



Software Robots - the Virtual Workforce

Java Access Bridge

USER GUIDE

Version: 1.0.3

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Introduction

In order for Blue Prism to interact with the Java applications via the Java Runtime Environment (JRE) the Java Access Bridge (JAB) is required.

For some versions of JRE, the JAB is provided with the installer, while for others it is an independent component.

Java Runtime Environment Version(s)	Java Access Bridge
< Java SE 7 update 6	<p>It is necessary to manually acquire and install an appropriate version of JAB. The Blue Prism Java Access Bridge Installer can be used for:</p> <ul style="list-style-type: none">• Automatic Installation (recommended)• Manual Installation May be required for use with non-standard installations of JRE. <p>This guide provides further information on each of the above options.</p>
Java SE 7 update 6, and Java 8	<p>JAB is provided natively as part of the Java install, however it may not always be enabled. To enable the functionality:</p> <ul style="list-style-type: none">• Open Control Panel• Select "Ease of Access Center"• Select "Make it easier to focus on tasks"• Check the setting "Enable Java Access Bridge" <p>Once enabled, the Installation Verification chapter within this guide can be followed.</p>

Blue Prism Java Access Bridge Installer

For versions of the Java Runtime Environment (JRE) where it is necessary to install and configure Java Access Bridge (JAB) separately, there are two options available when using the Blue Prism Java Access Bridge Installer:

- Automatic Installation (recommended)
- Manual Installation
 - Where there are multiple instances of JRE, or
 - Where the JRE is installed in a location other than the default directory

Requirements

The following guidelines should be considered when selecting and installing the Java Access Bridge.

- The intended Java Runtime Environment must be installed and the target applications fully installed and operational prior to installing the Java Access Bridge.
- The latest compatible version of JAB should be used with the installed version of JRE as shown in the table below. (If a JRE version that is lower than 1.2.2 is in use, please contact the Customer Support team).

For 32-bit operating systems:

- When using a 32-bit operating system, applications can be set to launch in **Embedded** or **External 32-bit mode**.

For 64-bit operating systems:

- JAB 2.0.0 cannot be used with a 64-bit JRE, however it can be used on a 64-bit operating system if a 32-bit JRE is installed.
- JAB 2.0.2 or higher must be used with 64-bit JREs. Check the table below for guidance on JAB to JRE compatibility.
- Business Objects that model 64-bit Java applications must be set to **External 64-bit** mode in the Blue Prism Application Modeller.

List of Java Runtime Environments and compatible Java Access Bridge versions

Java Runtime Environment version	Minimum JAB Version (32-bit JRE)	Minimum JAB Version (64-bit JRE)
< JRE 5	2.0.0	N/A
JRE 5	2.0.0	2.0.2
JRE 6	2.0.0	2.0.2
JRE 7 prior to update 6	2.0.4	2.0.4
JRE 7 update 6 JRE 8	N/A – JAB is provided with JRE and can be enabled via the Control Panel	

Each time the JRE in question is upgraded or modified (e.g. as part of a security update), the Java Access Bridge installation will need to be repeated in order to make sure that the new JRE has the correct extensions in place to work with the Access Bridge.

Each time a new JRE is installed on the device (e.g. for use with a new piece of software, it may be necessary to repeat the installation of the Java Access Bridge, even for your existing JREs).

Automatic Installation

To begin the automatic installation:

1. Run the installation executable (BPJabInstaller.exe) provided.
2. Select the required version from the dropdown and press the install button.
This will install Java Access Bridge.
3. When complete, it is advisable to copy and paste the output text and save this to a file.
This will aid any diagnostics should they be required.
4. Reboot the device and proceed to the Installation Verification within this guide.

Manual Installation

The manual installation is only intended for non-standard configuration(s) of Java Runtime Environments.

Extract the files and copy to the operating system folder

1. Extract the supplied .zip file containing the JAB files to a local folder.
2. Copy the files **WindowsAccessBridge.dll**, **WindowsAccessBridge-32.dll** and **WindowsAccessBridge-64.dll** into the correct Windows System directory appropriate for the Operation System architecture.
 - a. **32-bit OS:** WindowsAccessBridge.dll copied to c:\windows\system32\
 - b. **64-bit OS:** WindowsAccessBridge-32 copied to c:\windows\SysWOW64\, and
WindowsAccessBridge.dll and WindowsAccessBridge-64.dll copied to c:\windows\system32

NOTE: On a 64-bit OS 32-bit DLLs reside in the SysWOW64 folder, and native 64-bit DLLs reside in the system32 folder.

Install JAB for each required installation of JRE

The Java Access Bridge can be installed for each installation of Java Runtime Edition on a given device. An example where this may be required is with products such as Sun Microsystems™ Java web browser plugin which typically includes a separate JRE. Commonly installation of JRE are found within a Java folder under program files e.g.

- c:\Program Files\Java\jdk1.5.0\jre\
- c:\Program Files (x86)\Java\jre7\

Non-standard installations of JRE are usual found in a sub-directory of the application e.g.

- c:\Program Files\[Application]\JRE\

For each JRE installation where JAB is to be installed, follow the steps below:

1. Locate the extension folder for each relevant JRE e.g.
 - a. c:\Program Files\Java\jdk1.5.0\jre\lib\ext
 - b. c:\Program Files (x86)\Java\jre7\lib\ext

2. Copy Java files

Copy the files named **access-bridge.jar**, **access-bridge-32.dll** and **access-bridge-64.dll** into the **ext** directory identified in the previous step.

Identify the version of the target JRE installation: a value of the form 1.X.

Copy into the **ext** directory the file named **jaccess-1_X.jar** (where X is the number identified as part of the JRE version), and then rename it to **jaccess.jar**, or copy the supplied **jaccess.jar** into this folder.

Where there is no matching file use the first available file with a lower version number instead (e.g. in the case of 1.5 or 1.6, for which there is no matching file, please use the file **jaccess-1.4.jar**).

3. Add properties file

Check for the existence of a file named '**accessibility.properties**' in the **lib** folder (one level above the **ext** folder in your JRE install directory). If the file does not exist, copy the supplied version of the file into the **lib** folder. If the file exists but does not yet include the following line then append it to the end of the file, on its own line:

a. `assistive_technologies=com.sun.java.accessibility.AccessBridge`

It is acceptable for this line to be the only line in the file.

4. Locate the bin directory

Navigate to the folder **\bin** under your Java installation directory e.g.

a. `c:\Program Files\Java\jdk1.5.0\jre\bin`

b. `c:\Program Files (x86)\Java\jre7\bin`

Copy the files **JavaAccessBridge.dll**, **JavaAccessBridge-32.dll**, **JavaAccessBridge-64.dll**, **JAWTAccessBridge.dll**, **JAWTAccessBridge-32.dll** and **JAWTAccessBridge-64.dll** to this folder.

*NOTE: For 32-bit JAB on a 32-bit operating system only the files **JavaAccessBridge.dll** and **JAWTAccessBridge.dll** will exist.*

5. If installing within a 64-bit operating system, add the folder **c:\windows\SysWOW64** to the PATH environment variable.

6. When the installation is complete, reboot the device and proceed to the Installation Verification section within this guide.

Installation Verification

The verification stage takes advantage of two tools provided by Sun/Oracle, the creators of the Java Access Bridge. The tools are basic and serve to demonstrate that the basic features of the Java Access Bridge API are available.

This step allows the JAB to be tested independently of a Blue Prism installation, allowing verification that the JAB has been installed correctly in the event that Blue Prism cannot successfully communicate with a Java application.

To verify the Java Access Bridge installation, complete the following steps. If either method succeeds the installation is successful.

If you do not already have copies of JavaFerret or JavaMonkey, these can be downloaded as part of the JAB 2.0.2 .zip file from Oracle here. Link:

<http://www.oracle.com/technetwork/java/javase/tech/index-jsp-136191.html>.

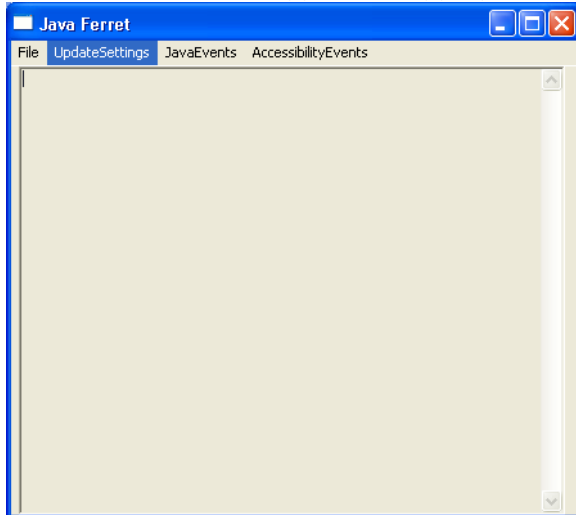
However do not install this version of JAB. When verifying your installation, use the versions of the JavaMonkey or JavaFerret executables without the -32 or -64 suffixes in the filename.

Prerequisites

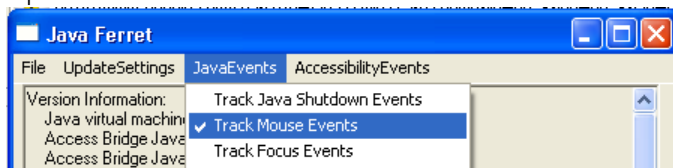
The device must have been rebooted following the installation of the Java Access Bridge.

Method 1: JavaFerret

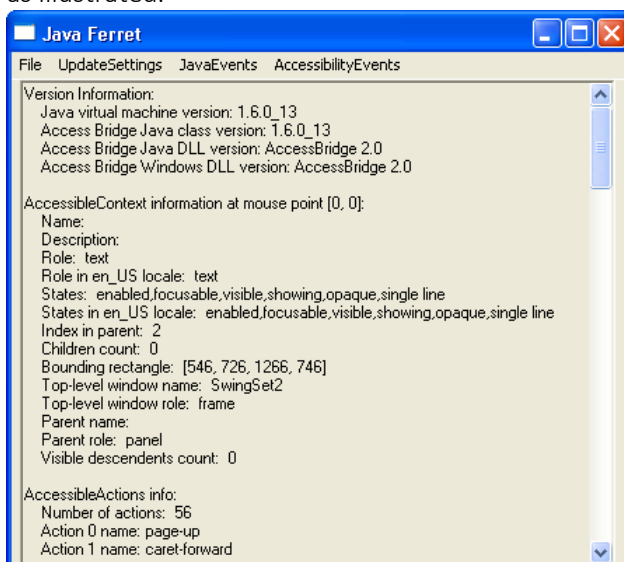
1. Open the target application. This application should have been fully installed, configured and tested prior to the JAB installation.
2. Launch the JavaFerret application appropriate to your operating system and JRE version.



3. Open the “JavaEvents” menu and select the “Track Mouse Events” option, as illustrated.

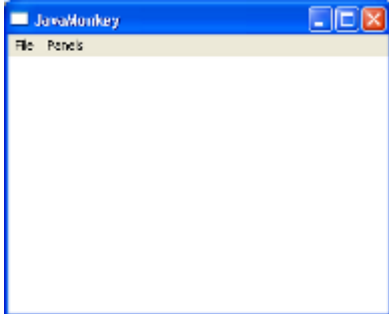


4. Arrange your JavaFerret window side by side with your target application. Begin to move your mouse over the target application. Under a working installation, you will see the JavaFerret window update with text, as illustrated.



Method 2: JavaMonkey

1. Open the target application. This application should have been fully installed, configured and tested prior to the JAB installation.
2. Launch the JavaMonkey application appropriate to your operating system and JRE version.



3. Select the "Update Tree" option from the file menu. Under a working installation, you will see the window populated with a tree-like structure representing your target application, as illustrated.

