How to implement JDBC driver for CVP VXML Server version 11.6

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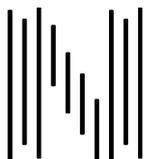
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Intro

After an upgrade of UCCE & CVP to version 11.6.x, the database connection from Cisco CVP VXML Server to a MS SQL Server 2014 service pack 2 were failing. The problem were related to the MS SQL server driver and the fact of the increased security level (TLS 1.2) on SQL Server implemented, after applying SQL Server 2014 service pack 2.

This document describes in detail of, how to implement the correct JDBC driver for CVP VXML Server version 11.6, that needs to connect to a MS SQL Server 2014 Servicepack 2 and above.

Version

Date	Text	User
29. nov. 2018	Creation of this document v.1.0	Søren Lavard

Problem 1.

In the error logfile for the CVP VXML application, that connects and queries a MS SQL Server 2014 Sp2, I found the following error messages, during loading the SQL driver, when CVP VXML Server service was started:

"The error was: The element encountered an exception of type java.lang.UnsupportedClassVersion-Error. The root cause was: java.lang.UnsupportedClassVersionError: com/mi-crosoft/sqlserver/jdbc/SQLServerDriver : Unsupported major.minor version 52.0 com.audium.server.AudiumException: The element encountered an exception of type java.lang.Un-supportedClassVersionError.

at com.audium.server.voiceElement.DecisionElementBase.service(DecisionElementBase.java:414)

at com.audium.server.controller.Controller.goToDecision(Controller.java:4276)

at com.audium.server.controller.Controller.goToElement(Controller.java:4026)

at com.audium.server.controller.Controller.enterVoiceApplication(Controller.java:1904)

at com.audium.server.controller.Controller.newCall(Controller.java:1777)

at com.audium.server.controller.Controller.doPost(Controller.java:951)

at com.audium.server.controller.Controller.doGet(Controller.java:543)

at javax.servlet.http.HttpServlet.service(HttpServlet.java:622)

at javax.servlet.http.HttpServlet.service(HttpServlet.java:729)

at org.apache.catalina.core.ApplicationFilterChain.internalDoFilter(ApplicationFilterChain.java:292)

at org.apache.catalina.core.ApplicationFilterChain.doFilter(ApplicationFilterChain.java:207)

at org.apache.tomcat.websocket.server.WsFilter.doFilter(WsFilter.java:52)

at org.apache.catalina.core.ApplicationFilterChain.internalDoFilter(ApplicationFilterChain.java:240)

at org.apache.catalina.core.ApplicationFilterChain.doFilter(ApplicationFilterChain.java:207)

at org.apache.catalina.core.StandardWrapperValve.invoke(StandardWrapperValve.java:212)

at org.apache.catalina.core.StandardContextValve.invoke(StandardContextValve.java:106)

at org.apache.catalina.authenticator.AuthenticatorBase.invoke(AuthenticatorBase.java:502)

at org.apache.catalina.core.StandardHostValve.invoke(StandardHostValve.java:141)

at org.apache.catalina.valves.ErrorReportValve.invoke(ErrorReportValve.java:79)

at org.apache.catalina.core.StandardEngineValve.invoke(StandardEngineValve.java:88)

at org.apache.catalina.connector.CoyoteAdapter.service(CoyoteAdapter.java:522)

at org.apache.coyote.http11.AbstractHttp11Processor.process(AbstractHttp11Processor.java:1095)

at org.apache.coyote.AbstractProtocol$AbstractConnectionHandler.process(AbstractProtocol.java:672)

at org.apache.tomcat.util.net.NioEndpoint$SocketProcessor.doRun(NioEndpoint.java:1502)

at org.apache.tomcat.util.net.NioEndpoint$SocketProcessor.run(NioEndpoint.java:1458)

at java.util.concurrent.ThreadPoolExecutor.runWorker(ThreadPoolExecutor.java:1145)

at java.util.concurrent.ThreadPoolExecutor$Worker.run(ThreadPoolExecutor.java:615)

at org.apache.tomcat.util.threads.TaskThread$WrappingRunnable.run(TaskThread.java:61)

at java.lang.Thread.run(Thread.java:745)

Caused by: java.lang.UnsupportedClassVersionError: com/microsoft/sqlserver/jdbc/SQLServerDriver : Unsupported major.minor version 52.0

at java.lang.ClassLoader.defineClass1(Native Method)

at java.lang.ClassLoader.defineClass(ClassLoader.java:803)

at java.security.SecureClassLoader.defineClass(SecureClassLoader.java:142)

at java.net.URLClassLoader.defineClass(URLClassLoader.java:449)

at java.net.URLClassLoader.access$100(URLClassLoader.java:71)

at java.net.URLClassLoader$1.run(URLClassLoader.java:361)

at java.net.URLClassLoader$1.run(URLClassLoader.java:355)

at java.security.AccessController.doPrivileged(Native Method)

at java.net.URLClassLoader.findClass(URLClassLoader.java:354)

at java.lang.ClassLoader.loadClass(ClassLoader.java:425)

at java.lang.ClassLoader.loadClass(ClassLoader.java:358)

at java.lang.Class.forName0(Native Method)

at java.lang.Class.forName(Class.java:195)

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at org.apache.tomcat.dbcp.dbcp2.BasicDataSource.createConnectionFactory(BasicDataSource.java:2123)
at org.apache.tomcat.dbcp.dbcp2.BasicDataSource.createDataSource(BasicDataSource.java:2032)
at org.apache.tomcat.dbcp.dbcp2.BasicDataSource.getConnection(BasicDataSource.java:1532)
at com.netdesign.cvp.component.usable.database.DatabaseWithMultiExits.getConnection(DatabaseWithMultiExits.java:245)
at com.netdesign.cvp.component.usable.database.DatabaseWithMultiExits.doDecisionND(DatabaseWithMultiExits.java:130)
at com.netdesign.cvp.component.NDDecisionElementBase.doDecision(NDDecisionElementBase.java:35)
at com.audium.server.voiceElement.DecisionElementBase.service(DecisionElementBase.java:390)
... 28 more
"

The summary for this problem were:
The current JDBC Driver 4.0 driver "sqljdbc4.jar" doesn't support SQL Server 2014.

Resolution to fix problem1:

I downloaded a new SQL driver version 6.4.2 and uploaded it to the lib folder on the CVP VXML Server (default path is: C:\Cisco\CVP\VXMLServer\Tomcat\lib)
You can download the driver from this location

Problem 2.

In the Activity logfile for the CVP VXML application, that connects and queries a MS SQL Server 2014 Sp2, I found the following error messages:

"*SQLException,com.microsoft.sqlserver.jdbc.SQLServerException: The driver could not establish a secure connection to SQL Server by using Secure Sockets Layer (SSL) encryption. Error: "SQL Server did not return a response. The connection has been closed*."

The summary for this problem were:
The security level is increased on SQL Server 2014 service pack 2, it now support TLSv1.2 only.

Resolution to fix problem2:

On the CVP VXML Server service, which runs on jre 1.7, I had to enable (enforce) TLS v1.2.

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Below is step by step guide on how to enable TLSv1.2

Navigate to the bin folder for VXML Server service. Default location is:
C:\Cisco\CVP\VXMLServer\Tomcat\bin

Make a copy of the "tomcat8w.exe" file (CTRL+C, then CTRL+V)

You now have a file named "tomcat8w - Copy.exe", like the screen shot below.
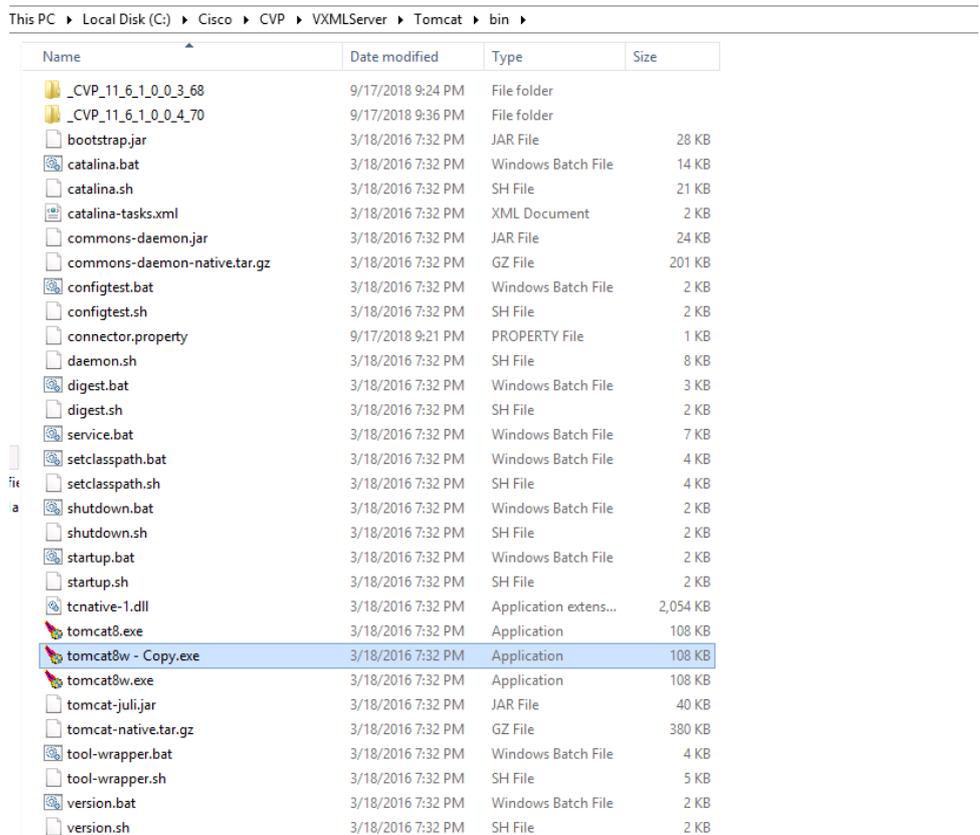
Name	Date modified	Type	Size
_CVP_11_6_1_0_0_3_68	9/17/2018 9:24 PM	File folder	
_CVP_11_6_1_0_0_4_70	9/17/2018 9:36 PM	File folder	
bootstrap.jar	3/18/2016 7:32 PM	JAR File	28 KB
catalina.bat	3/18/2016 7:32 PM	Windows Batch File	14 KB
catalina.sh	3/18/2016 7:32 PM	SH File	21 KB
catalina-tasks.xml	3/18/2016 7:32 PM	XML Document	2 KB
commons-daemon.jar	3/18/2016 7:32 PM	JAR File	24 KB
commons-daemon-native.tar.gz	3/18/2016 7:32 PM	GZ File	201 KB
configtest.bat	3/18/2016 7:32 PM	Windows Batch File	2 KB
configtest.sh	3/18/2016 7:32 PM	SH File	2 KB
connector.property	9/17/2018 9:21 PM	PROPERTY File	1 KB
daemon.sh	3/18/2016 7:32 PM	SH File	8 KB
digest.bat	3/18/2016 7:32 PM	Windows Batch File	3 KB
digest.sh	3/18/2016 7:32 PM	SH File	2 KB
service.bat	3/18/2016 7:32 PM	Windows Batch File	7 KB
setclasspath.bat	3/18/2016 7:32 PM	Windows Batch File	4 KB
setclasspath.sh	3/18/2016 7:32 PM	SH File	4 KB
shutdown.bat	3/18/2016 7:32 PM	Windows Batch File	2 KB
shutdown.sh	3/18/2016 7:32 PM	SH File	2 KB
startup.bat	3/18/2016 7:32 PM	Windows Batch File	2 KB
startup.sh	3/18/2016 7:32 PM	SH File	2 KB
tcnative-1.dll	3/18/2016 7:32 PM	Application extens...	2,054 KB
tomcat8.exe	3/18/2016 7:32 PM	Application	108 KB
tomcat8w - Copy.exe	3/18/2016 7:32 PM	Application	108 KB
tomcat8w.exe	3/18/2016 7:32 PM	Application	108 KB
tomcat-juli.jar	3/18/2016 7:32 PM	JAR File	40 KB
tomcat-native.tar.gz	3/18/2016 7:32 PM	GZ File	380 KB
tool-wrapper.bat	3/18/2016 7:32 PM	Windows Batch File	4 KB
tool-wrapper.sh	3/18/2016 7:32 PM	SH File	5 KB
version.bat	3/18/2016 7:32 PM	Windows Batch File	2 KB
version.sh	3/18/2016 7:32 PM	SH File	2 KB

Rename "tomcat8w - Copy.exe" to "VXMLServer.exe" like the screen shot below shows.

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Open an administrator elevated command shell and navigate to
C:\Cisco\CVP\VXMLServer\Tomcat\bin

Type **VXMLServer.exe** and hit enter.

Then the Cisco CVP VXML Service properties opens

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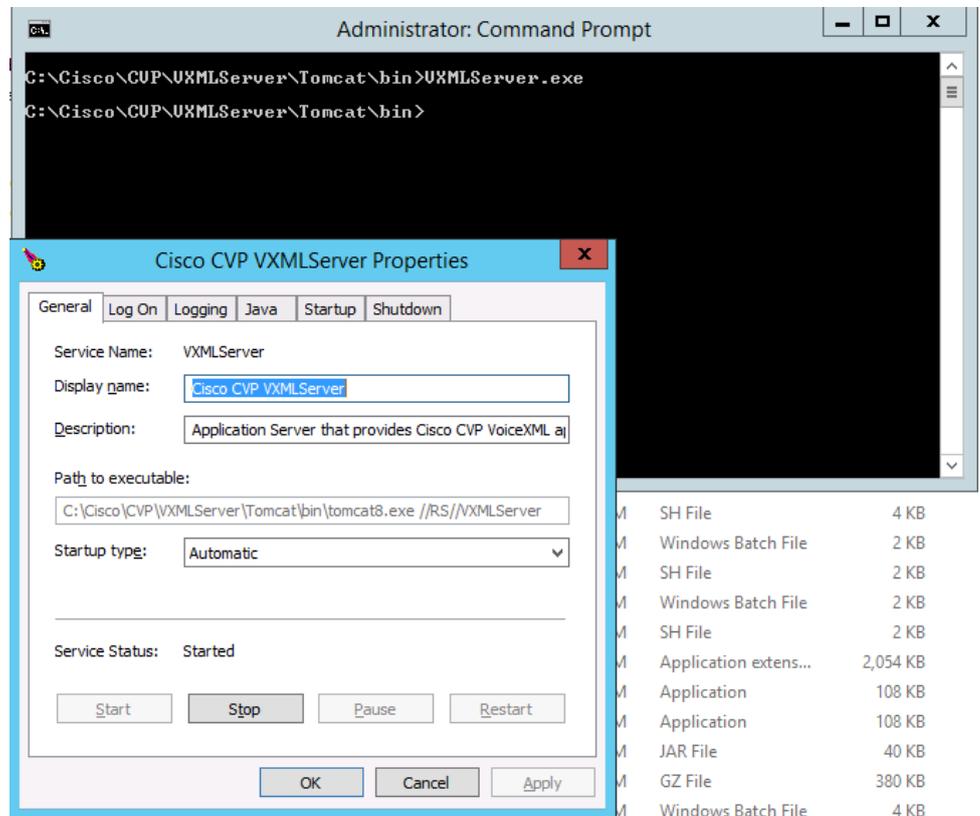
Stop the service.

Navigate to the "Java" tab.

Insert this configuration in the buttom of the "Java Options:" window

-Djdk.tls.client.protocols=TLSv1.2

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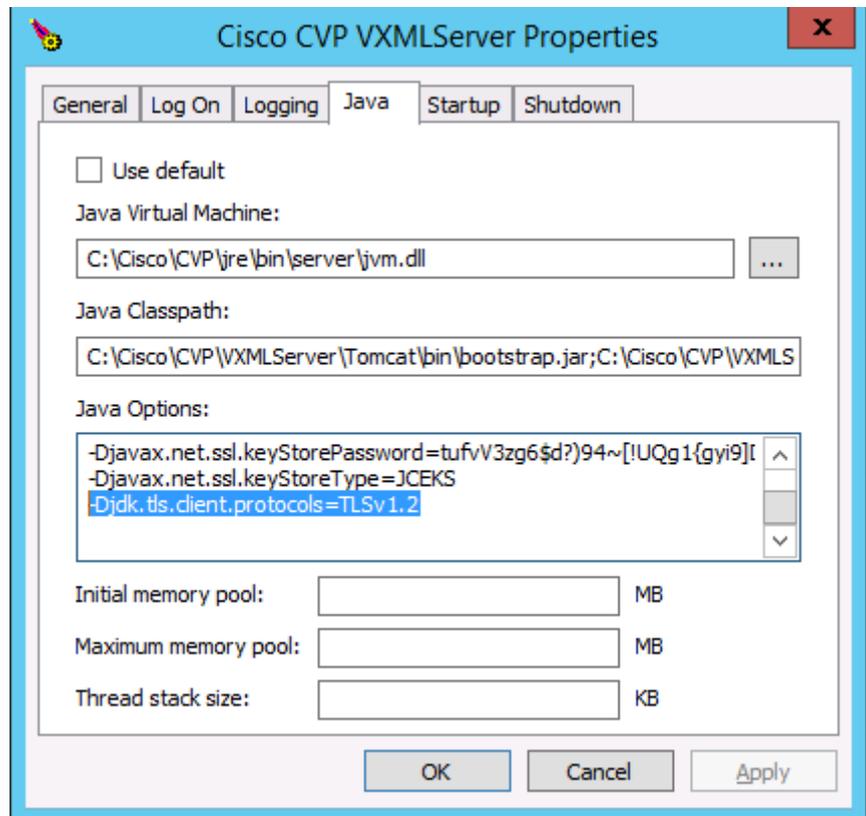
Press "**Ok**"

Start the Cisco CVP VXML Server service.

Now you are done and this CVP VXML Server can connect and query a MS SQL Server 2014 service pack 2.