Home Telehealth Reporting Enhancements (HTRE) Phase 2

Deployment, Installation, Back-Out, and Rollback Guide

September 2017

Version 2.0

Department of Veterans Affairs (VA)

Office of Information and Technology (OI&T)

Revision History

Date	Version	Description	Author
09/20/2017	2.0	Updated IHTA software version number to current Build 4 version. Updated hardware version numbers. Updated Build 4 deployment dates.	Celeste Perkins
06/19/2017	1.3	Minor updates for Build 3	Celeste Perkins
04/06/2017	1.2	Updated the deployment date to 04/12/2017	Celeste Perkins
03/21/2017	1.1	Minor content update addressing Product Support review and comment	Celeste Perkins
03/07/2017	1.0	Minor updates for Build 2	Celeste Perkins
01/03/2017	0.1	Initial Version • Using the VIP template dated March 2016, Version 2.2	HTRE Phase 2 Development Team

Table of Contents

1 Introduction 1
1.1 Purpose 1
1.1.1 Key Definitions 1
1.1.2 Plan Overview 2
1.1.3 Statements of Understanding 2
1.2 Dependencies 2
1.3 Constraints 2
2 Roles and Responsibilities 3
3 Deployment 4
3.1 Timeline 4
3.1.1 High-Level Schedule 4
3.1.2 Schedule Activities 5
3.2 Site Readiness Assessment 5
3.2.1 Deployment Topology (Targeted Architecture) 5
3.2.2 Site Information (Locations, Deployment Recipients) 5
3.2.3 Site Preparation 5
3.3 Resources 6
3.3.1 Facility Specifics 6
3.3.2 Hardware 6
3.3.3 Software 6
3.3.4 Communications 7
3.3.4.1 Deployment/Installation/Back-Out Checklist 7
3.3.5 Documentation 7
4 Installation 8
4.1 Pre-installation and System Requirements 8
4.2 Platform Installation and Preparation 9
4.3 Download and Extract Files 9
4.4 Database Creation 9
4.5 Installation Scripts 9
4.6 Cron Scripts 9
4.7 Access Requirements and Skills Needed for the Installation 9
4.8 Installation Procedure 9
4.8.1 Apache Web Server 9
4.8.2 WebLogic Portal Server Development 10
4.8.3 Apache Web Server Deployment 10
4.9 Installation Verification Procedure 11
4.10 System Configuration 16

4.11 Database Tuning 16
5 Back-Out Procedure 16
5.1 Back-Out Strategy 16
5.2 Back-Out Considerations 16
5.2.1 Load Testing 16
5.2.2 User Acceptance Testing 16
5.3 Back-Out Criteria 16
5.4 Back-Out Risks 16
5.5 Authority for Back-Out 16
5.6 Back-Out Procedure 16
5.7 Back-Out Verification Procedure 16
6 Rollback Procedure 17
6.1 Rollback Considerations 17
6.2 Rollback Criteria 17
6.3 Rollback Risks 17
6.4 Authority for Rollback 17
6.5 Rollback Procedure 17
6.5.1 Rollback ccht.ear on WebLogic Portal Server 18
6.5.2 Rollback static contents on Apache Web Server 18
6.5.3 Backup Selection 19
6.5.4 Database Recovery Preparation 19
6.5.5 Database Point in time Restore 20
6.5.6 Database Recovery Follow-up 20
6.6 Rollback Verification Procedure 21

List of Tables

Table 1: Deployment Roles and Responsibilities 3
Table 2: High Level Milestones 4
Table 3: Site Preparation 5
Table 4: Facility-Specific Features 6
Table 5: Hardware Specifications 6
Table 6: Software Specifications 6
Table 7: Deployment/Installation/Back-Out Checklist 7
Table 8: Smoke Testing Application for Functionality 11

1 Introduction

This document describes the plan to deploy and install the Integrated Home Telehealth Application (IHTA) Version 10.5, as managed through the Home Telehealth Reporting Enhancements (HTRE) project.

1.1 Purpose

The purpose of this plan is to provide a single, common document that describes how, when, where, and to whom the IHTA will be deployed. The plan also identifies resources, communications plan, and rollout schedule. Specific instructions for installation, back-out, rollback, transition to sustainment, and user training are supplied separately in stand-alone documents, in online help, or in change management systems, depending on the requirements of the operations organization.

1.1.1 Key Definitions

Deployment Design: Phase of the solution life cycle in which architectural design and implementation specifications are developed and tested. The preparation of plans and specifications necessary to implement the solution are part of the Deployment Design phase. At the end of the Deployment Design phase, a solution is ready for implementation in the production environment.

Enterprise System Engineering (ESE) and Product Development (PD), as applicable, based on primary project ownership, are responsible for deployment design and complete release package specifications, including user and technical documentation, procurement, shipping, and training plans. Architectural design artifacts, release package specifics, and testing plans and results are vetted by the operations organization.

Implementation: Phase of the solution life cycle in which the newly designed or changed hardware, software, functionality, or process is installed into the production environment and activated. The specifications and plans created during Deployment Design steer the work that is performed during the Implementation phase.

The operations organization is responsible for installation and the installation schedule, selection and validation of shipping locations/schedule, site readiness to support installation, acceptance of equipment using asset inventory processes, coordinating and providing training (working with ESE and Product Development if applicable), communication, and vetting changes through the operations organization management.

Release: Release baseline is defined as the product build (software and hardware specifications) along with the body of documents that support testing, installation, operations, training, and support of the product. Projects will determine the release baseline early in the development cycle. Baseline components enter change control once the project is approved for deployment.

ESE: Responsible for release management, including certifying production readiness. ESE must validate that the project owner has provided an adequate release package. ESE also validates the release baseline. As defined by the VA Office of Information & Technology (OI&T) Testing and Release checklist, the release package is the subset of documents that are provided to the operations organization, along with the product. The complete release package will be made available to the operations organization at or before deployment.

1.1.2 Plan Overview

Deployment and installation of IHTA is planned as a concurrent rollout to all Veterans Integrated Service Networks (VISN) at the same time.

Deployment will be performed by the PD team members with representatives from peer organizations, as needed. Installation will be performed by PD team members, along with representatives from peer organizations.

1.1.3 Statements of Understanding

The Deployment Plan is developed with the following assumptions:

- PD is responsible for the software-only installation and during installation; projects are led by a PD Project Manager (PM). Enterprise Operations (EO) representatives participate as consulting team members. PD is responsible for design. Field Operations (FO), National Data Center Program (NDCP), and Austin Information Technology Center (AITC) are informed of design and testing issues.
- PD develops the Deployment and Installation Plan.
- New requirements that require Operations and Maintenance (O&M) resources must be funded. Deployment, installation, and ongoing maintenance costs (including capacity planning, recurring costs) must be identified and funded. All funding sources and issues should be resolved and documented prior to deployment and installation. PD should complete collaborative field testing prior to deployment. Veteran-Focused Integration Process (VIP) Release Management will certify production readiness based upon the level of testing that has occurred prior to deployment. As part of the release baseline, this information would be identified in the Release Profile.
- The Office of Telehealth Services (OTS) (customer organization) will provide a training plan prior to deployment.

1.2 Dependencies

This section is not applicable for IHTA.

1.3 Constraints

This section is not applicable for IHTA.

2 Roles and Responsibilities

This section describes the teams who perform the steps described in this plan.

Deployment and installation activities are performed by representatives from the teams listed in the following table.

Table 1: Deployment Roles and Responsibilities

ID	Team	Phase / Role	Tasks	Project Phase
1.	VIP	Deployment	Fully communicate ratified deployment topology	Per the Veteran-Focused Integration Process (VIP)
2.	Product Development	Deployment	Deployment planning and scheduling (including orchestration with vendors)	Per VIP
3.	Product Development	Deployment	Develop Communications Plan and key messages well in advance	Per VIP
4.	Product Development	Deployment	Develop O&M Plan	Per VIP
5.	National Home Telehealth Training Center	Deployment	Develop appropriate training materials	Per VIP
6.	EO	Deployment	Ensure release package contains full complement of artifacts and authorizations required for deployment	Per VIP
7.	EO	Deployment	Test for operational readiness	Per VIP
8.	EO	Deployment	Release certification	Per VIP
9.	EO	Deployment	Validate release baseline	Per VIP
10.	Product Development	Deployment	Execute deployment	Per VIP
11.	Product Development	Installation	Plan and schedule installation	Per VIP
12.	Regional PM/ Field Implementation Services (FIS)/ Office of Policy and Planning (OPP) PM	Installation	Collaborate on Field Operations communication plan that touches various field operations stakeholders and execute the communications plan	Per VIP
13.	Regional PM/FIS/OPP PM	Installation	Ensure authority to operate and that certificate authority security documentation is in place	Per VIP

ID	Team	Phase / Role	Tasks	Project Phase
14.	Sunshine Telehealth Training Center	Installation	Coordinate training	Per VIP

3 Deployment

The deployment is planned as a single national rollout. This type of rollout is best suited for a Web-based system like IHTA.

This section provides the schedule and milestones for the deployment.

3.1 Timeline

The deployment is planned as a single national rollout. This type of rollout is best suited for a Web-based system like IHTA.

This section provides the schedule and milestones for the deployment.

The deployment and installation is scheduled to run for approximately 1 day, as depicted in Section 3.1.1, High-Level Schedule.

In most Deployment Plans, Enterprise Operations (EO) maintains the master schedule in Microsoft Project Server, Field Operations, and Development (FOD) maintains its schedule in Clarity, and provides site scheduling to meet parameters and milestones enumerated above. Given the agile methodology being used to develop and deploy IHTA, along with the limited scope of this software (only deployment/installation), there is no need for a Master Deployment Schedule. The high-level schedule contained in Section 3.1.1 will suffice.

3.1.1 High-Level Schedule

As noted below in the Deployment/Installation Schedule, the deployment targets the following major milestones:

Table 2: High Level Milestones

Milestones	Target Date
Software Quality Assurance Testing Completed	10/27/2017
Section 508 Testing Completed	10/27/2017
User Functionality Testing Completed	N/A
Software Baseline Defined	N/A
Deployment of IHTA to Primary Production Environment	10/12/2017
Deployment of IHTA to Secondary Production Environment	10/12/2017
Testing of IHTA in Primary Production Environment Completed	10/27/2017
Testing of IHTA in Secondary Production Environment Completed	10/27/2017

Milestones	Target Date
User Registration Completed (for new users)	N/A
User Training Completed (if applicable)	N/A

3.1.2 Schedule Activities

Given the small scope of this software-only deployment, and the Veteran-focused Integration Process (VIP) development/deployment methodology being employed to develop IHTA, no further detailed schedule activities are required.

3.2 Site Readiness Assessment

This section discusses the locations that will receive the IHTA deployment. Topology determinations are made by ESE and vetted by FO, NDCP, and EO during the design phase as appropriate. Field site coordination is done by FO unless otherwise stipulated.

3.2.1 Deployment Topology (Targeted Architecture)

IHTA will be deployed using a Primary/Secondary data center topology. The Martinsburg Capitol Region Readiness Center (CRRC) in West Virginia will be the Primary Production site, and the Hines Information Technology Center in Hines, Illinois will be the Secondary Production site; however, at any given time, one site will act as the Primary Facility and the other site will act as the Secondary Facility. The function of the Primary and Secondary facilities will be shifted on a regularly scheduled basis to ensure that both facilities will function properly in either role when needed.

3.2.2 Site Information (Locations, Deployment Recipients)

As noted above, deployment is planned at the following sites:

- Martinsburg Capitol Region Readiness Center (CRRC) (Martinsburg, WV)
- Hines Information Technology Center (Hines, IL)

3.2.3 Site Preparation

No changes will be required to accommodate IHTA at either Martinsburg or Hines.

Table 3: Site Preparation

Site/Other	Problem/Change Needed	Features to Adapt/Modify to New Product	Actions/Steps	Owner
N/A	N/A	N/A	N/A	N/A

3.3 Resources

This section describes hardware, software, and facilities required for the IHTA deployment and installation.

3.3.1 Facility Specifics

No special facilities are required for IHTA installation/deployment.

Table 4: Facility-Specific Features

Site	Space/Room	Features Needed	Other
N/A	N/A	N/A	N/A

3.3.2 Hardware

The following table describes hardware specifications for the IHTA servers.

Table 5: Hardware Specifications

Required Hardware	Model	Version	Serial Numbers	Manufacturer	Quantity
Martinsburg CRRC Servers	PowerEdge R510	N/A	Application/Web Server: Serial Number: 7KT6VQ1	Dell	2
Hines Servers	PowerEdge R510	N/A	Application/Web Server: Serial Number: 9KT6VQ1	Dell	2

Please see Table 1, Deployment Roles and Responsibilities in Section 2 for details about who is responsible for preparing the site to meet these hardware specifications.

3.3.3 Software

The following table describes software specifications required at each site prior to deployment.

Table 6: Software Specifications

Required Software	Make	Version	Configuration	Manufacturer	Other
Microsoft SQL Server	N/A	2012	N/A	Microsoft	N/A
Oracle WebLogic Server	N/A	11g Release 1 (10.3.6)	N/A	Oracle	N/A
Apache Server	N/A	Version 2.4.6	N/A	Apache	N/A

Required Software	Make	Version	Configuration	Manufacturer	Other
Red Hat Enterprise Linux (RHEL)	N/A	7.4	N/A	Red Hat	N/A

Please see Table 1, Deployment Roles and Responsibilities in Section 2 for details about who is responsible for preparing the site to meet these hardware specifications.

3.3.4 Communications

Not applicable.

3.3.4.1 Deployment/Installation/Back-Out Checklist

Table 7: Deployment/Installation/Back-Out Checklist

Activity	Day	Time	Individual Who Completed Task
Deploy	10/12/2017	7:00 PM EST – 11:00 PM EST	HTRE Phase 2 Product Development Team
Install	10/12/2017	7:00 PM EST – 11:00 PM EST	HTRE Phase 2 Product Development Team
Back-Out	10/12/2017	7:00 PM EST – 11:00 PM EST	HTRE Phase 2 Product Development Team

3.3.5 Documentation

Because PD will be responsible for the deployment, installation, and post-production support of IHTA, only limited formal documentation to support these activities will be produced. The following documents will be produced to support installation, deployment, and support of IHTA:

- HTRE_Phase2_IHTA_POM
- IHTA On-Line Help

NOTE: HTRE Phase 2, documentation is stored in the Rational Team Concert (RTC); CCHT_CM Project Area.

4 Installation

4.1 Pre-installation and System Requirements

Integrated Home Telehealth Application (IHTA) is a Web-based portal application sponsored by the Veterans Health Administration (VHA) Office of Telehealth Services (OTS). IHTA is designed to provide a flexible, maintainable, and resilient platform for Home Telehealth (HT) business functions. Each business function supported by IHTA is constructed as an application module of IHTA. Current IHTA modules include My Profile, Administration, Manage Quality Improvement Reports (QIR). IHTA access will be granted upon successful authentication using Department of Veterans Affairs (VA) Enterprise Two Factor Authentication (2FA) Single Sign on (SSO). Access to each IHTA module is restricted by user roles and permissions granted during the user registration process. Details on each module are provided below:

- **My Profile**: Allows the user to view his/her system information and adjust personal application settings, including audio instructions, multiple windows, and application window width and height.
- **Administration**: Provides IHTA administrators with the ability to approve or reject registrations, assign roles to users, and create and edit roles. This module also allows administrators to manage and schedule batch jobs (i.e., Weekly Vendor Compliance Report E-mail, Purge Completed Reports).
- **Manage Quality Improvement Reports**: The Manage QIR functionality allows Home Telehealth staff to electronically submit, process, track, and print QIRs that document quality and patient safety issues related to HT devices. This functionality replaces the manual VA Reporting and Processing Medical Materiel Complaints/ Quality Improvement Report form (VA Form 0729).
- **HT Reports**: Allows users to search on aggregate HT data from the Health Data Repository (HDR) to produce management-level reports.

Intended users of IHTA include National, Veterans Integrated Service Network (VISN) and Facility Administrators, Care Coordinators, Patient Services Assistants (PSA), VA Subject Management Experts, National Home Telehealth Training Center (NHTTC) staff, Program Office Managers, Vendors, and OTS Contract Office staff. Each IHTA module includes on-line help with content tailored specifically for that module.

IHTA is supported by the existing HT database, a relational database that stores data on patients enrolled in the HT program, the HT devices located in their homes, and the healthcare-related information they report using these devices. The HT database is updated weekly with this data, which is transmitted incrementally from the home-based medical devices and collected on data servers prior to its transmittal to the HT database.

IHTA is deployed into production at the Martinsburg Capital Region Readiness Center (CRRC) (Primary) and the Hines Information Technology Center (HITC) (Secondary).

4.2 Platform Installation and Preparation

This release of IHTA is deployed to an existing platform there is no system installation or configuration to be performed.

4.3 Download and Extract Files

Not applicable for this application.

4.4 Database Creation

IHTA Version 10.5 will function with the existing HT databases and will not require the creation of any additional database structure.

4.5 Installation Scripts

Not applicable for this application.

4.6 Cron Scripts

Not applicable for this application.

4.7 Access Requirements and Skills Needed for the Installation

The skill set of a WebLogic, Linux, and SQL Server expert is needed to perform the installation.

4.8 Installation Procedure

4.8.1 Apache Web Server

The Apache Web Server is installed and configured for serving https requests on the Production Web Servers: vhacrbwebhtce91 and vhacrbwebhtce92. The following are the steps to configure the Apache Web Server instance on the HTRE Production Web Servers to host the IHTA URL: https://vaww.ihta.cc.med.va.gov/ccht/home.html.

1. Contact the HTRE System Administrator to obtain a Unix account on the Production Web Servers: vhacrbappihta91 and vhacrbappihta92. It is important that the Unix account have access to administer the Apache Web Server installed and configured on HTRE Production Web servers.
2. When access to the HTRE Production Web Servers is granted, log on to vhacrbappihta91 to configure HTTP daemon (HTTPD) process of the Apache Web Server instance running on the vhacrbwebhtce91 server.
3. Backup the current version of /etc/httpd/conf.d/weblogic.conf to /httpd/conf.d/weblogic.conf.bak.

4. Contact HTRE System Administrator to obtain a Unix account on the Disaster Recovery Web Servers: **vhaishappihta81**and **vhaishappihta82**. It is important that the Unix account have access to administer Apache Web Server installed and configured on the Production Web Servers.
5. Log onto **vhaishappihta81** to configure httpd process of the Apache Web Server instance running on **vhaishappihta81**server.
6. Backup the current version of /etc/httpd/conf.d/weblogic.conf to /httpd/conf.d/weblogic.conf.bak.

4.8.2 WebLogic Portal Server Development

IHTA is designed and implemented as a Java Enterprise Edition Web Application; hence, IHTA is packaged as an Enterprise Archive (EAR) file. The following are the steps to deploy the ihta.ear file onto the IHTA Domain on the HTCE Production Application Servers:

1. Upload ihta.ear from IHTA Build machine to vhacrbappihta92.htce.cc.med.va.gov where an Admin Server of the IHTA Domain runs as a background process.
2. Log onto vhacrbappihta92.htce.cc.med.va.gov as ihta user.
3. Backup the current version of ihta.ear file as ihta.ear.<version number>.
4. Run the following command to un-deploy the current version of ihta.ear from IHTA cluster of Managed Servers configured in IHTA Domain "~/bin/undeploy.sh ~/prod.properties."
5. Wait for the script to complete successfully to proceed to the next step. Contact the IHTA System Administrator if you encounter problems.
6. Run the following command to deploy the new version of ihta.ear onto IHTA cluster of Managed Servers configured in the IHTA Domain "~/bin/deploy.sh ~/prod.properties domains/ ihta_prod/appStage/ihta.ear."
7. Wait for the deploy script to complete then run the ~startcluster.sh ~/prod.properties script to start the IHTA Cluster.
8. Wait for the script to complete successfully to proceed to the next step. Contact the IHTA System Administrator if you encounter problems.

4.8.3 Apache Web Server Deployment

IHTA contains static content, such as HTML files for its on-line help files. The following are the steps to deploy IHTA static content onto the Production Web Servers: vhacrbappihta91 and vhacrbappihta92.

1. Upload static content files from IHTA Build machine to vhacrbappihta91server.
2. Run the following command to deploy the new version of the IHTA static content files onto vhacrbwebihta91 server "~/bin/deploy.sh ~/prod.properties help."
3. Upload static content files from the IHTA Build machine to vhacrbappihta92 server.

4.9 Installation Verification Procedure

Use the following steps to test the main functions of the application to ensure it is functioning properly:

Table 8: Smoke Testing Application for Functionality

Step #	Action	Expected Results	Pass/Fail	Comments
1	Open IHTA	SSO page appears		
2	Click on the 'Sign In with VA PIV Card graphic'	Windows Security pop-up box appears requesting your PIV certificate and pin number		
3	Enter pin number and click 'Ok'	SSO log on succeeds. IHTA homepage appears		
4	Verify Version # is the Version # included in the build e-mail received from the Configuration Manager	IHTA Version at bottom of page matches version included in e-mail		
5	Login into application	IHTA home page is displayed		
6	Once you are logged in as a National Admin	IHTA homepage is displayed • National Admin has tabs for my profile, administration, and Manage QIRs		
7	Click blue question mark on right side of application	IHTA Help page loads		
8	Close Help page/tab that opened	IHTA homepage is displayed		
9	Click blue help link in footer	IHTA Help page loads		
10	Repeat Step 8			
11	Click My Preferences under My Profile tab	User Name, User ID, and Assigned Roles are shown • The only role shown for this logged in user is National Administrator		

Step #	Action	Expected Results	Pass/Fail	Comments
12	Click Manage Registrations under Administration tab	List of Registration(s) are shown with a Pending status		
13	Highlight an existing registration	Registration is selected • Buttons for Approve, Deny, and Cancel appear		
14	Click Approve	Approve Registration page loads with user information		
15	Check Program Support Assistant	Program Support Assistant (PSA) box is checked		
16	Click Reset	User info is reloaded and PSA role is not checked		
17	Click Cancel	Confirmation appears “All of the unsaved data will be lost. Do you still want to cancel?” click Yes • You are brought back to the Manage Registrations page		
18	Repeat Step 13			
19	Click Deny	Message box appears, “are you sure you want to deny this registration.” OK and Cancel buttons appear • Click “OK” • Deny Registration page loads with user information • Verify there is a required Registration Denied Reason field		
20	Click Cancel	Confirmation appears “All of the unsaved data will be lost. Do you still want to cancel?” click Yes • Manage Registrations page loads		
21	Click Manage Users under Administration tab	Manage Users page loads with search field available to search by User ID, or user's full Last Name, or user's full Last Name and full or partial First Name.		

Step #	Action	Expected Results	Pass/Fail	Comments
22	Click Search	Error Message displayed Error Message(s): • User ID or Full Last Name is required		
23	Input ihtaadmin for User ID	User input shows in field		
24	Input ihtaadmin for Last Name	User input shows in field		
25	Repeat Step 22	Error Messages displayed indicating user should only fill out one of the required fields not both		
26	Erase input from Last Name	User input is deleted from field		
27	With ihtaadmin in the User ID Field Only Click Search	Manage Users page loads with ihtaadmin information		
28	Click Cancel	Manage Users screen with search fields is displayed		
29	Click Mange Roles under Administration tab	Manage Roles loads with list of Roles and options for add and cancel		
30	Click Add	New Role page loads with editable fields to make a new role		
31	Click Cancel	Confirmation appears “All of the unsaved data will be lost. Do you still want to cancel?” click Yes • Manage Roles page is displayed		
32	Click Manage Scheduled Jobs under Administration tab	Manage Scheduled Jobs page loads with list of jobs		
33	Click “Resume All” or Click “Pause All” depending on what you find in an environment	Scheduled Job Status changes		

Step #	Action	Expected Results	Pass/Fail	Comments
34	Highlight PurgeCompleteReports	List of options appear on bottom of screen		
35	Click Execute	Success Message appears alerting user job was executed successfully		
36	Click Config	Config Scheduled Job popup is displayed • Job Status is “Paused” when Scheduled Job Status is “Paused”		
37	Click Cancel	List of scheduled jobs is displayed		
38	Click Schedule	Reschedule Scheduled Job popup is displayed		
39	Click Change	Editable job schedule is displayed		
40	Click Cancel	Reschedule Scheduled Job popup is displayed		
41	Click Cancel	List of scheduled jobs is displayed		
42	Click History	Scheduled Job History pop is displayed with a list of entries on jobs that have been run		
43	Click Cancel	List of scheduled jobs is displayed		
44	Click Active tab	Active view loads with no data available in table		
45	Click Refresh	Active view loads with same message		
46	Click Cancel	IHTA homepage is displayed		
47	Click Search All under Manage QIRs tab	QIR entries are displayed • Select any QIR • National Administrator has the edit button available when clicking on any QIR • Unselect your selection		
48	Click Excel	Full list of QIRs is opened in an Excel Spreadsheet		
49	Close Excel	Search All QIRs page is displayed		

Step #	Action	Expected Results	Pass/Fail	Comments
50	Apply search filters to QIR	Depending on what search filters the user uses, when searching the results are affected		
51	Logout of application and log back in as a QIR Originator	Homepage is displayed • QIR Originator has tabs for My Profile and Manage QIRs with the options to Add a New QIR		
52	Click New under Manage QIRs tab	New QIR page loads		
53	Fill out all required fields for a Test QIR	All fields with red asterisk are filled out		
54	Attach a document	A document is attached to the QIR		
55	Click Submit	QIR success message appears • A blank QIR form is loaded		
56	Click View My under Manage QIRs tab	QIR entries are displayed		
57	Highlight Test QIR just created	Buttons for edit, pdf, refresh, and cancel appear at bottom		
58	Click PDF	PDF version of current QIR loads in new tab		
59	Exit PDF	Tab closes • View My QIRs page is displayed		
60	Click Edit	Test QIR information loads and is editable		
61	Click Search All Under Manage QIRs tab	QIR entries are displayed		
62	Highlight Test QIR just created by you	Buttons for edit, pdf, refresh, and cancel appear at bottom • For QIRs not created by you buttons view, pdf, refresh and cancel appear		
63	End TC			

4.10 System Configuration

No system configuration for this release is required.

4.11 Database Tuning

IHTA Version 10.5 deployment will not require any database configuration changes or database structure alterations to the existing HT databases.

5 Back-Out Procedure

This section outlines the back out procedures for IHTA.

5.1 Back-Out Strategy

Refer to Section 6.1, Rollback Considerations for the back-out strategy.

5.2 Back-Out Considerations

5.2.1 Load Testing

Not applicable for this application.

5.2.2 User Acceptance Testing

Not applicable for this application, there are no functional changes.

5.3 Back-Out Criteria

The back-out criteria is errors in the log files, other application errors, and the application performance not meeting the project standards.

5.4 Back-Out Risks

Not applicable for this application.

5.5 Authority for Back-Out

Product Development (PD) would issue the authority to back-out.

5.6 Back-Out Procedure

Refer to Section 6, Rollback Procedure for the back-out procedure.

5.7 Back-Out Verification Procedure

Refer Section 4.9, Installation Verification Procedure for the back-out verification procedure.

6 Rollback Procedure

6.1 Rollback Considerations

Since the database structure or data requirements of the HT database will not be altered to support IHTA Version 10.5, HT database rollback will only be considered if data is introduced during IHTA smoke testing following IHTA deployment to production. Database recovery and rollback will only occur if manual data correction by PD cannot be employed as an alternative.

6.2 Rollback Criteria

The following criteria will used to evaluate the need for database recovery:

- Data is logically introduced during testing of the IHTA Version 10.5 application.
- Users have not been allowed access to the IHTA application following upgrade.
- External data feeds to HT database have not been restarted.
- The amount of time that has passed since IHTA allowed user access.

Since IHTA Version 10.5 does not introduce HT database structural or data changes, PD will consider manual data correction over HT database recovery.

6.3 Rollback Risks

The greatest rollback risk can be loss of data. The amount of data loss will depend on when it is determined that a rollback is potentially needed in relation to the amount of time that has passed since the IHTA application was made available to the users following deployment of IHTA Version 10.5.

6.4 Authority for Rollback

The PD team will be contacted to issue authority for database rollback.

6.5 Rollback Procedure

Recovery of the database to a prior point in time will require restoring the database from a full backup and applying the transaction logs necessary to bring the database state to the point in time decided upon. All due consideration should be given to the impact that this form of database recovery will have as data will be lost. Performing a database rollback recovery should only be considered after all other possible approaches to data correction have been found to have a greater impact than a point-in-time recovery. The following subsections describe the process for rolling back a database to a desired point in time.

6.5.1 Rollback ccht.ear on WebLogic Portal Server

The following are the steps to rollback ihta.ear deployed on IHTA domain to its previous version for example10.5.0.00101.

1. Log onto vhacrbappihta91.HTRE.cc.med.va.gov as wlp_user user.
2. Locate the backup version of ccht.ear .< 10.5.0.00101> under /u01/domains/ihta_prod/appStage/.
3. Change the backup version of ccht.ear .<10.5.0.00101> under ccht.ear.
4. Run the following command to un-deploy the current version of ccht.ear from IHTA cluster of Managed Servers configured in IHTA Domain "~/bin/stopcluster.sh ~/ prod.properties ; ~/bin/undeploy.sh ~/prod.properties."
5. Wait for the script to complete successfully to proceed to the next step. Contact IHTA System Administrator if you encounter problems.
6. Run the following command to deploy the previous version of ccht.ear onto IHTA cluster of Managed Servers configured in IHTA Domain "~/bin/deploy.sh prod.properties /u01/domains/ihta_prod/appStage/ccht.ear; ~/bin/startcluster.sh ~/ prod.properties."
7. Wait for the script to complete successfully to proceed to the next step. Contact the IHTA System Administrator if you encounter problems.
8. Open a browser to access https://vaww.htie.cc.med.va.gov/ccht/login.action to check if the deployment completed successfully.

6.5.2 Rollback static contents on Apache Web Server

The following are the steps to rollback IHTA static content to their previous version for example10.5.0.00101.

1. Log onto vhacrbwebihta91.HTRE.cc.med.va.gov as ihta user.
2. Traverse to /tmp directory and rename the following files: admin.zip, hdi.zip, main.zip, profile.zip, qir.zip, ihta.zip, register.zip, and reports.zip to admin.zip.<10.5.0.00101>, hdi.zip.<10.5.0.00101>, qir.zip.<10.5.0.00101>, ihta.zip.<10.5.0.00101>, main.zip.<10.5.0.00101>, profile.zip.<10.5.0.00101>, register.zip.<10.5.0.00101>, and reports.zip <10.5.0.00101>.
3. Rename the following backup files: admin.zip.<10.5.0.00101>, hdi.zip.<10.5.0.00101>, main.zip.<10.5.0.00101>, profile.zip.<10.5.0.00101>, qir.zip.<10.5.0.00101 >, ihta.zip.<10.5.0.00101>, register.zip.<10.5.0.00101>, and reports.zip. <10.5.0.00101> to admin.zip, hdi.zip, main.zip, profile.zip, register.zip, and reports.zip.
4. Run the following command to deploy the previous version of IHTA static content files onto vhacrbwebihta91 server "~/bin/deploy.sh ~/prod.properties help."
5. Log onto vhacrbwebihta92.HTRE.cc.med.va.gov as ihta user.
6. Traverse to /tmp directory and rename the following files: admin.zip, hdi.zip, main.zip, profile.zip, qir.zip, ihta.zip, and register.zip to admin.zip.<10.5.0.00101>, hdi.zip.<10.5.0.00101>, qir.zip.<ve10.5.0.00101 >, ihta.zip.<10.5.0.00101>, and main.zip.<10.5.0.00101 >, profile.zip.<10.5.0.00101>, register.zip.<10.5.0.00101>, and reports.zip <10.5.0.00101>.

7. Rename the following backup files: admin.zip.<10.5.0.00101>, hdi.zip.<10.5.0.00101>, main.zip.<10.5.0.00101>, profile.zip.<10.5.0.00101 >, qir.zip.<10.5.0.00101>, ihta.zip.<10.5.0.00101>, register.zip.<10.5.0.00101>, and reports.zip <10.5.0.00101 > to admin.zip, hdi.zip, main.zip, profile.zip, register.zip, reports.zip.
8. Run the following command to deploy the previous version of the IHTA static content files (v10.5.0.00101) onto vhacrbwebihta91 server "~/bin/deploy.sh ~/prod.properties help."

9. Open a browser and check the following links to verify that the deployment completed successfully for the five help files:

Main IHTA Help File	ihta.zip	https://vaww.ihta.cc.med.va.gov/help/ihta/
Administration Help File	admin.zip:	https://vaww.ihta.cc.med.va.gov/help/admin/
Manage QIRs Help	qir.zip	https://vaww.ihta.cc.med.va.gov/help/qir
Login Issues Help File	main.zip:	https://vaww.ihta.cc.med.va.gov/help/main/
Registration Help File	register.zip:	https://vaww.ihta.cc.med.va.gov/help/register/
My Profile Help File	profile.zip:	https://vaww.ihta.cc.med.va.gov/help/profile/
HT Reports Help File	reports.zip	https://vaww.ihta.cc.med.va.gov/help/reports/

6.5.3 Backup Selection

Select the full database backup that is prior to and closest to the point in time that the database will be recovered to. If the backup is on external medium, transfer it to a folder on the primary database server so that it is directly available to the database software. Select all transaction log backups that were taken 24 hours prior to the database backup you have selected, and all transaction log backups taken up to, include the point in time that you have targeted, to recover the database. If the transaction log backups are on external medium, transfer all to a folder on the primary database server so that they are directly available to the database software.

6.5.4 Database Recovery Preparation

1. Make sure all application use of the database is shutdown. Place the database in the restricted access mode and clear all current user connections.
2. Shutdown mirroring. Since the secondary database is also affected by the same data issue that is impacting the primary, the mirroring database will need to be rebuilt once the recovery is completed.
3. Though it is the database that needs to be corrected, it also represents the starting point if the recovery effort fails for any reason. Take a full backup of the database. Save the backup in a file just in case it is needed to rebuild and restart the recovery.

6.5.5 Database Point in time Restore

1. Connect to the appropriate instance of the Microsoft SQL Server Database Engine.
2. Expand Databases and select the database to be recovered.
3. Right-click the database, point to Tasks, and then click Restore.
4. Click Database.
5. On the General page, the name of the restoring database appears in the To database list box. To create a new database, enter its name in the list box.

For the point-in-time option, pick **Restore Database:** The "**To a point in time"** option is in the "**Destination for restore"** section.

6. In the Point in Time Restore dialog box, click A specific date and time.
   - In the Date list box, enter or select a date.
   - In the Time list box, enter or select a time.
7. To specify the source and location of the backup sets to restore, select From device. Click the browse button and identify the location of the full database and transaction log files that you created earlier. Click OK to return to the General page.
8. After you have specified a specific point in time, only the backups that are required to restore to that point in time are selected in the Restore column of the Select the backup sets to restore grid. These selected backups make up the recommended restore plan for your point-in-time restore. You should use only the selected backups for your point-in-time restore operation.
9. In the Restore options panel, you choose 'Overwrite the existing database', 'Preserve the replication settings', and 'Restrict access to the restored database'.
10. The Recovery state panel determines the state of the database after the restore operation. Keep the default behavior which is:
    - Leave the database ready for use by rolling back the uncommitted transactions. Additional transaction logs cannot be restored. (RESTORE WITH RECOVERY)
11. Start the database recovery.

6.5.6 Database Recovery Follow-up

Restart mirroring; open database to user access.

1. Create a full database backup and a backup of the transaction log.
2. Copy the backups to the secondary database server.
3. Perform the steps above to recover the database on the secondary database server but with the options:
   - Restore the database backup without recovering the database (RESTORE DATABASE database_name FROM backup_device WITH NORECOVERY).
   - Continue with the transaction log backup that was created after the backup you just restored, (RESTORE the logs in sequence with NORECOVERY). You want the database to end up in a 'restoring state'.

4. On the primary server, take steps to start database mirroring between the primary and secondary servers.
5. Remove the restricted user access to the primary database.

6.6 Rollback Verification Procedure

PD will review timestamps within the database in comparison to audit message logs located elsewhere within the database server to validate that the database has been recovered to the correct point in time and prior to the data failure point.