Overview of
J42 for Application Access
&
Java 11+

20 June 2018

1 Management Summary

Oracle have announced that Java 11, due out in October 2018, will no longer support the applet or Java Web Start mechanisms used by current J42 for Application Access (J42 AA) releases. The new J42 AA release 9.0 provides an alternative local installation incorporating its own Java Run-time Environment.

Existing Java installations will not be automatically upgraded to Java 11 so there is no immediate urgent need to upgrade to J42 AA 9.0.

Customers should incorporate the need to migrate their J42 AA systems into their future plans.

2 Introduction

Up until now most customers have distributed J42 AA using a web server. From the web server it is possible to offer users alternative ways of starting their J42 AA session. One method is the definition of a web page where J42 AA has been defined as an Applet. An alternative is to use Java Web Start to automatically download and maintain J42 AA. In both cases the only requirement on the workstation is that Java was installed.

A further alternative is to install J42 AA locally or on a network disk and run it as a Java application.

Oracle announced in March 2018 that the Java Plug-in and the Applet package will not be part of Java 11 which is due for release in October 2018. This announcement also states that Java Web Start will no longer be available in Java 11. Previously, Java Web Start had been recommended as the solution for the withdrawal of the Java Plug-in and Applet mechanism.

In addition, Oracle states "*Oracle does not plan to migrate desktops from Java 8 to later versions via the auto update feature. Individuals who require Java SE for non-corporate desktop use will continue to receive updates through at least December 2020. Instead of relying on a pre-installed standalone JRE, we encourage application developers to deliver JREs with their applications. More details will be made available through early 2018.*"

Customer's workstations which currently have Java 8 installed on them will not therefore be automatically upgraded when Java 11 is released. Customers may continue using Java 8 and their existing J42 AA web server based installations.

In order to ensure future compatibility and following Oracle's recommendation, Release 9.0 of J42 AA has been updated to be compatible with Java 11 and to provide alternative installation scenarios. Backwards compatibility is maintained and this version of J42 AA can also be used with previous versions of Java as an Applet.

3 J42 AA and future versions of Java

This section describes both a current scenario for a J42 AA installation and an example future scenario.

3.1 Current scenario for Java 8, 9, 10

This is a typical scenario for use with the current version of Java. Note that installations with Java 8 will only be upgraded to Java 9 or 10 if a specific update request takes place.

Summary:

- A general purpose Java is installed on each workstation, this includes a Java Plug-in for the Web Browser and Java Web Start. This may be Java 8, or, if upgraded, it may be Java 9 or 10.
- J42 AA is available on a web site as a Java applet embedded in a web page or as a Java Web Start application started from a JNLP file.

- J42 AA start-up parameters, configuration data and extra custom classes reside on the web site.
- J42 AA is started (a) from the Web Browser accessing a web page or (b) from the Windows Start menu using Java Web Start.

3.2 Future scenario for Java 11 or later (also works for Java 9 and 10)

In this scenario the Java Runtime Environment is specifically built to support J42 AA. It will have a much smaller footprint than the general purpose Java currently installed on the user's workstation.

Summary:

- J42 AA together with its own customized Java Runtime Environment (JRE) is installed on each workstation.
- J42 AA is supplied as an MSI file and installed using Windows Installer
- J42 AA start-up parameters, configuration data and extra custom classes reside on the web site (just as they do in the current scenario).
- J42 AA is started from the Windows Start Menu

3.3 When is it necessary to change from the current to the future scenario?

Oracle release a new version of Java every 6 months and as soon as it is available the previous Java release does not receive any more free updates.

Once Java 11 has been released there will be no more free updates for the Java release 10. Free updates for Java 8 will available until January 2019.

Oracle emphasizes that customers requiring long term support of a specific Java version should seek a commercial support contracts.

By integrating a smaller, specific and tested version of the JRE into the J42 AA installation, J42 AA is provided with an unchanging and reliable environment.

4 Java versions and suppliers

4.1 Overview

The free support updates provided by Oracle has meant that Oracle's Java was the first choice for a generic Java installation on the workstations. This generic Java could then be used by any application.

Now that Oracle are changing their support model and discontinuing the Java Plug-in and Java Web Start, other options could be considered.

Oracle's Java is based upon the OpenJDK and there are other Open Source implementations available. The most prominent alternative to Oracle's Java is Zulu from Azul Systems. In addition a fully open source alternative is available from AdoptOpenJDK Community who provide up-to-date builds of the OpenJDK on a daily basis. J42 AA runs in these Java versions, however like Oracle's Java 11, Open Source Java implementations do not include the Java Plug-in or Java Web Start

	J42 AA compatibility with various versions of Java		
Java Version	J42 AA <= 8.9k	J42 AA 8.9m	J42 AA >= 9.0
Oracle Java 8	✓	✓	✓
Oracle Java 9	✓☹[1]	✓	✓
Oracle Java 10	✓☹[1]	✓	✓
Oracle Java 11[3]	✗[2]	✗[2]	✓
Azul Systems Zulu 8[3]	✓	✓	✓
Azul Systems Zulu 9[3]	✓☹[1]	✓	✓
Azul Systems Zulu 10[3]	✓☹[1]	✓	✓
Azul Systems Zulu 11[3]	✗[2]	✗[2]	✓
AdoptOpenJDK Java 8[3]	✓	✓	✓
AdoptOpenJDK Java 9[3]	✓☹[1]	✓	✓
AdoptOpenJDK Java 10[3]	✓☹[1]	✓	✓
AdoptOpenJDK Java 11[3]	✗[2]	✗[2]	✓

4.2 Customised JRE for the future scenario

4.2.1 JLink

One of the features introduced in Java 9 is the JLink tool. This tool allows developers to create a customized version of the JRE which includes only those components necessary for their application.

[1]Characters in the start-up messages are badly drawn with some graphics cards

[2] These versions use classes in the applet package which is expected to be deleted from Java 11

[3] The Java Plug-in and Java Web Start are not present so J42 AA must be run as a Java application

4.2.2 Incorporation of the JRE in the installable version of J42 AA

The installable version of J42 AA includes a customized version of the JRE which has been created using the JLink facility. Since J42 AA uses its own specific version of Java this avoids any issues arising because of updates to any generic Java installation on the user's workstation.

The JRE may be created from Java version 9 or greater. Oracle's Java, Azul's Zulu and AdoptOpenJDK's Java are all suitable.

5 Installable J42 AA 9.0

5.1 Installed components

- Customised Java Run-time
- J42 AA JAR file
- Windows Menu shortcut to start J42 AA. This shortcut should specify the location of the web site where the startup parameters are located

5.2 Installation package

- The default installation package does not include the location of the web site where the customer's start-up parameters are located
- The installation package should be customized for the customer to include the location of the start-up parameters. This eliminates any need for this data to be entered by the end-user.

5.3 Operation

- The user selects the start menu option to start J42 AA
- J42 AA starts up and accesses startup parameters, configuration data and any additional JAR files
- The session opens

5.4 Security

- For customers requiring increased security additional facilities are available to store some or all of the start-up parameters and configuration in the digitally signed JAR file.

5.5 Possible implementation issues for J42 AA 9.0 & Java 11

J42 AA will no longer be running in a Java Plug-in. If a customer has built routines which interact with the Java Plug-in or with a surrounding web page then these routines must be modified. If custom classes or widget workers make reference to any of the classes which have been removed from Java 11 then these will also need to be modified.

6 HTML Server Version

For those customers who do not want to install Java on their workstations, the HTML Server version of J42 AA offers an alternative. This current document only applies to the J42 AA Java client version.