



VISTALINK RELEASE NOTES

Version 1.6

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Product Development

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1. Introduction

1.1. About VistALink

The VistALink resource adapter is a transport layer that provides communication between Health_Vet-VistA Java applications and VistA/Mumps (M) servers, in both client-server and n-tier environments. It is a runtime and development tool that allows java applications to execute remote procedure calls (RPCs) on the VistA/M system and retrieve results, synchronously. VistALink is also referred to as VistALink J2M.

VistALink consists of Java-side adapter libraries and an M-side listener:

- The adapter libraries use the Java 2 Enterprise Edition (J2EE) Connector Architecture (J2CA) 1.5 specification to integrate Java applications with legacy systems.
- The Mumps (M) listener process receives and processes requests from client applications.
- Java applications can call RPCs on the M server, executing RPC Broker RPCs on the M server without modification.

1.2. WebLogic Updates Project

In support of the Department of Veterans Affairs Information Technology Application Modernization effort, the three applications VistALink, Fat-client Kernel Authentication and Authorization (FatKAAT), and Kernel Authentication and Authorization for the Java 2 Enterprise Edition (KAAJEE) have been developed. Based on the direction of the Technical Review Model (TRM) and in order to support applications that upgrade to the WebLogic Server version 12.2, this project is required. The scope of this release project is to upgrade these three applications to work with the WebLogic Server version 12.2.

The previous version of VistALink, 1.5, was released in June of 2006, and provided project developers with J2EE and Java Platform, Standard Edition (J2SE) application connectivity to VistA/M servers. It was designed specifically for J2EE 1.3 application servers (e.g., WebLogic 8.1).

1.3. For More Information

For more information on any new feature discussed in the release notes, please see the VistALink documentation set on the VA Software Document Library (VDL) at the following address:

<http://www.va.gov/vdl/application.asp?appid=163>

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2. VistALink Adapter Updates

2.1. WebLogic 12.2 Compatibility

VistALink 1.6.7 adapters have been updated to be compatible with:

- WebLogic 12.2
- Java 1.8
- J2EE 2+
- J2EE Connector Architecture 1.5

2.2. Fortify and TRM Compliance

VistALink 1.6.1 codebase have been updated with following noteworthy items:

- Introduced a *.fortify package
- Implemented Reverse-DNS validation on the IP addresses of targeted M systems at the configuration file ***
- Reset authentication byte arrays
- Dereferenced null references
- Updated codebase with API references to log4j2 libraries

*** A Reverse-DNS information validation is now in place. VistALink will not connect to IP address without a reverse dns information in the PTR record.

2.3. Reminder - RAR Changes Summary since Previous Version – 1.5

- **vljFoundationsLib and vljConnector jars:** New versions provide a J2CA 1.5 and VA's TRM compliant adapter implementation.
- **Deployment Descriptor Changes:** The format of both the ra.xml and weblogic-ra.xml descriptors are different. Existing adapters' deployment descriptors need to be updated. Using the provided sample/template descriptors, only weblogic-ra.xml will need to be modified when creating a VistALink RAR:
 - **META-INF/ra.xml:** The template version provided in the VistALink distribution is updated to be J2CA 1.5 compliant. In most cases, it no longer needs any further editing when creating a RAR.
 - **META-INF/weblogic-ra.xml:** The template version provided in the VistALink distribution is updated to be J2CA 1.5 compliant. It must be edited for each RAR deployed.
 - **META-INF/MANIFEST.MF:** The template version provided in the VistALink distribution is updated to support use of J2EE Shared Libraries by RARs.
- **lib/saxpath.jar, lib/jaxen-core.jar, and lib/jaxen-dom.jar** are no longer needed in the RAR as their functionality has been replaced by the XPath implementation introduced in Java 5.

- **lib/xbean.jar** no longer needed in the RAR since an implementation of XML Beans is included in WebLogic 9 and onward.
- **Linked adapters** (link-ref mechanism) no longer supported for VistALink 1.6 adapters.
- **Development System Classloading:** Automatic classloading of all jars in RAR is now supported by WebLogic 10.3.6. Library jars included in RAR no longer need to be manually added to the server classpath.
- **Production System Classloading:** Oracle (formerly known as BEA) recommends removing all jars from RARs on production systems, and deploying them as J2EE shared libraries instead (to reduce resource consumption – replacement for resource-saving aspect of the 8.1 link-ref mechanism). When deployed as J2EE shared libraries, the jars supporting VistALink RARs no longer need to be manually added to the server class path.

2.4. New Recommendation: Deploy VistALink Jars as J2EE Shared Libraries (Production Systems Only)

As a replacement for the WebLogic 8.1 “Linked Adapters” feature (not supported for upgraded adapters like VistALink 1.6), Oracle recommends removing all jars from RARs on production systems, and deploying each one as a J2EE shared library instead. This addresses the reduced resource consumption benefit formerly provided by using the 8.1 link-ref mechanism. Therefore, on production systems only, we recommend that the following jars be removed from all RARs and deployed (once) as J2EE shared libraries:

Jar Name	J2EE Shared Library Deployment Name
vljConnector-1.6.7.jar	vljConnector(1.6,1.6)
vljFoundationsLib-1.6.7.jar	vljFoundationsLib(1.6,1.6)
log4j-api-2.14.0	log4j-api-2
log4j-core-2.14.0	log4j-core-2

Two different versions of an example RAR are provided in the distribution zip file, one structured for development system deployments, the other for production deployments:

- **rar\Rar-Dev** (contains all needed jars)
- **rar\Rar-Prod** (contains no jars; MANIFEST.MF file looks for jars as J2EE shared libraries)

2.5. Updated Sample log4j Configuration Files

With log4j dependency being upgraded to version 2, there is a change in the syntax of log4j configuration file. The new sample log4j configuration files are located in the log4j directory inside the VistALink distribution zip file, as follows:

File Name	Description
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log4j2SampleJ2EEConfig.xml	Example configuration for a J2EE system, turning DEBUG-level logging on for VistALink classes of interest on a J2EE system. NOTE: Turning on 'debug' level can adversely affect system performance.
log4j2SampleJ2SEConfig.xml	Example configuration for a J2SE (Java client-M server) application, turning DEBUG-level logging on for VistALink classes of interest for client/server applications.

3. VistALink Administration Console Updates

3.1. WebLogic 12.2 Compatibility

Due to difficulties encountered integrating the VistALink administration console with the earlier versions of WebLogic (specifically its navigation tree and tab set), the VistALink administration console is provided as a standalone web application, in an EAR file. Therefore, for WebLogic 10.3 we recommend installing the VistALink administration console as a standalone web application, not integrated with the WebLogic console. The standalone EAR can also be used on 12.2 of WebLogic if desired.

4. J2SE Client/Server Updates

4.1. Java 1.8 or Greater Required

Because VistALink 1.6's jars, used on WebLogic 12.2, and for client/server connectivity, are compiled with Java 1.8, new client/server applications using VistALink 1.6 will need to use JDK 1.8 and up.

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