Health Eligibility Case Management System (HECMS)

Installation Guide

Enrollment System Redesign (ESR)

Version 1.1

September 2011

Department of Veterans Affairs
Product Development
Management, Enrollment and Financial Systems (MEFS)

Revision History

Date	Version	Description	Program Manager	Author
9/13/2011	1.1	Updated cover and footer dates to correspond with new National Release date for 3.5 to September 2011.	Jennifer Freese	Tom Hamilton
7/18/2011	1.0	Initiated document version to replace application version on cover.	Jennifer Freese	Tom Hamilton
7/7/2011		Updated *Related Documentation* section.	Jennifer Freese	Tom Hamilton
6/30/2011		TW updates.	Jennifer Freese	Tom Hamilton
6/29/2011		Updated the document for 3.5 – included instructions for setting up the interface with CDW.	Jennifer Freese	Sudha Ramani
5/17/2011		General prep. For uploading to VDL. Removed *Draft* indicators. Updated hyperlinks in *Related Documentation* section.	Jennifer Freese	Tom Hamilton
3/9/2011		Removed yellow highlighting	Jennifer Freese	Tom Hamilton
3/3/2011		Reviewed/Edited/Formatted	Jennifer Freese	Tom Hamilton
2/14/2011		Added instructions for setting up TLS authentication on E&E servers Added instructions for setting up JMS Queues on E&E servers for MSDS web service	Jennifer Freese	Sudha Ramani
9/14/10		General formatting updates for ESR 3.3 and the E&E service. Added CO numbers to the E&E section added by Sudha Ramani.	Jennifer Freese	Tom Hamilton
9/13/10		Added installation instructions for Enrollment and Eligibility Service (ESR 3.3)	Jennifer Freese	Sudha Ramani
9/2/10		Preparation of baselined Release Notes document for ESR 3.3 Enhancements.	Jennifer Freese	Tom Hamilton
8/11/09		Changed HealtheVet logo cover graphic back to VA Seal per Brian Morgan.	Sookie Spence	Tom Hamilton

Date	Version	Description	Program Manager	Author
7/6/09		Changed cover graphic from VA Seal to HealtheVet logo. Internal links removed as required by FOIA. Updated cover and footer dates. Updated 3.0 to 3.0.1.	Sookie Spence	Tom Hamilton
2/26/09 – 3/12/09		Addressed Product Support issues.	Gerry Lowe	Tom Hamilton
10/7/08		Removed the Deployment Sequence, Pre-Deployment Instructions and Preparation, and ESR Activation Phase Scripts sections. In their place is a reference to the ESR 3 0 Deployment - Phase 2 - Software Sequencing Plan (SSP) v1.2 document, which is bundled with this HECMS Installation Guide and includes the information from the removed sections. This will consolidate changes to the software sequencing plan (deployment) into one document (Deployment - Phase 2 - Software Sequencing Plan (SSP)), thereby eliminating updates to this document after ESR 3.0 goes into production. Added the Deployment - Phase 2 - Software Sequencing Plan (SSP) reference to the Related Documentation section.	Gerry Lowe	Tom Hamilton
10/2/08		Added Deployment Sequence Table 3	Gerry Lowe	Tom Hamilton
9/25/08		Added developer (CR) updates	Gerry Lowe	Tom Hamilton
9/24/08		Added developer (SG) updates	Gerry Lowe	Tom Hamilton
9/17/08-9/18/08		Added information from ESR Operations Guide v1.0 dated July 2007.	Gerry Lowe	Tom Hamilton
9/12/08-9/15/08		General updates to *Acronyms and Definitions* and minor updates to the general information.	Gerry Lowe	Tom Hamilton
9/2/08		Added EVC R2 information to Introduction section from EVC R2 patch description.	Gerry Lowe	Tom Hamilton

Date	Version	Description	Program Manager	Author
8/26/08		Updates based on developer's input	Gerry Lowe	Tom Hamilton
8/14/08		Create Initial draft Installation document	Gerry Lowe	Tom Hamilton

Table of Contents

HEALTH ELIGIBILITY CASE MANAGEMENT SYSTEM (HECMS) V3.5 1

INTRODUCTION 1

PURPOSE 3
SCOPE 3
TARGET AUDIENCE 3
RELATED DOCUMENTATION 3

ADMINISTRATION TASKS 5

SETTING UP THE INITIAL ESR DOMAIN 5
INSTALLING ESR 9
SETTING UP THE ESR WEB SERVER 10
INSTALLING WEBHELP ON THE WEB SERVERS 11
SETTING UP THE ENROLLMENT AND ELIGIBILITY SERVICE (E&E) WEBLOGIC DOMAIN 12
SETTING UP THE APACHE WEB SERVER TO TUNNEL THE WEB SERVICE REQUESTS 13
TESTING THE INSTALLATION 14
SETTING UP TLS AUTHENTICATION IN E&E SERVERS 14
SETTING UP JMS QUEUES IN E&E SERVERS 17
SETTING UP THE SFTP INTERFACE BETWEEN ESR LINUX AND WINDOWS SERVERS 24
SETTING UP THE CDW DATA EXTRACTION PACKAGE IN ESR WINDOWS SERVER 25

DEPLOYMENT OVERVIEW 29

DATABASE INFORMATION 30

INSTRUCTIONS FOR INSTALLING M SERVER (OR DATABASE) COMPONENTS 31

PRE-INSTALLATION INSTRUCTIONS FOR THE M-SERVER/DATABASE COMPONENT 31
INSTALLING M SERVER/DATABASE COMPONENTS 31

M ENVIRONMENT 34

INSTRUCTIONS FOR INSTALLING MIDDLE TIER APPLICATIONS (E.G., APPLICATION SERVERS) 35

INSTRUCTIONS FOR STARTING APPLICATIONS ON THE MIDDLE TIER APPLICATION SERVER 36

INSTRUCTIONS FOR INSTALLING CLIENT COMPONENTS 37

POST-INSTALLATION REVIEW 38

POST-INSTALLATION (SETUP AND CONFIGURATION) 39

STARTING THE CLIENT-SIDE DESKTOP SOFTWARE 40

M INSTALLATION EXAMPLE 41

ZIPPED FILE CONTENTS, WHERE APPLICABLE 44

TROUBLESHOOTING 45

RECOVERING FROM A SERVER CRASH....45
ADDITIONAL INFORMATION....45
ACRONYMS AND DEFINITIONS....46

Health Eligibility Case Management System (HECMS) V3.5

Introduction

Enrollment System Redesign (ESR) V3.5 (a.k.a. HECMS) is the Health***e***Vet replacement system for the product known as Health Eligibility Center Legacy (HECL). It is both a re-host of HECL and in some instances (use cases/features), a re-engineering. HECMS allows staff at the HEC to work more efficiently and determine patient eligibility in a more timely manner. Messaging with the VA Medical Centers (VAMC) allows updates to the enterprise enrollment system to be shared with the field.

The release of the ESR 3.0 project marked a significant event in the Health*e*Vet (H*e*V) space. ESR 3.0.1 is comprised of a major change to the HECMS, an online business application for the HEC in Atlanta, GA. HECMS was one of the first modernized applications deployed under the HeV purview and its deployment is comprised of other components of the "system of systems". This includes the Administrative Data Repository (ADR), Naming Directory Service (NDS), and Person Services Identity Management (PSIM).

Also in support of the implementation of ESR V3.0 was the Enrollment VistA Changes Release 2 (EVC R2) project that was undertaken in support of the technology and business changes that were occurring with ESR 3.0.

Some modified and new business functionality was being 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 project was released in three phases. EVC Early Release and EVC R1 have been released and EVC R2 was released just prior to ESR 3.0.

ESR 3.3 added the Eligibility and Enrollment (E&E) Web Service (pg **12**) which supports requests for data or information regarding the enrollment or eligibility of Veterans on an as-needed basis. An Enrollment Web Service brokers requests from other systems to HECMS, carrying out the system specific information request.

ESR 3.4 added the following additional Military Service Data Sharing (MSDS) capabilities.

- A manual query to the Beneficiary Identification Records Locator System (BIRLS) and VA/DoD Identity Repository (VADIR) via the MSDS Broker can be initiated from the *Military Service* page.
- The **MSDS Query Status** is displayed on the *Current Eligibility* page.
- The veteran's record will be updated if the incoming data received data from BIRLS and VADIR is more favorable for the veteran.
- ***Medal of Honor*** data is now stored and displayed on the *Military Service* page.
- When new Military Service Episode *(*MSE) or Operation Enduring Freedom/Operation Iraqi Freedom (OEF/OIF) data is received from a site, an MSDS Broker query is triggered.
- HEC and Broker data is now used rather than site data to determine the ***Veteran Indicator***, calculate the ***Combat Veteran End Date***, and determine the veteran's ***Period of Service***.
- MSE data is shared with the sites (VistA).

ESR **3.5** adds the following additional MSDS capabilities.

- Activations from VADIR are now received and processed into ESR Military Service Episodes (MSE)
- The ***Combat Veteran End Date*** computation has been modified to allow a recalculation to an earlier date based on a user edit of the Military Service and/or Combat Service data to an earlier date.
- ESR will now accept precise dates from the Broker when ESR has imprecise MSE dates on record.
- ESR will not perform a query of the MSDS Broker for persons with null/missing identity traits.
- Additional choices for ***Discharge Type*** on the *Current Military Service* screen will be available. They are: 1) Honorable for VA Purposes (**Honorable-VA**) and, 2) Dishonorable for VA Purposes (**Dishonorable-VA**).
- Incoming BIRLS data has been modified to map *Branch of Service* values for *Air National Guard (ANG)* and *Army National Guard (ARNG)* to **Air Force** and **Army** in ESR, respectively, and also set the ***Service Component*** field to **Activated National Guard**.
- If the Broker fails to create an MSE record, ESR will create a HEC-owned MSE from the site data.

ESR **3.5** adds the following Public Law (PL111-163) requirement.

- PL111-163 provides additional benefits for Catastrophically Disabled veterans by eliminating the means test and Rx Copay test obligation. A one-time 640K letter will be sent to all Catastrophically Disabled veterans to notify them of the additional benefit. A 640K letter will be sent to Veterans who have not previously been notified and who are in Priority Group 1, 2, 3, or 4 at the time a Catastrophic Disability is added to their eligibility record.

ESR **3.5** adds the following Add a Person capabilities.

- Search to add a person (*Search and Add New Person*) – This functionality allows users to perform searches for a registrant by any combination of criteria and enables the user to register (Add) a new person to the HECMS system or update a person who is "In Process".
- Save person in-process (*Save in Process*) – This option allows users to save registrant records in a state of "In Process" so they can be returned to for completion at a later time.
- Cancel a registration (*Cancel Registration*) – This option allows users to cancel a registration that is in progress, or a registration that has been resumed from being "Saved in Process".
- As part of the Add a Person registration process,
  - enter Demographics information
  - enter Financial information
  - enter Eligibility information
  - enter Military Service information
  - enter Enrollment information
- Send a query to VBA when new person is added to ESR.
- Transmit registrant data using HL7 messaging.
- Run reports (EED 19) to see person registration statuses.

ESR **3.5** adds the following Preferred Facility capabilities.

- On the *Demographics/Personal* page, the ***Preferred Facility*** field is now editable. The field next to it is the ***Preferred Facility Source*** field, which will be the source of the preferred facility selection. It is not user-selectable but is automatically populated based on the source of the data.
- The nearest treating facility is automatically determined as the veteran's preferred facility by communicating with an outside (of ESR) source (Corporate Data Warehouse {CDW}).
- New *Missing Preferred Facility* report (EED 20) displays which veterans have no preferred facility.

ESR **V3.5** also adds additional Patient Benefits Handbook functionality.

Purpose

The purpose of this document is to provide a high-level description of the processes and procedures for successful installation and deployment of the HECMS application.

Given the multiple systems involved, the ESR deployment is a complex operation and must be planned and sequenced accordingly. This document serves to articulate the steps necessary to sequence the deployment of ESR 3.5 and its necessary dependent systems.

Scope

The scope of this document applies to activities conducted within the HECMS environment. It is tailored to provide technical instruction, guidance, and strategies for the successful installation and deployment of the HECMS project.

This document can be considered a "subset" of the Integrated Master Schedule (IMS), as it pertains to the deployment activities that relate to ESR. In addition, this document does not provide detailed steps on "how" to deploy each HeV application nor how to perform operations and health monitoring on each HeV application. Those details can be found in each system's respective operations guide.

It is also important to note that if not specified, all other "normal" operational activities (as governed by each respective operations guide) are in force and must be followed.

While Activation Phase 1 will be briefly described, the primary scope of this document will be that of Activation Phase 2.

Target Audience

The intended audience for this document includes software support/management (e.g., Information Resource Management [IRMs], Product Support [PS], Enterprise Management Center [EMC]) and development personnel involved in deploying and installing rehosted/re-engineered applications.

Related Documentation

1. 3.5 HECMS Security Guide
2. 3.5 HECMS Developer's Guide
3. 3.5 HECMS Systems Management Guide
4. 3.5 HECMS User Manual
5. 3.5 HECMS Release Notes

6. ESR 3.5 Operations Guide – Operations Guide

More **Person Service Identity Management** (PSIM) documentation can be found on the *Technical Services Project Repository* (TSPR) project notebook page by clicking on *"Common Services - Person Service - FY09"*.

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

Administration Tasks

This section assumes that the reader has knowledge of WebLogic administration tasks using the administration console. More detailed information can be obtained from the official documentation via the following link.

- http://edocs.bea.com/wls/docs81/ConsoleHelp/index.html

Setting up the Initial ESR Domain

Assumptions / Prerequisites

The following assumptions and prerequisites apply to all Weblogic servers that will be part of the domain.

- Linux is installed and configured properly. (See CO40331FY07.)

CO40331FY07

```
Please change the following Kernel settings.   If the current value on the server is greater
than the specified value below, keep the current server value.
/sbin/ifconfig lo mtu
1500

kernel.msgmni
1024

kernel.sem
1000 32000 32 512

fs.file-max
65535

kernel.shmmax
2147483648

net.ipv4.tcp_max_syn_backlog
8192

# increase TCP max buffer size
net.core.rmem_max = 16777216
net.core.wmem_max = 16777216
# increase Linux autotuning TCP buffer limits min, default, and max number of bytes to use
Note: you should leave tcp_mem alone. The defaults are fine.
net.ipv4.tcp_rmem = 4096 87380 16777216
net.ipv4.tcp_wmem = 4096 65536 16777216

ifconfig eth0 txqueuelen 1000
```

- Make sure the missing Linux 32-bit shared libraries are installed. (See CO36416FY06.)

CO36416FY06

```
The Linux shared libraries had not been installed which resulted in the following error
while running reports.
Caused by: java.lang.UnsatisfiedLinkError: /usr/java/j2sdk1.4.2_14/jre/lib/i386/
libawt.so: libXp.so.6: cannot open shared object file: No such file or directory

The command below needs to get run as root on the servers to install the shared libraries.
up2date --arch=i386 xorg-x11-deprecated-libs

If this step was run when the ESR app  is running, then bring down the admin server,
nodemanager and managed servers. Clean the logs by running "./cleanLogs.sh 2". Bring up the
servers again.
To verify the install,  cd to  /usr/java/j2sdk1.4.2_14/jre/lib/i386 and type "ldd
libawt.so". This will show all the dependencies.
weblogic@vhaesrapp1> pwd
/usr/java/j2sdk1.4.2_14/jre/lib/i386
weblogic@vhaesrapp1> ldd libawt.so
        linux-gate.so.1 =>  (0xffffe000)
        libmlib_image.so => not found
        libjvm.so => not found
        libXp.so.6 => /usr/X11R6/lib/libXp.so.6 (0xf7d18000)
        libXt.so.6 => /usr/X11R6/lib/libXt.so.6 (0xf7cc7000)
        libXext.so.6 => /usr/X11R6/lib/libXext.so.6 (0xf7cb9000)
        libXtst.so.6 => /usr/X11R6/lib/libXtst.so.6 (0xf7cb3000)
        libX11.so.6 => /usr/X11R6/lib/libX11.so.6 (0xf7bd4000)
        libm.so.6 => /lib/tls/libm.so.6 (0xf7bb1000)
        libdl.so.2 => /lib/libdl.so.2 (0xf7bad000)
        libjava.so => not found
        libc.so.6 => /lib/tls/libc.so.6 (0xf7a81000)
        libSM.so.6 => /usr/X11R6/lib/libSM.so.6 (0xf7a77000)
        libICE.so.6 => /usr/X11R6/lib/libICE.so.6 (0xf7a5f000)
        /lib/ld-linux.so.2 (0x56555000)
You can also run these two commands to verify if libXP.so.6.2 exists
ls -al  /usr/X11R6/lib64/libXp.so.6
lrwxrwxrwx  1 root root 12 May 29 12:45 /usr/X11R6/lib64/libXp.so.6 -> libXp.so.6.2
ls -al /usr/X11R6/lib/libXp.so.6
lrwxrwxrwx  1 root root 12 May 29 12:45 /usr/X11R6/lib/libXp.so.6 -> libXp.so.6.2
```

- Set up the WebLogic Linux Account with the following environment variables set in either **.profile** or .**bash_profile** (The BEA and Java version might change).

```
#!/bin/ksh
# Environment Setup Script for WebLogic
#
set -o vi

export FCEDIT=vi
export TMP=/tmp
export TMPDIR=/var/tmp

export APP_BASE=/u01/app
export BEA_HOME=$APP_BASE/bea
export WL_HOME=$BEA_HOME/weblogic81
export PRODUCTION_MODE="true"
export JAVA_HOME=/usr/java/j2sdk1.4.2_14
export JAVA_VENDOR="Sun"
export NODEMGR_HOME=$BEA_HOME/nodemanager/
export PATH=$JAVA_HOME/bin:$WL_HOME/common/bin:$WL_HOME/server/bin:$HOME/bin:$PATH
```

  - The WebLogic account must have read and write access to the **tmp** directory.
  - The WebLogic account must have read access to the **JAVA_HOME** directory

- Make sure the **limits.conf** file is correct. See limits.conf@vaaacappl.

```
*       hard    core        0
*       soft    nofile   4096
*       hard    nofile  65536
*       soft    memlock    64
*       hard    memlock   128
*       soft    nproc    2047
*       hard    nproc   16384
```

  - Set up sudo to allow administrators to **sudo su - weblogic**

- BEA WebLogic 8.1 is installed to the location where the **BEA_HOME** variable is set.
- Install Java to the location where the **JAVA_HOME** variable is set.

  - Create a node manager directory as set by a **NODEMGR_HOME** variable.

Creating a basic ESR Domain

ESR will provide the domain creation scripts in a file named **domain-scripts.tar.gz** when it is time for initial domain configuration. The following steps apply to the server that will become the WebLogic administrative console.

- sudo to the WebLogic account or login as the WebLogic user.

- SCP the **domain-scripts.tar.gz** file (attached above) to **/tmp/domain-scripts** on the server.
- Unzip the **domain-scripts.tar.gz** file into the **/tmp/domain-scripts** directory.

```
cd /tmp/domain-scripts
tar –xzf domain-scripts.tar.gz
```

- If the **installDomain.sh** or **createBatchProcDirectory.sh** file is not executable, make it executable.

```
chmod 744 *.sh
```

- Create the basic ESRDomain by running the **installDomain.sh** script from the **/tmp/domain-scripts** directory.

```
./installDomain ESRDomain.jar ESRDomain
```

- Create soft links to the ESRDomain and nodemanager directories in the WebLogic home directory

```
cd ~
ln –s /u01/app/bea/user_projects/domains/ESRDomain
ln –s /u01/app/bea/nodemanager/
```

- CD to ESRDomain directory.

```
cd /u01/app/bea/user_projects/domains/ESRDomain/
```

- Rename the **startWebLogic.sh** script to **startWeblogic.sh** (NOTE: difference in uppercase and lowercase "L").

```
mv startWebLogic.sh startWeblogic.sh
```

- Run **./startWeblogic.sh &** (NOTE: background execution) to start the WLS Admin server the very first time.
  - Create new admin users by navigating to Security -> Realms -> myrealm -> Users.
  - On the General tab, create a new administrator user account and password.
  - Click Apply.
  - On the Group tab, assign the user to the Administrators group.
  - Click Apply.
  - Delete the default WebLogic user.
- Run **./stopWeblogic.sh <newUserName> <newPassword>** to stop WLS Admin.
- Delete **boot.properties** from your domain.

```
rm boot.properties
```

- Set up the environment so that the **boot.properties** file gets recreated.

```
export JAVA_OPTIONS=-Dweblogic.system.StoreBootIdentity=true
```

- Run **./startWeblogic.sh** (NOTE: foreground execution) to start the WLS Admin server. When asked to provide user name and password, use your new admin user name and password.

- In another terminal, logged in as the WebLogic user, and in the ESRDomain directory, run **`./storeCredentials.sh t3://<servername>:7001 <newUserName> <newPassword>`** to store the admin user credentials so that you don't have to provide user IDs and passwords from the command line every time a script is run. Replace the tags in < > with the appropriate values.
- Run **`./stopWeblogic.sh`** to stop WLS Admin.
- Remove the JAVA_OPTIONS environment variable or logoff the session.

  `export JAVA_OPTIONS=`

- One of the servers in the cluster will act as the file store for batch processes. The required directory tree can be created by running the **`./createBatchProcDirectory.sh`** script in the ESRDomain directory on the host server. All other servers in the cluster should mount a remote directory to **`/u02/batchProcess.`**

STOP. You are now ready to install ESR, which will occur later.

Installing ESR

ESR will provide the scripts.zip, config.xml, and esr.ear files when it is time for installation. The files in the scripts.zip file and the config.xml file will replace the scripts in the ESRDomain directory. **BEFORE the scripts, config.xml, and esr.ear can be built packaged and delivered, the development team needs to be notified with server names, server IP addresses, WebLogic admin user name, WebLogic admin user password, and CAIP server URL, so the nodemanager.host and config.xml files can be customized for the environment.**

Steps 1 to 5 and 10 need to be done when ESR is installed for the first time. For subsequent installations, ignore these steps.

1. Unzip the contents of the scripts.zip into ESRDomain directory on all application servers.
2. Set permissions:

   `chmod 774 /u01/app/bea/user_projects/domains/ESRDomain/*.sh .`

3. Copy the new config.xml into ESRDomain directory on the admin server.
4. In the ESRDomain directory, open **`config.xml`** in vi. Navigate to the bottom of the file and find the **`<EmbeddedLDAP`** stanza and the **`<SecurityConfiguration`** stanza. In another window and still in the ESRDomain directory, run cat on **`config.xml.booted`**. Find the **`<EmbeddedLDAP`** stanza and the **`<SecurityConfiguration`** stanza. Replace the stanzas, similar to the strings below, with the like stanzas from the **`config.xml.booted`** file.

   ```
   <EmbeddedLDAP
   CredentialEncrypted="{3DES}RHyup5TdHu/0p4Tb8Q3mFaI3v/1337YOyP//LJaiV
   Y8=" Name="ESRDomain"/>
   <SecurityConfiguration
   CredentialEncrypted="{3DES}sAMA66CtQIOvXiEHSqDrHM82+oyF3+5/paQ1oVzr1
   o/RQ5RgR0LBEqQQ1AKLvMxF1gCxTShpe52e+Mobv5XbYoiWhFs2lz7j"
   Name="ESRDomain" RealmBootStrapVersion="1"/>
   ```

5. Copy the new **`nodemanager.hosts`** under the **`nodemanager`** directory of all the servers.
6. Using the existing scripts on the servers, shutdown ESR cluster, admin server, and node manager processes by running:

./stopCluster.sh
./stopNodemanager.sh
./stopWeblogic.sh).

7. Run "**./cleanLogs.sh 2**" on all servers.
8. Copy the new **esr.ear** into **/u01/app/bea/user_projects/domains/ESRDomain/applications/** directory on the admin server.
9. Start admin server on the admin server (run ./**startWeblogic.sh &** from the ESRDomain directory in the background).
10. *Note: This step is needed when ESR is installed for the first time on a server. For subsequent installations, skip this step.*

    On another terminal, logged in as the WebLogic user, and in the ESRDomain directory, run **./storeCredentials.sh <newUserName> <newPassword> t3://<servername>:7001** to store the admin user credentials so that you don't have to provide user IDs and passwords from the command line every time a script is run. Replace tags in < > with the appropriate values.
11. Start node manager processes on all the servers (run **./startNodeManager.sh &** in the background).
12. Start all ESR clusters (**run ./startCluster.sh** from the ESRDomain directory on the admin) .This command will start 3 clusters: ESRCluster1, ESRCluster2, and ESRCluster3.
13. After the previous step is complete, check if ESR is installed successfully on all 6 servers. Log onto ESR with the appropriate URL.

Setting up the ESR web server

Assumptions / Prerequisites

The Apache web server has been installed on the Linux boxes.

Setting up ESR environment

Since ESR can run on multiple web servers depending on the environment (Prod, SQA, DR,EDEV), the steps below need to be repeated on each of the web servers for that specific environment.

1. Login to the Linux server which has the Apache web server installed.
2. SCP the **webserversetup.tar** file to **/tmp/setup**.
3. Untar the **webserversetup.tar** file under **/tmp/setup**.
4. If the **setupWebServerEnv.sh** is not executable, make it executable **chmod 744 setupWebServerEnv.sh**.
5. Run **dos2unix setupWebServerEnv.sh**.
6. Run **./setupWebServerEnv**.
7. Open **/etc/httpd/conf.d/weblogic.conf** and uncomment and update the following attributes:
   a. **ServerName** – Name and port that the server uses to identify itself.
   b. Uncomment the section **<IfModule mod_weblogic.c>** and update the following

attributes:

i. **WeblogicCluster** – The IP Addresses of the WebLogic clusters hosting the ESR web application. For ESR, the servers under ESRCluster1 host the ESR web application. The ESRCluster1 IP addresses can be found in the WebLogic config.xml (search for the string "ESRCluster1"). The config.xml resides under the **/opt/bea/ESRDomain** directory in the admin WebLogic server for the ESR application.

ii. **ErrorPage** – URL where the ESR Unavailable error page is located. This will physically reside under **/var/www/html/status** directory of the web server. So the path will be something like **http://vaww.esr.aac.va.gov/status/ESR_Unavailable.html**

8. Confirm that the WebHelp directory created under /**var/www/html** has read permissions for the Apache server. In the EDEV environment, it will need additional read and write access for the development group.
9. Once the steps are completed, point the load balancer to these web servers.
10. Copy /**u01/app/bea/weblogic81/server/lib/linux/i686/mod_wl_20.so** from the WebLogic admin server to the **/etc/httpd/modules** directory of Apache server.
11. In the **weblogic.conf** file, ensure that the line specifying the module to load is **mod_wl_20.so instead of mod_wl_20.so-x86_64.so**.

    Note: The **setupWebServerEnv.sh** performs the following tasks -

    1. Copies the file **weblogic.conf** under the **/etc/httpd/conf.d** directory.
    2. Creates a directory **/var/www/html/status** and sets permissions **chmod 755** on the status directory.
    3. Copies the files related to the ESR Unavailable error page into this directory.
    4. Creates a directory called "**webhelp**" under **/var/www/html** on vaaacwbd4.

Installing WebHelp on the web servers

1. Login to the Linux server which has the Apache web server installed.
2. SCP **webhelp.zip** and **deployWebhelp.sh** to **/tmp/webhelpArchive** from VAAACMUL1O: **pscp D:\CM\IP5\20070329\CO43354FY07\webhelp* user@vaaacweb1s:/tmp/webhelpArchive/**.
3. Set permissions: **chmod –R 755 /tmp/webhelpArchive/**.
4. Run Dos2Unix on deployWebhelp.sh: **dos2unix /tmp/webhelpArchive/deployWebhelp.sh**.
5. Deploy webhelp from /tmp/webhelpArchive directory: **./deployWebhelp.sh webhelp.zip** (As root (sudo)).
6. Repeat steps 1-4 for all web servers in that environment.

Setting up the Enrollment and Eligibility Service (E&E) WebLogic domain

The COs for the E&E web service deployment tasks are as follows:

- Stage 1B: R350242FY10
- PreProd: CO53836FY10
- Prod: CO53841FY10

Enrollment and Eligibility Service requires WebLogic 10.3 version. Separate application servers have been created with WebLogic 10.3 for E &E service.

Please note that

- All the scripts are in **EEService_Scripts.tar.gz**
- Default WebLogic user password used in these scripts is "weblogic123"
- Please change it to a new password while creating the domain.

1. Unzip the contents of the **EEService_Scripts.tar.gz** into a directory on all application servers.
2. Run **dos2unix** command on all the contents of this file.
3. Set the following environment variables.

```
export BEA_HOME=/u01/app/bea
export WL_HOME=/u01/app/bea/wlserver_10.3
export EEDOMAIN_HOME=/home/weblogic/bea/<DOMAINNAME>
The domain name has the format EES-<Environmentname> e.g. EES-DEV,
EES-SQA, EES-PreProd, EES-Prod.
```

4. Change directory the appropriate folder [dev , sqa etc..].
5. Use this command in the desired directory to remove ^M hars in the UNIX scripts. It will clean up all the files in the selected directory.

```
[weblogic@vhaesrapp41 dev]find . -type f -name '*' | xargs dos2unix
```

6. Open **CreateDomain.py** in vi and change the WebLogic user password and the password for the dbconnection pool.
7. Run script **CreateDomain.sh** and it creates the EES domain.

```
bash$./CreateDomain.sh
```

8. Change directory to **$EEDOMAIN_HOME/bin** and run this command to start the admin server. For e.g.

```
[weblogic@vhaesrapp41 dev]./startWebLogic.sh
```

9. Logon to the admin console to make sure all the servers/machines/clusters/pools are created.
10. Run this command on all the managed servers to enroll those machines to the managed server in the domain.

```
[weblogic@vhaesrapp41 dev]$ ./SetNodeManager.sh
```

11. Run this command to start the node manager all the servers.

```
[weblogic@vhaesrapp41 dev]$ ./StartNodeManager.sh
```

12. Change directory to **$EEDOMAIN_HOME** and create a directory "application".
13. Copy the war file **esr-ws.war** to the applications folder.
14. Change directory the appropriate folder under scripts to deploy the war file using this command.

    [weblogic@vhaesrapp41 dev]$ ./Deploy.sh

15. Start the managed servers in one of the following ways.
    a. from the admin console.
    b. using the WebLogic provided scripts **under $EEDOMAIN_HOME/bin.**

    c. [weblogic@vhaesrapp41 dev]$ ./StartManagedServers.sh.

16. If you need to reinstall the domain please follow these steps.
    a. stop all the servers including the nodemanager and admin server.
    b. delete all the files and folder from the domain home.
    c. delete all the files and folders from nodemanager home
    d. start over from step 1 above

Setting up the Apache web server to tunnel the web service requests

Apache web server will be used as a front end to address load balancing and failover requirements. The instructions below are related to setting up the web server to tunnel the web service requests to application server.

1. Login to the Linux server which has the Apache web server installed.
2. Open **/etc/httpd/conf.d/weblogic.conf** and add a new virtual host that is similar to ESR.

   WeblogicCluster should have the comma separated list of EEServiceServer:PORTNumber
   <VirtualHost vhaesrapp41.aac.va.gov:443>
   ErrorLog logs/ssl_error_log
   TransferLog logs/ssl_access_log
   LogLevel warn
   SSLEngine on
   SSLProtocol TLSv1
   SSLCipherSuite ALL:!ADH:!EXPORT:!SSLv2:RC4+RSA:+HIGH
   SSLCertificateFile /etc/pki/tls/certs/localhost.crt
   SSLCertificateKeyFile /etc/pki/tls/private/localhost.key
   SSLCACertificateFile /etc/pki/tls/certs/ca-bundle.crt
   #SSLCertificateFile /etc/httpd/conf/ssl.crt/server.crt
   #SSLCertificateKeyFile /etc/httpd/conf/ssl.key/server.key
   #SSLCertificateChainFile /etc/httpd/conf/ssl.crt/va.pem
   <Files ~ "\.(cgi|shtml|phtml|php3?)$">
   SSLOptions +StdEnvVars
   </Files>
   <Directory "/var/www/cgi-bin">
   SSLOptions +StdEnvVars
   </Directory>

```
SetEnvIf User-Agent ".*MSIE.*" \
 nokeepalive ssl-unclean-shutdown \
downgrade-1.0 force-response-1.0
CustomLog logs/ssl_request_log \
"%t %h %{SSL_PROTOCOL}x %{SSL_CIPHER}x \"%r\" %b"
<IfModule mod_weblogic.c>
#    WeblogicCluster  10.224.88.120:8101
WeblogicCluster  vhaesrapp41.aac.va.gov:8101
MatchExpression /esr-ws
</IfModule>
</VirtualHost>
```

3. Restart the Apache server.

Testing the Installation

Try accessing the URL

https://vaww.esrstage1b.aac.va.gov:8443/esr-ws/spring-ws/getEESummary/eeSummary.wsdl

Please note this would vary according to the environment (Development, SQA, pre-prod and prod).

Please note that E&E web service is dependent on **`ESR.ear`** deployed on the WebLogic 8.1 server.

Setting up TLS authentication in E&E servers

ESR interface to VADIR Webservice (also called Military Service Data Service - MSDS) uses Mutual TLS Authentication with VA issued certificates to identify and authorize server-to-server communications. TLS also provides the message's confidentiality and integrity between the endpoints. For additional details, please refer to ESR MSDS interface control document.

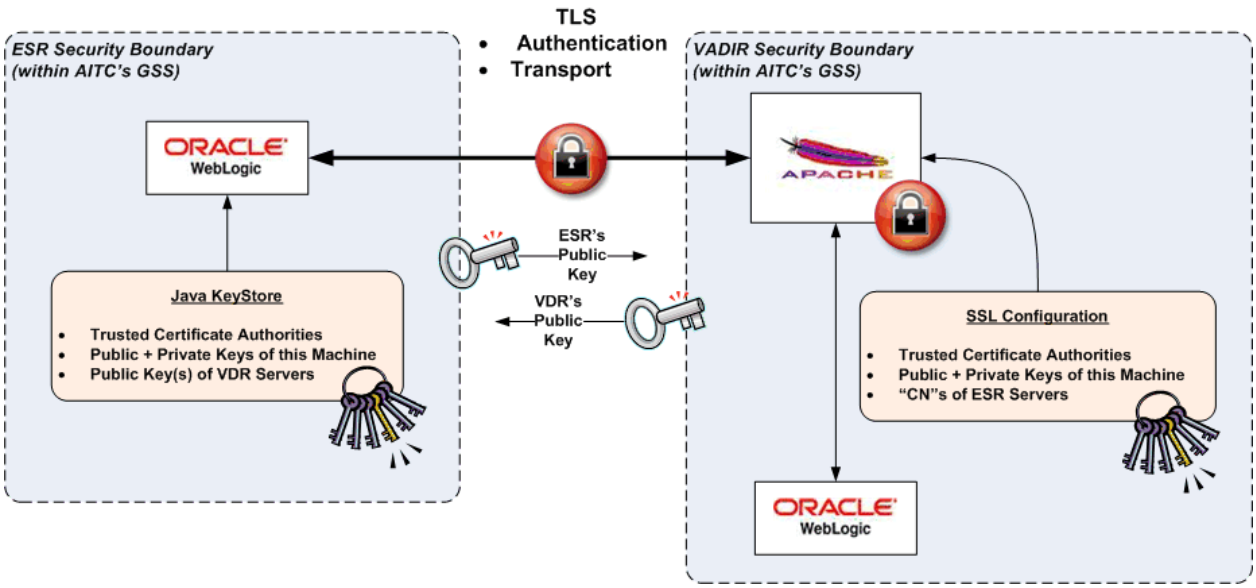


Figure 1: ESR-VADIR security Boundary

Execute the following in VHAESRAPP45 server

Pre-requisites:

Need to have VA.pem, VAVDRAPP1.aac.va.gov.pem, vhaesrapp45.aac.va.gov.pem in /u01/cert/

STEP 1:

navigate to /u01/app/bea/wlserver_10.3/server/lib/

STEP 2:

keytool -import -alias VA_internal_root_CA -file /u01/cert/va.pem -keystore /u01/app/bea/wlserver_10.3/server/lib/vacertstore.jks -storepass PASSWORD1

STEP 3:

keytool -import -alias vavdrapp1.aac.va.gov -file /u01/cert/vavdrapp1.aac.va.gov.pem -keystore /u01/app/bea/wlserver_10.3/server/lib/vacertstore.jks -storepass PASSWORD1

STEP 4:

keytool -list -keystore vacertstore.jks -v (when prompted for password specifye the PASSWORD1 from above)

(should come back with 2 entries - alias VA_internal_root_CA and vavdrapp1.aac.va.gov)

STEP 5:

java -classpath weblogic.jar utils.ImportPrivateKey -keystore /u01/app/bea/wlserver_10.3/server/lib/appcertstore.jks -storepass PASSWORD2 -storetype jks -keypass PASSWORD2 –alias vhaesrapp45.aac.va.gov -certfile /u01/cert/vhaesrapp45.aac.va.gov.pem -keyfile /u01/cert/vhaesrapp45.aac.va.gov.key -keyfilepass PASSWORD2

NOTE: The PASSWORD2 specified in STEP5 should exactly match the password to open the certificate key file.

STEP 6:

keytool -list -keystore appcertstore.jks -v ((when prompted for password use PASSWORD2)

(should come back with 1 entry - alias vhaesrapp45.aac.va.gov)

STEP 7:

cd /u01/cert

openssl verify -CAfile va.pem vhaesrapp45.aac.va.gov.pem

(check if the result is vhaesrapp45.aac.va.gov.pem: OK)

Execute the following in VHAESRAPP46 server

Pre-requisites:

Need to have VA.pem, VAVDRAPP1.aac.va.gov.pem, vhaesrapp46.aac.va.gov.pem in /u01/cert/

STEP 1:

navigate to /u01/app/bea/wlserver_10.3/server/lib/

STEP 2:

keytool -import -alias VA_internal_root_CA -file /u01/cert/va.pem -keystore /u01/app/bea/wlserver_10.3/server/lib/vacertstore.jks -storepass PASSWORD1

STEP 3:

keytool -import -alias vavdrapp1.aac.va.gov -file /u01/cert/vavdrapp1.aac.va.gov.pem -keystore /u01/app/bea/wlserver_10.3/server/lib/vacertstore.jks -storepass PASSWORD1

STEP 4:

keytool -list -keystore vacertstore.jks -v (when prompted for password specifye the PASSWORD1 from above)

(should come back with 2 entries - alias VA_internal_root_CA and vavdrapp1.aac.va.gov)

STEP 5:

java -classpath weblogic.jar utils.ImportPrivateKey -keystore /u01/app/bea/wlserver_10.3/server/lib/appcertstore.jks -storepass PASSWORD2 -storetype jks -keypass PASSWORD2 –alias vhaesrapp46.aac.va.gov -certfile /u01/cert/vhaesrapp46.aac.va.gov.pem -keyfile /u01/cert/vhaesrapp45.aac.va.gov.key -keyfilepass PASSWORD2

NOTE: The PASSWORD2 specified in STEP5 should exactly match the password to open the certificate key file.

STEP 6:

keytool -list -keystore appcertstore.jks -v ((when prompted for password use PASSWORD2)

(should come back with 1 entry - alias vhaesrapp46.aac.va.gov)

STEP 7:

cd /u01/cert

openssl verify -CAfile va.pem vhaesrapp46.aac.va.gov.pem

(check if the result is vhaesrapp46.aac.va.gov.pem: OK)

Logon to weblogic administration console for VHAEESPRE_PROD and repeat the steps below for EES-MS1 and EES-MS2

a. Navigate to Environment->Servers-->[EES-MS1]-->Configuration-->Keystores
b. Set Keystores to "Custom Identity and Custom Trust"
c. In the Identity section set:
   i. **Custom Identity Keystore** to the /u01/app/bea/wlserver_10.3/server/lib/appcertstore.jks
   ii. **Custom Identity Keystore Type** to jks
   iii. **Custom Identity Keystore Passphrase** to PASSWORD 2
d. In the Trust section set:
   i. **Custom Trust Keystore** to the file /u01/app/bea/wlserver_10.3/server/lib/vacertstore.jks
   ii. **Customer Keystore Type** to jks
   iii. **Customer Trust Keystore Passphrase** to PASSOWORD1
e. Click Save.
f. Navigate to the SSL tab.
g. Set Identity and Trust Locations to "Keystores"
h. In the Identity section set:
   i. **Private Key Alias** to the alias vhaesrapp45.aac.va.gov
   ii. **Private Key Passphrase** to PASSWORD2

i. Click on Advanced and set:
   i. **Hostname Verification** to "None"
   ii. **Custom Hostname Verifier** to blank
   iii. **Export Key Lifespan** unchanged
   iv. **Use Server Certs** to **checked**
   v. **Two Way Client Cert Behavior** to "Client Certs Not Requested"
   vi. **Cert Authenticator** to blank
j. Click Save
k. under SERVER START, ARGUMENTS add the following.

-Djavax.net.ssl.trustStore=/u01/app/bea/wlserver_10.3/server/lib/vacertstore.jks

-Djavax.net.ssl.trustStorePassword=PASSWORD1

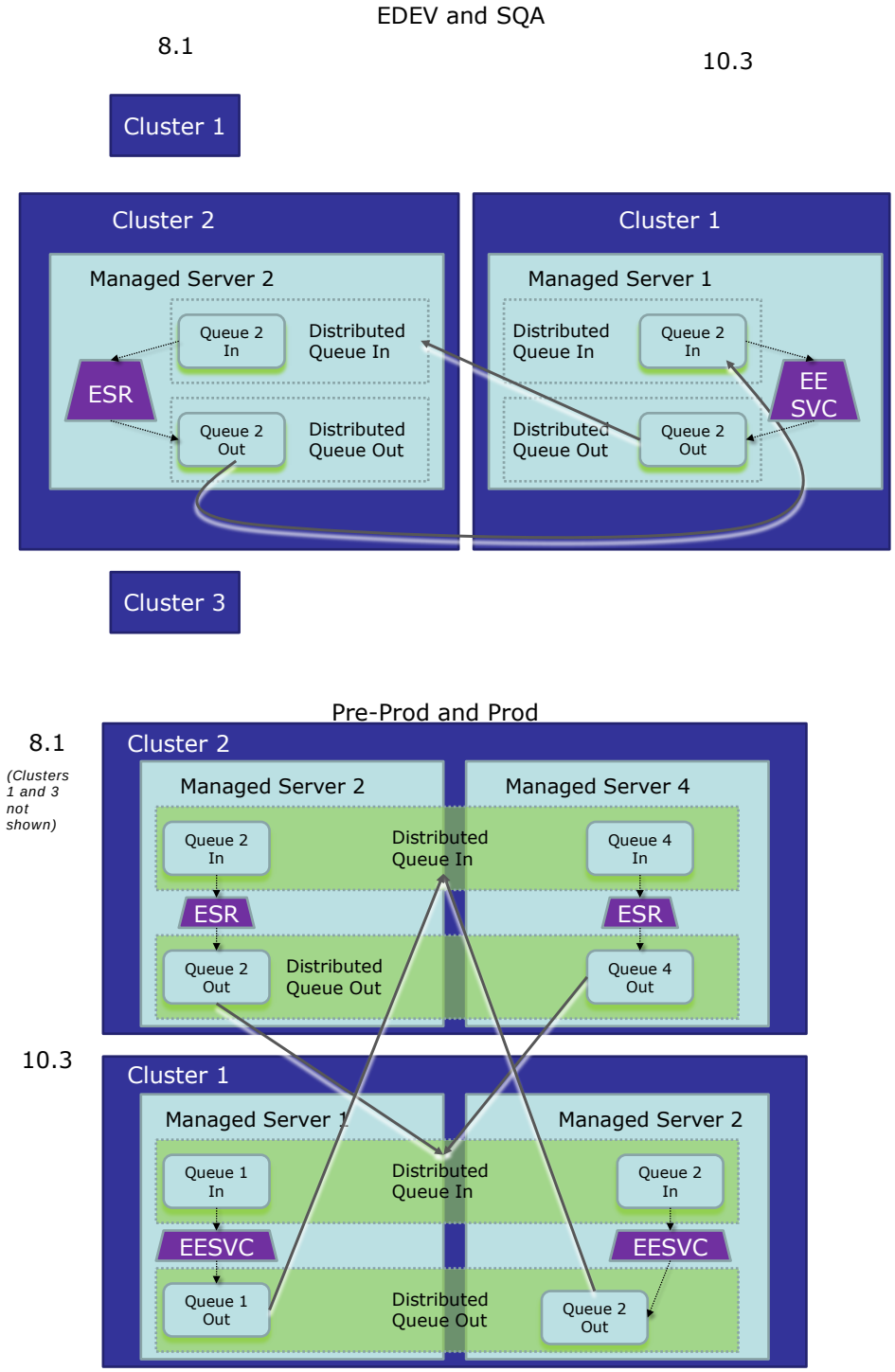
-Djavax.net.ssl.keyStore=/u01/app/bea/wlserver_10.3/server/lib/appcertstore.jks
-Djavax.net.ssl.keyStorePassword=PASSWORD2

Please note: It is better to cut and paste the current content from ARGUMENTS field and then add these two and paste the whole thing back.

Setting up JMS Queues in E&E servers

JMS Queues are installed in E&E servers to facilitate communication between ESR and MSDS webservice delegate in E&E ser vers.

The JMS configuration is as follows.



The instructions for installing JMS Queues in ESR servers (weblogic 8.1) are as follows.

MSDS Queue Install Instructions for WebLogic 8 (ESR):

1. Navigate to the console application for ESR and log in with the appropriate credentials.

2. In the left tree pane, expand the path "ESRDomain -> Services -> JMS -> Connection Factories". Right-click on the "Connection Factories" item and choose "Configure a new JMS Connection Factory". In the screen that appears on the right, enter the following information:

   Name: "MSDS Connection Factory"
   JNDI Name: "jms.MSDS-ConnectionFactory"
   Client ID: (empty)
   Default Priority: 4
   Default time to live: 0
   Default time to deliver: 0
   Default Delivery Mode: Persistent
   Default redelivery delay: 0
   Messages maximum: 10
   Overrun Policy: Keep Old
   Allow Close In On Message: (unchecked)
   Acknowledge policy: All
   Load Balancing Enabled: (checked)
   Server Affinity Enabled: (unchecked)

   Click "Create" at the bottom right of the webpage.

   In the next page that appears, check the radio button "All servers in the cluster" underneath the middle item that says "ESRCluster2".

   Click "Apply" at the bottom right of the webpage.

   You will see a new item appear in the left tree pane inside the "Connection Factories" folder called "MSDS Connection Factory". Step 2 is complete.

3. In the left tree pane, expand the path "ESRDomain -> Services -> JMS -> Templates". Right-click on "Templates" and choose "Configure a new JMS Template".

   In the screen that appears on the right, enter “MSDS Inbound Queue” in the name field and click “Create”.

   You will see the new template appear in the left tree pane inside the “Templates” folder.

4. Repeat step 3, but entering “MSDS Outbound Queue” for the name. Ensure both new Inbound and Outbound templates appear in the left tree pane under the “Templates” folder.

5. In the left tree pane, expand the path "ESRDomain -> Services -> JMS -> Servers -> MS2.JmsServer -> Destinations". Right-click on “Destinations” folder and choose “Configure a new JMSQueue”. Enter the following information in the screen on the right:

   Name: “MSDS Inbound Queue@MS2.JmsServer”
   JNDI Name: “jms.InboundMSDSQueue@MS2.JmsServer”
   Replicate JNDI name in cluster: (checked)

Enable store: default
Template: MSDS Inbound Queue

Click “Create” at the bottom right of the webpage.

You will see a new item appear in the left tree pane inside the “Destinations” folder called “MSDS Inbound Queue@MS2.JmsServer”.

6. Repeat step 5, substituting the following values:

   Name: “MSDS Outbound Queue@MS2.JmsServer”
   JNDI Name: “jms.OutboundMSDSQueue@MS2.JmsServer”
   Template: MSDS Outbound Queue

   Ensure both new Inbound and Outbound queues appear in the left tree pane under the “Destinations” folder.

7. In the left tree pane, expand the path "ESRDomain -> Services -> JMS -> Distributed Destinations". Right-click on “Distributed Destinations” and choose “Configure a new JMSDistributedQueue…”. Enter the following information in the screen on the right:

   Name: “MSDS Inbound Queue”
   JNDI Name: “jms.InboundMSDSQueue”
   Local Balancing Policy: Round Robin
   Forward Delay: -1 seconds

   Click “Create” at the bottom right of the webpage.

   At the top of the right panel, click the “Members” tab. Click the link “Configure a new Distributed Queue Member…”. Enter the following information in the screen on the right:

   Name: “MSDS Inbound Queue@MS2.JmsServer”
   JMS Queue: select the “MSDS Inbound Queue@MS2.JmsServer” option
   Weight: 1

   Click the “Create” button at the bottom right of the webpage.

   Ensure a new item appears in the left tree pane underneath the “Distributed Destinations” folder called “MSDS Inbound Queue@MS2.JmsServer”.

8. Repeat step 7, substituting the following values for the main queue:

   Name: “MSDS Outbound Queue”
   JNDI Name: “jms.OutboundMSDSQueue”

   Also substitute the following values for the “Members” page:

   Name: “MSDS Outbound Queue@MS2.JmsServer”
   JMS Queue: select the “MSDS Outbound Queue@MS2.JmsServer” option

Ensure both the Inbound and Outbound distributed destinations now appear in the left tree pane underneath the “Distributed Destinations” tab.

The instructions for installing JMS Queues in E&E servers (weblogic 10.3) are as follows.

Pre-requisite: Ensure that a domain name appclu-prod.eesvc.healthevet.va.gov exists and includes the servers vhaesrapp45.aac.va.gov and vhaesrapp46.aac.va.gov.

1. Set the following environment variable:

   export EEDOMAIN_HOME=/home/weblogic/bea/EES-DEV

   # Change the value of this variable for the appropriate environment:

   # EES-DEV for edev

   # EES-PREPROD for preprod

   # EES-PROD etc

2. Unzip MSDS-scripts.zip, open a new command window and change directory to the appropriate subfolder [dev, sqa, etc.]

3. Run this command in the directory containing the PrepMSDS.sh file to remove ^M chars:

   [weblogic@vhaesrapp41 dev] dos2unix PrepMSDS.sh

   If dos2unix isn't on the path, set the executable bit of the attached utility by running "chmod +x ../dos2unix.sh" and then run "../dos2unix.sh ./PrepMSDS.sh"

4. Copy the PrepMSDS.sh and PrepMSDS.py files into the domain folder:

   [weblogic@vhaesrapp41 dev] cp ./PrepMSDS* $EEDOMAIN_HOME

5. Change directory into the domain folder:

   [weblogic@vhaesrapp41 dev] cd $EEDOMAIN_HOME

6. Update the credentials at the top of the PrepMSDS.py file to match those required by the WebLogic server in the current environment. Values to change are on lines 6 and 7: "eesvcUsername" and "eesvcPassword". For example, the default values are "weblogic" / "weblogic123" as documented for WebLogic 10.3.

7. Run script PrepMSDS.sh, which adds new JMS components to existing administration server config:

   [weblogic@vhaesrapp41 dev] ./PrepMSDS.sh

   If necessary, set the executable bit first by running "chmod +x ./PrepMSDS.sh"

8. Logon to the admin console to make sure the JMS components are created; for example, a new JMS server called "EE-JMS".

9. Deploy the "jms-notran-adp" resource adapter by performing the following steps:

   9a. In the WebLogic console, navigate to the ESR-WS -> Deployments section in the left tree pane. Click "Install" button above the table of deployments in the right pane.

   9b. In the "Path" textbox, type the path to the server/lib folder inside the WebLogic installation directory. For example:
   /u01/app/bea/wlserver_10.3/server/lib
   Press enter after typing it and it should refresh the file list below.

   9c. Check the radio button next to the file below named "jms-notran-adp.rar". Do not confuse this with the exploded directory called "jms-notran-adp (open directory)". Click the "Next" button at the top of the table.

   9d. On the next screen, check the option "Install this deployment as an application" and click "Next".

   9e. On the next screen, check the radio button "All servers in the cluster". It will automatically check the EECluster item above it. No other items on the screen should be selected. Click "Next".

   9f. On the next screen, accept all the defaults and click "Finish".

   If it installs successfully, the deployments webpage will appear and a new item will be in the table called "jms-notran-adp". Ensure the type of this item is "Resource Adapter".

   If it did not install successfully due to a Java error about "specification version" or the type is not "Resource Adapter", contact ESR support for further instructions and a workaround.

10. Deploy the msds-ws.war using standard deployment instructions for a war file.

11. Click the "View Changes and Restarts" link in the top left of the console webpage, then click "Restart checklist" tab. If it says the admin server requires a restart, restart the admin server now from the command line. Otherwise proceed to step 12.

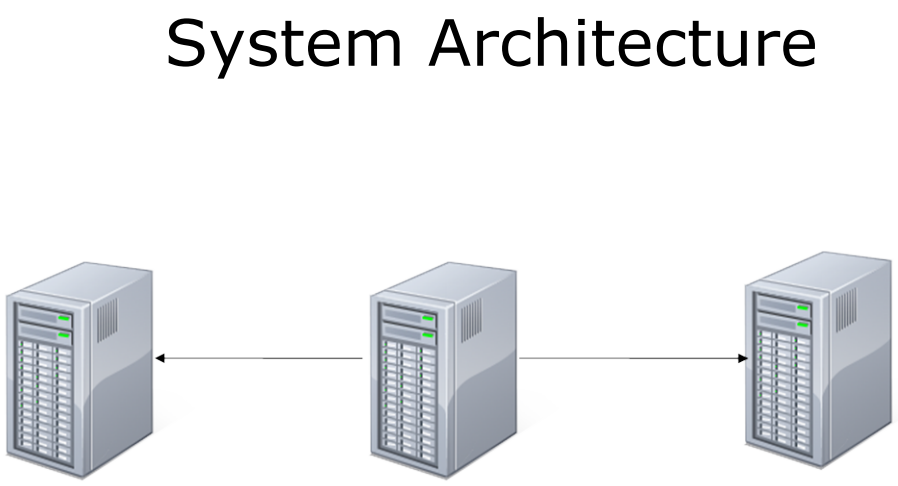
12. Stop, then start the managed servers via the admin console.

13. Remove the PrepMSDS files from the domain folder (optional):
    rm $EEDOMAIN_HOME/PrepMSDS.sh
    rm $EEDOMAIN_HOME/PrepMSDS.py

Setting up the SFTP interface between ESR Linux and Windows Servers

CO77158FY11

For ESR 3.5, in order to extract the data from the CDW, a windows server with SQL server database was established. Secured FTP connection needs to be established between ESR production windows server VAAUSESRSQL25 and ESR Linux server vhaesrweb1. In order to establish a passwordless SFTP connection, SSH keys were generated for the windows user ID, VAAITCESRUSR, using the reflection key gen utility. The .pub file was added to the authorized_keys file for aacesrprod on vhaesrweb1. The setup in production is shown below.



Setting up the CDW Data Extraction package in ESR Windows Server

CO77158FY11

For the ESR 3.5 Preferred Facility enhancements, a daily data exchange between the CDW database and ESR needed to be established.

CDW is an SQL server database, therefore, an SQL server data extraction utility needed to be set up in the ESR windows server that hosts an SQL server database.

The instructions are below:

Introduction

This file describes the installation and operation process for a set of scripts which are used to retrieve PCMM data from the CDW database CDWWorks and transfer it to the ADR database.

This data is used in support of Preferred Facility functionality of the ESR application. The data retrieval process consists of two parts:

* initial bulk data load
* regular (daily) data updates.

The scripts for daily updates are designed to be run as an automatic task scheduled on regular (daily) basis.

Installation Pre-requisites

The following are pre-requisites to install and successfully run this package.

* The local server used to run the package has Windows operating system (Windows Server 2008 R2).
* Microsoft SQL Server 2008 R2 is installed with all the components.
* The secure copy (scp) utility is installed and configured to have a trusted connection with the ESR server.
* The Active Directory user account VAAITCESRUSR is created for the ESR application.
* Account VAAITCESRUSR has a privilege to create a database in local MS SQL Server.
* Account VAAITCESRUSR has a privilege to create and run a job using Task Scheduler on local Windows server.
* Account VAAITCESRUSR has a privilege to create a directory to store scripts and data files with adequate disk space.
* Account VAAITCESRUSR is configured to run scp and sqlcmd utilities on the local server.

* Account VAAITCESRUSR has permission to access CDW database on the CDW database server.

The content of this package

\install
  README.txt (this file)
  createCDWsupport.sql
  createTablesCDWsupport.sql

\initial_load
  getETLBatchIDfromCDWperRegion.sql
  getPatProvRelFromCDWperSite.PROD.sql
  getPatProvRelFromCDWperSite.sql
  get_bulkPCMMdata.bat
  get_data_per_region.bat
  get_data_per_reg_site.bat
  get_pcp_region_1.bat
  get_pcp_region_2.bat
  get_pcp_region_3.bat
  get_pcp_region_4.bat

\daily_updates
  getLastETLBatchID_totalrecs_fromCDWperRegion.sql
  getPatProvRelFromCDWperRegion.PROD.sql
  getPatProvRelFromCDWperRegion.sql
  getStartETLBatchID_perRegion.sql
  get_CDWupdates_per_region.bat
  get_PCMMdata_updates.bat

Installation

Login as user VAAITCESRUSR to the local user to do the installation.

Create the following directories:

* Directory to store the data files (default: E:\MSSQL\PCMM2ESR)

* Directory to store scripts (default: E:\MSSQL\scripts

E:\MSSQL\scripts\install

E:\MSSQL\scripts\initial_load

E:\MSSQL\scripts\daily_updates)

* Directory to store CDWsupport database files (default: E:\MSSQL\Data)

Review the file createCDWsupport.sql. Make modifications in the script if you have chosen a location for the database files different from the default location.

Login to the local instance of MS SQL Server 2008 R2 as user VAAITCESRUSR. Run a script createCDWsupport.sql to create CDWsupport database (use master). Run a script createTablesCDWsupport.sql to create tables in CDWsupport database (use CDWsupport).

Review the file get_bulkPCMMdata.bat. Make modifications in this file if you have chosen a location for the scripts directory, data directory, secure copy user, ESR server name, data directory on ESR server, and a CDW database server name different than the default values.

Default values are as follows (see file get_bulkPCMMdata.bat):

set MyDirectory=E:\MSSQL\PCMM2ESR

set ScriptDirectory=E:\MSSQL\scripts\initial_load

set sftpuser=aacesrpprod

set ESRserver=vhaesrweb8.aac.va.gov

set ESRdirectory=/u02/batchProcess/PCMM2ESR

set CDWserver=vhacdwa01.vha.med.va.gov

Review the file get_PCMMdata_updates.bat . Make modifications in this file if you have chosen a location for the scripts directory, data directory, secure copy user, ESR server name, data directory on the ESR server, and CDW database server name different than the default values.

Default values are as follows (see file get_PCMMdata_updates.bat):

set MyDirectory=E:\MSSQL\PCMM2ESR

set ScriptDirectory=E:\MSSQL\scripts\daily_updates

set sftpuser=aacesrpprod

set ESRserver=vhaesrweb8.aac.va.gov

set ESRdirectory=/u02/batchProcess/PCMM2ESR

set CDWserver=vhacdwa01.vha.med.va.gov

Schedule tasks in Task Scheduler

As user VAAITCESRUSR start Task Scheduler utility and schedule a task to run script get_bulkPCMMdata.bat once for initial bulk data load of PCMM data. Also, schedule a regular (daily) task to run script get_PCMMdata_updates.bat for data updates. Make sure that a first run of the daily update task is scheduled after the initial bulk data load task is finished.

Operation

When the initial bulk data load task is completed check that the data was successfully retrieved and moved to the ESR server: the data directory on the local server should be empty, table ETLBatchRegion in CDWsupport database should have 4 records, and the table BatchErrorLog in CDWsupport database should have no records. If you experience errors, rerun the initial bulk data load process again until successful. Do not run daily updates task until you get the bulk data load completed.

Under normal operations the data directory on the local server should remain empty, since after successful data transfer, the data files are deleted from the local server. If you see a file in the data directory when the daily update task is not running, examine the file with the extension '.log' and check CDWsupport.BatchErrorLog table for errors.

Note that the data and log files have date stamp as part of their names.

Standard DBA operations to maintain the CDWsupport database are expected. In particular, regular database backups are recommended. The table ETLBatchRegion in the CDWsupport database is expected to be updated every time the daily update task is run successfully. The table BatchErrorLog in the CDWsupport database should be periodically reviewed for error messages from the daily data update process.

Deployment Overview

ESR deployment involves consideration to other HeV systems. In addition, ESR deployment must also consider the existing legacy application that ESR is planned to replace. This system, commonly called HEC Legacy (HECL), is currently the System of Record (SOR) for the eligibility and enrollment data of its Veteran enrollees. The end-client of the HECL and HECMS systems is the HEC. To mitigate risk to HEC business operations, a phased deployment approach is in place to provide a stabilization period for the initial ESR 3.0 deployment. This phased approach consists of two "activation" phases and is documented in the following table. These serial activation phases shift the SOR responsibility and therefore have a distinct sequence of activities.

Please refer to the *ESR 3 0 Deployment - Phase 2 - Software Sequencing Plan (SSP)* document in TSPR for full details on the phased deployment sequence for ESR 3.0.

Database Information

Go to TSPR for a view of the Administrative Data Repository (ADR) ERD Main database diagram with which ESR communicates.

Instructions for Installing M Server (or Database) Components

N/A

Pre-Installation Instructions for the M-Server/Database Component

N/A

Installing M Server/Database Components

Implementation software for the HEC Legacy system was released previously to the HEC as part of patch IVMB*2*910.

The following M patches are required to be in place prior to Activation Phase II.

The installation order for all EVC R2 patches is as follows:

- DG host file DG_53_P688.KID (DG*5.3*688, IVM*2*115 & EAS*1*70)
- SD host file SD_53_P441.KID (SD*5.3*441, DG*5.3*664 & PX*1*168)
- Radiology (RA*5*70)
- Laboratory (LR*5*352)

Patch	DG_53_P688.KID	SD_53_P441.KID	LR*5.2*352	RA*5.0*70
Install Time	less than 5 minutes	less than 10 minutes.	less than 2 minutes	less than 5 minutes
Other Install Information	This patch should NOT be installed while the IVM BACKGROUND JOB [IVMBACKGROUND JOB] is running	** It is recommended that this patch NOT be installed less than seven days before AmbCare's monthly close-out ** This patch can be installed with users on the system; however it should be installed during off hours to minimize disruption to users. This patch affects the check-out process and must be installed when the SCDX AMBCAR NIGHTLY XMIT background job is not	This patch should not be installed during normal business hours.	Since the entire exam status mechanism may be affected, you should install this patch at a time when Rad/Nuc Med users are off the system.

Patch	DG_53_P688.KID	SD_53_P441.KID	LR*5.2*352	RA*5.0*70
		running.		
Inhibit Logins During Install	No	No	No	No
DISABLE Scheduled Options and Menu Options	[DGPRE PRE-REGISTER OPTION] Preregister a Patient [DG REGISTER PATIENT] Register a Patient [DG LOAD PATIENT DATA] Load/Edit Patient Data [DG MEANS TEST USER MENU] Means Test User Menu [DG MEANS TEST SUPERVISOR MENU] Means Test Supervisor Menu [EAS VIEW PATIENT ADDRESS] View Patient Address [EAS MT 0 DAY LETTER PRINT] Zero Day Letters Print [EAS MT 30 DAY LETTER PRINT] Thirty Day Letters Print [EAS MT 60 DAY LETTER PRINT] Sixty Day Letters Print	Ambulatory Care Nightly [SCDX AMBCAR NIGHTLY XMIT] Transmission to NPCDB Appointment Management [SDAM APPT MGT] Appointment Check-in/Check-out [SDAM APPT CHECK IN/OUT] Add/Edit Stop Codes [SDADDEDIT] Appointment Menu [SDAPP] Check-in/Unsched. Visit [SDI] Make Appointment [SDM] PCE Encounter Data Entry [PXCE ENCOUNTER DATA ENTRY] PCE Encounter Data Entry & Delete [PXCE ENCOUNTER ENTRY & DELETE] PCE Encounter Entry Without Delete [PXCE ENCOUNTER ENTRY NO DELETE] PCE Encounter Data Entry - [PXCE ENCOUNTER ENTRY SUPER]	None	RA*

Patch	DG_53_P688.KID	SD_53_P441.KID	LR*5.2*352	RA*5.0*70
		Supervisor Event Capture Data Entry [ECENTER] Nightly Data Feed to PCE [EC NIGHT] EC GUI Context Version 2.0.1.0 [EC GUI CONTEXT] Load/Edit PTF Data [DG PTF SCREEN]		
Protocols to mark as 'Out of Order'	None	Process PCE Event Data [SDAM PCE EVENT] VISIT RELATED DATA [PXK VISIT DATA EVENT] PCE Device Interface Module's [PXCA DATA EVENT] Data Event	None	RA*
Delete after Install	DG53688P EAS1070P	The pre and post install routines SD53441 and SD53441A can be deleted after receiving the message that the SD*5.3*441 post init has run to completion.	None	None

After VistA sites have installed their patches, 24-hour compliance; then the RPC in the HECL system will be used to define ESR as the System of Record. This will update various protocols at each site.

M Environment

Implementation software for all the VistA systems was released previously as part of patch EAS*1*71.

Instructions for Installing Middle Tier Applications (e.g., Application Servers)

The AITC is responsible for installing middle tier applications (such as application servers). The AITC maintains the instructions for installation of these applications.

All components and services are verified indirectly though a messaging and UI smoke test performed by the ESR SQA team.

Instructions for Starting Applications on the Middle Tier Application Server

The AITC is responsible for deploying and starting applications in the middle tier. Deployment instructions for a build would document specific steps that are not covered by the default startup instructions.

All components and services are verified indirectly though a messaging and UI smoke test performed by the ESR SQA team.

Instructions for Installing Client Components

This section describes 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 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.

There is a supplied JUnit 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.

The "standard" VA approved browser configuration will be sufficient. The "standard" VA configuration includes Internet Explorer v6.0 with SP3, popup-blocker enabled and no proxy settings.

Post-Installation Review

All components and services are verified indirectly though a messaging and UI smoke test performed by the ESR development team.

Post-Installation (Setup and Configuration)

All components and services are verified indirectly though a messaging and UI smoke test performed by the ESR SQA team.

Starting the Client-Side Desktop Software

The HECMS application does not require any special browser settings. The "standard" approved VA browser configuration will be sufficient. The "standard" VA configuration includes Internet Explorer v6.0 with SP3, popup-blocker enabled and no proxy settings.

To access the HECMS application, open your IE v6.0. Enter the Enrollment Systems Redesign - Login URL supplied by your administrator.

M Installation Example

For the EVC Release 2 suite of patches that must be installed at all VistA sites prior to Activation Phase II, refer to the *Installing M Server/Database Components* section in this document.

To switch to Activation Phase II, a menu option is run from the HEC Legacy system which calls an RPC at the VistA sites to 'switch off' the QRY Z10 and QRY Z11 receivers for HEC Legacy and to 'switch on' the QRY Z10 and QRY Z11 receivers for ESR. All ESR links and protocols are currently active from Activation Phase I and the RPC does not change that. Instead, the HEC legacy protocols are removed as subscribers from the event driver protocols and the ESR protocols attached in their place.

1. HEC Legacy Menu Option to call RPC

   The menu option called is AYCB DUAL MESSAGING which is available only to users with security key AYCB DUAL MESSAGING.

   A menu of options is displayed as follows:

   Select OPTION NAME: AYCB DUAL MESSAGING Enable/Disable Dual Messaging

   Select one of the following:
   1 Enable Vista to ESR Messaging
   2 Define ESR as the System of Record
   3 Disable Vista to HEC Legacy Messaging
   4 Disable Vista to ESR Messaging
   5 Define HEC as the System of Record

   Select option: 1// 2 Define ESR as the System of Record

   Select one of the following:
   I Individual Vista site
   A All Vista sites

   Select option: I// ndividual Vista site

   Select Vista site: 500 ALBANY VAMC NY VAMC 500

   Are you sure you want to define ESR as SOR at station 500? N// YES

   Connecting to site: ALBANY VAMC

   ESR set as SOR at: ALBANY VAMC

The example above is for selecting one site but for activation the 'All Vista sites' option is used. This option will loop through all institutions with logical links that are valid VistA sites.

The option hangs until a response is received from the VistA site which is then displayed on the screen. This is at least 15 seconds but never more than 2 minutes.

Possible error conditions are reported:

SOR unchanged	This means the site was reached but protocols could not be updated. Normally this would only be reported if the ESR messaging for phase I was not enabled.

-1^Bad Handle	This means the institution and link configuration on HEC prevented an RPC call being made
0^New	This means that the link configuration allowed an RPC call but without response back from the site.
0^Unable to get data	Ditto

The code for this option on HEC Legacy is in AYCBESR routine.

Note that two sites Bronx (526) and Jackson (586) where skipped in the Activation Phase I run because they do not get picked up as valid sites on HEC Legacy.

2. VistA Protocols for QRY Z10 and QRY Z11

   This is the RPC (#8994) called from HEC:

```
NAME: EAS ESR MESSAGING                    TAG: TAG
  ROUTINE: EAS1071A                        RETURN VALUE TYPE: ARRAY
  VERSION: 1
 DESCRIPTION:
 This is a stub RPC to trigger dual messaging changes on Vista Sites
INPUT PARAMETER: MODE                      PARAMETER TYPE: LITERAL
  MAXIMUM DATA LENGTH: 16                  REQUIRED: YES
  SEQUENCE NUMBER: 1
 RETURN PARAMETER DESCRIPTION:
 The RPC will return error if the Vista process is unable to perform
the
 required messaging changes for Vista/ESR or Vista/HEC.
```

   This is the before state for the protocols changed by the RPC (HEC Legacy is SOR):

```
NAME: VAMC 500 QRY-Z10 SERVER
  ITEM TEXT: FINANCIAL QUERY/Query VAMC to HEC
  TYPE: event driver                       CREATOR: RYAN,DOLORES G
  TIMESTAMP: 60295,55882                   SENDING APPLICATION: VAMC
500
  TRANSACTION MESSAGE TYPE: QRY            EVENT TYPE: Z10
  ACCEPT ACK CODE: AL                      APPLICATION ACK TYPE: AL
  VERSION ID: 2.1                          RESPONSE PROCESSING ROUTINE:
D ORF^IVMCM
SUBSCRIBERS: VAMC 500 QRY-Z10 CLIENT


NAME: VAMC 500 QRY-Z11 SERVER
  ITEM TEXT: ENROLLMENT/ELIGIBILITY QUERY/Query VAMC to HEC
  TYPE: event driver                       CREATOR: RYAN,DOLORES G
  TIMESTAMP: 60295,55882                   SENDING APPLICATION: VAMC
500
  TRANSACTION MESSAGE TYPE: QRY            EVENT TYPE: Z11
  ACCEPT ACK CODE: AL                      APPLICATION ACK TYPE: AL
  VERSION ID: 2.1                          RESPONSE PROCESSING ROUTINE:
D ORF^IVMCM
SUBSCRIBERS: VAMC 500 QRY-Z11 CLIENT
```

   This is the after state for the protocols changed by the RPC (ESR is SOR):

```
NAME: VAMC 500 QRY-Z11 SERVER
  ITEM TEXT: ENROLLMENT/ELIGIBILITY QUERY/Query VAMC to HEC
  TYPE: event driver                       CREATOR: RYAN,DOLORES G
```

```
  TIMESTAMP: 60295,55882                SENDING APPLICATION: VAMC
500
  TRANSACTION MESSAGE TYPE: QRY         EVENT TYPE: Z11
  ACCEPT ACK CODE: AL                   APPLICATION ACK TYPE: AL
  VERSION ID: 2.1                       RESPONSE PROCESSING ROUTINE:
D ORF^IVMCM
SUBSCRIBERS: EAS ESR 500 QRY-Z11 CLIENT


NAME: VAMC 500 QRY-Z10 SERVER
  ITEM TEXT: FINANCIAL QUERY/Query VAMC to HEC
  TYPE: event driver                    CREATOR: RYAN,DOLORES G
  TIMESTAMP: 60295,55882                SENDING APPLICATION: VAMC
500
  TRANSACTION MESSAGE TYPE: QRY         EVENT TYPE: Z10
  ACCEPT ACK CODE: AL                   APPLICATION ACK TYPE: AL
  VERSION ID: 2.1                       RESPONSE PROCESSING ROUTINE:
D ORF^IVMCM
SUBSCRIBERS: EAS ESR 500 QRY-Z10 CLIENT
```

Zipped File Contents, Where Applicable

N/A

Troubleshooting

Recovering from a Server Crash

Although a rare scenario, there could be cases when the servers may crash. This could happen for different reasons for example, if there is memory leak or if the application runs out of database connections. The safest way to get the server up is to perform the following the steps:

1. Most installation problems can be resolved by simply removing installation files under staging directory and log files. To clean all installation files and log files, proceed to step 2
2. Refer to "Logging to ESR server as WebLogic User**"** section of the *ESR Operations Guide* in TSPR to log onto the **ESR server hosting the WebLogic admin server** under your account as WebLogic user.
3. Refer to "Determining if ESR servers are running" section of the *ESR Operations Guide* in TSPR to determine if Admin server, Managed servers, and Node Manager processes are running on all the ESR servers. If they are running, refer to **"**Stopping ESR servers using scripts **"** section. When all ESR Servers are shutdown completely, proceed to step 4.
4. Refer to "Logging to ESR server as weblogic user**"** section of the *ESR Operations Guide* in TSPR to log onto each of the ESR servers under your account as weblogic user.
5. From the WebLogic user's home account, type **"./cleanLogs.sh 2"** for each of the servers.
6. Refer to **"**Starting ESR application using scripts**"** section of the ESR Operations Guide in TSPR to start the Admin Server, all Managed Servers, and Node Managers on all the ESR servers.
7. Refer to **"**Installing ESR**"** section to install ESR. If the problem still persists, capture the exceptions and as much information as possible from log files. Refer to http://forums.oracle.com/forums/category.jspa?categoryID=202 for more information regarding how to solve installation problems.

Additional Information

For more ESR troubleshooting information, the documentation can be found on the *Technical Services Project Repository* (TSPR) project notebook page by clicking on the *ESR Troubleshooting guide.pdf*. This is a living document and will be updated periodically.

Acronyms and Definitions

Name	Acronym	Definition
Austin Information Technology Center	AITC	The AITC (a.k.a. Austin Automation Center (AAC)) provides comprehensive e-government solutions to match the critical needs of VA and other federal agency customers, from managing data to automating business processes. The AITC supports over 100 customer applications that provide mission-critical data for financial management, payroll, human resources, logistics, medical records, eligibility benefits, and supply functions.
Administrative Data Repository	ADR	Warehouses data for the HECMS system.
Application Program Interface	API	Provides support for application layering.
Cross-Application Integration Protocol	CAIP	A framework which provides both applications and services with support for software procedure calls across systems and applications that rely upon infrastructure and middleware technologies, while simultaneously minimizing the direct dependencies of these same applications and services upon these enabling technologies.
Department Of Defense	DoD	A Federal Agency responsible for Armed Forces of the United States.
Enrollment Database	EDB	A web-based case management system that enables users to track and manage veterans' health care enrollment processes.
Enrollment System Redesign	ESR	Enrollment System Redesign is the Health*e*Vet 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. ESR will allow staff at the HEC to work more efficiently and determine patient eligibility in a more timely manner. (*see* HECMS)
Health Eligibility Case Management System	HECMS	A new architectural web-based system that is replacing the HEC Legacy Enrollment System. (*see* ESR)
Health Eligibility Center	HEC	Primary function is to provide support for veterans by managing and updating eligibility and enrollment records.

Name	Acronym	Definition
Health Insurance Portability Accountability Act	HIPPA	A privacy protection public law act.
Income Verification Matching	IVM	Verifies veterans self-reported income information based upon data that's received from the IRS and SSA federal tax information. This information determines veterans' responsibilities for making medical care co-payments and enhances revenue from first party collections.
Integrated Master Schedule	IMS	An integrated and networked multi-layered schedule of program tasks required to complete the work effort captured in a related Integrated Master Plan (IMP). The IMS should include all IMP events and accomplishments and support each accomplishment closure criteria.
Internal Revenue Service	IRS	Federal Agency that gathers and stores income information.
Java ARchive	JAR	It is used for aggregating many files into one. It is generally used to distribute Java classes and associated metadata.
MyHealtheVet	MHV	MyHealtheVet is a web-based system that empowers veterans/beneficiaries with information and tools so that they can improve their health to the maximum extent possible. Participating veterans/beneficiaries are given copies of key portions of their electronic health records. This record is stored in a secure and private environment called an eVAult. The eVAult will be personalized with appropriate links to useful explanatory material to help veterans/beneficiaries understand what is in their record, and what they can do to improve their health condition. Veterans/beneficiaries can also add structured medical information in the "self-entered" section of their eVAult.
Naming Directive Service	NDS	A common dynamic routing service which determines the appropriate list for the delivery of events based on the need for synchronization, topic, and subscriber; and a common naming/directory service (used by the delivery service) to provide support for the mapping of logical destinations to physical destinations. A set of lookup APIs to other internal services.
Master Patient Index	MPI	Uniquely identifies a patient and the facilities where the patient last received medical care.

Name	Acronym	Definition
Person Service Identity Management	PSIM	A core business service that supports person data commonly required by other applications such as Enrollment. PSIM enumerates and maintains person identities of both patients and non-patients in HealtheVet-VistA.
Software Sequencing Plan	SSP	This is a special sequencing of steps for Activation Phase 2.
System of Record	SOR	A system of record (SoR) is an information storage system which is the authoritative data source for a given data element or piece of information.
Vitria Interface Engine	VIE	This is the Vitria BusinessWare that connects disparate system, transforms data, converts data, routes data, ensures the delivery of data, and is rules based. It provides a consistent HL7 compliant communication environment.
Transport Level Security	TLS	The TLS protocol allows client/server applications to communicate across a network in a way designed to prevent eavesdropping and tampering. TLS authentication is used to communicate with VADIR webservice.