

RPC Broker 1.1

Deployment, Installation, Back-Out, and Rollback Guide



February 2017

Department of Veterans Affairs (VA)

Office of Information and Technology (OI&T)

Enterprise Program Management Office (EPMO)

Revision History

Documentation Revisions

Date	Revision	Description	Authors
02/09/2017	7.0	<p>Tech Edits based on release of RPC Broker Patch XWB*1.1*65:</p> <ul style="list-style-type: none"> Updated document to follow the Veteran-focused Integration Process (VIP) Deployment, Installation, Back-Out, and Rollback Guide template Version 2.2, released on March 2016. <p>This included the addition of the following sections:</p> <ul style="list-style-type: none"> “Roles and Responsibilities” “Deployment” “Back-Out Procedure” “Rollback Procedure” Reformatted document to follow current documentation standards and style formatting requirements. Removed references to “Virgin” installations throughout. Updated supported Delphi versions throughout [10 Berlin (10.1), 10 Seattle (10.0), XE8, XE7, XE6, XE5, and XE4]: Sections 4.8.3, 4.8.3.1, 4.8.3.3, and Table 9. Added disclaimer that the RPC Broker 1.1 does <i>not</i> support development of Delphi in a 64-bit environment in Table 9. Updated Windows operating system supported list and removed IPv4 Notes in Table 8. Updated current Broker Development Kit (BDK) patch references to “XWB*1.1*65” and distribution file names to reflect “P65” throughout. Created/Updated “Skip this Step” statement in Sections 4.8.1 and 4.8.2. Updated Section 4.8.1.3. Added a Linux example, Figure 1. Updated Section 4.8.1.4 and 4.8.1.5. Removed reference to “beta” 	<ul style="list-style-type: none"> Developer H. W. Technical Writer: T. B. SQA: G. D.

Date	Revision	Description	Authors
		<p>CLAgent.exe from Section 4.8.2.</p> <ul style="list-style-type: none"> Updated supported Delphi versions in Table 9 and Section 4.8.3. Updated Design-time and Run-time Packages in Table 11. Updated Step 4 and Step 7 in Section 4.8.3.3. Added the TXWBSSOiToken to Step 1 in Section 4.9. <p>RPC Broker 1.1; XWB*1.1*65 BDK</p>	
04/27/2016	6.0	<p>Tech Edits based on release of RPC Broker Patch XWB*1.1*60 (released 06/11/2015):</p> <ul style="list-style-type: none"> Reformatted document to follow current documentation standards and style formatting requirements. Updated Table 4, Table 5, and Table 6. Added "Disclaimer" statement to Section 3. Updated Table 9 and Table 10. Deleted Section 3.2.2, "Modify the XWB_DFLT.INI file for Site-specific Settings (optional)." Updated version references in Table 7 and Section 4 (i.e., XE7, XE6, XE5, and XE4). Updated Table 11 and Table 12. Updated Section 4.4. Updated Section 4.5; removed references to TSharedRPCBroker and TSharedBroker components. Also, corrected references to the help file name throughout. Updated Figure 2, Figure 3, and Figure 4. Replaced references to "Remedy" with "Service Desk Manager (SDM)." Changed references from Patch 50 to Patch 60 where appropriate. Updated references to show RPC Broker Patch XWB*1.1*60 supports Delphi XE7, XE6, XE5, and XE4 throughout. <p>RPC Broker 1.1</p>	<ul style="list-style-type: none"> Developer H. W. Technical Writer: T. B.
12/04/2013	5.1	<p>Tech Edit:</p> <ul style="list-style-type: none"> Updated document for RPC Broker Patch XWB*1.1*50 based on feedback from H Westra. 	<ul style="list-style-type: none"> Developer: H. W. Technical Writer: T. B.

Date	Revision	Description	Authors
		<ul style="list-style-type: none"> Removed instructions related to Virgin Installations throughout. Updated file name references throughout. Removed distribution files that are obsolete or no longer distributed throughout. Updated RPC Broker support on the following software: <ul style="list-style-type: none"> Microsoft® XP and 7 (operating system) throughout. Microsoft® Office Products 2010 throughout. Changed references from “Borland” to “Embarcadero” and updated support for Delphi Versions XE5, XE4, XE3, and XE2 throughout. Updated content in Section 1.2. RPC Broker no longer supports Delphi versions prior to Delphi XE2. Retitled Section 1.3.1. Updated Table 3. Retitled Section 1.3.2 (added reference to Patch XWB*1.1*58). Updated Table 4 for Patch XWB*1.1*58 (unreleased). Updated Table 5. Updated Table 6 for supported Windows version and other note references. Updated Table 7 for supported Delphi versions. Updated Section 1.7. Updated Table 8. Updated Section 2.2. Deleted prior Section 2.3 through 2.10, and Section 2.12 – 2.14, and Section 2.17. Chapter 3 needs updates for Patch XWB*1.1*58. Deleted prior Section 3.16 related to HOSTS file. Updated Section 3.1.6. Updated Table 11 Windows registry access information and design-time references. Updated Table 12. 	

Date	Revision	Description	Authors
		<ul style="list-style-type: none"> Updated the procedures in Section 4.4. Updated procedure in Section 4.5. Updated Figure 2 and Figure 3. Updated Figure 4. Redacted document for the following information: <ul style="list-style-type: none"> Names (replaced with role and initials). Production IP addresses and ports. Intranet websites. RPC Broker 1.1	
07/25/2013	5.0	Tech Edit: <ul style="list-style-type: none"> Baselined document. Updated all styles and formatting to follow current internal team style template. Updated all organizational references. RPC Broker 1.1	<ul style="list-style-type: none"> Developer: H. W. Technical Writer: T. B.
06/29/2010	4.2	Updates for RPC Broker Patch XWB*1.1*50: <ul style="list-style-type: none"> Added new properties. Support for Delphi 5, 6, 7, 2005, 2006, and 2007. Changed references from Patch 47 to Patch 50 where appropriate. Updated the RPC Broker and Delphi help integration steps. Updated the RPC Broker and Delphi help integration steps. Reformatted document to follow current <i>OED National Documentation Standards</i> and current style guidelines. RPC Broker 1.1	<ul style="list-style-type: none"> Development Manager: J. Sch. Developer: J. I. SQA: G. S. Technical Writer: T. B.

Date	Revision	Description	Authors
07/03/08	4.1	<p>Updates for RPC Broker Patch XWB*1.1*47:</p> <ul style="list-style-type: none"> No content changes required; no new public classes, methods, or properties added to those available in XWB*1.1*40. Bug fixes to the ValidAppHandle function and fixed memory leaks. Support added for Delphi 2005, 2006, and 2007. Reformatted document. Changed references from Patch 40 to Patch 47 where appropriate. <p>RPC Broker 1.1</p>	<ul style="list-style-type: none"> Development Manager: J. Sch. Developer: J. I. SQA: G. S. Technical Writer: T. B.
02/28/05	4.0	<p>Revised Version for RPC Broker Patches XWB*1.1*35 and 40.</p> <p>Also, reviewed document and edited for the “Data Scrubbing” and the “PDF 508 Compliance” projects.</p> <p>Data Scrubbing—Changed all patient/user TEST data to conform to standards and conventions as indicated below:</p> <ul style="list-style-type: none"> The first three digits (prefix) of any Social Security Numbers (SSN) start with “000” or “666.” Patient or user names are formatted as follows: XWBPATIENT,[N] or XWBUSER,[N] respectively, where the N is a number written out and incremented with each new entry (e.g., XWBPATIENT, ONE, XWBPATIENT, TWO, etc.). Other personal demographic-related data (e.g., addresses, phones, IP addresses, etc.) were also changed to be generic. <p>PDF 508 Compliance—The final PDF document was recreated and now supports the minimum requirements to be 508 compliant (i.e., accessibility tags, language selection, alternate text for all images/icons, fully functional Web links, successfully passed Adobe® Acrobat Quick Check).</p> <p>RPC Broker 1.1</p>	<ul style="list-style-type: none"> Developer: J. I. Technical Writer: T. B.
05/08/02	3.0	<p>Revised Version for RPC Broker Patch XWB*1.1*26.</p> <p>RPC Broker 1.1</p>	<ul style="list-style-type: none"> Developer: J. I. Technical Writer: T. B.
04/08/02	2.0	<p>Revised Version for RPC Broker Patch XWB*1.1*13.</p>	<ul style="list-style-type: none"> Developer: J. I. Technical Writer: T. B.

Date	Revision	Description	Authors
		RPC Broker 1.1	
09/97	1.0	Initial RPC Broker Version 1.1 software release. RPC Broker 1.1	<ul style="list-style-type: none"> • Developer: J. I. • Technical Writer: T. B.

Patch Revisions

For the current patch history related to this software, see the Patch Module on FORUM.

Table of Contents

Revision History	ii
List of Figures	ix
List of Tables	x
Orientation	xi
1 Introduction	1
1.1 Purpose	1
1.2 Dependencies	1
1.3 Constraints.....	1
2 Roles and Responsibilities.....	2
3 Deployment	1
3.1 Timeline.....	1
3.2 Site Readiness Assessment	1
3.2.1 Deployment Topology (Targeted Architecture)	1
3.2.2 Site Information (Locations, Deployment Recipients)	1
3.2.3 Site Preparation	2
3.3 Resources	2
3.3.1 Hardware	2
3.3.2 Software.....	2
3.3.2.1 VistA M Server Software Requirements	3
3.3.2.2 Standard Client Workstation Software Requirements	3
3.3.2.3 Programmer-only Client Workstation Software Requirements	4
3.3.3 Communications	5
3.3.3.1 Deployment/Installation/Back-Out Checklist	5
4 Installation.....	6
4.1 Pre-Installation and System Requirements	6
4.2 Platform Installation and Preparation	8
4.3 Download and Extract Files	9
4.3.1 VistA M Server Distribution Files	9
4.3.2 Standard Client Workstation Distribution Files.....	10
4.3.3 Programmer-only Client Workstation Distribution files.....	11
4.4 Database Creation	12
4.5 Installation Scripts.....	12
4.6 Cron Scripts	12
4.7 Access Requirements and Skills Needed for the Installation.....	12
4.8 Installation Procedure	13
4.8.1 VistA M Server Installation Instructions	13
4.8.1.1 Confirm Distribution Files (<i>recommended</i>).....	13
4.8.1.2 Retrieve Released RPC Broker 1.1 Patches (<i>required</i>)	13
4.8.1.3 Setup for XWB LISTENER STARTER Option (<i>recommended</i>).....	14
4.8.1.4 Start the Broker Listener on the Server (<i>recommended</i>).....	15

4.8.1.5	Automatically Start the Broker Listeners (<i>optional</i>)	15
4.8.2	<i>Standard</i> Client Workstation Installation Instructions	16
4.8.2.1	Interactive Installation Instructions	16
4.8.2.2	<i>Non-Interactive</i> Installation Instructions	17
4.8.3	<i>Programmer-only</i> Client Workstation Installation Instructions	19
4.8.3.1	Confirm Distribution Files (<i>recommended</i>)	19
4.8.3.2	Uninstall any Previous BDK Installed with Delphi (<i>required</i>)	19
4.8.3.3	Install the RPC Broker Software (<i>required</i>)	20
4.9	Installation Verification Procedure	22
4.10	System Configuration	25
4.11	Database Tuning	25
5	Back-Out Procedure	26
5.1	Back-Out Strategy	26
5.2	Back-Out Considerations	26
5.2.1	Load Testing	26
5.2.2	User Acceptance Testing	26
5.3	Back-Out Criteria	26
5.4	Back-Out Risks	26
5.5	Authority for Back-Out	26
5.6	Back-Out Procedure	27
5.6.1	Vista M Servers	27
5.6.2	<i>Standard</i> Client Workstations	27
5.6.3	<i>Programmer-only</i> Client Workstations	27
5.7	Back-Out Verification Procedure	27
6	Rollback Procedure	28
6.1	Rollback Considerations	28
6.2	Rollback Criteria	28
6.3	Rollback Risks	28
6.4	Authority for Rollback	28
6.5	Rollback Procedure	28
6.6	Rollback Verification Procedure	28

List of Figures

Figure 1:	Sample Linux xinetd.d Script to Define the Listener Process to be Started	14
Figure 2:	RPC Broker Client Agent Icons (connected, <i>not</i> connected)	16
Figure 3:	RPC Broker BDK Standalone Help File—RPC Broker Developer's Guide	23
Figure 4:	RPC Broker BDK Standalone Help File—RPC Broker Developer's Guide: Expanded Directories	24
Figure 5:	Delphi's Tool Properties Dialogue—Broker_1_1.chm Entry	24

List of Tables

Table 1: Documentation Symbol Descriptions	xii
Table 2: Commonly Used RPC Broker Terms	xiv
Table 3: Roles and Responsibilities	2
Table 4: Deployment Timeline.....	1
Table 5: Site Preparation	2
Table 6: Hardware Specifications	2
Table 7: VistA M Server—Minimum Software Requirements.....	3
Table 8: <i>Standard</i> Client Workstation—Minimum Software Requirements	3
Table 9: <i>Programmer-only</i> Client Workstation—Minimum Software Requirements	4
Table 10: Deployment/Installation/Back-Out Checklist	5
Table 11: Pre-Installation and System Requirement Considerations <i>before</i> Installing the BDK..	6
Table 12: VistA M Server—Distribution Files.....	9
Table 13: <i>Standard</i> Client Workstation—Base Distribution Files	10
Table 14: <i>Standard</i> Client Workstation—Interactive Installation Distribution Files	10
Table 15: <i>Standard</i> Client Workstation— <i>Non-Interactive</i> Installation Distribution Files.....	11
Table 16: <i>Programmer-only</i> Client Workstation—BDK Distribution Files	11

Orientation

How to Use this Manual

Throughout this manual, advice and instructions for deploying and installing the Veterans Health Information Systems and Technology Architecture (VistA) Remote Procedure Call (RPC) Broker (also referred to as “Broker”) Version 1.1 software, which includes the RPC Broker 1.1 Development Kit (BDK).

Intended Audience

The intended audience of this manual is the following stakeholders:

- Enterprise Program Management Office (EPMO)—VistA legacy development teams.
- System Administrators—Personnel responsible for regional and local computer management and system security on VistA M Servers.
- Information Security Officers (ISOs)—Personnel at VA sites responsible for system security.
- Product Support (PS).

Disclaimers

Software Disclaimer

This software was developed at the Department of Veterans Affairs (VA) by employees of the Federal Government in the course of their official duties. Pursuant to title 17 Section 105 of the United States Code this software is *not* subject to copyright protection and is in the public domain. VA assumes no responsibility whatsoever for its use by other parties, and makes no guarantees, expressed or implied, about its quality, reliability, or any other characteristic. We would appreciate acknowledgement if the software is used. This software can be redistributed and/or modified freely provided that any derivative works bear some notice that they are derived from it, and any modified versions bear some notice that they have been modified.



CAUTION: To protect the security of VistA systems, distribution of this software for use on any other computer system by VistA sites is prohibited. All requests for copies of this software for *non-VistA* use should be referred to the VistA site’s local Office of Information Field Office (OIFO).

Documentation Disclaimer

This manual provides an overall explanation of RPC Broker and the functionality contained in RPC Broker 1.1; however, no attempt is made to explain how the overall VistA programming system is integrated and maintained. Such methods and procedures are documented elsewhere. We suggest you look at the various VA Internet and Intranet websites for a general orientation to VistA. For example, visit the Office of Information and Technology (OI&T) VistA Development Intranet website.



DISCLAIMER: The appearance of any external hyperlink references in this manual does *not* constitute endorsement by the Department of Veterans Affairs (VA) of this website or the information, products, or services contained therein. The VA does *not* exercise any



editorial control over the information you find at these locations. Such links are provided and are consistent with the stated purpose of this VA Intranet Service.

Documentation Conventions

This manual uses several methods to highlight different aspects of the material:

- Various symbols are used throughout the documentation to alert the reader to special information. [Table 1](#) gives a description of each of these symbols:

Table 1: Documentation Symbol Descriptions

Symbol	Description
	NOTE/REF: Used to inform the reader of general information including references to additional reading material
	CAUTION / DISCLAIMER /SKIP THIS STEP / RECOMMENDATION: Used to caution the reader to take special notice of critical information

- Descriptive text is presented in a proportional font (as represented by this font).
- Conventions for displaying TEST data in this document are as follows:
 - The first three digits (prefix) of any Social Security Numbers (SSN) begin with either “000” or “666.”
 - Patient and user names are formatted as follows:
 - [Application Name]PATIENT,[N]
 - [Application Name]USER,[N]

Where “*Application Name*” is defined in the Approved Application Abbreviations document and “*N*” represents the first name as a number spelled out and incremented with each new entry.

For example, in RPC Broker (XWB) test patient names would be documented as follows:

XWBPATIENT,ONE; XWBPATIENT,TWO; XWBPATIENT,14, etc.

For example, in RPC Broker (XWB) test user names would be documented as follows:

XWBUSER,ONE; XWBUSER,TWO; XWBUSER,14, etc.

- “Snapshots” of computer online displays (i.e., screen captures/dialogues) and computer source code is shown in a *non*-proportional font and may be enclosed within a box.
- User’s responses to online prompts are in **boldface** and highlighted in yellow (e.g., **<Enter>**).
- Emphasis within a dialogue box is in **boldface** and highlighted in blue (e.g., **STANDARD LISTENER: RUNNING**).
- Some software code reserved/key words are in **boldface** with alternate color font.
- References to “**<Enter>**” within these snapshots indicate that the user should press the **<Enter>** key on the keyboard. Other special keys are represented within < > angle brackets. For example, pressing the **PF1** key can be represented as pressing **<PF1>**.

- Author's comments are displayed in italics or as "callout" boxes.



NOTE: Callout boxes refer to labels or descriptions usually enclosed within a box, which point to specific areas of a displayed image.

- This manual refers to the M programming language. Under the 1995 American National Standards Institute (ANSI) standard, M is the primary name of the MUMPS programming language, and MUMPS is considered an alternate name. This manual uses the name M.
- All uppercase is reserved for the representation of M code, variable names, or the formal name of options, field/file names, and security keys (e.g., the XUPROGMODE security key).



NOTE: Other software code (e.g., Delphi/Pascal and Java) variable names and file/folder names can be written in lower or mixed case.

Documentation Navigation

This document uses Microsoft® Word's built-in navigation for internal hyperlinks. To add **Back** and **Forward** navigation buttons to your toolbar, perform the following procedure:

1. Right-click anywhere on the customizable Toolbar in Word 2010 (*not* the Ribbon section).
2. Select **Customize Quick Access Toolbar** from the secondary menu.
3. Press the drop-down arrow in the "Choose commands from:" box.
4. Select **All Commands** from the displayed list.
5. Scroll through the command list in the left column until you see the **Back** command (circle with arrow pointing left).
6. Select/Highlight the **Back** command and press **Add** to add it to your customized toolbar.
7. Scroll through the command list in the left column until you see the **Forward** command (circle with arrow pointing right).
8. Select/Highlight the **Forward** command and press **Add** to add it to your customized toolbar.
9. Press **OK**.

You can now use these **Back** and **Forward** command buttons in your Toolbar to navigate back and forth in your Word document when clicking on hyperlinks within the document.




NOTE: This is a one-time setup and is automatically available in any other Word document once you install it on the Toolbar.

Commonly Used Terms

[Table 2](#) lists terms and their descriptions that you may find helpful while reading the RPC Broker documentation:

Table 2: Commonly Used RPC Broker Terms

Term	Description
Client	A single term used interchangeably to refer to a user, the workstation (i.e., PC), and the portion of the program that runs on the workstation.
Component	A software object that contains data and code. A component may or may not be visible.  REF: For a more detailed description, see the <i>Embarcadero Delphi for Windows User Guide</i> .
GUI	The Graphical User Interface application that is developed for the client workstation.
Host	The term Host is used interchangeably with the term Server.
Server	The computer where the data and the RPC Broker remote procedure calls (RPCs) reside.



REF: For additional terms and definitions, see the “Glossary” section in the other RPC Broker manuals.

How to Obtain Technical Information Online

Exported VistA M Server-based software file, routine, and global documentation can be generated using Kernel, MailMan, and VA FileMan utilities.



NOTE: Methods of obtaining specific technical information online is indicated where applicable under the appropriate section.

REF: For more information, see the *RPC Broker Technical Manual*.

Help at Prompts

VistA M Server-based software provides online help and commonly used system default prompts. Users are encouraged to enter question marks at any response prompt. At the end of the help display, you are immediately returned to the point from which you started. This is an easy way to learn about any aspect of VistA M Server-based software.

Obtaining Data Dictionary Listings

Technical information about VistA M Server-based files and the fields in files is stored in data dictionaries (DD). You can use the List File Attributes option on the Data Dictionary Utilities submenu in VA FileMan to print formatted data dictionaries.



REF: For details about obtaining data dictionaries and about the formats available, see the “List File Attributes” chapter in the “File Management” section of the *VA FileMan Advanced User Manual*.

Assumptions

This manual is written with the assumption that the reader is familiar with the following:

- VistA computing environment:
 - Kernel—VistA M Server software
 - Remote Procedure Call (RPC) Broker—VistA Client/Server software
 - VA FileMan data structures and terminology—VistA M Server software
- Microsoft® Windows environment
- M programming language
- Object Pascal programming language.
- Object Pascal programming language/Embarcadero Delphi Integrated Development Environment (IDE)—RPC Broker

References

Readers who wish to learn more about RPC Broker should consult the following:

- *RPC Broker Release Notes*
- *RPC Broker Deployment, Installation, Back-Out, and Rollback Guide* (this manual)
- *RPC Broker Systems Management Guide*
- *RPC Broker Technical Manual*
- *RPC Broker User Guide*
- *RPC Broker Developer's Guide*—Document and BDK Online Help, which provides an overview of development with the RPC Broker. The help is distributed in two zip files:
 - Broker_1_1.zip (i.e., Broker_1_1.chm)—This zip file contains the standalone online HTML help file. Unzip the contents and double-click on the **Broker_1_1.chm** file to open the help.
 - Broker_1_1-HTML_Files.zip—This zip file contains the associated HTML help files. Unzip the contents in the same directory and double-click on the **index.htm** file to open the help.

You can create an entry for **Broker_1_1.chm** in Delphi's Tools Menu, to make it easily accessible from within Delphi. To do this, use Delphi's **Tools | Configure Tools** option and create a new menu entry (see [Figure 5](#)).

- RPC Broker VA Intranet website.

This site provides additional information (e.g., Frequently Asked Questions [FAQs], advisories), documentation links, archives of older documentation and software downloads.

VistA documentation is made available online in Microsoft® Word format and in Adobe® Acrobat Portable Document Format (PDF). The PDF documents *must* be read using the Adobe® Acrobat Reader, which is freely distributed by Adobe® Systems Incorporated at: <http://www.adobe.com/>

VistA documentation can be downloaded from the VA Software Document Library (VDL) website: <http://www.va.gov/vdl/>

The RPC Broker documentation is located on the VDL at: <https://www.va.gov/vdl/application.asp?appid=23>

VistA documentation and software can also be downloaded from the Product Support (PS) Anonymous Directories.

1 Introduction

This document describes how to deploy and install the Veterans Health Information Systems and Technology Architecture (VistA) Remote Procedure Call (RPC) Broker (also referred to as “Broker”) 1.1 software and Patch XWB*1.1*65, as well as how to back-out the product and rollback to a previous version or data set.

RPC Broker 1.1 provides programmers with the capability to develop VistA client/server software. RPC Broker 1.1 Patch XWB*1.1*65 includes an updated Broker Development Kit (BDK), which provides new and updated components, properties, methods, and types.

The XWB*1.1*65 BDK provides 2-Factor Authentication (2FA) support. It uses the Secure Token Service (STS) delegated authentication model. 2-factor authentication support on the VistA server is handled by VistA Kernel software. No RPC Broker changes are needed in VistA to enable 2-factor authentication on a Broker listener. Delphi RPC Broker client applications are automatically upgraded to the new 2-factor authentication method when using this latest version of the BDK.

1.1 Purpose

The purpose of this guide is to provide a single, common document that describes how, when, where, and to whom the VistA RPC Broker 1.1 is deployed and installed, as well as how it is to be backed out and rolled back, if necessary. The plan also identifies resources, communications plan, and rollout schedule. Specific instructions for installation, back-out, and rollback are included in this document.

1.2 Dependencies

This section lists and describes all application, system, financial, and other dependencies for this deployment, including upstream processing.

There are no dependencies for RPC Broker 1.1 Patch XWB*1.1*65 BDK release other than the operating system and software dependencies described in Section [3.3.2](#), “[Software](#).”

1.3 Constraints

This section describes the target physical environment for deployment. The RPC Broker security controls are operationally capable within full implementation of National Institute of Standards and Technology (NIST) controls. It is in compliance with Directive 6500, Section 508 compliance, and performance impacts of the deployment environment.

There are no constraints for RPC Broker 1.1 Patch XWB*1.1*65 BDK release other than the operating system and software dependencies described in Section [3.3.2](#), “[Software](#).”

2 Roles and Responsibilities

This section lists the teams that will perform the steps described in this guide.

[Table 3](#) identifies the technical and support personnel who are involved in the deployment, installation, back-out, and rollback of the Veterans Health Information Systems and Technology Architecture (VistA) RPC Broker 1.1 Patch XWB*1.1*65 Broker Development Kit (BDK) release.

Table 3: Roles and Responsibilities

ID	Team	Phase / Role	Tasks	Project Phase (See Schedule)
1	Enterprise Program Management Office (EPMO) Implementation Team	Deployment	Plan and schedule deployment (including orchestration with vendors).	Planning
2	EPMO Implementation Team	Deployment	Determine and document the roles and responsibilities of those involved in the deployment.	Planning
3	Software Quality Assurance (SQA)	Deployment	Test for operational readiness.	Build
4	Product Support (PS)	Deployment	Execute deployment.	Release Prep Phase
5	EPMO Implementation Team	Installation	Plan and schedule installation.	Build Phase
6	EPMO Implementation Team	Installation	Ensure authority to operate and that certificate authority security documentation is in place.	Release Prep Phase
8	EPMO Implementation Team VistA Infrastructure (VI) Development Team	Installations	Coordinate training.	Release Prep Phase
9	EPMO Implementation Team VistA Infrastructure (VI) Development Team	Back-out	Confirm availability of back-out instructions and back-out strategy (what are the criteria that trigger a back-out).	Build Phase
10	SDE Field Operations (FO) Enterprise Operations (EO)	Post Deployment	Hardware, Software and System Support.	Post Release

3 Deployment

This section provides the schedule and milestones for the RPC Broker 1.1 Patch XWB*1.1*65 Broker Development Kit (BDK) deployment.

The RPC Broker 1.1 Patch XWB*1.1*65 BDK deployment is planned as a simultaneous rollout. National release is scheduled for 02/24/2017.

3.1 Timeline

The RPC Broker 1.1 Patch XWB*1.1*65 BDK deployment and installation is scheduled to run for 30 days from release, which is the typical Veterans Health Information Systems and Technology Architecture (VistA) national patch rollout schedule. Because the BDK is an INFORMATIONAL patch notifying developers that an updated code base is available, installation within the VA consists of acknowledging receipt of the information. No VistA M Server code is installed at a VA site as a result of this patch.

Table 4: Deployment Timeline

Deployment	Start	Finish
Patch Development and Release	08/05/2015	02/24/2017
Site Installation and Deployment	02/24/2017	03/24/2017
Sustainment	03/25/2017	Ongoing

3.2 Site Readiness Assessment

This section describes the Site Readiness Assessment for the locations that will receive the RPC Broker 1.1 Patch XWB*1.1*65 deployment. This will be a typical national release of a VistA patch to all VistA production sites.

Topology determinations are made by Enterprise Systems Engineering (ESE) and vetted by Field Office (FO), National Data Center Program (NDCP), and Austin Information Technology Center (AITC) during the design phase as appropriate. Field site coordination is done by FO unless otherwise stipulated by FO.

3.2.1 Deployment Topology (Targeted Architecture)

This section describes the deployment topology (local sites, etc.) for RPC Broker 1.1 Patch XWB*1.1*65.

The INFORMATIONAL patch for RPC Broker 1.1 Patch XWB*1.1*65 will be distributed to local and regional system administrators and support personnel responsible for each of the 130 VistA parent systems. The actual code will be available to developers from the Product Support (PS) Anonymous Directories. (The code will be available to developers from secure file transfer (SFTP) sites listed in the patch description.)

3.2.2 Site Information (Locations, Deployment Recipients)

This section describes the physical locations (sites) that will host the deployed RPC Broker 1.1 Patch XWB*1.1*65.

The RPC Broker 1.1 patch XWB*1.1*65 code is directly deployed to VA sites. The code is available to developers of Embarcadero Delphi Graphical User Interface (GUI) applications. The code is compiled into the applications and is then deployed to the sites that use those applications.

3.2.3 Site Preparation

This section describes the preparation required for the site at which the system will operate.

There are no special site preparations or changes that *must* occur to the operational site and no specific features or items that need to be modified to adapt to RPC Broker 1.1 Patch XWB*1.1*65 as actual code is not being deployed to sites as a result of this patch.

As a precursor to the RPC Broker 1.1 Patch XWB*1.1*65 deployment, the RPC Broker documentation set (including this Deployment, Installation, Back-Out, and Rollback Guide and Release Notes) will be added to the VA Software Document Library (VDL) at:

<https://www.va.gov/vdl/application.asp?appid=23>

[Table 5](#) describes preparation required by the site prior to deployment.

Table 5: 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 the hardware, software, facilities, documentation, and any other resources, other than personnel, required for the deployment and installation of RPC Broker 1.1 Patch XWB*1.1*65.

3.3.1 Hardware

There are no specific hardware requirements for installation of RPC Broker 1.1 Patch XWB*1.1*65 as it runs in a standard Microsoft Windows 32-bit operating system. There is also no need for specific hardware to assist in the deployment of RPC Broker 1.1 Patch XWB*1.1*65.

[Table 6](#) describes hardware specifications required at each site prior to deployment of RPC broker 1.1.

Table 6: Hardware Specifications

Required Hardware	Model	Version	Configuration	Manufacturer	Other
N/A	N/A	N/A	N/A	N/A	N/A



REF: For details about who is responsible for preparing the site to meet these hardware specifications, see [Table 3](#).

3.3.2 Software

The installation of the RPC Broker 1.1 can be a *multi-part* process. Separate software requirements are provided in this guide for each of the following target environments:

- [VistA M Server Software Requirements](#)
- [Standard Client Workstation Software Requirements](#)
- [Programmer-only Client Workstation Software Requirements](#)

3.3.2.1 VistA M Server Software Requirements

[Table 7](#) lists the *minimum* software requirements for the VistA M Server in order to install and use RPC Broker 1.1:

Table 7: VistA M Server—Minimum Software Requirements

Software	Version	Description
InterSystems Caché	2014.1.3 for Linux, Windows 7, and OpenVMS	Server Operating System Fully Patched.
Kernel	8.0	VistA Legacy Software Fully Patched M Accounts. Patches <i>must</i> be installed in published sequence.
Kernel Toolkit	7.3	VistA Legacy Software Fully Patched M Accounts. Patches <i>must</i> be installed in published sequence.
VA FileMan	22.2	VistA Legacy Software Fully Patched M Accounts. Patches <i>must</i> be installed in published sequence.
RPC Broker	1.1	VistA Legacy Software Fully Patched M Accounts. Patches <i>must</i> be installed in published sequence. You should have both a development Test account and a Production account for the Broker software.
Linux, VMS, or Microsoft®	TCP/IP	Server Network Communications Software. The server needs to have TCP/IP running.

3.3.2.2 Standard Client Workstation Software Requirements

[Table 8](#) lists the *minimum* software requirements for the *Standard* Client Workstation in order to install and use RPC Broker 1.1:

Table 8: Standard Client Workstation—Minimum Software Requirements


Software	Version	Description
Microsoft® Windows	<ul style="list-style-type: none">Windows Server 2012 R2108.17	Fully Patched Operating System.
Microsoft®	TCP/IP	Network Communications Software The RPC Broker requires networked client workstations running Microsoft's® native TCP/IP stack.

3.3.2.3 Programmer-only Client Workstation Software Requirements

The workstation requirements for *Programmer-only* Client Workstations are the same as for *Standard* Client Workstations (see [Table 8](#) in Section [3.3.2.2](#)).

[Table 9](#) lists the additional *minimum* software requirements for the *Programmer-only* Client Workstation in order to install and use RPC Broker 1.1 Patch XWB*1.1*65 BDK release:

Table 9: *Programmer-only* Client Workstation—Minimum Software Requirements

Software	Version	Description
Delphi	<ul style="list-style-type: none"> 10 Berlin (10.1) 10 Seattle (10.0) XE8 XE7 XE6 XE5 XE4 	<p>(required) For the Broker Development Kit (BDK).</p> <p>Delphi is <i>not</i> required for developers who use the RPC Broker Dynamic Link Library (DLL), rather than the TRPCBroker Delphi component. For such developers, any development product that supports linking to 32-bit Microsoft® Windows DLLs can be used.</p> <p>The RPC Broker 1.1 (and greater) does <i>not</i> support development of Delphi in the following environments:</p> <ul style="list-style-type: none"> 64-bit environment. 16-bit environments: Delphi 1.0 16-bit (i.e., Microsoft® Windows 3.1 and below) applications. However, the Broker routines on the VistA M Server continue to support VistA applications previously developed in the 16-bit environment. <div style="text-align: center;">  </div> <p>CAUTION: This statement defines the extent of support relative to use of Delphi. The Office of Information and Technology (OI&T) only supports the Broker Development Kit (BDK) running in the currently offered version of Delphi and the immediately previous version of Delphi. This level of support became effective 06/12/2000.</p> <p>Sites can continue to use outdated versions of the RPC Broker Development Kit, but do so with the understanding that:</p> <ul style="list-style-type: none"> Support is <i>not</i> available. Continued use of outdated versions does <i>not</i> afford features that can be essential to effective client/server operations in the VistA environment. <p>An archive of old (<i>no longer supported</i>) Broker Development Kits is maintained in the VA Intranet Broker Archive.</p>



REF: For details about who is responsible for preparing the site to meet these software specifications, see [Table 3](#).

3.3.3 Communications

This section describes any notifications activities and how they will occur.

Prior to the deployment of the RPC Broker 1.1 Patch XWB*1.1*65 BDK release, a product announcement will be sent via email to current Points of Contact (POC) on record for each site describing the product and a brief description of the deployment and post-deployment support. Included will be links to the RPC Broker 1.1 VA Software Document Library (VDL) and Rational repositories, which contain further information about the release and the deployment, including the deployment schedule and required pre-installation activities.

The RPC Broker 1.1 Patch XWB*1.1*65 Implementation Team will respond to email requests for assistance and further information and, where appropriate, re-direct these requests to specialist technical staff.

3.3.3.1 Deployment/Installation/Back-Out Checklist

Tracking of installation for VistA RPC Broker patches is monitored in FORUM.

[Table 10](#) provides a checklist to be used to capture the coordination effort and document the day/time/individual when each activity (deploy, install, back-out) is completed for standard RPC Broker 1.1 patch releases. However, since XWB*1.1*65 is an INFORMATIONAL only patch, there is no actual installation or back-out of code, and this checklist is not applicable.

Table 10: Deployment/Installation/Back-Out Checklist

Activity	Day	Time	Individual who completed task
Deploy			
Install			
Back-Out			

4 Installation

RPC Broker 1.1 is client/server software that can involve a *multi-part* installation process. Separate installation procedures are provided in this guide for each of the following target environments:

- Veterans Health Information Systems and Technology Architecture (VistA) M Servers
- *Standard* Client Workstations
- *Programmer-only* Client Workstations

However, RPC Broker Patch XWB*1.1*65 is a Broker Development Kit (BDK) release only, so it only requires installation on the *Programmer-only* Client Workstations.

4.1 Pre-Installation and System Requirements

This section provides the minimum requirements for the product to be installed.





REF: For a list of the minimum hardware and software requirements, including platform, Operating System (OS), and storage requirements required for RPC Broker 1.1 Patch XWB*1.1*65 Broker Development Kit (BDK) release, see the following:


- Section [3.3.1](#), “[Hardware](#)”
- Section [3.3.2](#), “[Software](#)”

[Table 11](#) lists the items that installers should consider before installing the RPC Broker BDK:

Table 11: Pre-Installation and System Requirement Considerations *before* Installing the BDK

Item	Description
Installation Sequence	The <i>Programmer-only</i> Client Workstation installation no longer requires that the <i>Standard</i> Client Workstation software be installed prior to installing the <i>Programmer-only</i> Client Workstation.
Microsoft® Windows Registry Access	The RPC Broker Development Kit installation on the client workstation does <i>not</i> require Administrator privileges, as it is loaded into a standard Embarcadero Delphi development environment. The Embarcadero Delphi software may require administrative privileges to install if it is to be made available to all users on a workstation.
Source Code	<p>The release of the source code does <i>not</i> affect how a developer uses the Broker components or other parts of the BDK.</p> <div>CAUTION: Modified BDK source code should <i>not</i> be used to create VistA GUI applications.</div> <div>NOTE: Suggestions for changes to the BDK should be done via Service Desk Manager (SDM) (for bugs) or NSR (for enhancements) for review and possible inclusion in a future patch.</div>

Item	Description
Design-time and Run-time Packages	<p>The BDK has separate run-time and design-time packages. The packages are as follows:</p> <ul style="list-style-type: none"> • XWB_DXEn or XWB_DesignTime • XWB_RXEn or XWB_RunTime <p>Where:</p> <ul style="list-style-type: none"> • “D”—Design-time • “R”—Run-time • “XEn”—Number indicating the version of Delphi with which it should be used (e.g., XWB_DXE7 is the design-time package for Delphi XE7). The “DesignTime” and “RunTime” packages are used by both Delphi 10 Seattle and 10 Berlin. <p>The run-time package should <i>not</i> be used to create executables that depend on a separate XWB_RXEn.bpl installed on client workstations. There is no procedure in place at this time to reliably install the correct version of the run-time bpl on client workstations.</p> <div data-bbox="493 779 570 856"> </div> <p>CAUTION: Do <i>not</i> compile your project so that it relies on dynamic linking with the BDK’s run-time package; that is, do <i>not</i> check the “Build with runtime packages” box on the Packages tab of the Project Options dialogue.</p>
Package Dependencies	<p>A Package may have been defined to <i>require</i> the Broker package. Patch XWB*1.1*14 changed the identity of the Broker design-time package. If you try to install a package into the Delphi IDE that requires the Broker, you may receive an error message similar to the following:</p> <pre>Can't load package <Package1>. One of the library files needed to run this package cannot be found.</pre> <p>To resolve this problem:</p> <ol style="list-style-type: none"> 1. Open the DPK file associated with that package. 2. Delete the reference to the old version of the Broker in the “Requires” section. 3. Add a reference to the design-time Broker package (XWB_DXEn) into the “Requires” section. 4. Recompile and install the package.

Item	Description
Component Dependencies	<p>Some VA-developed components may reference the TRPCBroker component. If you develop applications using such components, be aware that installing a newer version of the TRPCBroker component may cause incompatibilities, until the Broker-dependent components have been recompiled with the new version of the TRPCBroker component. Any such incompatibilities would show up as a compilation error:</p> <pre>Unit <Unit1> was compiled with a different version of <Unit2></pre> <p>To resolve this problem, you need to either of the following:</p> <ul style="list-style-type: none"> • Obtain the source code for the components so that you can recompile the components with the new BDK units. • Obtain a compiled version of their component that was compiled with the same version of the BDK you are using. <p>The VA FileMan Delphi Components (FMDC) is one example of a package whose source code references the TRPCBroker component. Patch FMDC*1.0*1 was released to issue the FMDC source code, so that you can easily recompile FMDC whenever new BDKs are released.</p>
Delphi XEn Standard Edition	<p>Delphi comes in three flavors:</p> <ul style="list-style-type: none"> • Standard • Professional • Enterprise <p>The Standard editions of Delphi are targeted mainly at students, and as such leaves out many features. The Standard Editions do <i>not</i> ship with Delphi's OpenHelp help system. This makes it difficult to integrate the BDK help with Delphi XEn, Standard Editions.</p> <div style="display: flex; align-items: center;">  <p>CAUTION: We do <i>not</i> recommend using the Standard Editions of Delphi for RPC Broker development at this time.</p> </div>

4.2 Platform Installation and Preparation

RPC Broker 1.1 Patch XWB*1.1*65 should be installed when RPC Broker-based applications on the *Programmer-only* Client Workstation are not in use.

Installation of the *Programmer-only* Client Workstations software distributed with this patch should take no longer than 5 minutes.

All Vista Infrastructure patches *must* be installed within 30 days of national release.

4.3 Download and Extract Files

The installation of the RPC Broker 1.1 Patch XWB*1.1*65 can be a *multi-part* process. Separate download files are provided in this guide for each of the following target environments:

- [VistA M Server Distribution Files](#)
- [Standard Client Workstation Distribution Files](#)
- [Programmer-only Client Workstation Distribution files](#)



DISCLAIMER: RPC Broker Patch XWB*1.1*65 is a BDK release only for the *Programmer-only Client Workstation*!

There are no updates to the VistA M Server or the Standard Client Workstation, so you do *not* need to download files for those two environments.

All RPC Broker software can be downloaded from the Product Support (PS) Anonymous Directories. Also, all RPC Broker documentation is available in Adobe® Acrobat PDF format and can be downloaded from the VA Software Document Library (VDL) website:

<https://www.va.gov/vdl/application.asp?appid=23>



REF: Prior versions of RPC Broker software and documentation distributions can be obtained from the VA Intranet RPC Broker Archive website.



NOTE: For all patches, first read the patch installation instructions in the patch description located in National Patch Module (NPM) on FORUM.

REF: For any supplemental instructions *not* included in the manuals, see the latest Readme file (i.e., xwb_1_1_p65_readme.txt file).

4.3.1 VistA M Server Distribution Files

Download the software and documentation distribution files in [Table 12](#) that were last updated with RPC Broker Patch XWB*1.1*64 and are needed to install the RPC Broker 1.1 software on the VistA M Server:


Table 12: VistA M Server—Distribution Files

File Name	Type	Description
XWB*1.1*64 Patch Description	ASCII	Patch Description. This provides any pre-installation instructions, instructions, and additional information to install the patch. Follow all patch installation instructions.
xwb_1_1_ig.pdf	Binary	Installation Guide (manual). Use this manual in conjunction with the patch description on FORUM and any additional Readme text files.

4.3.2 Standard Client Workstation Distribution Files



Download the base software distribution file in [Table 13](#) that was last updated with RPC Broker Patch XWB*1.1*58 and is needed to install the RPC Broker 1.1 software on the *Standard Client Workstation*:

Table 13: Standard Client Workstation—Base Distribution Files

File Name	Type	Description
xwb1_1ws.exe	Binary	Standard Client Workstation Software (client software). This is a self-installing executable. This software is installed on client workstations to run RPC Broker applications.  REF: For more information, see the “System Features” section in the <i>RPC Broker Systems Management Guide</i> .


Download the software and documentation distribution files in [Table 14](#) that are needed to interactively install the RPC Broker 1.1 software on the *Standard Client Workstation*

Table 14: Standard Client Workstation—Interactive Installation Distribution Files

File Name	Type	Description
xwb_1_1_rm.txt	ASCII	Readme File (manual). This file provides any pre-installation instructions, last minute changes, new instructions, and additional information to supplement the manuals. Read all sections of this file prior to following the installation instructions in the <i>RPC Broker Deployment, Installation, Back-Out, and Rollback Guide</i> (i.e., xwb_1_1_ig.pdf).
xwb_1_1_ig.pdf	Binary	Deployment, Installation, Back-Out, and Rollback Guide (manual). Use this manual in conjunction with the Readme text file (i.e., xwb_1_1_rm.txt).
xwb1_1ws.exe	Binary	Standard Client Workstation (client software). This is a self-installing executable. This software is installed on client workstations to run RPC Broker applications.  REF: For more information, see the “System Features” section in the <i>RPC Broker Systems Management Guide</i> .  CAUTION: This self-installing executable is <i>not</i> Windows 7 compatible and requires Admin privilege to run. In future releases, the RPC Broker Development Team will write an “msi” for files to be pushed to client workstations, rather than using the “exe” self-extracting loader.

Download the software and documentation distribution files in [Table 15](#) that are needed to *non-interactively* install the RPC Broker 1.1 software on the *Standard Client Workstation*:

Table 15: *Standard Client Workstation—Non-Interactive Installation Distribution Files*

File Name	Type	Description
xwb_1_1_rm.txt	ASCII	Readme File (manual). This file provides any pre-installation instructions, last minute changes, new instructions, and additional information to supplement the manuals. Read all sections of this file prior to following the installation instructions in the <i>RPC Broker Deployment, Installation, Back-Out, and Rollback Guide</i> (i.e., xwb_1_1_ig.pdf).
xwb_1_1_ig.pdf	Binary	Deployment, Installation, Back-Out, and Rollback Guide (manual). Use this manual in conjunction with the Readme text file (i.e., xwb_1_1_rm.txt).
xwb1_1ws.exe	Binary	Standard Client Workstation (client software). This is a self-installing executable. This software is installed on client workstations to run RPC Broker applications.  REF: For more information, see the “System Features” section in the <i>RPC Broker Systems Management Guide</i> .
xwb_dflt.ini	ASCII	Initialization File (client software). Use for <i>non-interactive</i> installation of the Broker on <i>Standard Client Workstations</i> .

4.3.3 *Programmer-only Client Workstation Distribution files*

Download the software and documentation distribution files in [Table 16](#) that are needed to install the RPC Broker 1.1 Broker Development Kit (BDK) Patch XWB*1.1*65 software on the *Programmer-only Client Workstation*. This version of the BDK supports Delphi Versions: 10 Berlin (10.1), 10 Seattle (10.0), XE8, XE7, XE6, XE5, and XE4.

Table 16: *Programmer-only Client Workstation—BDK Distribution Files*

File Name	Type	Description
xwb_1_1_p65_readme.txt	ASCII	Readme File (manual). This file provides any pre-installation instructions, last minute changes, new instructions, and additional information to supplement the manuals. Read all sections of this file prior to following the installation instructions in the <i>RPC Broker Deployment, Installation, Back-Out, and Rollback Guide</i> (i.e., xwb_1_1_ig.pdf).
xwb_1_1_ig.pdf	Binary	Deployment, Installation, Back-Out, and Rollback Guide (manual). Use this manual in conjunction with the Readme text file (i.e., xwb_1_1_p65_readme.txt).
xwb_1_1_ug.pdf	Binary	User Guide (manual).
xwb_1_1_sm.pdf	Binary	Systems Management Guide (manual).
xwb_1_1_tm.pdf	Binary	Technical Manual (manual).
xwb_1_1_rn.pdf	Binary	Release Notes (manual).

File Name	Type	Description
xwb_1_1_p65.zip	Binary	<p>Programmer-only Client Workstation Software (client software). This is a Zip file that contains the following:</p> <ul style="list-style-type: none"> • Source code. • Samples. • Broker Development Kit (BDK): Provides the RPC Broker Delphi Components for development of RPC Broker-enabled applications. • Broker_1_1.chm: The complete online reference to the BDK.

4.4 Database Creation

N/A. RPC Broker Patch XWB*1.1*65 does *not* create any required databases. It uses the already installed VA FileMan database.

4.5 Installation Scripts

N/A. RPC Broker Patch XWB*1.1*65 does *not* provide any installation scripts.

4.6 Cron Scripts

N/A. RPC Broker Patch XWB*1.1*65 does *not* provide any cron scripts.

4.7 Access Requirements and Skills Needed for the Installation

General skills required to perform the RPC Broker 1.1 installation are listed below:

- Back up the system
[VistA M Server and Programmer/Standard Client Workstations]
- Create directories on the Host file system
[Programmer/Standard Client Workstation]
- Copy files using commands of the Host file system
[VistA M Server and Programmer/Standard Client Workstations]
- Run a KIDS installation
[VistA M Server]



REF: Instructions for performing these functions are provided in vendor-supplied operating system manuals as well as other VA and VistA publications.

4.8 Installation Procedure

Separate installation procedures are provided in this guide for each of the following target environments:

- [VistA M Server Installation Instructions](#)
- [Standard Client Workstation Installation Instructions](#)—For *Standard* Client Workstations, two methods are provided for installing the RPC Broker client software:
 - [Interactive Installation Instructions](#)—User input required.
 - [Non-Interactive Installation Instructions](#)—“Silent”; no user input required.
- [Programmer-only Client Workstation Installation Instructions](#)



DISCLAIMER: RPC Broker Patch XWB*1.1*65 is a BDK release only for the *Programmer-only* Client Workstation!

There are no updates to the VistA M Server or the *Standard* Client Workstation, so you do *not* need to do any installation for those two environments.

4.8.1 VistA M Server Installation Instructions



SKIP THIS STEP: You do *not* need to perform the installation steps in this section for RPC Broker Patch XWB*1.1*65 BDK release! The instructions in this section are retained here for historical reference only but may be updated in a *future* release.

The VistA M Server installation took place with the initial release of RPC Broker 1.1. There have been no updates to the VistA M Server software since RPC Broker Patch XWB*1.1*64.

The instructions in this section are applicable for the Test and Production accounts in the Caché environment.



NOTE: Install the server software in a Test account prior to installing it in a Production account.

4.8.1.1 Confirm Distribution Files (*recommended*)

Verify that you have downloaded the files listed in [Table 12](#).

4.8.1.2 Retrieve Released RPC Broker 1.1 Patches (*required*)

Prior to installation of the RPC Broker Development Kit, all current server-side patches should be installed.

Obtain all released RPC Broker 1.1 server-side patches from the Patch Module on FORUM or through normal procedures.

4.8.1.3 Setup for XWB LISTENER STARTER Option (*recommended*)

The XWB LISTENER STARTER Option needs some setup performed, so that it knows how to specify on what nodes to launch listeners.

To set up the XWB LISTENER STARTER option on a server where the listener processes are started within VistA, perform the following procedure:

1. Use VA FileMan to edit the BOX-VOLUME PAIR field (#.01) in the TASKMAN SITE PARAMETERS file (#14.7). For each Box-Volume pair where you plan to run a Broker Listener, make sure that the Box-Volume pair is entered in the BOX-VOLUME PAIR field.



REF: For more information on configuring TaskMan, see the “Task Manager System Management: Configuration” section in the *Kernel Systems Management Guide* located on the VDL at: <http://www.va.gov/vdl/application.asp?appid=10>

2. Type the following at the M prompt:

```
S XWBCHK="ALLOW"
```

3. Invoke VA FileMan using **D Q^DI** and edit the RPC BROKER SITE PARAMETERS file (#8994.1):
 - a. Select your site domain in the DOMAIN NAME field (#.01); only one entry is allowed here.
 - b. For nodes where you plan to run Broker Listeners, enter/make sure their Box-Volume pairs are entered in the BOX-VOLUME PAIRS subfield (#.01) of the LISTENER multiple (#7):
 - For each Box-Volume pair enter all the ports in the PORT subfield (#.01) of the PORT multiple that you plan to use for the Listeners.
 - Also, enter the UCI in the UCI field (#1) of the PORT multiple where the Listener should run.

To set up the XWB LISTENER STARTER option on a server where the listener processes are started as an operating system process (e.g., Linux), create a script to be run by the operating system. For Linux, create a **xinetd.d** script to define the process to be started as shown in [Figure 1](#):

Figure 1: Sample Linux xinetd.d Script to Define the Listener Process to be Started

```
#default: on
#description: VA RPC Broker Listener for Sample VistA - port 19299
#
service sam_rpct
{
    type = UNLISTED
    disable = no
    flags = REUSE
    socket_type = stream
    protocol = tcp
    port = 19299
    wait = no
    user = samtcpip
    env = TZ=/usr/share/zoneinfo/US/Pacific
    server = /srv/vista/sam/cache/samr0tsvr/bin/csession
    server_args = samr0tsvr -ci -U SAM CACHEVMS^XWBTCPM
    instances = UNLIMITED
    per_source = UNLIMITED
}
#end
```


4.8.1.4 Start the Broker Listener on the Server (*recommended*)

RPC Broker 1.1 uses an M Listener that should always be running in the background, listening to a known port. To start a single Listener on a given port on a server where the listener processes are started within VistA, perform the following procedure:

1. Log into the VistA M Server.
2. Enter the following command at the M prompt:

```
D STRT^XWBTCP(<listener port>)
```



NOTE: Sites can choose any available <listener port> greater than 1024 (i.e., sockets 1 to 1024 are reserved for standard, well-known services such as SMTP, FTP, Telnet, etc.).

Alternatively, with Caché, you can invoke VA FileMan (**D Q^DI**) and edit the RPC BROKER SITE PARAMETERS file (#8994.1). Set the STATUS field to **START** and, assuming that TaskMan is running, the Listener is started. The STATUS field changes to **RUNNING**.

4.8.1.5 Automatically Start the Broker Listeners (*optional*)

The XWB LISTENER STARTER option can be used to start all configured Broker Listeners at one time on a server where the listener processes are started within VistA (i.e., listeners configured to start in the RPC Broker's site parameters). Additionally, this option can be used to automatically start all of the Listener processes you need when TaskMan starts up, such as after the system is rebooted or configuration is restarted.

For servers where listeners are started as an operating system process, consult the operating system documentation regarding automatically starting processes.



REF: For information on automatically starting the Broker Listeners via the XWB LISTENER STARTER option, see the “Broker Listeners and Ports” section in the *RPC Broker Systems Management Guide*.



CONGRATULATIONS: The installation of the RPC Broker software on the *VistA M Server* is complete!

4.8.2 Standard Client Workstation Installation Instructions



SKIP THIS STEP: You do *not* need to perform the installation steps in this section for RPC Broker Patch XWB*1.1*65 BDK release! The instructions in this section are retained here for historical reference only but may be updated in a *future* release.

The *Standard Client Workstation* installation took place with the initial release of RPC Broker 1.1. There have been no updates to the *Standard Client Workstation* software since RPC Broker Patch XWB*1.1*58.

Two sets of instructions are provided for *Standard Client Workstations*:

- Interactive
- *Non-Interactive*



CAUTION: RPC Broker 1.0 distributed and installed the RPCBI.DLL and Client Manager (i.e., CLMAN.EXE) in the VISTA/Broker directory on the *Standard Client Workstation*. RPC Broker 1.1 does *not* use these files; however, they should *not* be removed from client workstations.

4.8.2.1 Interactive Installation Instructions

4.8.2.1.1 Confirm Distribution Files (*recommended*)

Verify that you have downloaded the files listed in [Table 13](#) and [Table 14](#).

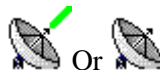
4.8.2.1.2 Shut Down Microsoft® Windows Applications (*required*)

You *must not* be running *any* application that uses the Broker during the installation. It is also *recommended* that you shut down all other Microsoft® Windows-based applications running on the workstation.


4.8.2.1.3 Shut Down the Client Agent (*required*)

If the RPC Broker Client Agent is running, shut it down. To determine if the Client Agent is running, look in the workstation's menu bar tray. If you see one of the following the RPC Broker Client Agent icons, the Client Agent is running:

Figure 2: RPC Broker Client Agent Icons (connected, *not* connected)



If it is running, to shut down the Broker Client Agent, do one of the following:

- Right-click on the RPC Broker Client Agent icon in the workstation's menu bar tray, and choose **ShutDown** from the pop-up Client Agent menu.
- Double-click on the RPC Broker Client Agent icon to open the Client Agent window, and then click  in that window.

At the prompt "If you close the client agent, your ability to access the VistA server may be reduced. Do you want to proceed with closing the client agent?" select **Yes**.

4.8.2.1.4 Run the Installation Program (*required*)

Run XWB1_1WS.EXE on the client workstation, which starts the interactive *Standard Client Workstation* installation. For example, on a Microsoft® Windows 7 system, perform the following procedure:

1. Go to the **Start** menu.
2. Select the **Run** option (may need to enable the Run command first in Windows 7).
3. Click **Browse** to locate **XWB1_1WS.EXE**.
4. Click **OK** to run XWB1_1WS.EXE.
5. Follow the online instructions provided when you run the installation program. We *strongly recommend* the following:
 - a. **Accept default directories**—When prompted to accept the default Broker Directories, click **OK**.



CAUTION: RPC Broker 1.1 is a 32-bit application. We *strongly recommend* that you load it in a separate directory from any previously installed RPC Broker 1.0 16-bit application.

- b. **Always start the Client Agent**—When prompted whether to always start the Broker Client Agent, click **Yes**. This starts the Broker Client Agent whenever Microsoft® Windows starts.



REF: For a complete listing of installed client files after installation, see the “Files” section in the *RPC Broker Technical Manual*.

4.8.2.1.5 Restart Microsoft® Windows (*recommended*)

Restart Microsoft® Windows so the latest version of the Broker Client Agent is running.

4.8.2.1.6 Add Listeners/Ports to the Microsoft® Windows Registry (*optional*)

If system administrators want to add, modify, or delete servers and ports to be used by the Broker, see the “Edit Broker Servers Application” section in the *RPC Broker Systems Management Guide*.

4.8.2.2 Non-Interactive Installation Instructions



CAUTION: The *Standard Client Workstation* installation does more than copy files into directories; it also makes entries in the Microsoft® Windows Registry. Thus, simply doing a mass copy of files from a server to various *Standard Client Workstations* is insufficient.

4.8.2.2.1 Confirm Distribution Files (*recommended*)

Verify that you have downloaded the files listed in [Table 13](#) and [Table 15](#).

4.8.2.2.2 Load and Run XWB1_1WS.EXE with Switches (*required*)

Prior to beginning an installation, you *must not* be running the Broker Client Agent or *any* application that uses the Broker during the installation. It is also *recommended* that you shut down all other Microsoft® Windows-based applications running on the workstation.

To start the *non-interactive Standard* Client Workstation installation setup program, run XWB1_1WS.EXE *with switches*:

```
XWB1_1WS.EXE /S AUTO
```

The switches *must* be in UPPERCASE. Follow the procedures on how to run a program *non-interactively* as described in your operating system's systems manual.

4.8.2.2.3 Finish Remaining Installation Tasks (*recommended*)

To complete the *non-interactive* installation, follow the steps in Sections [4.8.2.1.5](#) – [4.8.2.1.6](#) of the “[Interactive Installation Instructions](#)” section. Special workstation management software and/or local procedures may enable you to perform these remaining steps *non-interactively*.



CONGRATULATIONS: The installation of the RPC Broker software on the *Standard* Client Workstation is complete!

4.8.3 *Programmer-only* Client Workstation Installation Instructions

The RPC Broker 1.1 Patch XWB*1.1*65 Broker Development Kit (BDK) software gets installed on *Programmer-only* Client Workstations. There are separate installation procedures, depending on the Delphi version for which support is needed:

- Delphi 10 Berlin (10.1)
- Delphi 10 Seattle (10.0)
- Delphi XE8
- Delphi XE7
- Delphi XE6
- Delphi XE5
- Delphi XE4



NOTE: Delphi Versions *prior* to Delphi XE4 are no longer supported.

4.8.3.1 Confirm Distribution Files (*recommended*)

Verify that you have downloaded the files listed in [Table 16](#).

4.8.3.2 Uninstall any Previous BDK Installed with Delphi (*required*)

To uninstall any previous BDK installed with Delphi, perform the following procedure:

1. Start **Delphi** and close any open projects.
2. From the **Delphi** menu, select **Component | Install Packages**.
3. Remove any previous version of the BDK from the Design Packages listing. To do this:
 - a. Scroll through the listing of installed design packages until you find the entry for the previous version of the BDK (e.g., TRPCBroker).



NOTE: The name of the previous BDK version may be: Vista RPC Broker, VistaBroker, or it may start with the pattern Vista Broker -- designtime*.

The remainder of this section refers to this package as *YourOldBroker*.

- b. Select (highlight) this entry.
- c. Click **Remove**.

- d. Delphi presents one of two confirmation dialogue boxes, which say one of the following:

Confirm 1:

Remove 'c:\program files\...\YourOldBroker.bpl' from the design package list?

If Delphi presents this confirmation dialogue, click **Yes**.

Confirm 2:

Package(s) xxx will be uninstalled because they require package *YourOldBroker*.

Continue remove?

If this is correct, press **OK**.

Any packages dependent on the RPC Broker are also uninstalled. You need to re-install them after you install or update the TRPCBroker component files. If you click **No**, you *cannot* uninstall the previous RPC Broker software.

- e. If you chose to remove any packages, Delphi may also present a Remove Runtime Packages dialogue, stating:

The package names in the following list are not used by any installed packages. Remove the selected names from the runtime packages list?

If Delphi presents this dialogue, press **Yes** or **OK**.

- f. Press **OK** in the "Project Options" dialogue box to finish the uninstallation.

4. Close Delphi, answer **No** if you are prompted to save changes to any projects.

4.8.3.3 Install the RPC Broker Software (*required*)



CAUTION: Prior to installing the RPC Broker, make sure that you exit/close *all* versions of Delphi running on your system.

To install the RPC Broker BDK software, perform the following procedure:

1. Navigate to the following directory:

C:\Program Files (x86)\Vista

2. Backup existing RPC Broker Development Kit (BDK) software: Rename the existing BDK32 directory (e.g., **BDK32_P60**; XWB*1.1*60 was the previous BDK release) to maintain the existing files as a backup.



NOTE: You need Administrator privileges on your computer to write to this directory.

Alternatively, copy the renamed backup files into a separate directory that you control. For example:

C:\Users\<YourName>\My Documents\BDK32_P60

3. Unzip **xwb_1_1_p65.zip** file in the directory in Step 1, making sure the “**use folders**” box is checked; this creates the **BDK32** directory and subdirectories under the VistA directory in Step 1.
4. After unzipping (installing) the zip file components, there should be a **BDK32** directory with the following subdirectories:

- **BAPI32dll**—Contains the recompiled Bapi32.dll and sample header files for using RPC Broker functions from other programming languages.
- **Help**—Contains the RPC Broker Help file (Broker_1_1.chm).
- **Samples**—Contains sample programs compiled with Delphi 10 Seattle.
 - **BrokerEx**—Contains BrokerExample
 - **BSE**—Contains a Broker Security Enhancement sample application
- **Source**—Contains the source code and related files for the components.



NOTE: The BDK installation supports several different versions of Delphi, which as of patch XWB*1.1*65 includes Delphi Versions: 10 Berlin (10.1), 10 Seattle (10.0), XE8, XE7, XE6, XE5, and XE4.



NOTE: The ServerList.exe application has *not* been updated since patch XWB*1.1*60. This “beta” application can be used to set Windows Registry IPv4 or IPv6 entries for VistA server address/port/SSHUser combinations. This is *not* a released version and has *not* been field tested or reviewed for Section 508 compliance.



NOTE: The “Bin” directory is gone. Users are now instructed to compile the BDK themselves, which creates the **bpl** and **dcp** files in a directory set by their Delphi environment (varies by version).

5. Open **Delphi**.
6. Enter the directories into the Library path fields:
 - a. Open the menu **Tools | Options**.
 - b. Expand the **Environment Options | Delphi Options** and select the **Library** tab.
 - c. Press the **ellipsis (...)** at the right of the combo box for Library path.
 - d. Add entries for the following paths ahead of all other entries:
 - **C:\Program Files (x86)\Vista\BDK32** (should be first in the list)
 - **C:\Program Files (x86)\Vista\BDK32\Source**
 - e. After entering both directories, press **OK** to close the dialogue.
7. To install the components into Delphi, it is best to compile and build them in your version of the Delphi IDE, so that all of the necessary files are placed in the proper default directories during installation.

In the instructions that follow, replace the “#” with your version of Delphi (e.g., “#” should be replaced with “7” for Delphi XE7). For Delphi 10 Seattle or 10 Berlin, use the “DesignTime” and “RunTime” packages.

8. Select the menu **File | Open**, and select the **XWB_RXE#.dpk** (or **XWB_RunTime.dpk**) file from the **BDK32\Source** directory.
9. For the **R** or run-time files:
 - a. Right-click on the **XWB_RXE#.bpl** (or **XWB_RunTime.bpl**) file in the Project Manager dialogue.
 - b. Click **Compile**.
 - c. Select the menu **File | Close All**; respond **YES** if it asks to save changes.








NOTE: The Run-time files should always be compiled first, since the Design-time files are dependent upon them.

10. Select the menu **File | Open**, and select the **XWB_DXE#.dpk** (or **XWB_DesignTime.dpk**) file from the **BDK32\Source** directory:
 - a. Right-click on the **XWB_DXE#.bpl** (or **XWB_DesignTime.bpl**) file in the Project Manager dialogue.
 - b. Click **Build**.
11. For the **D** or design-time files:
 - a. Right-click on the **XWB_DXE#.bpl** (or **XWB_DesignTime.bpl**) file in the Project Manager dialogue.
 - b. Click **Install** to install or update the version of the component.
 - c. Close *all* files; respond **YES** if it asks to save changes.

4.9 Installation Verification Procedure

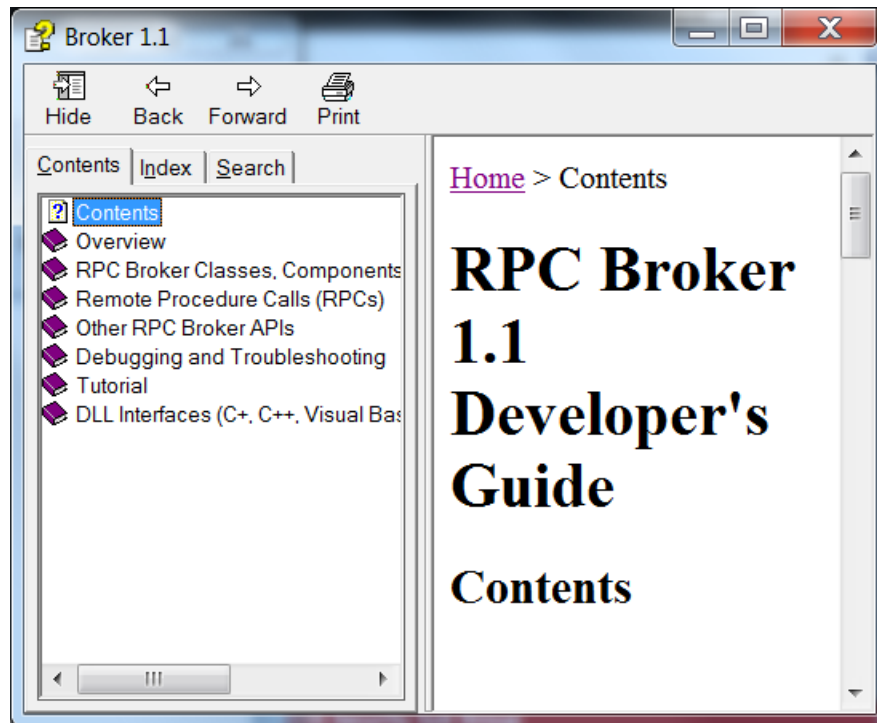
To verify the installation of the RPC Broker BDK components in Delphi, perform the following procedure:

1. Verify the component installation. If the RPC Broker components installed correctly, you should see the following components on the **Kernel** tab of the Delphi palette:

- —TCCOWRPCBroker
- —TContextorControl
- —TRPCBroker (original component)
- —TXWBRichEdit
- —TXWBSSOiToken

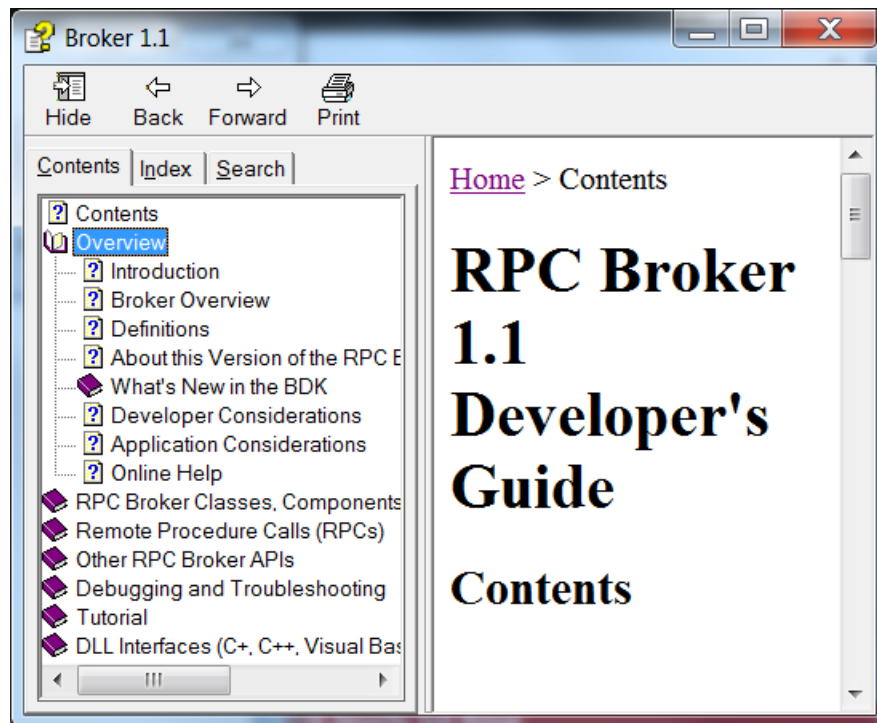
2. Locate the RPC Broker standalone Help file.
 - a. In a Windows explorer, navigate to the following directory:
`C:\Program Files\vista\BDK32\Help`
 - b. To open the BDK Help, double-click on the following file:
`Broker_1_1.chm`
 - c. You should see the following Help dialogue:

Figure 3: RPC Broker BDK Standalone Help File—RPC Broker Developer's Guide



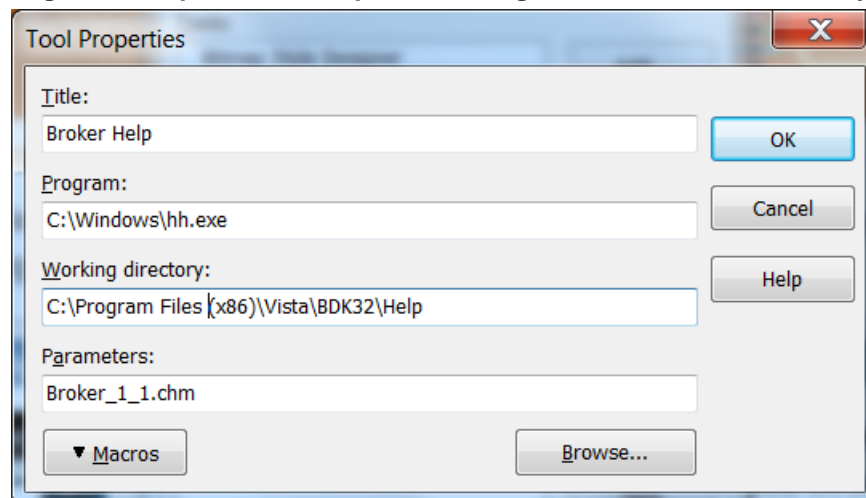
- d. To expand the Help topics, double-click on the **Book** icons:

Figure 4: RPC Broker BDK Standalone Help File—RPC Broker Developer's Guide: Expanded Directories



NOTE: You can make an entry for **Broker_1_1.chm** in Delphi's Tools Menu, to make it easily accessible from within Delphi. To do this, use Delphi's **Tools | Configure Tools** option. Create a new menu entry similar to the following:

Figure 5: Delphi's Tool Properties Dialogue—Broker_1_1.chm Entry





CONGRATULATIONS: The installation of the RPC Broker software on the *Programmer-only Client Workstation* is complete! You are now ready to work with the RPC Broker interface and Broker Development Kit (BDK) to install VistA GUI applications that use the RPC Broker.

4.10 System Configuration

N/A. RPC Broker 1.1 Patch XWB*1.1*65 does *not* require any system configuration.

4.11 Database Tuning

N/A. RPC Broker 1.1 Patch XWB*1.1*65 does *not* require any database tuning.

5 Back-Out Procedure

Back-Out pertains to a return to the last known good operational state of the software and appropriate platform settings.

5.1 Back-Out Strategy

This section describes the back-out strategy for RPC Broker Patch XWB*1.1*65, including the established time limits or other parameters that comprise the rationale for the strategy.

The need for a back-out would be determined by all affected organizations. This would primarily include representatives from Veterans Health Administration (VHA) and Enterprise Program Management (EPMO). In the case of the initial release, a back-out would include removal of data, files, and routines. In the case of future patches and releases, the back-out strategy would be dependent on the contents of the released functionality and could include restoration of file definitions, routines or data.

5.2 Back-Out Considerations

Back-out considerations would include impact on production Veterans Health Information Systems and Technology Architecture (VistA) end-users and impact on Wide Area Network (WAN).

RPC Broker 1.1 is client/server software that involves installation in the following environments:

- Veterans Health Information Systems and Technology Architecture (VistA) M Servers
- *Standard* Client Workstations
- *Programmer-only* Client Workstations

However, RPC Broker Patch XWB*1.1*65 is a Broker Development Kit (BDK) release only, so it only requires installation or subsequent back-out on the *Programmer-only* Client Workstations.

5.2.1 Load Testing

Not applicable for RPC Broker Patch XWB*1.1*65. There are no resources or standards set for RPC Broker load testing, and a load testing environment is *not* available.

5.2.2 User Acceptance Testing

User Acceptance Testing (UAT) for the RPC Broker Patch XWB*1.1*65 is performed during development of Graphical User Interface (GUI) applications. RPC Broker BDK users are other developers. Multiple project teams (including CPRS, CAPRI, VistA Imaging, and DSS Inc. are already developing using this code).

5.3 Back-Out Criteria

RPC Broker Patch XWB*1.1*65 back-out criteria follow existing VistA back-out procedures.

5.4 Back-Out Risks

RPC Broker Patch XWB*1.1*65 back-out risks are the same risks established with existing VistA back-out procedures.

5.5 Authority for Back-Out

The authority for the need of back-out would reside with Veterans Health Administration (VHA), Office of Information and Technology (OI&T), and Enterprise Program Management Office (EPMO) representatives.

5.6 Back-Out Procedure

5.6.1 VistA M Servers

The RPC Broker Patch XWB*1.1*65 BDK installation does *not* add any new or update any existing software (e.g., files or routines) on VistA M Servers; so no back-out is required on VistA M Servers.

5.6.2 Standard Client Workstations

The RPC Broker Patch XWB*1.1*65 BDK installation does *not* add any new or update any existing components on the *Standard* Client Workstation, so no back-out is required on *Standard* Client Workstations.

5.6.3 Programmer-only Client Workstations

The RPC Broker Patch XWB*1.1*65 installation provides an updated Broker Development Kit (BDK). It adds new and updates existing components on *Programmer-only* Client Workstations. To back-out the new BDK software and restore the previous BDK on the *Programmer-only* Client Workstations, perform the following procedure:

1. On the *Programmer-only* Client Workstation, navigate to the following directory:

C:\Program Files (x86)\VistA

2. Delete the **BDK32** directory.
3. Locate the BDK backup directory from Step 2 in Section 4.8.3.3. For example:

C:\Program Files (x86)\VistA\BDK32_P60

Or:

C:\Users\<YourName>\My Documents\BDK32_P60

4. Rename the backup file to **BDK32**.
5. Copy the restored BDK32 to the directory in Step 1.

5.7 Back-Out Verification Procedure

To verify the BDK32 directory has been restored to the version released with RPC Broker Patch XWB*1.1*60, perform the following procedure:

1. On the *Programmer-only* Client Workstation, navigate to the following directory:

C:\Program Files (x86)\VistA\BDK32

2. Verify the following directory structure exists:

- **Help**
- **Samples**
 - **BrokerEx**
 - **BSE**
- **Source**
- **ClAgent.exe**
- **ServerList.exe**

6 Rollback Procedure

Rollback pertains to data. This section includes the specific steps to roll back to the previous state of the data and platform settings, if required. It includes the order of restoration for multiple interdependent systems.

The Veterans Health Information Systems and Technology Architecture (VistA) RPC Broker Patch XWB*1.1*65 Broker Development Kit (BDK) release does *not* export any data, so no database rollback is required.

6.1 Rollback Considerations

N/A. RPC Broker Patch XWB*1.1*65 BDK release does *not* export any data, so there are no rollback considerations required.

6.2 Rollback Criteria

N/A. RPC Broker Patch XWB*1.1*65 BDK release does *not* export any data, so there is no rollback criteria required.

6.3 Rollback Risks

N/A. RPC Broker Patch XWB*1.1*65 BDK release does *not* export any data, so there are no rollback risks.

6.4 Authority for Rollback

Rollback *can* be authorized by system administrators once a problem has been identified. Office of Information and Technology (OI&T) and Enterprise Program Management Office (EPMO) VistA Infrastructure (VI) Development Team should be informed immediately via a MailMan message sent to:

VA OIT PD Infrastructure Dev. & Doc. <InfrastructureDevDoc@va.gov>

6.5 Rollback Procedure

N/A. RPC Broker Patch XWB*1.1*65 BDK release does *not* export any data, so no rollback procedure is required.

6.6 Rollback Verification Procedure

N/A. RPC Broker Patch XWB*1.1*65 BDK release does *not* export any data, so no rollback verification procedure is required.