



Avaya Aura® Orchestration Designer
Release (Aspen) 7.0.0.0.1801
(Supersedes All Previous Releases)

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1 Release Information

This is the RTM candidate build for the OD 7.0 release.

1.1 Avaya Aura® Contact Center Tool Information

The version of the AACC plug-ins must be an exact match to the version of the AACC environment. For this release, we have revised the installation to explain how to pick up the version of plug-ins to match the version of the AACC runtime instead of including a set of plug-ins with the installation of OD.

1.2 Release Overview

The primary themes of the 7.0 release are:

- Multi-channel support
 - General Runtime framework support
 - Specific support for 2 way SMS (editors and simulation)
 - Specific support for email (editors and simulation)
 - PDCs for notification
- Enhanced Ease of Integration with AACC
 - PDC to handoff SMS/Email to AACC preserving contextual data
 - PDC to handoff voice call to AACC preserving contextual data
 - AACC Treatment PDC
- Developer Usability and Productivity (full list in WI section)
 - Allow TTS and ASR on different servers with MRCP feature
 - Support commonly used hot keys in call flow editor
 - Add combo type to VP configurable variables
 - New Application reporting feature
 - New REST Web Service Connector
 - Launch Outbound call PDC
 - Language Detection PDC
- Documentation Upgrade
 - New common tools and framework are now used by Avaya Aura Orchestration Designer
 - Revamped context to remove duplicated sections.
- Currency with 3rd party products
 - Tomcat 7.0
 - Eclipse 3.7
 - JBOSS 7
 - Java 7
 - Websphere 8.0
 - Nuance 10
 - Nuance NDM 6.1
 - WebLogic 12c

2 Features

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

2.1 New Features included in this delivery

2.2 Requirements not included in this delivery

2.3 Features/Requirements with Limitations/Restrictions in this release

- For the development environment, you can use the 64 bit version of the OS, but you must use the 32 bit version of the other pre-requisites, Java and Eclipse. For the runtime, you can use 64 bit Java.
- When creating a new project, if you alter the project properties, you are incorrectly prompted to increase the prompt timeout.

- Pin Validation for the AACC Treatment PDC is not supported in the current AACC releases. Please refer to AACC documentation/support for future availability.
- 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.
- MRCP Limitations/Notes:
 - When using MRCP for ASR in the simulator, make sure you select the right grammar compatibility depending on the speech server you are using. Select your project and go to Project -> properties -> Orchestration Designer-> Speech and select the needed grammar compatibility.
 - When MRCP ASR is enabled, you cannot provide text input for speech recognition.
 - MRCP V2 is not supported in this release.
 - When using MRCP for ASR, spoken input should be provided to the simulator via a microphone only after you see the message “Waiting for ASR input” in the simulator.
- Eclipse version 3.6.1 or higher is required for this release.
- The AACC team is not planning to move to Java 7 in a timeline that meets the delivery of OD 7. Therefore, the requirement to support Java 7 will only be met for the automated care plug-ins in this release. For Customers who want an integrated set of plug-ins, they will have to remain on Java 6.

2.3.1 Orchestration Designer Debugger support (Properties Editor style –PDC only)

By default, breakpoints are enabled for all Data Node call flow items. If you do not want Orchestration Designer developers to be able to place breakpoints on your contributed items, you must implement `supportsBreakPoints()` and return **false**. The default implementation of `supportsBreakPoints()` returns **true**.

Pluggable connectors that wish allow breakpoints on their contributed items need to change their code generation. The change is to set the debug ID on the action. The debug ID is the call flow object ID. It is a simple change to the code generation when you generate the closing parentheses.

Change this:

```
sb.append(")");
```

to this:

```
sb.append(").setDebugId("+item.getFlowObjectId()+")");
```

This results in the code generation, for example, changing from this:

```
//{{START:CODEGEN:EXTENSIONPOINT:com.avaya.sce.pdc.pe.advancedmath.pi
actions.add(new com.avaya.sce.pdc.pe.advancedmath.Pi("session", "exitInfo1"));
//}}END:CODEGEN:EXTENSIONPOINT:com.avaya.sce.pdc.pe.advancedmath.pi
```

to this new code generation:

```
//{{START:CODEGEN:EXTENSIONPOINT:com.avaya.sce.pdc.pe.advancedmath.pi
actions.add(new com.avaya.sce.pdc.pe.advancedmath.Pi("session", "exitInfo1").setDebugId(9));
//}}END:CODEGEN:EXTENSIONPOINT:com.avaya.sce.pdc.pe.advancedmath.pi
```

In addition, the runtime implementation of your pluggable connector must implement `Idebugging`. The simplest way to add this is to extend the `Debugging` class. For example,

Prior to adding debugger support:

```
public class Pi implements IpluggableExecutable {
```

After adding debugger support:

```
public class Pi extends Debugging implements IpluggableExecutable {
```

The base class Debugging implements the Idebugging interface.

2.3.2 New Web Service Connector

Axis 2 jar files

The new web service connector is based on Axis 2 version 1.6. To limit the number of jar files in runtimesupport.zip we have chosen not to include the full set of jar files from the Axis 2 distribution in OD. Instead we have includes a set of jar files which cover “normal usage” of the web service connector. Should it happen that you get Class Not Found exception while executing a web service operation you can download the full set of Axis 2 jar files from <http://ws.apache.org/axis2/download/1.6/download.cgi> and put them in your tomcat lib folder.

SOAP message signing

The new web service connection has an option for signing the soap message. Generation of this signature is based on a key stored in a certificate store. It is currently not supported reading that key out of a keystore generated by the DDAdmin keystore management. Instead it is recommended using the keytool from your java distribution like this:

```
keytool -genkey -alias privkey -keystore c:\privkeystore -dname "cn=privkey" -keypass password1 -storepass password1
```

NOTE: This will create a certificate that will expire in 3 months. You can use the -validity parameter setting it up to 9999 (for the equivalent of no expiration date).

2.4 Features with Limitations/Restrictions Removed for This Release

2.5 Features with Changes in This Release

General Note: Make sure to update your VPAppLogClient.jar file on your local Tomcat if you do an update with this build as Runtime Common is calling a new method in there. You should be fine in desktop mode.

2.6 Features with Dependencies on other Products

See note above on Out bound call PDC dependency on EP 7.0.

2.7 MRs included in this Release (this is an incremental list for this build)

Only incremental WIs are listed.

id	type	sev	component	summary
wi01138701	Defect	Med	Localization Packages	Need fix for signing of localization bundles – language pack install causing security certificate pop up
wi01138727	Defect	Low	Sample Applications	WebService ConnectorExample sample app is missing from RTM candidate build17

3 Installation and Upgrades

3.1 New Installations

With the first time (new user) installation of Orchestration Design 7.0, an image that has all of the pre-requisites and tools is being provided. In the cases where Eclipse or other pre-requisite components are already installed, incremental sets of plug-ins for the two tool sets are provided. For instructions to install Orchestration Designer, please refer to the Installation Guide which is provided as a stand-alone document.

3.2 Upgrades – General

- 3.2.1 The 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.
- 3.2.2 If you have an existing installation in which you have updated the certificate file (trusted_weblm_certs.jks), you need to save a copy of the certificates file when re-installing the runtime support files. If you are pointing to an external certificates file then this step is not needed.
- 3.2.3 When upgrading applications from Windows XP to Windows 7, the call flow visual representation may experience some issues due to a difference in the graphics layer between the 2 Windows releases. Some corrections may be required.
- 3.2.4 There are framework updates in this build that may result in Java compilation errors after upgrading. To correct this, regenerate projects reporting errors.
- 3.2.5 Upgrades assume the user is starting from Dialog Designer 6.0, 5.1, 5.0, 4.0 or 4.1.
- 3.2.6 Upgraded applications that contain a (AES) CTI Dial operation will need a manual modification in the data node to add a value to the property: Caller Call Info Variable. Typically, this value is set to cticallinfo which is the default call info variable OD uses for caller CTI information. This is only applicable to if converting from DD 5.0.15 or earlier.
- 3.2.7 Remove Older Jar files after upgrade. After upgrading to OD 7.0 please make sure you do not have old versions of the following jar files on the application server:

```
commons-httpclient-3.1.jar  
commons-logging-1.1.1.jar  
log4j-1.2.15.jar  
wss4j-1.5.8.jar
```

3.3 Upgrades with CTI

With the 6.0 release of AAOD, the cticonnector was changed names to the aesconnector. If you are executing a 5.1 application in a 7.0 environment, the new aesconnector is not compatible with your 5.1 application. You will need to copy the cticonnector.war (or .ear) file from your 5.1 environment and deploy it to the 7.0 environment. You may choose to codeploy the cticonnector and the aesconnector onto the same appserver. The 2 components can coexist, however this configuration is not recommended due to efficiency reasons and unless you are executing both 7.0 and 5.1 CTI enabled apps that need both connectors, it is recommended you remove or disable the aesconnector if you are just executing 5.1 applications.

If you are upgrading a 4.x application that uses CTI conferencing (add/remove conference party), you must manually edit the callflow file and explicitly select the active call ID attribute.

3.4 Upgrades from Dialog Designer 4.1 – CCXML

If you are using web services or database access with CCXML 5.0, you need to change the constructor:

```
public getSayings( com.avaya.sce.runtimecommon.SCESession mySession ) {
```

To

```
public getSayings( com.avaya.sce.runtimecommon.IRuntimeSession mySession ) {
```

3.5 Dialog Designer 4.0/4.1/5.0 Runtime

A new wizard (Avaya Speech Development -> Export Runtime Support Files) has been added and will produce the runtimeconfig web application and the runtime support ZIP files for the selected application server. The options to create these files no longer exist on the project export wizard pages.

3.6 Additional Instructions for Websphere

- Once the app is running, to navigate to your index page for your speech application via a browser, you should include index.html within the URL as Websphere does not automatically default to this path.
Example:
<http://myserver:port/mySpeechApp/index.html>
- When deploying DDADMIN (a new component with 4.0) on WebSphere 6.1, you need to manually set jsp compilation to version 1.5 to get it to compile. At WebSphere Integrated Solution Console, do the following to install the DDADMIN ear file – runtimeconfig.ear
 1. Application > Install Application. At “Specify the EAR, WAR, JAR, or SAR module to upload and install,” window, Select “Local file System.” Browse to runtimeconfig.ear. Select “Show me all installation options and parameters.” Click Next.
 2. At “Choose to generate default bindings and mappings” window, click Next.
 3. At “Specifies the resulting security warnings from an analysis of this application” window, click “Continue.”
 4. At “Select installation options” window, select “Precompile JavaServer Pages files” and keep the other default values. Click Next.
 5. At “Map modules to servers”, select the runtimeconfig.ear. Click Next.
 6. At “Provide options to compile JSPs” window, select “runtimeconfig.ear, WEB-INF/web.xml”, write “15” under “JDK Source Level.”
 7. At “Provide JSP reloading options for Web modules” window, click Next.
 8. At “Map shared libraries” window, click Next.
 9. At “Map virtual hosts for Web modules” window, select “runtimeconfig.ear”, click Next.
 10. At “Map context roots for Web modules” window, click Next
 11. At “Summary” window, click Finish.
 12. Make sure to click Save after installation. You can access DDADMIN at
<http://myserver:port/runtimeconfig>
- When using Websphere 7 or above, these additional steps are required:

Note: You will no longer need to install the OSGI version of VAppLogClient. Make sure the runtimeSupportWebsphere.zip package has been extracted into the AppServer directory, and all the runtime library jar files are in the lib/ext subdirectory. If you have the existing VAppLogClientOSGI_6.0.0.jar or VAppLogClientOSGI_7.0.0.jar installed, please following the uninstall VPAppLogClientOSGI steps before proceeding to the rest of the steps listed below:

Uninstall VPAppLogClientOSGI steps:

- a. Stop Websphere.
- b. Run the osgiconsole.bat script from Websphere/appserver/bin.
- c. In the command prompt, enter “ss” command to find out the VPAppLogClientOSGI bundle id.
- d. Enter “stop” and the bundle id from the above step #3.
- e. Enter “uninstall” and the bundle id from the above #3.
- f. Remove the VPAppLogClientOSGI_6.0.0.jar or VPAppLogClientOSGI_7.0.0.jar from the Websphere/appserver/plugins directory

1. You need to first create a shared library. In IBM Console, go to Environment->Shared libraries
2. Create a new shared library. Give it a name. For example: ODAxis2Runtime. Copy and paste the following entries into the classpath field.

```
{WAS_INSTALL_ROOT}/lib/ext/axiom-api-1.2.13.jar
{WAS_INSTALL_ROOT}/lib/ext/axiom-dom-1.2.13.jar
{WAS_INSTALL_ROOT}/lib/ext/axiom-impl-1.2.13.jar
{WAS_INSTALL_ROOT}/lib/ext/axis2-adb-1.6.2.jar
{WAS_INSTALL_ROOT}/lib/ext/axis2-adb-codegen-1.6.2.jar
{WAS_INSTALL_ROOT}/lib/ext/axis2-json-1.6.2.jar
{WAS_INSTALL_ROOT}/lib/ext/axis2-kernel-1.6.2.jar
{WAS_INSTALL_ROOT}/lib/ext/axis2-saaj-1.6.2.jar
{WAS_INSTALL_ROOT}/lib/ext/axis2-transport-http-1.6.2.jar
{WAS_INSTALL_ROOT}/lib/ext/axis2-transport-local-1.6.2.jar
{WAS_INSTALL_ROOT}/lib/ext/neethi-3.0.2.jar
{WAS_INSTALL_ROOT}/lib/ext/woden-api-1.0M9.jar
{WAS_INSTALL_ROOT}/lib/ext/woden-impl-dom-1.0M9.jar
{WAS_INSTALL_ROOT}/lib/ext/woden-tool-1.0M9.jar
{WAS_INSTALL_ROOT}/lib/ext/XmlSchema-1.4.7.jar
{WAS_INSTALL_ROOT}/lib/ext/VPWebServiceClient-07.00.00.01.jar
{WAS_INSTALL_ROOT}/lib/ext/VAppLogClientWS_7.0.0.jar
```

3. Now, you need to associate the shared library with the server. In IBM Console, go to the server configuration page (usually by the link Servers->Server Types->WebSphere application servers and selecting the server listed).
4. Click on Java and Process Management in Server Infrastructure section, and click on Class Loader listed below. On this page, create a new class loader, and set the class loader order to Classes loaded with local class loader first(parent last). Click OK.
5. Click on the newly create class loader. On the configuration page, you should see a new link - Shared library references. Click on it. On this configuration page, the shared library you created previously should be listed and make sure it's selected and click OK. Save all configurations.
6. Make sure you verify all the configuration has been saved, and restart the app server.

3.7 *Additonal Instructions forTomcat 5, 6, 7:*

- To get the Tomcat console output window to display multibyte characters you need to alter the eclipse.ini file in your eclipse directory and add a default file encoding. Open your eclipse.ini file and add “-Dfile.encoding=UTF-8” as the last line in the file (remove double quotes).
- A default “log4j.properties” file is placed in the TOMCAT_HOME/lib directory. You should examine this file to determine if it meets your logging needs. By default, the logging is set to “INFO” which will generate a lot of log data in the TOMCAT_HOME/logs/Catalina.out file, which may grow quite large. You may consider changing the log level to WARN to reduce the amount of log output.

Example:

```
log4j.rootCategory=WARN, CONSOLE
```

3.8 *Additonal Instructions forJBoss Deployment:*

- In the Export Runtime Support wizard, select JBoss AS7 as the application server. It will generate the runtimeJBossAS7.zip package with the directory structure modules/com/avaya/od/main. You will extract the zip file into the JBoss AS7 install directory. All the files will then go into the <jboss-as-7>/modules/com/avaya/od/main automatically.

- To configure a data source, use the JBoss AS7 console. It's important to enter the jdbc name in the "java:/jdbc/<OD datasource name>" naming scheme. The jdbc driver can be deployed by simply copying the jar file into the standalone/deployments directory.
- To export a war file, make sure you choose JBoss AS7 as the app server. For standalone deployment (good enough for testing), you can simply copy the war files into the standalone/deployments directory. By default, the war file is not expanded unlike Tomcat. The log files can be found in the tmp/vfs directory. Or you can configure a directory in RuntimeConfig as the way we support unexploded deployments.
- You should move tsapi.pro to your JBOSS_HOME\bin directory.

4 Known Issues

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

4.1 *Limitations, Work Arounds, Notes:*

AACC: CCMA Interoperability:

1. When using the integrated OD 6.0 tool suite and the Java 1.6 runtime, you may encounter errors caused by web service incompatibilities at the JRE level. To correct, copy the JAR files (geronimo-jaxws_2.2_spec-1.0.jar, jaxb-api-2.2.1.jar) to a subfolder under your Orchestration Designer Eclipse install and add to the eclipse.ini file under the vmargs: -Djava.endorsed.dirs=<path to folder with JAR files>
2. If you encounter errors connecting to the CCMA from Orchestration Designer for Contact Center application development, check that you have network access to the CCMA from your development machine. It may be necessary to configure proxy settings to bypass the proxy in order for OD to communicate with the CCMA.
3. If you are in the Contact Center perspective and have the Speech/Self-service call flow editor active, there will be two "View" menus. Close the self-service call flow editor or switch to the Speech perspective to remove the extra View menu.

AACC Handoff:

4. When using AACC Handoff in simulation a long message will result in:

```
java.lang.NullPointerException
  java.util.StringTokenizer.<init>(StringTokenizer.java:182)
  java.util.StringTokenizer.<init>(StringTokenizer.java:204)
  com.avaya.sce.pdc.aacc.AACCReply.requestHandler(AACCReply.java:123)
  com.avaya.sce.pdc.aacc.AACCReply.doGet(AACCReply.java:49)
  javax.servlet.http.HttpServlet.service(HttpServlet.java:621)
  javax.servlet.http.HttpServlet.service(HttpServlet.java:722)
```

This is due to query string limits imposed by the Eclipse Browser widget. When testing AACCHandoff in simulation please limit the size of messages.

CCXML:

5. When using the httpioprocessor CCXML sample application, you need to make sure that a copy of the commons-httpclient-3.1.jar is in the Tomcat lib directory. This is not there by default with Tomcat 7.
6. In simulation, since there is only one input (microphone) and one output (speakers) for multiple call appearances, dialogs must be "serialized" to use the resources. Once a dialog starts a form, it must complete before the next form with a call appearance may use the resources. This generally provides a reasonable simulation of an application, however, in a CCXML application you have multiple call appearances and if one has input, a subsequent call appearance playing an informational message will be blocked until the input is completed and exists. This can occur in the

ConferencePredefined application when a conference attendee hangs up. Since the incoming call has a dialog running, listening for an add or drop command, the message “XXX left the conference” will not be heard until the input on the incoming call completes. This does not happen on the platform.

7. When running certain applications (E.g. ConferencePredefined sample application), if the Dialog Designer->Avaya Application Simulator->Enable display of the Avaya Voice Browser output in a console window is enabled, the application can behave irregularly. Please disable this if you encounter this behavior.
8. Applications that use the launchCCXML VP web service with DD/VP 4.0 will not work on VP 4.1 without modification. You now must include a send tag. For placement, one possibility is in the ccxml.loaded transition. The syntax for the addition is:

```
<var name="status"expr="event$.reason"/>
    <send name=""avaya.launchresponse""
targettype=""avaya_platform""target="session.id"namelist="status"/>
```

9. If the incoming call classification is “LIVE VOICE” then you need to go to the params tab in the simulation profile and select a new call classification then select “live voice”.
10. When working with the Sample Applications, InvokeDatabase and FindMe, there is a limitation when using a MSAccess database and multi-byte data. Multi-byte data will not be stored/retrieved properly. See <http://forum.java.sun.com/thread.jspa?threadID=231861&messageID=3968823> for more details, but essentially, the default ODBC-JDBC driver does not handle UTF-8/16 correctly.
11. If there are any leading \r\n in a document before the ?.xml... the parse will fail. The work around in the JSP page is to have:

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE ccxml PUBLIC "http://www.w3.org/TR/ccxml" "ccxml.dtd">
<ccxml xmlns="http://www.w3.org/2002/09/ccxml" version="1.0">
```

for the first 3 lines before <%import...

CTI (AES):

12. When mapping extensions across 2 or more AES's, the extensions can't overlap.
13. The CTI (AES) Connector has a setting in the web.xml called providerstartupdelay (defaults to 4000 ms) that allows you to adjust a maximum delay value (in ms) to allow the provider to come in service. If the provider does not come into service before the timer expires, the connection is lost and will be retried.
14. For CTIC (AESC) deployment, tsapi.pro needs to be in common/lib on WebLogic.
15. For CTIC (AESC) deployment, tsapi.pro needs 2 additional properties for talking to AES 4.2 through secure connection. The avayaprca.jks comes with cticonnector.war. You just need to change the path to match your deployment. For example:

```
trustStoreLocation=/opt/apps/cticonnector/WEB-INF/lib/avayaprca.jks
trustStorePassword=password
```

16. You can now disable the application from gathering call information automatically by changing the flag sage.cti.autoinvoke.callinfo to false in your web descriptor. If you make this change, then you must use a CallInfo item in your data node and set the property: Initial Call to true before doing any CTI (AES) Call operations.
17. Starting with the JTAPI 3.1 driver, the OD CTI (AES) connector, can use the UCID (Universal Call ID) to keep track of call ID's. To use this feature, you should enable it on your switch (consult your switch documentation). It is not mandatory to enable it, but it will guarantee no call ID's are recycled which have been problematic in the past with high call volumes.
18. When passing data using the UUI, the maximum number of bytes you can use to write is 96. You can use a complex variable as the data for UUI. The properties allow entry of a variable/field in the dial operation.
19. When placing a call to a line on the same switch and it is in the busy state, you may get back a “failed” instead of a “busy” state indication. You should not check specifically for the “busy” state.
20. CTI (AES) does not support the “Numbered Services” configuration on the IR platform.

21. You can hear the status of the call if you are doing a blind call or a consult call with transfer on ring set. Note that you cannot hear busy or invalid line (fast busy) because the switch disallows a transfer to a busy line.
22. If you have CTI (AES) nodes in your application, you can't run the application in HTML mode. The application will stop when it hits the CTI (AES) nodes.
23. The CTI (AES) Connector is configured to startup when the application server is started. You can disable this functionality if you do not have the CTI (AES) Connector configured yet or if you do not want it to run by editing the web.xml file found in your CTIConnector/WEB-INF directory on your appserver. Look for the value: `<load-on-startup>1</load-on-startup>` and remove or comment out this tag.

NOTE: Setting it to 0 does not turn it off. You will need to manually start the CTIConnector if this flag has been removed or commented out.

Connectors:

24. It is not recommended to use the "Refresh" button on your HTML browser when an application relies on a connector (CTI, AES, IC, etc.). Due to the behavior of some HTML browsers, the refresh action causes the connectors to initialize a second time for the session which is not allowed. The recommended action is to close the HTML browser and then start up a new session.

Databases:

25. When using Windows 7, to create an ODBC datasource to access Microsoft Access databases, which some of our sample applications (such as LexingtonLend) use, you need to run odbcad32.exe directly from the C:\windows\sysWOW64 directory instead of running the ODBC admin from the Control Panel.

Design Constraints:

26. The Orchestration Designer framework has constraints on the number iterations through call flow nodes that do not generate VXML. Those nodes are: Data, Servlet and Tracking. OD uses a servlet request forward to move between consecutive data nodes that do not generate VXML. This is faster and more efficient than redirecting the HTTP request. However, if you need to iterate more than 100 times on consecutive data nodes, you may run out of stack space. The recommendation if you need to iterate more than 100 times, is to move your iteration into Java code. If it is pure data operation on a variable collection, you can use the new Loop Collection item in the data node to loop through the collection.

Deployment:

27. To deploy packed war files (vs expanded directory) on WebLogic, a directory is needed for writing application logs and recording files. By default, OD will create a directory with the application name in the OS's root ("C:/" for windows and "/" for Linux), and the log files and recording files will be written to the data/logs and data/temp directories respectively. Alternatively, you can set a specific directory by using the system property avaya.dd.temp.dir. This is where a sub-directory is created for each application. For example:

-Davaya.dd.tempdir=c:\temp or some other value.

In either case (default or tempdir), OD assumes that it can create directories and files in that location. If directory create is disabled, then you must create a subdirectory for each OD web application deployed with sub directories temp and data/log. When recording, temp recording files will be placed in temp and if tracing is enabled the trace.log and report.log will be in data/log. If you have a deployed application named Simple, under c:\temp you would see: c:\temp\Simple\temp and \data\log.

If the avaya.dd.tempdir is not writable then recording will not work, nor will tracing and local reporting. The avaya.dd.tempdir can also be used with non-packed war files as well, thus providing

a mechanism to move the temp and log files out of the web application to a separate area.

Lastly when altering the location of the temporary directories,, the URL returned for the recorded file will be in the file:// protocol format and is NOT directly usable in a prompt to replay the recording since the file URL is not accessible on the platform where the voice browser is executing. To replay the message you will need to write java code to move the file from the temp location to a web context and reference the file there using the http protocol.

28. An OD application will fail to run if it is compiled with a Java version that is newer than the one on the Application Server. To fix this, select the Java Compiler compliance level that matches what is installed on the Application Server located at Window->Preferences->Java->Compiler in eclipse.
29. To optimize garbage collection performance on the Application Server, we recommend adding the following:

For Windows: Create a system level environment variable:

```
export JAVA_OPTS = "-server -Xmx1024m -XX:MaxNewSize=30m -XX:+UseParNewGC -XX:+UseConcMarkSweepGC-XX:CMSInitiatingOccupancyFraction=60 -XX:ThreadStackSize=512"
```

For Linux: when Tomcat is started as a service, add the flowing to the beginning of your /etc/init.d/tomcat file:

```
JAVA_OPTS="-server -Xmx1024M -XX:+UseConcMarkSweepGC -XX:+UseParNewGC -XX:ThreadStackSize=512"
```

ulimit -n 8192

NOTE: The Xmx1024M parameter we try to set to somewhere around half the size of the RAM configured on the box.

Restart the machine after setting the JAVA_OPTS, and verify that the new setting are in effect by doing an: `ps -ef | grep java`

ECMA Script Expressions:

30. Single quotes that are part of the value of an ECMAScript expression will generate a semantic error in the Voice Browser if not properly formatted with an escape character (\). For instance:

```
<var name="Output" expr="John's return value"/>  incorrect expression  
<var name="Output" expr="John\'s return value"/>  correct expression
```

For Orchestration Designer to correctly generate the VXML output you need to add another escape character when building the expression in your callflow, otherwise Java will interpret it as an escape character itself.

Within your call flow you would create the expression as follows:

John\\'s return value

This will insure the escape character is properly generated in the VXML output. Other characters to watch out for include ('gt;' for '>', '<' for '<', and '&' for '&').

Email:

31. If sending an attachment that contains a multibyte name in an outgoing email, the email client may not decode the name causing it to show the encoded name, although the contents of the attachment will be intact.
32. When using the new Email (and SMS) features in simulation remember to click Send after Run Application. Once the application is running you can send multiple messages.
33. Variable substitution in the email and SMS body use `_ {variable} _` to indicate the contents are to be replaced with the variable value. If you want to use `_ {` in the body, you need to escape the leading underscore with the backslash. For example, the following email body contents in design: “using a

backslash _ {will treat this as literal} _.”. At runtime, the content of the message will be “using a backslash _ {will treat this as literal} _.”

Grammars:

34. Renaming a grammar column is now in the properties view. When the column is selected, the properties view will display the column name and column repeat. This was done to facilitate column repeats, and to better follow the Eclipse paradigm.
35. If you want to use SRGS/SISR with Nuance 9, select SRGS-SISR as the grammar format.
36. For external grammar deployment, the application web.xml must be edited to change localhost to the actual ip address of the application server. This can be done before or after deployment. As an alternative, you can use relative urls for external grammars MR 5381, or store the host and port in a OD variable and reference the OD variable in the url
%DDVAR_myextgrammarsloc%/Myapp/somedir/agrammar.grxml MR 5312
37. Built in speech grammars are provided by the ASR vendor. While most of them say they are supported, the specific grammars that are supported in any given language and the quality of the results when using them can vary. You should consult the speech vendor for specifics on the support for the languages you would like to use.
38. The quality of the Japanese and Chinese ASR provided by Microsoft (used in OD simulation) for built in grammars is not very high. When testing built-in grammars using Japanese or Chinese, it is recommended to use the “Send ASR” feature.
39. The following illustrates how the runtime can be used to generate large external grammars. The example is simple, but can be extended to build the grammar from an external data source. The reason to do this is for performance at runtime.

```
-----

import com.avaya.sce.runtime.DynamicGrammar;
import com.avaya.sce.runtime.GrammarItem;
import com.avaya.sce.runtime.GrammarRule;
import com.avaya.sce.runtimecommon.SCESession;

public class MyGrammar extends DynamicGrammar {

    public MyGrammar() {
    }

    public void buildGrammar(SCESession mySession) {
        GrammarRule rule;

        rule = new GrammarRule();
        rule.add(new GrammarItem("dog", "DOGTAG"));
        rule.add(new GrammarItem("cat", "CATTAG"));
        add(rule);
        rule = new GrammarRule();
        rule.add(new GrammarItem("blue", "BLUETAG"));
        rule.add(new GrammarItem("red", "REDTAG"));
        add(rule);
    }

    public static void main(String[] args) {
        try {
            MyGrammarg = new MyGrammar();
            g.buildGrammar(null);
            String result = g.toString("en-us",
SCERT.ASR_TYPES_MAP.get(SCERT.ASR_DISPLAY_LOGUENDO), SCERT.VOICE_MODE);
            XmlWriter writer = new XmlWriter();
            Document doc = XML.getDocumentFromXMLString(result);
        }
    }
}
```

```

        writer.write(doc, System.out);
    } catch (Exception e) {
        e.printStackTrace();
    }
}

```

Help:

40. If you encounter the error “Runtime error” when using the on-line help, you may need to change your Internet Explorer settings to work properly with Sun’s JavaDoc utility. While in your IE browser, go to Preferences, Tools, Internet Options. Select the Advanced tab. Make sure that “Disable Script Debugging (Internet Explorer)” and “Disable Script Debugging (other)” are checked. Click Ok. Close all IE windows and Eclipse. Then restart Eclipse.

IC:

41. To use SSL, you must provide your own certificate and either deploy to the Orchestration Designer Trust Store: trusted_weblm_certs.jks or your own external trust store which can be configured from the Orchestration Designer configuration servlet on the Certificates link. Similar configuration is necessary on the IC side. Please consult IC documentation for those details.
42. You cannot run an ICC enabled module in the simulator standalone as it will not invoke the ICC newcall operation. You must invoke it using a parent application that is also IC enabled.
43. If you implement a prompt to play while transferring a call to IC, the transfer can sometimes occur faster than the prompt is played. The flush prompt feature should be used for this scenario.
44. Some variables require a type. Specifically, variables used in a web operation might have to be converted to a specific type (int, long, etc). Fields on the VDU variable and VDU cache variable do not perform this conversion as they deal strictly with Strings. If you need to use a VDU field within your web operation that requires a type to be set, you should copy the VDU (or VDU cache) field into another local variable that does perform the conversion.
45. If you are running an IC-enabled application in the simulator, you must check to make sure there is a VOX or VRUSM/HTTPVox simulator configured in Window.....IC Simulator.

IPv6:

46. The MS SQL Server JDBC driver version 3.0 supports addressing using IPv6 format, however you must include the serverName connection string property in your connection URL for it to work. Please refer to JDBC driver documentation for additional details.

Typical Connection URL format for IPv6 addressing:

jdbc:sqlserver://;serverName=<ip address>;port=<port>;databaseName=MyDatabase

IVVR:

47. The simulator and media preview do not support RTSP.
48. If the text mode is set to “crawl” and the text writing mode is set to “rl” for a SMIL Text Block, the text is displayed in the Ambulant Player only if it doesn’t contain any spaces. This is a bug found in the Ambulant Player.
49. Although platform will play back 4 channel png files from your media page, the Ambulant player does not support them and will give you an error if you attempt to play them. You must use 3 channel png files in simulation.
50. Specify duration for the text, if the textmode is set to "crawl", else Ambulant player can hang.
51. If you upgrade to DD 5.1 or OD 6.0, the media preview view can be hidden and be next to the console view. Click on Window->Reset Perspective, so that the media preview view is placed next to the outline view.
52. When using OD via remote desktop, make sure the media preview view is big enough for the size of the video, otherwise the video is displayed outside the view.
53. If you see overlapping windows in the media preview view, make sure the view is closed on the perspectives other than the speech perspective.

54. If endsync is set to "media" in SMIL Par element, the OD app does not proceed to the next node in the simulator. This is a limitation of the Ambulant player.
55. If you have media items that have no intrinsic duration (text and images) you need to make sure they have an explicit duration set on their media properties. This is especially important during simulation which can cause unexpected results in the Ambulant Player and sometimes crashes.
56. If you are combining media items under a SMIL PAR element, pay attention to the end sync property and the durations (either implicit or explicit) of each media item to get your expected results. Likewise this applies to the VXML PAR when combining media pages with speech/phrases.
57. When using video images in parallel with other items, set endsync to "first" or specify a duration for the video image, otherwise the application may hang as it waits indefinitely for the image to stop playing.
58. If you see the following DirectX error from the Ambulant player when running IVVR apps, reset your proxy settings in Internet Explorer and add "localhost" to the ignore list.



Multi-Lingual:

56. Node (templates), Audio file names, grammar names, project variables, folders and project names can not contain double byte or extended ascii characters (E.g. Mandarin/Korean). This is because OD uses these names in urls/uris which must be composed of a subset of US ASCII characters. OD prevents the entry of unsupported characters.

NDMs:

57. You will need to patch NDM version 5.2.5 prior to using any modules with DD/OD. Please apply NDM_CORE_5.2.5_PATCH_NSRD00083299.zip by following the directions in ST0_CT83299_ReadMe_1.txt. For internal users, this can be obtained from our wiki site. For external Customers, you will need to obtain this from Nuance.
58. When using NDM version 5.2.0 or later, there some code changes required as follows:

Once the NDM war file is expanded in your app server, navigate to the ndm-core directory:
 Open dialogs/application/ndm folder
 Change MainMenu.jsp - vxml version to 2.1
 Change menu_standalone_subdialog.jsp - vxml version to 2.1
 Change rootSubdialog.jsp - vxml version to 2.1
 Open dialogs/framework/ndm/osdm.jsp
 Change 175 to <%=appName%>/Controller/logdatasetter
 Change 165 to <%=appName%>/Controller/logdatagetter
 Open WEB-INF/WEB.xml
 Change vxml version to 2.1.

If you are using Tomcat 7.0, you will need to make a change to either the conf/context.xml file, which would be a global change or you can make the change to the individual context file for your app which is found in conf/Catalina/localhost/<appname>.xml

Add the option useHttpOnly="false" to your context to allow Nuance code to pass the JSESSIONID cookie which it requires.

<Context useHttpOnly="false"...

OSDMs:

59. Nuance is planning to end of life OSDMs in March 2014. They have not certified OSDMs with Tomcat 7 nor is there any plan to do so. Users should migrate to NDMs. The Nuance release notes for their OSDMs should be referenced to get a detailed listing of the application servers and environments that are supported.
60. When using OSDMs with Windows 7 in simulation, if it takes too long to play an OSDM prompt, add a flush prompt item to get rid of the bad fetch error.
61. When using OSDMs with WebLogic 9.2, you will need to use the web.xml file to fix CT NSRD00019567 on OSDM-Core 2.0.4.2006062211. The patch should be obtained from the Nuance support site. To install the web.xml file on each WebLogic 9.2 platform:

Copy your original osdm2-core.war (version 2.0.4) to osdm2-core.zip (for instance, in a shell window, type the following command: "cp osdm2-core.war osdm2-core.zip")

Extract osdm2-core.zip into a folder named osdm2-core

Extract the OSDM_Core_2.0.4_TS39109_CT19567_Patch.zip file to the osdm2-core folder. The file WEB-INF/web.xml will be updated.

Log on to the WebLogic Server Administration console.

From the "Domain Structure", click on "Deployments"

Check that no osdm2-core application is already deployed, otherwise delete it.

From the "Change Center", click on "Lock & Edit"

The "Install" button from the "Deployments" tab should now be activated and selectable

Click on "Install" in order to start deploying osdm2-core webapp

Select the location of the osdm2-core folder just created in step 2 and click "Next"

Select option "Install this deployment as an application" and click "Next"

Click on "Finish" to finalize the deployment

From the "Change Center", click on "Activate Changes"

You should now see that the osdm2-core web application has been deployed and is in the "Prepared" state

Check the box to the left of the title osdm2-core, click "Start" and click "Yes" to confirm. The osdm2-core state should now show "Active".

If you want your OSDM to work with OSR 3.0, you need to edit the web.xml file to substitute osr 2.0 for osr 3.0 in the OSDM war (e.g. osdm2-core.war) to get the application to run successfully. When using OSDMs with WebSphere 6.1, bad fetch errors occur with the core. There is a work around required. From Nuance:

Log on to the WebSphere6 Administrative console

Expand the applications option and click on "Enterprise Applications"

You should be able to see the osdm2-core application already installed. Select the check box to

the left of the title osdm2-core and then click "Stop" in the header menu. The screen should refresh and you should now see a red 'x' next to it.

4) Log off from the WebSphere6 Administrative console

5) Using a windows explorer, go to where the osdm2-core web application has been "installed" under the WebSphere6 application server folder such as the following path:

'IBM\WebSphere\AppServer\profiles\<AppServerName>\installedApps\
<MachineNodeCellName>\osdm2-core.ear\osdm2-core.war'

6) Under this folder open/edit the following file: WEB-INF/web.xml

7) In the web.xml file, search for the following parameter name:

« com.speechworks.osdm.cookieVersion » (with no guillemets)

8) Change the value of this parameter (see tag <param-value>) to the following value:

« netscape » (with no guillemets)

9) Save and close the file

10) Using a windows explorer, go to where the osdm2-core web application has been “deployed” under the WebSphere6 application server folder such as the following path:

IBM\WebSphere\AppServer\profiles\<AppServerName>\config\cells\
<MachineNodeCellName>\applications\osdm2-core.ear\deployments\osdm2-core\osdm2-core.war'

11) Under this folder open/edit the following file: WEB-INF/web.xml

12) In the web.xml file, search for the following parameter name:

« com.speechworks.osdm.cookieVersion » (with no guillemets)

13) Change the value of this parameter (see tag <param-value>) to the following value:

« netscape » (with no guillemets)

14) Save and close the file

15) Log on to the WebSphere6 Administrative console

16) Expand the applications option and click on "Enterprise Applications"

17) Check box to the left of the title osdm2-core and then click "Start" in the header menu.

The screen should refresh and you should now see a green 'x' next to it.

18) Try the OSDM example "osdm2-core/en.us/examples/menu.jsp" and check that no more bad-fetch

errors are reported in the VXML browser when fetching a page from OSDM core 2.x.

Simulation:

62. Running the same application twice in a row without restarting tomcat will generate exception errors. To work around this issue, enable “Automatically restart Tomcat when running an application”.
63. For Email/SMS simulation, if multi-byte characters are not displayed correctly, go to Eclipse Preferences>General>Workspace and select Other: UTF-8 as the Text File Encoding.
64. Microsoft Speech doesn't support SSML. To use the simulator to test applications using SSML, you must use the MRCP client and the target speech server.
65. There is no support for G729 encoding in the simulator.
66. When simulating using the VRUSM simulator, it is recommended that you use the OD Runtime configuration servlet and set the ping timeout = 0 secs. This will effectively disable pings which aren't necessary for simulation. A future release/service pack will allow you to do this automatically via the simulation page in OD.
67. If you are experiencing slowness in simulation or unexpected delays, modify the garbage collection settings by adding either:

-XX:+UseConcMarkSweepGC -XX:+UseParNewGC or -Xincgc to your eclipse startup.

Example: Create a shortcut to eclipse and in the properties target:

C:/SageRel-4.1\eclipse\eclipse.exe -vmargs -XX:+UseConcMarkSweepGC -XX:+UseParNewGC

Additionally, add 2 entries in the Dialog Designer->Speech->Simulators table, one for vox->ic and one for ic->vox.

SSL:

68. When using SSL and Scansoft/Nuance ASR, grammars should be built as dynamic, even if they don't need to be, so they will be processed, in-line. The ASR engine has a problem processing regular grammars if they exceed 4 elements.

SMS:

69. When using the new SMS (and Email) features in simulation remember to click Send after Run Application. Once the application is running you can send multiple messages.
70. Variable substitution in the SMS (and email) body use `_ { variable} _` to indicate the contents are to be replaced with the variable value. If you want to use `_ {` in the body, you need to escape the leading underscore with the backslash. For example, the following email body contents in design: “using a backslash `_ {` will treat this as literal `_`.”. At runtime, the content of the message will be “using a backslash `_ {will treat this as literal} _`.”

Tomcat:

71. For runtimeconfig to support multi-byte entries, you need to set the following JVM value if running Tomcat:

`-Dfile.encoding=UTF-8`

If running tomcat standalone, add this value to your catalina.bat (or catalina.sh) file before the set JAVA_OPTS call that already exists:

`set JAVA_OPTS="-Dfile.encoding=UTF-8"`

If you are invoking tomcat from your Eclipse IDE, add the following to your eclipse.ini and restart Eclipse

`-Dfile.encoding=UTF-8`

72. After deploying an application using Tomcat, if you click on the application to validate the application use caution when clicking on your browser's back arrow (button). In some cases this could result in your application being undeployed. Specifically this can happen when going backwards from the .index page (the one with the validate and view options) to the Tomcat Manager application.
73. Tomcat 6.0.24 and newer added a new memory monitor, JreMemoryLeakPreventionListener, that may erroneously warn about memory leaks caused by threads started--but not stopped--by a web application. This is the expected behavior for Orchestration Designer applications caused by threads that are started by shared runtime (scertcommon.jar). These threads are shared by all Orchestration Designer applications and are not stopped intentionally.
74. Tomcat will reload the context of your speech application when it detects a change. This will occur pretty much anytime you change your project and save it while Tomcat creates a new current one for your servlet and reloads the dependencies. OD does not have a way to indicate to Tomcat that a submodule is a dependency of its parent application. Therefore, when the parent's context is loaded into the new class loader there is a conflict with the class loader that was used to load the submodule. The solution is two fold:
75. If your context file points to your speech application, you can simply reload the context of the submodule right in OD using the Tomcat context option “Reload this context.”
76. If you have deployed your submodule into Tomcat and Tomcat is running it out of the webapps directory, the simplest solution is to restart Tomcat or you can use the Tomcat Manager application. Refer to the Tomcat documentation for more information on how to do this using the Tomcat manager.
77. The console window may display warning messages about invalid log4j configuration when starting Tomcat from Eclipse. To fix this add a log4j.properties file to the Tomcat classpath (i.e. to <tomcat home>/common/classes). The properties file should contain these lines:
`log4j.rootLogger=info, stdout`
`log4j.appender.stdout=org.apache.log4j.ConsoleAppender`
`log4j.appender.stdout.layout=org.apache.log4j.PatternLayout`
`log4j.appender.stdout.layout.ConversionPattern=%d{dd/MM/yyyy HH:mm:ss} %5p - %m%n`

Transfers:

78. Bridged transfers require CM version 3.0.1 or above, with an H323 configurations on IR due to a Configuration Manager defect in earlier releases.

TTS:

79. WVS 5.1.3 GA version of IBM TTS has a bug in it that impacts the sound quality of TTS prompts. A fix has been posted to the IBM support site: PMR# 05274,756,000.
80. Using symbols in TTS (i.e. &, <, >, etc.) in a prompt may result in runtime errors. These symbols generate invalid VXML code. **Workaround:**
81. Spell out the word. For example: '&'→"and", '<'→"less than", etc.

Validate Menu Option:

82. Running the validate menu option on any project causes a Warning to show up in the Problems view. The Resource is web.xml and the Location is line 8 which is: -><!DOCTYPE web-app PUBLIC "-//Sun Microsystems, Inc//DTD Web Application 2.3//EN" http://java.sun.com/dtd/web-app_2_3.dtd> There is currently no work-around to get rid of this warning once it occurs.

WebLogic Application Server:

83. For a Weblogic deployment, you will have to deploy an additional file: runtimeSupportWeblogic.war, which is generated by the "Export Runtime Support Files" wizard.

Here are the steps:

1. Deploy runtimeSupportWeblogic.zip as documented.
 2. Start Weblogic.
 3. In the Weblogic concole, deploy runtimeSupportWeblogic.war by stepping through all the default settings. It should show up as ODCommonRuntime(<version>) for the name and Library for the type in the deployments list of the Weblogic console.
 4. Deploy runtimeconfig.war and other OD applications as documented.
84. When running on WebLogic 10.3.1 or above, the app losses control of the http session it starts initially. The http session would go idle, eventually times out and get removed by the application server. The time-out interval depends on what you set in the deployment descriptor either via the console or editing the weblogic.xml. If you are seeing this symptom, it is caused by WebLogic starting to have the cookie-http-only parameter set to true by default. You need to change the value of the parameter to false. To do that, you would need to deploy a weblogic.xml with the following content in the application's WEB-INF directory. If you already have the weblogic.xml, you would need to incorporate the following content. However if you think it's too much work, you can choose not to do anything. We believe that the accumulation of http sessions (before they get removed by the system) should not be harmful since each http session used by OD is really light weight - we don't use it to store information.

weblogic.xml:

```
<!DOCTYPE weblogic-web-app PUBLIC "-//BEA Systems, Inc//DTD Web Application 8.1//EN"
"weblogic810-web-jar.dtd">
<weblogic-web-app>
  <session-descriptor>
    <cookie-http-only>false</cookie-http-only>
  </session-descriptor>
</weblogic-web-app>
```

Web Services:

85. After generating a new web service operation, you may see warnings in the java code generated by Axis. These warnings are not harmful and you do not have to take any action to correct them.
86. The graphical Web Services tool is intended for use with simpler web services. I.e. Web services that return base java types (string, int). If your Web service returns an object that has nested objects, at a minimum, you will need to select "Use Java Obj" on the Web Service wizard. This will instruct the runtime code to take the returned value and place it into the Orchestration Designer variable as

an Object. You will need to write some Java code to examine your returned Object and store values into Orchestration Designer variables. This is necessary as Orchestration Designer only supports a simple variable system of either a variable or a grouping of variables.

WebSphere Application Server:

87. If the application executes the number of database operations that exceeds the number of the connection pool specified for the data source, the trace log will say `javax.servlet.ServletException: Connection not available, Timed out waiting for 180001`. The database operation will hang for a while before the error is thrown. To fix this, the configuration should be changed as follows:
88. Add the following node to the `web.xml` of the application

```
<resource-ref>
<!-- replace DS with the real data source name in OD -->
<res-ref-name>jdbc/DS</res-ref-name>
<res-type>javax.sql.DataSource</res-type>
<res-auth>Container</res-auth>
<res-sharing-scope>Unshareable</res-sharing-scope>
</resource-ref>
```

Export the app for deployment; make sure this is done after the `web.xml` has been changed. Otherwise, you have to re-deploy the app.

In the Websphere admin console, when you install the application, there will be a new step call Map resource references to resources for mapping the data source name in `web.xml` to the data source you normally define in Websphere admin console.

On the screen for this step, all the way at the bottom, find the Browser button, click on it, and select the data source that you've defined for the intended database.

Finish the deployment.

89. See the Database section for more information on database configuration for WAS.
90. If you have trouble deploying the `Tsapi.pro` file or WAS install scripts on a Linux machine, try using the utility `dos2unix` on the files.
91. Some database drivers work fine in Orchestration Designer when designing the speech application, but do not work in some versions of Websphere. In that case, replace the driver in Websphere with an updated or different version depending on your database type and configure the settings appropriately referring to the WebSphere documentation.
92. For the Help Topic: Installing project files on WebSphere servers, Item 4, should read:

Set this variable to point to your `...\Websphere\appserver\bin` directory.

5 Version Information

To view the Orchestration Designer version in the product, select Help, then About Eclipse, select Feature Details and select the Self Service entry.

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 XP Professional
- Vista (Ultimate/Business) - 32/64 bit
- Windows 7 (Ultimate/Professional) – 32/64 bit

- Eclipse 3.6
- Eclipse 3.7
- GEF 3.5 or 3.6
- DTP 1.9 (Eclipse 3.6)
- EMF-SDO-XSD 2.46 (with Eclipse 3.6)
- WTP 3.2 (with Eclipse 3.6).
- Tomcat version 7.0 or 6.0 **Note: Design & Runtime must use the same version of Tomcat or there will be issues with database connections.**
- J2SE version 1.7, 1.6.x or J2SE version 1.5.x (Runtime API must be Java 1.5 compatible)
- Microsoft Speech SDK 5.1 or 6.0
- Nuance Recognizer 9/10 (MRCPv1)
- 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 2008 R2 32/64 bit
- Linux ES ES 5.0, ES 6.0
- IBM AIX 6.1
- Tomcat 7.0 or 6.0, **Note: The design and runtime version of Tomcat must match or there will be issues with database connections.**
- JBoss Application Server 7
- J2SE version 1.7, 1.6.x or J2SE version 1.5.x
- Apache Axis 1.4
- Apache Axis 2.0
- Nuance 9.0 or 10
- Loquendo 7
- IR 4.0
- Avaya Aura® Experience Portal 6.0
- Avaya Aura® Experience Portal 7.0
- Websphere 7.0 application server
- Websphere 8.0 application server
- Oracle Weblogic 10, 11g and 12c
- 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.