Avaya Orchestration Designer
8.0.0.2201
(Supersedes All Previous Releases)

Date: September 11, 2020

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1   Release Information

This is the 8.0 Sprint 22 build of Orchestration Designer.

1.1   Release Overview

The themes of the 8.0 release are:

- EXPPORTAL-3069 IPv6 support for AAEP and AAOD
- EXPPORTAL-3134 Orchestration Designer shall support the latest versions of 3rd party application server software
- EXPPORTAL-3142 Orchestration Designer tool shall be enhanced to provide users an option to generate a docker container for the Orchestration Designer runtime Feature Introduction and Description

- EXPPORTAL-3272 Avaya Aura Experience Portal brand name shall be updated to "Avaya Experience Portal," and Avaya Aura Orchestration Designer brand name shall be updated to "Avaya Orchestration Designer."

- EXPPORTAL-2048 Experience Portal and Orchestration Designer shall be FIPS 140-2 compliant.

- EXPPORTAL-3131 Experience Portal and Orchestration Designer shall have a new license version with this release.

- EXPPORTAL-3142 Orchestration Designer tool shall be enhanced to provide users an option to generate a docker container for the Orchestration Designer runtime Feature Introduction and Description.

2   Features

This section describes the status of the features that are available in this release.

- EXPPORTAL-3069 IPv6 support for AAEP and AAOD

  This was a largely a testing effort and spot-checking code where request URLs may be parsed and reconstructed using the host IP and other parts of the URL to make connection to other web components. Code reviewed and tests are done on running sample applications, applications connecting to modular applications, AES connection and web service connection.

- EXPPORTAL-3272 Avaya Aura Experience Portal brand name shall be updated to "Avaya Experience Portal," and Avaya Aura Orchestration Designer brand name shall be updated to "Avaya Orchestration Designer."

- EXPPORTAL-3134 Orchestration Designer shall support the latest versions of 3rd party application server software. This includes support for Eclipse 4.14 (aka Eclipse 2019-12), Wildfly 18.0.1, and Tomcat 9.0.30. Eclipse 4.14 is delivered in the Eclipse-4.14-Prereq-AAOD.zip which is available for download.

- EXPPORTAL-2048 Experience Portal and Orchestration Designer shall be FIPS 140-2 compliant

  The OS and JVM which the app server runs on should already have FIPS mode configured and turned on. If not, please refer to the EP documentation for the configuration steps. We use Bouncy Castle as the security provider. There are 2 additional tasks listed below.

  In Tomcat catalina.sh(bat) startup script add the following line. The OD runtime needs this system property to know that the system is in FIPS mode:
  JAVA_OPTS="$JAVA_OPTS -Dcom.avaya.od.fips.enabled=true"

  Convert any existing JKS trust store files to BKS format using the command as follows. You need to modify the file names accordingly:
  keytool -importkeystore -srckeystore trusted_weblm_certs.jks -destkeystore keystore.bks -srcstoretype JKS -deststoretype BCFKS -deststorepass password -srcstorepass password -providerpath bc-fips-1.0.2.jar -provider org.bouncycastle.jcajce.provider.BouncyCastleFipsProvider

  Since OD makes the trusted_weblm_certs.jks file as the default trust store, you would have to rename the file back to the "trusted_weblm_certs.jks" name for OD to find it by default in RuntimeConfig.

  There is currently one limitation due to the weblm.jar/client implementation (not in the control of OD). "https" for the license URL is not working.

  Sprint 12 addition

Axis2 library file has been updated from v1.6 to 1.7 for the support of the new VPAppLogClient component, which is essential for the communication between EPM web services and OD on FIPS mode. This will fix the problems with reporting and using configurable variables and other functions that involve the communication between EPM and OD.

The stock Redirector app, which is used for launching HTML5 applications, has also been fixed to support FIPS. When configuring Redirector for the first time, you would run the setup CLI program to add the EPM. When doing that in FIPS mode, the certificate can not be fetched remotely. You will ignore the error and let the setup program continue to add the EPM IP. You would then convert the embedded JKS trust store file to BCFKS format and add the certificate manually by using the commands below:

Make sure you have the certificate file ready
Convert jks to bcfks -
keytool -importkeystore -srckeystore truststore.jks -destkeystore truststore.bks -srcstoretype JKS -deststoretype BCFKS -deststorepass changeit-srcstorepass changeit -providerpath bc-fips-1.0.2.jar -provider org.bouncycastle.jcajce.provider.BouncyCastleFipsProvider

Import certificate -
keytool -keystore truststore.bks -import -alias epm -file epm.cer -noprompt -storepass changeit -storetype BCFKS -providerpath $JAVA_HOME/jre/lib/ext/bc-fips-1.0.2.jar -provider org.bouncycastle.jcajce.provider.BouncyCastleFipsProvider

Rename the new file truststore.bks to truststore.jks since the Redirector app only recognizes one name.

- EXPPORTAL-3131 Experience Portal and Orchestration Designer shall have a new license version with this release.

  For the new licensing code to work, you would need to create and install a WebLM license for OD Runtime with version 8 or above.

- EXPPORTAL-3142 Orchestration Designer tool shall be enhanced to provide users an option to generate a docker container for the Orchestration Designer runtime Feature Introduction and Description.

  An option called "Tomcat On Docker" has been added to the list of app servers to choose when users "Export" the runtime support library bundle and application war file for deployment. When the option is selected, the Export Runtime Support Files wizard will create a zip file that includes all the necessary files in the lib directory, the runtimeconfig.war file and the dockerfile file. The user will subsequently explode the zip file into a directory and run a couple of CLI docker commands to build a docker image and run a container based on it. The commands can be simply copied from the commented lines in the dockerfile. For example:

  docker build -t myappserver .
  docker run -p 80:8080 myappserver

  Once the commands have been run, http://localhost/runtimeconfig can be loaded in the internet browser to verify the app server has been configured to run applications successfully.

  In some cases, OD has to get the Tomcat port on the server side to construct a URL which is used to make request back to the server itself. Since the Docker host port is mapped to the Tomcat port (i.e. 80:8080), the Java getPort method returns "-1" for 80 or whatever host port is used. To help with this problem, the server.xml of the Tomcat in the container has to be configured so that the port from the http request matches Tomcat's listening port 8080. Essentially, the proxyPort attribute has be added to the Connector configuration as follows:

  ```
  <Connector port="8080" protocol="HTTP/1.1" connectionTimeout="20000"
        redirectPort="8443" proxyPort="8080"/>
  ```

You can use the Dock cp command to copy files with changes to the Tomcat directory in the container.

2.1   *New Sample Applications*

2.2   *New Feature Notes*

2.3   *Requirements not included in this delivery*

      □   None.

2.4   *Features/Requirements with Limitations/Restrictions in this release*

2.5   *Features with Limitations/Restrictions Removed for This Release.*

      □   N/A

2.6   *Features with Changes in This Release*

2.7   *Jiras included in this Release*

Key	Summary	Issue Type	Component/s	Severity
AAOD-542	OD UI: Avaya Aura Orchestration Designer brand name shall be updated to "Avaya Orchestration Designer."	Bug	General	3-Medium
AAOD-540	Subdialog call returns output with double-quotes	Bug	General	3-Medium
AAOD-538	Dependency of the Apache Commons Logging is missing in the Axis2 plugin	Bug	General	3-Medium
AAOD-515	OD should update the copy right year in Application Server Configuration Page	Bug	General	3-Medium
AAOD-544	JBoss - CCXML App can't be deploy on Jboss application server	Bug	General	3-Medium
AAOD-546	Dialogflow default OD sample applications do not handle calls from non SIP trunks	Bug	Sample App	3-Medium
AAOD-547	Fix issues in Dialogflow: DefaultDialogflowApp OD Sample Application	Bug	Sample App	3-Medium
AAOD-559	OD JVM FIPS: Support for Redirector application under FIPS mode	Enhancement	General	3-Medium
AAOD-560	L10N Characters not Showing in HTML5 Apps	Bug	General	3-Medium
AAOD-561	OD 8.0.0.1001 can't load jsp file (CCXML application).	Bug	General	3-Medium

AAOD-550	Bring Localization Document Up-to-date	Enhancement	General	3-Medium
AAOD-563	The AOD home page can't display and required login again when click on "Home" button	Bug	General	3-Medium
AAOD-541	Avaya Aura Orchestration Designer brand name shall be updated to "Avaya Orchestration Designer."	Enhancement	General	3-Medium

3   Installation and Upgrades

3.1   *New Installations (for GA only)*

With the first time (new user) installation of Orchestration Design 8,0, an ISO image that has all the pre-requisites and tools is provided. The ISO image file can be either delivered in a traditional DVD or download-able on Avaya distribution website. If the ISO file is downloaded and placed on Windows 8 or 10, it can be easily opened by double-clicking the file or right-clicking and choose "Mount" to mount the image. On older Windows versions, a 3rd-party utility software is required.

For instructions to install Orchestration Designer, please refer to the Getting Started Guide which is provided as a stand-alone document. A fresh installation is recommended for OD 8.0.

3.2   *Upgrades*

3.2.1 Upgrading OD 7.2.3 or earlier

This version upgrades the Axis2 1.6 to Axis2 1.79. If you are upgrading an existing Eclipse environment, you will have to make a slight change to Tomcat Home in Preferences to trigger the coping of the new Axis2 files into the Tomcat's lib directory after the automatic upgrade is done. You can first change the directory to a bogus one and change it back to trigger the copying process. After the files are copied over, you have to manually remove the old files which are listed below. For the existing app server deployment environment, you also need to remove the old library files manually from the Tomcat's lib directory. The files to be removed are as follow:

axiom-api-1.2.13.jar
axiom-dom-1.2.13.jar
axiom-impl-1.2.13.jar
axis2-adb-1.6.2.jar
axis2-adb-codegen-1.6.2.jar
axis2-codegen-1.6.2.jar
axis2-json-1.6.2.jar
axis2-kernel-1.6.2.jar
axis2-saaj-1.6.2.jar
axis2-transport-http-1.6.2.jar
axis2-transport-local-1.6.2.jar
httpcore-4.0.jar
jettison-1.3.1.jar
neethi-3.0.2.jar
VPAppLogClientWS_7.2.3.jar
VPAppLogClient_7.2.3.jar
woden-api-1.0M9.jar
woden-impl-dom-1.0M9.jar
woden-tool-1.0M9.jar
XmlSchema-1.4.7.jar

3.2.2 Upgrading OD 6.0 Applications

- When upgrading from OD 6.0 to OD 8.0 web service operation updates sometimes fail. To work around this issue, traverse the project's connectivity -> wsoperations directory in the Navigator, then select the WSOPs Properties menu -> Generate Client, then click on the Generate button and follow the instructions.
- Orchestration Designer upgrade process does not modify any custom code created by the application developer. Any errors or warnings resulting from OD version upgrades (such as variable name changes) that affect the custom code must be manually resolved by the application developer. The fix for wi00954168 (confLow and conf_Low generate the same name in IProjectVaraiable resulting in duplicate define symbol) resulted in altering the way names are generated in the IProjectVariable file. When upgrading from 6.0 or before you may need to update custom code to account for changes in the generated names.

4   Known Issues

The following section describes any known issues, workarounds, words of caution, etc.

4.1   Limitations, Work Arounds, Tips and Best Practices:

- **New REST Connector Behavior in Axis2 1.79 Upgrade**
  If you are posting JSON data to a REST service, you would find the data passed through the POST body translated into XML as opposed to the original JSON format. This is the new behavior of the AXIS2 library that the REST connector is depending on. You may have to change your REST service code to expect XML data instead.

- **AES Connector Does Not Work in FIPS**
  Due to the limitation in JTAPI, this release does not support AES Connector running in FIPS mode.

- **Runtime Exception with Invalid License**
  If you run a HTML5 app and find that the Start page is blank, you might run into a problem with the license version. The older version of the OD license that you might already have would give you a grace period of 30 days. You would see an exception in the trace.log as well as an alarm in EPM. In that case, you have to get the version 8 license as soon as possible to make sure your OD system continues to operate.

- **Error when Exporting war file for deployment**
  When running the Export progress, if you get an error that says, "Error deploying the following project: <project name> \n Check the console and error log for more details on the error", first check the console for an apparent error. Then take a look at the Error Log viewer. If you see an error like this, "Error writing context.xml to …/temp.folder/metafiles", re-import the project.

- **Tomcat 8.5**, **9.0**
  - o Jar scanning will emit errors if the serializer.jar is not in the lib directory. You can either place a copy of the serializer.jar in the lib directory or disable jar scanning.
  - o The configuration of the manager-gui by default in Tomcat 8.5 restricts the manager application to only local host. Alter webapps/manager/META-INF/context.xml and webapps/host-manager/META-INF/context.xml to enable access from machines other than localhost. Change to comment out the RemoteAddrValve.
    ```
    <!--
      <Valve className="org.apache.catalina.valves.RemoteAddrValve"
    allow="127\.\d+\.\d+\.\d+|::1|0:0:0:0:0:0:0:1" /> -->
    ```
- **JSON Parsing/Building**. This PDC does not contain any documentation in this release. This PDC can be used to extract values from JSON strings, update JSON strings or create JSON strings. The PDC works using a simple XPath notation (a/b/c or a/b[0]/c). Paths allow for variable substitution using the notation _{<variable name>}_ or _{myvariable}_. A path like a/b[_{myvariable}_]/c at runtime will have the variable reference replaces with the actual value. So at runtime the actual path might be a/b[1]/c, assuming myvariable has a value of 1. The JSONParser supports complex variables and

collections.   When copying from JSON to an OD complex variable all fields in the JSON object that match fields in the OD complex variable are copied.

- In this release, speech application html mode is configurable. By default it is DISABLED for ALL speech applications in both simulation and deployment. You can use the project properties to enable HTML mode in the development environment. When you export you also have an opportunity to enable or disable this setting. When you enable you are warned "Warning, enabling HTML mode for a speech application can expose your application to cross site scripting attacks. Are you sure you want to enable this?" Note, Avaya recommends to NOT use HTML mode for deployed applications as the application will NOT function properly when accessing platform services (notification, reporting, CAV, and etc.). Furthermore, HTML mode exposes your application to cross site scripting attacks.

- Local Call. *As a general rule over use of Local Call is not recommended*. **It is always best to use a subdialog call** unless you specifically need the functionality of the Local Call, which mainly allows you to pass a complex variable to a module.

- While the Oceanalytics integration (Publish real time event) PDC is present in Orchestration Designer, in the Breeze 3.2, 3,3, and 3.4 release there is no client to consume any events generated.
  In a future release Breeze will support the handling of events generated from OD.

- Staring with Eclipse Photon 4.8 (4.11 so on), only 64-bit versions are being packaged for distribution. This is compatible with JDK 10.1 (or up) of which only 64-bit is currently available. You would have to use 64-bit Java to run Eclipse 64-bit. JDK 1.8 64-bit is the lowest JDK version tested.

- **WebLM 8 client -** The new WebLM client, which solves the https connection problem with JBoss/Wildfly, requires a manual step to make it work. Particularly it requires the trustedcert.properties file in a specific sub directory inside the app server deployment directory. The directory is different for different app server type. For Tomcat, you have to copy the trustedcert.properties from the lib directory into the webapps/WebLM/admin directory. Otherwise, you would see an exception such as the following in the console log when configuring the https license url in runtimeconfig or running the app for the first time. For other app server, take note of the similar FileNotFoundException in the console log and move the trustedcert.properties to the sub directory indicated in the exception.

      java.io.FileNotFoundException: C:\OD723\deployment\apache-tomcat-
  9.0.8\webapps\WebLM\admin\trustedcert.properties

- **ED/Breeze Integration –** When the refresh button is clicked for the ED Administration Instances page, a Null Pointer Exception is logged in the Engagement Designer log file. To work around this issue:

  Login to the Breeze machine with the root account, and execute the command below:

  Psql service=engagementdesigner_workflow –c "delete from bpminstance instance where not exists (select 1 from wfdsvar savr where instance.process=svar.wfdname and instance.version=svar.wfdversion)"

- **Integration with Breeze/ED Configuration Note** - **Video Media Processor** option should be selected in AMS for the Make2Party call with ED and EP/OD to work correctly. (New call from ED to EP/OD)Login to your AMS admin page, go to link "System Configuration→Server Profile→General Settings", check checkbox **"Video Media Processor:",** then click the Save button

- **REST** – if a restful web service returns a 202 (accepted), the Axis implementation does not read any body accompanying the reply. To work around this the web service needs to return 200, or you need to write java code to invoke the restful webservice.

- **Tomcat** –
  - In the OD design environment, when launching an app or starting up Tomcat manually in simulation, you would encounter the following error:
    SEVERE: StandardServer.await: create[localhost:8005]:
    java.net.BindException: Address already in use: NET_Bind
    That means another application or process in Windows has taken the port (8005). To resolve this issue, you'd have to edit the server.xml file in Tomcat's conf folder, look for "8005" and change it to something like "8006" or other port number that is not currently being used.
  - On some versions of Tomcat you may encounter problems with Tomcat closing a socket too soon when it sends a redirect; specifically, if there are 2 redirects back to back without a VXML page being returned. To alleviate this, use the *connectionLinger* property in the connector configuration with a minimum value of 1. It is not known if this behavior is exhibited on other application servers.
  - On version 8.0.41 and greater you will get a warning about not being able to scan the serializer.jar. This does not affect any operational aspects of OD. If the warning is bothersome, you can optain a copy of the serializer.jar from the runtimeconfig.war. Alternatively you can edit the catalina.properties file in the conf directory and add the serializer.jar to the list of jars to skip the first example below, or add *.jar to skip all jar scanning which significantly improves the Tomcat startup time.
    - tomcat.util.scan.StandardJarScanFilter.jarsToSkip=\
    - bootstrap.jar,commons-daemon.jar,tomcat-juli.jar,serializer.jar,\
    - -or-
    - tomcat.util.scan.StandardJarScanFilter.jarsToSkip=\
    - *.jar,bootstrap.jar,commons-daemon.jar,tomcat-juli.jar,,\
- **WebLM -** Post WebLM 6.3.11, WebLM server will accept requests only over TLS 1.0 and above. If the product application is configured to send requests on SSLv2 / v3 then the communication between the product application will fail. Hence, if the product application is upgrading WebLM to 6.3.11 and above, then please ensures that the product application is configured to send requests only over TLS 1.0 & above. Note that certain JRE releases provide support only for SSLv2. Hence, take that into account.
- **Web applications -** When a new web application is created you will see warnings in the "templates" pages in the "custom" folder of your application. Please ignore these warnings. In project properties or preferences you can uncheck "Validate JSP fragments" and the warnings are not displayed.
- **Web applications -** In Firefox, if the OD application start page is accessed from the tomcat manager, a runtime exception occurs on the application start page. To fix the issue, just refresh the index page/start page of the OD application. This error occurs only on the Firefox browser and it is a browser cashing issue.
- **Project Documentation** – Sometimes the flow map may not be generates when generating the project documentation. To work around this open the call flow and move a node slightly so the call flow is dirty and then save. Now regenerate the project documentation and the flow map will be present.
- **OSDMs-** In newer versions of tomcat the OSDM's may not load. This has been noticed in OD 7.0 and onwards. The issue is the xml parsing validation expects a numeric value for the load-on-startup tag if present and an empty value is no longer valid. To fix this edit the web.xml file in the OSDM war and remove all occurrences of " <load-on-startup/>" and then redeploy the war file.
- **Application Import -** To avoid errors when importing applications, verify that the Java preferences are correct. The default settings vary between Eclipse versions. Go to Window -> Prefrences -> Java Compiler and ensure that the Compiler compliance level is at least 1.7. After projects are imported also verify that the project specific settings do not override the global preference (unless you specifically need that). Go the project properties -> Java Compiler, the checkbox "Enable Project specific settings" should not enabled and use the default compliance setting should be selected
- **Web Applications -**The latest version Web browsers such as Safari on IOS 10 require https session for the Geolocation to work. This means you would have to run the web app that uses the Location Input element in a secured session (https); otherwise, you would get an error code -2 returned on the browser.
- **Language Detection -** When using the Language detection PDC, the accuracy is a function of the length of the text. So, short texts like "hello world" will have a much higher error rate than "hello world, today is a new day". At 100 characters or more, the accuracy is in the high 90s for most

languages. The Chinese models are not the most accurate in discriminating between Simplified and Traditional forms. Text containing mixed language will return the language code for the most dominant language in the text. The "hint" function works such that the "hinted" language will be returned unless the top scoring language is (a) different and (b) exceeds the score of the "hinted" language by ~2%.If text is in an unsupported language, the recognizer will return one of the known languages.

- **Sample Application -**The web service http://www.webservicex.net/stockquote.asmx seems to no longer work. Example applications that use this web service will not work. This web service is used in the stock and weather set of example applications. The get weather functionality remains functional.
- **HTTP Client -** If you encounter the error below remove commons-httpclient-3.1.jar from the WEBINF/lib of the application. java.lang.IncompatibleClassChangeError: Class com.avaya.ade.common.utils.security.SSLSocketFactoryHTTPClient does not implement the requested interface org.apache.commons.httpclient.protocol.ProtocolSocketFactory
- **Tomcat -** Note if you are using Tomcat 7 and Java 8, you need at least Tomcat version 7.0.77. Using a lower (earlier version) will result in errors in jsp pages (**java.util.Map$Entry cannot be resolved**).
  - o http://stackoverflow.com/questions/19243458/unable-to-compile-class-for-jsp-the-type-javautil-mapentry-cannot-be-resolved/21322569
  - o https://bugzilla.redhat.com/show_bug.cgi?id=1080026

5 Version Information

To view the Orchestration Designer version in the product, select Help, About Eclipse, and then click on the Avaya Icon.

6 Hardware Prerequisites

- CPU speed 1GHz (min) 2GHz (recommended)
- RAM 512 MB (min) 1GB (recommended)
- Hard Disk drive 40 GB (min)

7 Software Prerequisites (Supported Versions)

7.1 Design Environment

- Windows 7 (Ultimate/Professional) – 32/64 bit
- Windows 10
- eclipse-SDK-4.7 (Bundled with version compatible GEF, WTP, XML and XSL tools, Javascript Dev, 2.0 Style Plugin Support)
- eclipse-SDK-4.8 (Bundled with GEF SDK, WTP, Eclipse Web Developer Tools)
- eclipse-SDK-4.11 (Bundled with GEF SDK, WTP, Eclipse Web Developer Tools)
- Tomcat versions 7.0, 8.0, 8.5, 9.0
- J2SE version 1.7, 1.8 - 32 bit and 64-bit versions, 1.9, 10.1, 11, 12
- Open JDK 1.7, 1.8 - 32 bit versions, 1.9, 10.1, 11, 12 64-bit
- Microsoft Speech SDK 5.1 or 6.0
- Nuance Recognizer 9/10 (MRCPv1) , Nuance 11 (MRCPv2)
- Loquendo Speech Server 7/MRCPv1 Server 7.2 or higher
- Ambulant 2.1
- Apache Axis 1.4 ☐   Apache Axis 2.0

7.2 Runtime Environment

Not all of the components are required for the runtime (E.g. the application server will be either Tomcat; WebSphere or Oracle WebLogic, the OS will be Windows, Solaris or Linux; the platform will be either IR or VP, etc.). Supported versions are listed, but the vendors supported list of dependencies and combinations should be consulted when setting up the environment). The tested configurations are as listed in the requirements document.

- Windows Server 2016 64 bit
- Linux ES 7.0
- Tomcat versions 7.0, 8.0, 8.5, 9.0
- JBoss Application Server 7.0, 7.1
- Wildfly (up to 16)
- J2SE version 1.8
- J2SE version 1.9
- J2SE version 10.1
- J2SE version 11
- J2SE version 12
- Open JDK 1.8
- Open JDK 1.9
- Open JDK 1.10
- Open JDK 1.11
- Open JDK 1.12
- Apache Axis 1.4
- Apache Axis 2.0
- Nuance 9.0, 10, 11
- Loquendo 7
- Avaya Aura® Experience Portal 7.0 ⬚   Avaya Aura® Experience Portal 7.1
- Avaya Aura® Experience Portal 7.2, Avaya Experience Portal 8.0
- Websphere 8.5.5 application server – comes with Java 7 support
- Websphere 8.5 application server - *comes with Java 6 by default, but has a Java 7 option – see the Websphere documentation for details.
- Websphere 9 with Java 8 support.
- Oracle Weblogic 10.3.6, 11g and 12cR2
- Sun Solaris 10 on SPARC
- CM version R013x01.2.639.0 or greater, and must have the green feature 7434ND enabled and licensed is required to use the Consultation transfer feature.
- Redirector 1.0.11, available from the Orchestration Designer Export.

7.3   *Java License Terms*

End User License Terms

1. <u>Java Technology Restrictions</u>. Licensee shall not create, modify, change the behavior of, or authorize licensees of Licensee to create, modify, or change the behavior of, classes, interfaces, or su-packages that are in any way identified as "java", "javax", "sun" or similar convention as specified by Oracle in any naming convention designation. In the event that Licensee creates an additional API(s) which: (a) extends the functionality of a Java Environment; and (b) is exposed to third party software developers for the purpose of developing additional software which invokes such additional API, Licensee must promptly publish broadly an accurate specification for such API for free use by all developers.

2. <u>Trademarks and Logos</u>. This License does not authorize an end user licensee to use any Oracle America, Inc. name, trademark, service mark, logo or icon. The end user licensee acknowledges that Oracle owns the Java trademark and all Java-related trademarks, logos and icons including the Coffee Cup and Duke ("Java Marks") and agrees to: (a) comply with the Java Trademark Guidelines at **http://www.oracle.com/html/3party.html**; (b) not do anything harmful to or inconsistent with Oracle's rights in the Java Marks; and (c) assist Oracle in protecting those rights, including assigning to Oracle any rights acquired by Licensee in any Java Mark.

3. <u>Source Code</u>. Software may contain source code that, unless expressly licensed for other purposes, is provided solely for reference purposes pursuant to the terms of your license. Source code may not be redistributed unless expressly provided for in the terms of your license.

4. <u>Third Party Code</u>.   Additional copyright notices and license terms applicable to portions of the Software are set forth in the THIRDPARTYLICENSEREADME.txt file.

5. <u>Commercial Features</u>. Use of the Commercial Features for any commercial or production purpose requires a separate license from Oracle. "Commercial Features" means those features identified in Table 1-1 (Commercial Features In Java SE Product Editions) of the Software documentation accessible
    at   http://www.oracle.com/technetwork/java/javase/documentation/index.html"

8   Contact Information

If you continue to have a problem, try using the Devconnect Avaya Aura Orchestration Designer Forum (https://www.devconnectprogram.com/forums/forums/show/15.page) or contact Avaya Technical Support:

1. Log in to the Avaya Technical Support Web site https://support.avaya.com.

2. Contact Avaya Technical Support at one of the telephone numbers in the Support Directory listings on the Avaya support Web site.

Avaya Global Services Escalation Management provides the means to escalate urgent service issues. For more information, see the Escalation Contacts listings on the Avaya Web site.