Troubleshooting Java AS database connection issues

OVERVIEW

This documentation contains solutions for database connection issues started from SAP Java
Application Servers to the Oracle Database Server.

An issue belongs to this topic, if it is related to the Oracle JDBC connection problems.

MONITORING INFORMATION:

Log Files

The log and trace files generated by the AS Java process(es) and the applications running on top of
AS Java are stored in the

/usr/sap/[SAPSID]/[instance name]/j2ee/cluster/server[n]/log

and in

/usr/sap/[SAPSID]/[instance name]/work
directory. (on UNIX) and analogously in the Microsoft Windows environment.

where [SAPSID] is the SAP system ID and [instance name] is the instance name (for example, JC00 or SCS01).

Usually JDBC connection related errors are logged in:

- jvm_bootstrap.out
- jvm_deployment.out
- log_bootstrap.[n].log

(in directory /usr/sap/[SAPSID]/[instance name]/work)

or in the:

- defaultTrace.* files

(in directory /usr/sap/[SAPSID]/[instance name]/j2ee/cluster/server[n]/log)

The details about the log files can be found in the following note:
1095476 - Information for troubleshooting of the AS Java
KNOWN ISSUES:

1. JDBC driver not supported error during Upgrade or Installation of JAVA AS
   
   Symptom:
   
   A JDBC driver not supported error occurs during Upgrade or Installation of JAVA AS. The following or similar JDBC error can be found in files `jvm_deployment.out` and `jvm_bootstrap.out`:
   
   ... 
   
   Caused by: com.sap.sql.log.OpenSQLException: JDBC driver not supported for ORACLE database
   
   ...
   
   List of related issues:

   1.1. JDBC driver not supported for ORACLE database
   
   Symptom:
   
   The following or similar JDBC error can be found in files `jvm_deployment.out` and `jvm_bootstrap.out`:
   
   ... 
   
   Caused by: com.sap.sql.log.OpenSQLException: JDBC driver not supported for ORACLE database
   
   ...
   
   Solution:
   
   2594180 - AS Java on Oracle: JDBC driver not supported for ORACLE database

   1.2. JDBC driver not supported for ORACLE database during SAP installation
   
   Symptom:
   
   The `sapins_dev.log` file contains the following or similar error:
   
   ... 
   
   Caused by: com.sap.sql.log.OpenSQLException: JDBC driver not supported for ORACLE database.
   
   ...
   
   Solution:
   
   2594180 - AS Java on Oracle: JDBC driver not supported for ORACLE database

   1.3. JDBC driver not supported for ORACLE database 12.1 although SAP Note 1777021 was applied
   
   Environment:
   
   Java AS 7.0 and Higher
   Oracle JDBC Driver 12
   Oracle Server 12.1
   
   Symptom:
   
   `jvm_bootstrap.out` contains the following error:
   
   ... 
   
   Caused by: com.sap.sql.log.OpenSQLException: JDBC driver not supported for ORACLE database.
   
   ...
   
   Additionally the opensql implementation jar file in the cluster directory is not on the required level even though the SAP Note 1777021 was already applied.
   
   E.g.:

   ```
   unzip -c [DIR_INSTANCE]/j2ee/cluster/bootstrap/sap.com--tc--bl--openssl--implStandalone.jar META-INF/MANIFEST.MF | grep Implementation-Version
   ```
gives back the version: **7.3101**...
however the required SP level is **SP7** for version **7.31** (therefore the version should be at least 7.3107...)
The required version details are in the note:
1777021 - J2EE: Introducing Support for Oracle 12

**Solution:**

2241220 - JDBC driver not supported for ORACLE database 12.1 although SAP Note 1777021 was applied

### 2. JDBC Driver class could not load

**Symptom:**

J2EE engine is not starting. When trying to log on the **ConfigTool**, the following error is shown:


*Caused by: java.lang.ClassNotFoundException: oracle.jdbc.driver.OracleDriver*

**Solution:**

1866099 - Java does not start due to an Oracle JDBC Driver error

### 3. Database connection initialization failed

**Symptom:**

The **ConfigTool** produces following error message or you can find the error in the Java AS logs:

*com.sap.engine.bootstrap.SynchronizationException: Database connection initialization failed. Check if the database is running and the database properties.*

*...*

*----------==[ Caused by: ]==----------*

*com.sap.engine.frame.core.configuration.ConfigurationException: Error while connecting to DB.*

*...*

*Caused by: java.sql.SQLException: Io exception: The Network Adapter could not establish the connection at oracle.jdbc.driver.DatabaseError.throwSqlException(DatabaseError.java:113) at oracle.jdbc.driver.DatabaseError.throwSqlException(DatabaseError.java:147) at oracle.jdbc.driver.T4CConnection.logon(T4CConnection.java:398) at oracle.jdbc.driver.PhysicalConnection.(PhysicalConnection.java:463) *

**Solution:**

1785570 - "Database connection initialization failed!" issued by JAVA applications

### COMMON SUGGESTIONS:

**1. Check the right JDBC driver version**

**Description:**

Check first the following note that you are using the right version of the JDBC driver:

867176 - FAQ: Oracle JDBC

at section "4. Which Oracle JDBC driver goes with which Java version?"
and also at section "3. Which SAP release goes with which Oracle JDBC driver?"

The Netweaver version and SAP Java VM version matrix can be found in the following note:

2250903 - Supported JVM versions for versions of NetWeaver Java
2 . Check the driver version and JDBC connection

*Description:*

The JdbcCheckup.java test program can be downloaded from the note:
867176 - FAQ: Oracle JDBC
the steps for the test are described at section "8. How to determine the Oracle version of the JDBC driver used by the SAP system?"

3 . Check the JDBC Driver location

*Description:*

On Unix:
819829 - Oracle Instant Client Installation and Configuration on Unix
in default the location is:

```
oracle/client/[version]/instantclient
```

On Windows:
998004 - Update the Oracle Instant Client on Windows
in default the location is:

```
[DIR_CT_RUN]
```

where DIR_CT_RUN =

```
[drive]:\usr\sap\[SAPSID]\sys\exe\[uc|nuc]\[platform]
```

4 . Check the SAP configuration of JDBC driver

*Description:*

Based on the following note check the configuration property rdbms.driverLocation and the profile parameter j2ee/dbdriver :
867976 - Changing JDBC driver on WEB AS Java 6.40/NW 7.0x/7.1x

Check also in the ConfigTool if the JDBC driver parameters are set correctly.
1033993 - Maintaining database-specific JDBC props with the ConfigTool

The related parameters are:

```
jdbc/pool/[SID]/User #usually SAPSR3DB
jdbc/pool/[SID]/Password
jdbc/pool/[SID]/Url #DB server or IP address, port, SID are here
```

**NOTE/KBA SEARCH:**

In case that the above solutions are not relevant, the following search keys are suggested for SAP Note and KBA search:

Component area: BC-DB-ORA* or BC-JAS*
Search keys:
- oracle jdbc [one search key related to your issue]

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**RELATED SAP NOTES/KBAs**

867176 - FAQ: Oracle JDBC
915079 - J2EE on Oracle: Update of JDBC driver
2250903 - Supported JVM versions for versions of NetWeaver Java
819829 - Oracle Instant Client Installation and Configuration on Unix
998004 - Update the Oracle Instant Client on Windows