

HP BridgeWorks Version 3.0A

Readme for Windows

September 2004

HP BridgeWorks Version 3.0A introduces new and innovative features that enable and support enterprise-level distributed applications, and includes several important bug fixes.

This file contains information that will help you install and use this release of HP BridgeWorks.

Software Version

HP BridgeWorks Version 3.0A

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CONTENTS

REQUIREMENTS AND INSTALLATION

1. Platform Requirements
 - 1.1 Targeted Platforms
 - 1.2 Generated Components
2. Installation, Development, and Runtime Requirements
 - 2.1 OpenVMS
 - 2.2 Windows
 - 2.3 Additional OpenVMS Requirements
3. Installation Instructions
 - 3.1 Uninstalling BridgeWorks From Windows
 - 3.2 Installing BridgeWorks on Windows
 - 3.3 Running BridgeWorks on Windows

RELEASE NOTES

4. Version 3.0A New Features Summary
5. Version 3.0 New Features Summary
6. Upgrading from BridgeWorks 2.1 or 2.1A
7. Configuration Considerations and Requirements
8. Known Limitations and Issues in Version 3.0A and 3.0

CONTACT AND SUPPORT INFORMATION

About HP BridgeWorks Version 3.0A Readme for Windows

This Readme file comprises system requirements for both Windows and OpenVMS, installation instructions for Windows, and release information for both platforms.

For OpenVMS installation instructions, refer to [BWX030A_INSTALLATION_GUIDE.TXT|HTM|PDF|PS](#), available from the web download page.

Complete product documentation is available from the online Help installed with the Windows BridgeWorks kit.

REQUIREMENTS AND INSTALLATION

1. Platform Requirements

HP BridgeWorks is a cross-platform tool. Installation consists of:

- An OpenVMS Alpha kit, to be installed on each system on which you intend to run BridgeWorks-wrapped servers.
- A Windows kit for Windows XP or Windows 2000, to be installed on a development machine, containing the BridgeWorks development tool, plus runtime libraries for distribution if running Windows-based components.

Important

VAX is not a supported platform in this release. BridgeWorks Version 2.1A will continue to be available for wrapping VAX-based applications.

1.1 Targeted Platforms

The purpose of BridgeWorks is to encapsulate and distribute an Alpha-based user application. The server component encapsulates the application; the middle component distributes it. The source code for both components is generated on the Windows platform using a GUI-based development tool.

The generated source code for the server component must be built on the OpenVMS system that hosts the application. The generated source code for the middle component can be built on a networked Alpha system (clustered or not) or a networked Windows system.

Server Component

The BridgeWorks-generated server component is a native OpenVMS image installed on the system running the wrapped application (which can comprise 3GL server routines, ACMS tasks, DCL procedures, and text files.)

Available on OpenVMS Alpha Version 7.3, 7.3-1, and 7.3-2

Note: OpenVMS Industry Standard 64 (Itanium) Version 8.2 and OpenVMS Alpha Version 8.2 are not supported in this release.

Middle Component

The BridgeWorks-generated middle component is a JavaBeans, Enterprise JavaBeans (EJB), or COM server that also acts as a client to the server component to make calls to OpenVMS server routines, tasks, and procedures.

Available platforms for each component type are:

OpenVMS Alpha Version 7.3, 7.3-1, and 7.3-2
Windows XP and 2000

1.2 Generated Components

The middle component can expose the application you are encapsulating, or wrapping, to clients as JavaBeans, EJB, or COM objects. Only the appropriate source code is generated by BridgeWorks.

Specific limitations are shown below according to component type. Note that COM connections cannot be generated for ACMS tasks or for structure or array definitions in 3GL server routines. Note that transactions are only available for EJB components.

Component	Existing Application	Transactions	Structures
EJB	3GL, ACMS, DCL, Files	Yes	Yes
JavaBeans	3GL, ACMS, DCL, Files	Not Applicable	Yes
COM	3GL, DCL, Files	No	No

Not supported in this release:

Tru64 UNIX is not available as a target platform for middle components in this release.

Cross-platform limitations apply to COM:

Cross-platform COM connections - where a Windows client communicates with an Alpha-based middle component - have produced inconclusive results related to account and security issues. The following configurations are recommended instead:

1. Windows client to Windows COM middle component.
2. OpenVMS Alpha client to Alpha COM middle component.

Note: Your choice of component architecture should be guided by an understanding of the relative merits and limitations of each component type for your particular distributed application needs. It should take into account any preexisting middle-tier application server and client codebase.

2. Installation, Development, and Runtime Requirements

These are the minimum system requirements needed to install BridgeWorks and to build and run the generated components. "Optional" requirements represent requirements that are not needed for every type of connection. However, several such requirements will apply to your particular platform/component selection.

Make sure you have the latest MUPs, ECOs, and patches for your configuration. Search for these on the Patch Download page.

<http://www2.itrc.hp.com/service/patch/mainPage.do>

Always Check Cross-Product Requirements!

Always check for cross-product software requirements, which can change with new releases. These product requirements may be greater than for BridgeWorks itself.

For example, to run a BridgeWorks-generated EJB component requires OpenVMS Alpha Version 7.3 or higher and a Java 2 Runtime Environment 1.3.1 or higher. Each Java SDK

and RTE has specific ECO requirements. In addition, WebLogic Server 7.0 (a J2EE 1.2-compliant application server) requires OpenVMS Alpha Version 7.3 or 7.3-1, the Java 2 SDK 1.3.1-5 or higher, and additional ECOs as specified. (See Section 2.3: Additional OpenVMS Requirements)

2.1 OpenVMS

Server Component - Installation Requirements

OpenVMS Alpha Version 7.3, 7.3-1, and 7.3-2
4,500 blocks during installation, 3,500 blocks after installation

System requirements vary enormously depending on the way you deploy your BridgeWorks components.

Server Component - Development Requirements

The C Compiler is required to build all server components:

HP C Version 6.5 for OpenVMS Alpha or higher

Server Component - Optional Development Requirements

For automatic import and build features, you must enable REXEC and FTP services.

TCP/IP Services for OpenVMS Version 4.2 or higher

TCP/IP for OpenVMS Home Page
<http://h71000.www7.hp.com/network/tcpip.html>

Server Component - Optional Runtime Requirements

You can choose between non-transport and transport-based options:

Non-Transport-Based Connections

None for Alpha-only, nontransactional connections.

Transport-Based Connections

You can use choose either ICC (Intra-cluster Communications) or RPC, or both. (If you choose both, the BridgeWorks Manager automatically use ICC in a cluster configuration and RPC in a noncluster configuration.)

ICC for OpenVMS Alpha Version 7.3 or higher
(Bundled with operating system)

or

DCE RPC Runtime Services Kit Version 1.5 or higher

DCE for OpenVMS Home Page
http://h71000.www7.hp.com/commercial/dce/dce_index.html

For DCE RPC

OpenVMS Alpha DCE Denial of Service Security Patch Kit

Alpha Security ECO Kit For SSRT3608
http://www2.itrc.hp.com/service/cki/patchDocDisplay.do?patchId=ALP_DCE_030_SSRT3608

Middle Component - Optional Development and Runtime Requirements

For middle components, similar requirements apply during development and at runtime.

For JavaBeans and EJB components

Java 2 SDK ("JDK") Standard Edition 1.3.1-7 or higher

Runtime only

Java 2 RTE (JRE) Standard Edition 1.3.1-7 or higher

Java Software Patches (ECOs): See Section 2.3: Additional OpenVMS Requirements

Java Technology for Alpha Download Page
<http://h18010.www1.hp.com/java/download/>

For COM components only

COM for OpenVMS Version 1.3

Compaq C++ 6.5 for OpenVMS Alpha

COM Denial of Service ECO kit for SSRT3608

COM for OpenVMS Home Page
<http://h71000.www7.hp.com/openvms/products/dcom/>

C++ for OpenVMS Home Page
http://h71000.www7.hp.com/commercial/cplus/cplus_index.html

ECO kit for SSRT3608
http://www2.itrc.hp.com/service/cki/patchDocDisplay.do?patchId=DCOM_013_SSRT3608-V0

For EJB components only

A J2EE 1.2-compliant environment

Free 30-day evaluation license available for WebLogic Server.
Download Version 7.0 or 8.1 SP1 for HP OpenVMS.

See Section 2.3: Additional OpenVMS Requirements

BEA WebLogic Server Downloads Page
<http://commerce.bea.com/showallversions.jsp?family=WLS>

For Transactions (EJB components only)

DECdtm/XA SDK 2.1

This new release of DECdtm/XA ships on OpenVMS Version 7.3-2. It must be installed as a layered product on OpenVMS Alpha Version 7.3 and 7.3-1.

Note: Version 2.1 is available as a layered product from the BridgeWorks Download page.

BridgeWorks Home Page
<http://www.hp.com/go/bridgeworks>

Alpha System Recommendations for Java applications

	Best	Average	Low
System speed	Above 500MHz	500MHz	Below 500MHz
System memory	1GB or higher	512MB	Minimum 256MB

“Average” represents the recommended minimums for deploying Enterprise JavaBeans using BEA WebLogic Server.

For ACMS applications

A properly configured ACMS 4.3-or-later system.

2.2 Windows

Middle Component - Installation Requirements

Windows XP SP1 or Windows 2000 SP2 or higher

Note: 2000 Server or XP Professional recommended in a production environment.
2003 Server has not been tested.

40MB minimum free disk space
128MB minimum RAM

TCP/IP configured
Internet Explorer 5.5 or higher

Optional Development and Runtime Requirements

For middle components, similar requirements apply during development and at runtime.

For JavaBeans and EJB components

Java 2 SDK (SDK) Standard Edition 1.3.1 or higher

Runtime only

Java 2 RTE (“JRE”) Standard Edition 1.3.1 or higher

For COM components only

Microsoft Visual C++ 6.0 SP5

Note: Visual C++ .NET is not supported and is not a substitute.

For EJB components only

A J2EE 1.2-compliant environment

2.3 Additional OpenVMS Requirements

ECO Downloads for Java 2 SDKs for OpenVMS

ECO Page for 1.4.2

http://h18010.www1.hp.com/java/download/ovms/1.4.2/sdk1.4.2_patches.html

ECO Page for 1.4.1

http://h18010.www1.hp.com/java/download/ovms/1.4.1/sdk1.4.1_patches.html

ECO Page for 1.4.0

http://h18010.www1.hp.com/java/download/ovms/1.4.0/sdk1.4.0_patches.html

ECO Page for 1.3.1

http://h18010.www1.hp.com/java/download/ovms/1.3.1/sdk1.3.1_patches.html

For BEA WebLogic 7.0 or 8.1 SP1 for OpenVMS

BEA WebLogic 8.1 SP1 for OpenVMS Requirements Page

http://edocs.bea.com/platform/suppconfigs/configs81/hpovms73_alpha/81sp1.html

BEA WebLogic 7.0 for OpenVMS Requirements Page

http://edocs.bea.com/platform/suppconfigs/configs70/hpovms73_alpha/70sp1.html

3. Installation

Installation involves setting up HP BridgeWorks on (at least) two systems:

- Installing the BridgeWorks Manager, development tool utilities, runtime library and support files on OpenVMS.

(For OpenVMS installation instructions, see the BWX030A_INSTALLATION_GUIDE.TXT |HTML|PDF|PS, available from the web download page.)

- Installing the BridgeWorks development tool, runtime library and support files on Windows.

Note: The BridgeWorks Version 3.0A Windows kit can only be used in conjunction with the corresponding Version 3.0A OpenVMS kit. Subsequent field test and production releases will require both installations to be repeated with the up-to-date kits.

3.1 Uninstalling BridgeWorks From Windows

You should uninstall Version 3.0 before installing Version 3.0A of BridgeWorks. This is a required step to ensure all files are properly replaced.

Before you begin

Back up your connection database to preserve your BridgeWorks connection database.

- Copy the file BWXData_2_03.mdb to a secure location before uninstalling BridgeWorks.

Instructions:

HP BridgeWorks should be uninstalled by first using the Windows Control Panel utility and then removing remaining files and directories as necessary.

Follow the standard Windows uninstall procedure. (The following steps are for Windows XP; some details may differ for Windows 2000):

1. Click the Windows Start button and click Control Panel.
2. Open Add or Remove Programs, select HP BridgeWorks, and click the Change/Remove button.
3. Follow any on-screen instructions.
4. When the uninstall is complete, go to the location where BridgeWorks was installed (usually, C:\Program Files\HP BridgeWorks) and delete all remaining files and subdirectories EXCEPT for the BWXData_2_03.mdb file.

3.2 Installing BridgeWorks on Windows

IMPORTANT UPGRADE INFORMATION: If your current version of BridgeWorks is 2.1 or 2.1A, the BridgeWorks installation process will automatically prompt you to import your existing connection definitions into the new Version 3.0 and higher database. Your 2.1/2.1A connection database will not be affected by this procedure.

This is your **ONLY** opportunity to import your existing connections unless you rerun the installation.

Before you begin:

- Your Windows user profile should include Administrator privileges to install BridgeWorks.

Using BridgeWorks with a nonprivileged account

After installing, you can use a nonprivileged user account on Windows XP or 2000 to run BridgeWorks. However, if you are installing to an NTFS partition on Windows 2000, you must choose a directory with read and write privileges to do so. (The default installation location, under \Program Files\ is protected, meaning that only users with Administrator accounts are able to run BridgeWorks on Windows 2000.)

- As with any Windows installation, you are recommended to:
 - Do a system backup before proceeding.
 - Exit all other Windows applications before installing.
- The BridgeWorks setup includes Microsoft's ODBC 3.0 files. The installation updates files only if they need to be updated and creates a new ODBC data source called "BWData_2_03". If you have a newer version of ODBC than 3.0, setup will leave this as is.

Instructions for web download installation

1. Save the BridgeWorks self-extracting archive (BW030A_Setup.exe) to a temporary location on your disk by choosing the option to save the program to your disk.
2. In My Computer or Windows Explorer, double-click the downloaded file and wait for the Setup Wizard to begin.
3. Follow the on-screen instructions in the Setup Wizard to complete the installation. You will be prompted for any required information, including install location on your Windows machine.

Note: Choose the Typical or Custom Install to get all the supplied files for tutorials and examples.

After Installation:

ALWAYS restart J2EE environments, such as BEA WebLogic Server, or other bean servers, such as Tomcat, after a BridgeWorks installation. Such environments do not automatically refresh shareable images and libraries without being restarted.

Environment Evaluation Wizard

The Environment Evaluation Wizard (EEW) is a utility included in the Windows kit for post-installation diagnostics. For more information, see the EEW.chm Help file that is distributed with the utility in the \HP BridgeWorks\Utilities\EEW directory.

Important: The EEW in this release has not been updated to reflect the current Version 3.0A requirements.

3.3 Running BridgeWorks on Windows

To start the BridgeWorks development tool:

1. Click the Windows Start button and click Programs.
2. Click the BridgeWorks icon in the HP BridgeWorks program folder.

Using Help

Context-sensitive and reference-based online Help is available from:

- **The HP BridgeWorks Program Folder:**
Click the BridgeWorks Help icon.
- **The BridgeWorks Development Tool**
To get the Help Contents in the main BridgeWorks window, choose Help Topics from the Help menu. Press F1 for window-level Help.

To search Help

Click the Search tab, type one or more words, and click List Topics.

To get What's This Help in the BridgeWorks Wizard or a dialog box

Click the ? button once and click a control, or select a control and press F1.

To get Topic Help inside the BridgeWorks Wizard or a dialog box

Click the Help button.

Using the Tutorials and Examples:

In Help, open the Quick-Start Tutorials book in the Contents tree.

You'll find complete instructions for building your first JavaBeans, EJB, or COM connection, including simple clients. Supporting sample files, which are referenced in the tutorial, are included in the BridgeWorks installation kit.

Important: Disregard references to VAX as a platform for wrapping applications using BridgeWorks Version 3.0A.

Caution: In Version 3.0A, some published help topics are not fully updated or applicable to Version 3.0A. Please Refer to "Key Usage Topics" (linked from the Help Welcome page) for the most important topics.

Note: Accuracy of web links cannot be guaranteed.

To check for updated documentation

From Help, click About Help and click the "Check for Updated Documentation" link. (This opens a BridgeWorks web page from which you can download newer documentation than in the installation kit if it is available.)

RELEASE NOTES

BEFORE YOU BEGIN YOUR PROJECT...

There are many more aspects to encapsulating and distributing an application than can be addressed in these release notes. Please refer to key usage topics, available from the BridgeWorks Help *Welcome Page*.

Among these usage topics are:

- Preparation of 3GL Routines and ACMS Tasks
- Transport Options
- Scalability and Your Application
- Session Options and Your Application
- Making Configuration Changes
- Working with Rdb and Oracle9i Databases
- Debugging Your Server Routines
- Using the Bwx Classes
- Compiling and Running Java Clients

Performance Disclaimer – Please Read

HP makes no performance claims for BridgeWorks-generated applications. Performance metrics for HP BridgeWorks are largely dependent on the underlying cross-platform technologies used by BridgeWorks - including RPC and ICC transports; COM, Java, and EJB components; J2EE application servers; and DECdtm and XA protocols for transactions. Given the complexities of distributed computing and the huge diversity of potential production environments, including such factors as data throughput and network speed, it is not possible to make any baseline assertions about the performance you should expect.

For these reasons, it is strongly recommended that you obtain the advice of a qualified services consultant before embarking on any major or mission-critical project.

4. Version 3.0A New Features Summary

Multi-developer Support

The BridgeWorks UI now helps coordinate team members using a shared BridgeWorks connection database. As developers work with a connection definition within BridgeWorks, they are registered within the database itself. If other team members attempt to work with the same connection definition (in that shared database), they are notified that it is being modified, as well as who is modifying it. BridgeWorks then allows the developer to open the connection definition in read-only mode.

New Installation Procedures

The OpenVMS kit has been changed to use PCSI, while the Windows kit has been changed to use the latest Install Shield. The new installation procedures provide the user with a more robust set of options, including an enhanced uninstall.

Multi and Mixed Character Set Support

Java supports many different characters sets. BridgeWorks now supports the passing of strings

based on these many character sets. This support also includes the mixing of character sets within a single string.

Better Support for ODS-5 Disks

BridgeWorks has improved its support for the ODS-5 file system. Previously, BridgeWorks had problems seeing some directories and files with mixed case characters in its name.

Corrected Problems in Version 3.0A

Fixed ACCVIO in BWX\$MANAGER

In some rare cases, the BridgeWorks Manager would ACCVIO when it could see, but not open, a .bwx configuration file. Although the root cause of the problem is environmental (such as bad file protections on the .bwx files), this has been fixed so that the Manager no longer crashes.

Fixed FTP (Import) Issues

Various FTP/browsing errors have been resolved during the ANA import procedure. These errors include files not being displayed in the file browse list, and a possible BridgeWorks crash in some cases when a specified directory is invalid.

5. Version 3.0 New Features Summary

Support for Cross-Platform Transactions

BridgeWorks now enables two-phase commit transactions that originate from a Java client and are coordinated by a J2EE transaction manager, such as BEA WebLogic Server. BridgeWorks supplies all the infrastructure components for OpenVMS integration of DECdtm-based 3GL or ACMS transactional applications and other resource managers - including transaction-aware databases, such as Rdb and Oracle9i.

New Transport Options

An enhanced transport-layer architecture optimizes transport by providing ICC (Intra-cluster Communications), RPC, or no-transport options. ICC provides clustered OpenVMS systems with the fastest transport available. RPC transport no longer requires the DCE RPC developer license.

More-Efficient Runtime Code

BridgeWorks now uses an improved component architecture that uses optimized runtime libraries and reduces the amount of user-specific generated code. This reduces build times, simplifies deployment, and improves maintainability.

New Server Management Services

The BridgeWorks Manager provides new directory services and server management for the middle component. This includes load-balancing capabilities, such as keeping track of available servers and maintaining pools of free servers (determined by configurable parameters for minimum, maximum, and idle servers) to speed response times. These extra capabilities allow some connections to avoid the high cost of process creation at server startup.

SYSUAF-Based Security

BridgeWorks now supports OpenVMS SYSUAF-based client authentication. This means that server processes will start up in the BridgeWorks default (SYSTEM or another specified) account, and clients will be able to use a log-in and log-out method to access other OpenVMS accounts required to use the wrapped application.

Enhanced Structures

An enhanced structures scheme gives you the option of using Java-based get and set access methods for individual fields. This implementation is consistent with the getter/setter bean that is recognized by Java IDEs, such as NetBeans. By using enhanced structures, you can simplify client coding and optimize call-time performance by doing most data marshaling at the time the values are being read from and written to the client.

Structures Are an Abstract Class

The BwxStructure class is now an abstract class, rather than an interface wrapper. Generated structure classes now inherit from it, which means it is no longer, and can no longer, be referenced from a Java client. This greatly simplifies the use of structures from within Java clients.

New BwxDecimal Class

A new BwxDecimal class is available to Java clients. Previously, OpenVMS decimal string datatypes were handled as Strings. The BwxDecimal class makes available the full range of Java's BigDecimal class operations: basic arithmetic, scale manipulation, comparison, hashing, and format conversion. (See Section 5: Upgrading)

Enhanced Exceptions

In V3.0 and higher, BridgeWorks adds enhanced exception handling. There is now a root exception class, BwxException, and two derived exception classes, BwxServerException and BwxConnectException. BwxServerException will be thrown for all server side exceptions, while BwxConnectException will be thrown for all connection related errors/exceptions. All three exceptions thrown by BridgeWorks also make available the internal status, the original OS status, the severity level, and the facility code of the originator of the error.

This allows a client to better differentiate and classify the exceptions, and more easily make decisions based on them.

6. Upgrading from BridgeWorks 2.1 or 2.1A

Version 3.0A of BridgeWorks has been designed to coexist with previous versions of BridgeWorks. This is true for the development and the runtime environments. However, the new scheme is not backward-compatible:

On OpenVMS

Version 3.0 and higher installs an enhanced BridgeWorks Manager. This replaces the existing Version 2.0/2.1 Manager - using the same process name, BWX\$MANAGER - and renaming the 2.1/2.1A Manager to BWX\$MGR_V21. If it is configured to start automatically, the BWX\$MGR_V21 process will continue to be available for 2.1/2.1A connections.

On Windows

The BridgeWorks Windows kit installs in C:\Program Files\HP BridgeWorks by default (whereas previous versions installed in C:\Program Files\Compaq BridgeWorks by default). The Version 3.0 and higher registry section is also new. The Version 3.0 and higher connection database and data source are also named differently. Note that the Version 3.0 and higher database is named BWXData_2_03.mdb (and the Version 2.1/2.1A database was named BWXData_2_02.mdb).

Connection database upgrade

The BridgeWorks installation process prompts you to import existing connections (in a 2.1 or 2.1A database) into the new database. This is your ONLY opportunity to perform the

automatic import unless you rerun the installation. Your existing connection database is unaffected. When you generate the code for an existing connection using Version 3.0 and higher, the new code that will be generated will be entirely in the new component architecture. It is not backward-compatible.

Extended Method Code

Extended method code (customized middle component code) is no longer supported by BridgeWorks. Any such code in your existing connections will NOT be saved or regenerated. To find such code, in \middle directories generated by previous versions of BridgeWorks, do the following:

1. In a text editor, open COM files named <Interface>_view.cpp or JavaBeans files named C<Interface>Bean.java or EJB files named <Interface>EJB.java. (You should find one for each interface defined in your connection).
2. Look for the comment // To do: add your implementation inside the *_PRESERVE tags.

Existing clients

Required changes to existing client code have been minimized as much as possible. In fact, COM clients should not require any revision. Java clients previously compiled in the 2.1/2.1A environment will continue to compile and run in the BridgeWorks 2.1/2.1A environment.

However, when an existing Java client is recompiled in the Version 3.0 and higher environment, it will always require a change to its import statements.

New Package Statement

To use the BridgeWorks-supplied type classes, your client package statements must be changed from:

```
import com.compaq.bwx.Bwx<Type>;  
to:  
import com.hp.bwx.Bwx<Type>;
```

Example of updated statements:

```
import com.hp.bwx.BwxLong;  
import com.hp.bwx.BwxDecimal;
```

See Help: Using the Bwx Classes

Further changes are required if your existing clients use the BwxStructure class, or the BwxString class for decimal string types.

New BwxStructure Class

The BwxStructure class now offers two modes of use: enhanced and standard. If you are writing new Java clients, you are recommended to use the new Enhanced mode. If you have existing clients, you can continue using the previous structure wrapping scheme by making the following change:

Upgrade Step

If you have existing clients, remove explicitly declared BwxStructure parameters. The structure methods exposed by the middle component now inherit all the properties of the BwxStructure class.

For example, in 2.1/2.1A, initializing and declaring structures was a two-step process:

```
structarraystruct mySt = new structarraystruct();  
. . . . .  
BwxStructure p1 = new BwxStructure(mySt);
```

In Version 3.0 and higher, only the first step is required.

Error handling

BridgeWorks Version 3.0 and higher rearranges and adds exception classes in order to better differentiate them for the client. However, depending on the current exception handling used in the client, this may require changes to the client.

If the client code generically catches the Exception class, then no changes are required. However, if the client code currently catches the BwxServerException class explicitly, then this will minimally need to be changed to BwxException. Optionally, you can add handlers to catch BwxException, BwxServerException, and BwxConnectException independantly. This allows more flexibility in handling these different exception types.

All structures now require client error-handling code. This includes structure code that previously did not throw exceptions in your clients.

Upgrade Step

The structure constructor (new) should always be in a try/catch block or in a routine that can throw an exception to its calling routine.

See Help: Using the BwxStructure Class

New BwxDecimal Class

Previously, when building a Java client for a BridgeWorks connection, OpenVMS decimal string datatypes were handled as Strings. This limited the range of mathematical operations that you could perform on them. The BwxDecimal class makes available the full range of Java’s BigDecimal class operations.

Upgrade Step

Change references to BwxString classes to BwxDecimal classes. The BwxDecimal constructor can take BwxString or a regular String as an argument.

Note: Clients can only pass in formats recognizable by the Java BigDecimal class. For example, “+100.0”, but not “100.0+”.

See Help: Using the BwxDecimal Class

New Component Build Commands

Build scripts have been streamlined and simplified, and now employ a simpler naming scheme:

Server Component Build Script

BUILD_SERVER.COM

Middle Component Build Scripts

```
BUILD_<type>_MIDDLE.COM  
build_<type>_middle.bat
```

where <type> can be **jb** for JavaBeans, **ejb** for Enterprise JavaBeans, and **com** for COM.

BridgeWorks Middle Component and Client Support Files

In the case of JavaBeans and EJB connections, many support files previously generated per connection are now included in a static file, BwxUtil.jar. (This reduces build times, simplifies deployment, and improves maintainability.) On OpenVMS Alpha systems, this file is installed in SYS\$LIBRARY. On Windows, the default installation location for this file is in \Program Files\HP BridgeWorks\lib. Middle component build commands use this library, and your client compilation and run commands must include a reference to it also.

See Help: Compiling and Running Java Clients

7. Configuration Considerations and Requirements

ICC Startup File Should Be Enabled

When using ICC transport, it is highly recommended that you invoke the ICC\$STARTUP file by adding ICC\$STARTUP in your SYSTARTUP_VMS.COM file.

Manager Requires LOG_IO Privilege

The server component uses an event mechanism to notify the BridgeWorks Manager when it becomes free for new connections. The event mechanism makes use of a mailbox for communicating with the Manager. OpenVMS requires the LOG_IO privilege for all mailbox operations. The Manager and server now make extensive use of mailboxes to propagate information about reservations, so the LOG_IO privilege is mandatory for both server and Manager processes.

Making configuration changes

All server processes that the BridgeWorks Manager starts are detached processes running out of the account specified in the server's configuration file (<CNXNAME>.BWX). Many aspects of the server configuration for a particular connection are controlled by the Manager according to your customizable configuration settings. For example, you can effect per connection stack-size adjustments using the configuration file. The default is for DecThreads to use the system's default stack size. However, higher values will be required for some connections, including ones where Oracle9i participates in XA transactions.

See Help: Making Configuration Changes

8. Known Limitations and Issues in Version 3.0A and 3.0

Transaction Support for WebLogic

Although BridgeWorks V3.0 and higher works with BEA WebLogic Version 6.1 and higher, the transaction support within BridgeWorks does not work properly with WebLogic Version 7.0 and

higher. In particular, when two EJBs are called as part of the same transaction, and both are part of the same Domain, the transaction fails when the second EJB is called. This is an identified problem in WebLogic. The HP BridgeWorks engineering team is currently working with the WebLogic team to resolve this issue.

Workaround: Use WebLogic Version 6.1. If you are using WebLogic Version 7.0 or higher, specify a unique domain name for each EJB type. This forces WebLogic to use two Phase Commit Transactions when multiple EJBs are used in the same transaction.

Transactions Fail if WebLogic's JTA Health Monitor Times Out

Recent versions of WebLogic may mark a Resource Manager (RM), including the BridgeWorks RM, as *bad* if a transaction takes too long. This is caused by the internal timeout value of WebLogic's JTA health monitor. (By default, the JTA health monitor timeout value is set to two minutes within WebLogic, which is a different value than the normal transaction timeout.) Once this timeout occurs, all further attempted transactions may fail. The only way to clear this condition is to restart WebLogic.

Workaround: Override the JTA health monitor timeout value by adding the following lines to WebLogic's `config.xml` file, within the section for the domain that you are using:

```
<JTA
  MaxXACallMillis="240000"
/>
```

Handling Cluster Transition Delays

When running a BridgeWorks-generated EJB within an OpenVMS Cluster, the delay caused by a cluster transition may sometimes cause the server process supporting the EJB to crash. If this happens, the Java client that initiated the connection will get a Java exception returned for that EJB session.

Workaround: You can design your client to recover from the failed connection exception and reestablish a new connection. Since the EJB remains active, the BridgeWorks Manager will start up a new user server process to do a retry of the failed session or to service a subsequent EJB sessions.

COM-Related

A number of limitations and other errors related to COM connections are under investigation and have not been resolved in this release.

COM on OpenVMS Middle Component

Account and security issues related to running unauthenticated COM middle components on OpenVMS from a Windows client are under investigation. For this release, you are recommended to build and run COM middle components on Windows systems.

Log File Cleanup

In BridgeWorks V3.0 and higher, all server processes generate a log file (in addition to the BridgeWorks Manager log file). By default, the Manager removes these server logs periodically. To keep the logs, set the logging level to 2 or higher:

```
$ DEFINE /SYSTEM BWX$LOGLEVEL 2
```

Note: This logging level is more verbose and log files can become large rapidly (depending on the number of server being started).

Generated Code to Wrapper C++ Needs Modifying

In order to wrapper C++ applications, C extern statements must be removed from the generated .c and .h files. (These statements normally prevent name mangling of 3GL routine signatures.)

No-Transport Option Is Not Applicable to Single-Threaded Applications

Do not attempt to run a nonthreadsafe application (such as a COBOL-based application) in a no-transport environment. In the BridgeWorks no-transport option, the wrapped application image is loaded directly into the same process as the JVM. If the JVM is part of a larger environment, like BEA WebLogic or Tomcat, this will likely result in a handled exception when the COBOL application is accessed.

CONTACT AND SUPPORT INFORMATION

Software Support Contract

Standalone software support is available for HP BridgeWorks. For more information, contact your local HP support center at:

http://welcome.hp.com/country/us/en/contact_us.html

General Comments and Feedback

You may submit your technical suggestions and feedback to the BridgeWorks engineering team by sending mail to:

BridgeWorks@hp.com

Please do **not** use email for time-critical technical support questions, as response from the BridgeWorks engineering team is on a time-available basis only.

If you would like to provide comments or general feedback about the e-Business offerings on OpenVMS, please send mail to:

OpenVMS.eBusiness@hp.com

BridgeWorks Home Page

<http://www.hp.com/go/bridgeworks/>