - Any other non-specified change to the demographics information for an enumerated Person.

Client Side Integration

All Person Service (PS) APIs are Cross-Application Integration Protocol (CAIP) compliant. Since the APIs are CAIP compliant, all of the APIs can be accessed using the same logic. ESR exposes two CAIP Business Delegates, one for Demographics and one for general Person services. The logic to illustrate calling an API is in the following diagram:

CAIP Usage
Enterprise Integration
Last Updated - 12/19/2005



Once the delegate is retrieved from the BusinessDeleg ateFactory, it is the responsibility of the application to create any Java Value Objects that need to be passed in to an API.

This sequence diagram can be illustrated in one Java source code line (for example):

```
DemographicsServiceDelegate = (DemographicsService)
BusinessDeleg ateFactory.getBusinessDelegate( "ESRDemographicsService" );
```

Starting from the ESR 3.6 release, ESR eliminated the NDS CAIP Integration above. Consumers now have to obtain a service account from ESR and access the EJB APIs using this service account.

If the Consumers are using Spring, a spring bean can be configured as follows to perform a direct ejb lookup.

```
<bean id="soa.psim.personService" lazy-init="true"
class="org.springframework.ejb.access.SimpleRemoteStatelessSessionProxyFactoryBean">
<property name="jndiName">
<value>ejb/PSBean</value>
</property>
<property name="jndiEnvironment">
<props>
<prop key="java.naming.factory.initial">
```

```

        weblogic.jndi.WLInitialContextFactory
    </prop>
    <!--
    <prop key="java.naming.provider.url">
        t3://ps-cpi.commserv.healthvet.va.gov:7972
    </prop-->
    <prop key="java.naming.provider.url">
        ${psimUrl}
    </prop>

</props>
</property>
<property name="cacheHome" value="true" />
<property name="lookupHomeOnStartup" value="true" />
<property name="refreshHomeOnConnectFailure" value="true"/>
<property name="businessInterface">
    <value>
        gov.va.med.person.service.IPersonService
    </value>
</property>
</bean>

```

Package Structure

The Java package structure and the class location are indicated in the following table.

Package	Classes
gov.va.med.esr.service.external.demographics	Demographics*
gov.va.med.esr.service.external.person	PersonService*
	VPIDEntityKey

Package	Classes
	VPIDEntityKeyImpl
	EntityKey
	EntityKeyImpl
	EntityKeyFactory
	EligibilitySummary

Configuration Information

Configuration

Configuration Files

Several configuration files are included with the release. These files are included in the ESRClientZip.zip, and include the following:

- ESRClientConfig.jar– a jar file containing the client CAIP configuration information. Please note that the NDS server is not currently maintained in AITC. In order to use ESR EJB interfaces, please contact the development team to create a weblogic account for the consumer system. ESR team will provide you the system account and password.

Jar files

There are several jar files included with this release. You can find current version numbers in the subsequent Manifest.mf files contained within each jar. These files are included in the ESRClientZip.zip, and include the following:

- CAIP – CommonServices CAIP components (Not used anymore)
- NamingDirectoryService-client – CommonServices NDS components (Not used anymore)
- ESRClient – the ESR Client software.
- A listing of non-VA related third party dependent jars can be found in the readme.txt.

NDS Configuration

The NDS maintenance application will need to be configured in order for the delegate to find the service façade. See the NDS documentation for details.

Starting from the ESR 3.6 release, NDS configuration is not required.

Database Configuration

Database configuration is not needed on the client side.

Developer Workstation Setup

Installing the Client

This section will document how to extract and install the client portion of ESR.

The ESR Client software is delivered as a ZIP file that contains all of the Java ARchive (JAR) files and configuration files needed for execution. The following steps can be used to extract and install these files in a development environment.

1. Obtain the ESRClient zip file.
2. Extract the ESRClient zip file to a directory on your hard drive.
3. Copy the jar files included to the proper location so that they are placed in the classpath of your application.
4. Copy or merge the caipConfig.xml file to a location where it can be found on your classpath. If you already have a caipConfig.xml file, merge the information from the ESRClient caipConfig.xml file in to your existing file. This file is not required starting from the ESR 3.6 release.

There is a supplied JUnit (Joint Unit) test that can be used to test the setup. Execute the class `gov.va.med.esr.service.external.TestCAIPClientToESR` to execute the tests. Be sure to include the jars from the zip (including third party jars) in the client classpath.

Tools and Utilities

- TOAD (Tool for Oracle Application Developers)
- BMC Patrol
- Introscope
- Eclipse (Java IDE { Integrated Development Environment })
- WebLogic 10.3.5 (Application Server)

Troubleshooting

For ESR troubleshooting information, click [here](#). This is a living document and will be updated periodically.

Javadocs

N/A