Oracle® Java SE Embedded

Release Notes

Release 8

E28299-04

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These release notes introduce Oracle Java SE Embedded and describe its new features, platform requirements, installation, limitations, known problems and issues, and documentation.

This document contains the following topics:

- What's New
- Platforms and Requirements
- Installing Oracle Java SE Embedded
- Known Issues
- Limitations
- Documentation Updates
- Documentation Accessibility

1 What's New

The following features have been added since Oracle Java SE Embedded 7.

- **Compact Profiles**

  This release contains three pre-configured compact profiles. Compact profiles contain subsets of the API. Installing the minimum number of libraries required for applications reduces the file system space required by the JRE. For more information, see the chapter about compact profiles in *Oracle Java SE Embedded Developer's Guide*.

- **Oracle Java SE Embedded Java Development Kit (JDK)**

  This release includes a development kit as well as the Java Runtime Environment (JRE). The Embedded JDK includes the following tools:

  - **jrecreate Tool**

    This release contains the `jrecreate` tool, which platform developers can use to create a custom JRE to suit your device and the applications that will run on it. For more information, see the chapter on custom JREs in *Oracle Java SE Embedded Developer's Guide*.

  - **jdeps Tool**

    This release contains the Java SE `jdeps` tool, which provides feedback about the minimum compact profile required for each library in your application. Platform developers can run the jdeps command on the applications that will

run on their device in order to determine which compact profile to install. Application developers can run the jdeps command to ensure their application libraries fit the profile installed on the device.

2 Platforms and Requirements

See Oracle Java SE Embedded System Requirements.

3 Installing Oracle Java SE Embedded

Refer to the Oracle Java SE Embedded 8 *README* for installation instructions.

Oracle Java SE Embedded 8 is a modular system that must be configured before launching. You must use the `jrecreate` command to select the runtime components (such as APIs and virtual machines) that are appropriate for your application's functional and performance needs. See *Oracle Java SE Embedded Developer's Guide*.

4 Known Issues

This section describes known problems and issues in this release that are specific to Oracle Java SE Embedded. See also the Java SE 8 known issues, many of which also affect embedded platforms

4.1 Raspberry Pi Power Supply

The minimum power supply rating to use on the Raspberry Pi is 800mA. However, unless a higher-rated power supply is used, some problems can occur when the CPU or GPU are under heavy load. For example, USB ports can lose power or the device can suddenly reboot. We recommend the use of a 2A power supply.

4.2 Raspberry Pi Input Events

If you run into problems with dropped input events, try reducing the USB bus speed. First, update the Raspberry Pi firmware:

```
$ sudo apt-get update
$ sudo apt-get install raspberrypi-bootloader --reinstall
```

Then, open `/boot/cmdline.txt` in an editor. On the same line as the other options add `dwc_otg.speed=1`. Save the file, run `sudo sync`, and reboot.

This option drops USB speeds from 480Mb/s to 12Mb/s, which resolves issues with a variety of USB devices on the Raspberry Pi.

4.3 JavaFX Limitations and Bugs

This section documents limitations of the JavaFX components in this release.

4.3.1 Touch Device Gestures are Limited

Only the single-finger swipe gesture is implemented. Multi-touch gestures are not reported.

There is experimental support for touch events with multiple touch points. It is disabled by default, but can be enabled with the following command-line flag when starting Java:

```
-Dcom.sun.javafx.experimental.embedded.multiTouch=true
```

4.3.2 3D Rendering is not Supported

There is experimental support for the JavaFX 3D API. This is disabled by default, but can be enabled with the following command-line flag when starting Java:

```
-Dcom.sun.javafx.experimental.embedded.3d=true
```

4.3.3 JavaFX Generic Bugs

All editions of JavaFX, including the components provided with Oracle Java SE Embedded, exhibit the issues listed at this site: http://javafx-jira.kenai.com.

4.4 AWT Graphics Bug

This bug applies to AWT graphics on certain configurations when rendering is performed through the xrender pipeline.

There are some platform X11 bugs that can cause empty or partially empty windows running AWT (not Swing) applications. If you encounter this bug, the work-around is to specify the systems property `-Dsun.java2d.xrender=false` when you launch the application. For example:

```
$ java -cp AWTApp.jar -Dsun.java2d.xrender=false awtapp.AWTApp
```

For more information see the following bug at:
http://bugs.sun.com/view_bug.do?bug_id=8014883.

5 Limitations

This section describes limitations of Oracle Java SE Embedded.

5.1 Server Java Virtual Machine is not Universally Available

The server JVM is not available on all targets. The following table gives specifics.

Target Processor	Server JVM?
ARM v5 soft floating point ABI (no VFP)	No
ARM v6 soft floating point ABI with VFP	No
ARM v6 hard floating point ABI with VFP	No
ARM v7 soft floating point ABI with VFP	Yes
ARM v7 hard floating point ABI with VFP	Yes
x86	Yes
Power PC (PPC)	No

5.2 Native Memory Tracking Support is Limited on ARM Targets

The `-XX:NativeMemoryTracking=detail` java command line option is not supported for ARM targets (an error message is displayed). Use `-XX:NativeMemoryTracking=summary` instead.

5.3 Swing/AWT Configuration

To install the Swing/AWT APIs, you must create a full JRE by using the `jrecreate` command without the `--profile` option.

With a full JRE, you can install the client VM (the `--vm client` option), the server VM (the `--vm server` option) or both (the `--vm all` option, or leave the `--vm` option unspecified). The minimal VM is not supported.

If you plan to run both AWT/Swing and JavaFX applications on the target, you can add JavaFX APIs by adding the `--extension` option with `fx:controls`, `fx:graphics`, or both. Note that an application can only make calls to the Swing/AWT API or the JavaFX API, not both. To keep the footprint small, only install the JavaFX APIs when you know that you will be running JavaFX applications.

Consult Oracle Java SE Embedded System Requirements for the platforms that support headful applications. For more information about creating a full JRE, see the `jrecreate` chapter of *Oracle Java SE Embedded Developer's Guide*.

6 Documentation Updates

The following sections list the documentation for this release and describe late-breaking information that was not included in the documentation.

6.1 Documentation Set for Oracle Java SE Embedded Release 8

In addition to these release notes, this release includes *Oracle Java SE Embedded Developer's Guide*. For API documentation, refer to the chapter on compact profiles, which lists the main Java packages associated with each profile and gives a link to the corresponding Javadoc files.

7 Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at `http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc`.

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