Public

SAP Data Warehouse Cloud

DP Agent Setup, Configuration and Troubleshooting Guide

Version 2.0 – December 18, 2019

Contents

INTRODUCTION

To enable connections to on-premise sources, SAP Data Warehouse Cloud leverages SAP HANA Smart Data Integration (SDI) and its Data Provisioning Agent. The DP Agent functions as a gateway to SAP Data Warehouse Cloud.
This guide will help you to setup and configure the DP Agent.
In addition, the troubleshooting chapter should help you overcome common issues that might arise on your system landscape.

DATA PROVISIONING AGENT SETUP

As a prerequisite to connect to your local HANA and other sources, the Data Provisioning Agent needs to be installed and configured.

Installation

To install the DP Agent, follow the SAP Help documentation Connecting to On-Premise Sources (Installing the Data Provisioning Agent) from the SAP Data Warehouse Cloud documentation.

Remark: Please make sure you have the latest version of the DP Agent installed.

Configuration

After you have successfully installed the Data Provisioning Agent, follow the instruction in the chapter Connecting and Configuring the Data Provisioning Agent in the SAP help portal to finalize the configuration with SAP Data Warehouse Cloud.

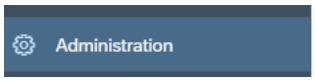
Remark: Please **do not** use the GUI interface to execute the configuration steps, but only use the CLI (command line interface). Not all configuration options of the DP Agent apply to set up the connection to SAP Data Warehouse Cloud.

It is only needed for the following activities:

- start and stop the agent
- set the user name and password / set proxy user name and password
- check the status of the agent.

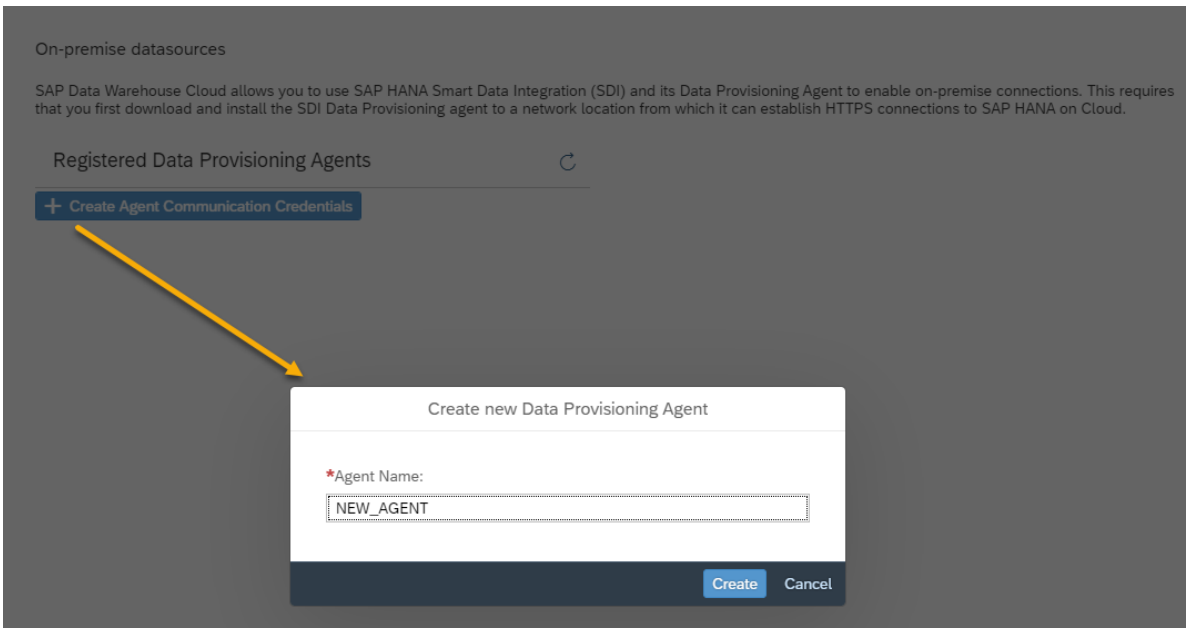
Use the following step by step guide including screenshots in addition to the documentation. In case you are using a proxy, please check the additional settings in the documentation.

1.) Check if the user that will configure the Data Provisioning Agent in SAP Data Warehouse Cloud has the role “Data Warehouse Cloud Administrator”

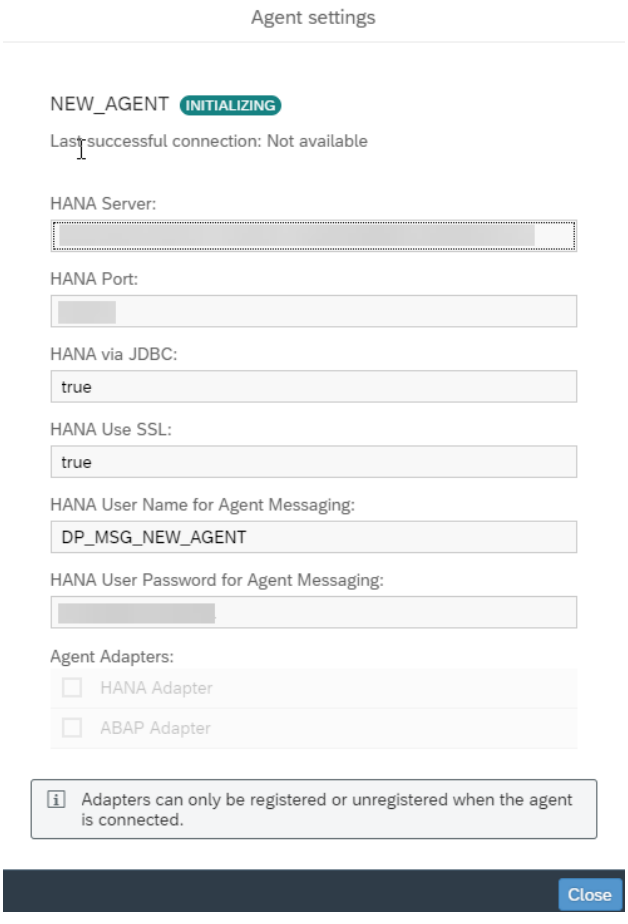
2.) Navigate to “Administration” 

in the navigation bar.

3.) Register a new Data Provisioning Agent: click “Create Agent Communication Credentials” and enter the new Agent Name:



Click “Create”. As a result, HANA Server Information, user and password to register the Data Provisioning Agent with SAP Data Warehouse Cloud will be shown.
The numbering on the following screenshot will help you with the configuration in the next step as they map to a setting in the DP Agent configuration.



We recommend leaving this window open, as you need this information to configure the agent in the next step!

4.) Navigate to the Data Provisioning Agent installation <DP Agent root> and configure the agent as follows:

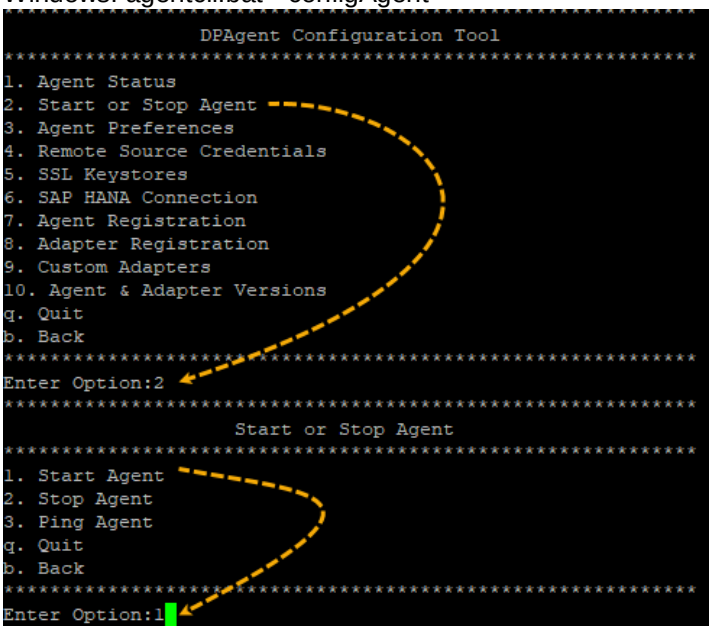
Edit the file *dpagentconfig.ini* and check / change the following values according to the values from 3.) above (Agent settings)

1. agent.name=<DP Agent Name> (case sensitive!)
2. hana.port=<HANA Port>
3. hana.onCloud=false
4. hana.server=<HANA Server>
5. hana.useSSL=true
6. jdbc.enabled=true
7. jdbc.host=<HANA Server>
8. jdbc.port=< HANA Port>
9. jdbc.encrypt=true

If a proxy server is used in the landscape, maintain the following parameters in addition

1. proxyHost=<your Proxy host>
2. proxyPort=<your Proxy port>
3. proxyType=http
4. jdbc.proxyHostname=<your Proxy host>
5. jdbc.proxyPort=<your Proxy Port>
6. jdbc.useProxy=true
7. jdbc.proxyHttp=true
8. jdbc.proxytype=http

5.) Start the Data Provisioning Agent once:
Navigate to <DP Agent root>/bin and execute the following
Linux: ./agentcli.sh --configAgent
Windows: agentcli.bat --configAgent



Wait a few seconds and check if the agent is running using the “Ping Agent” option (3).
Exit the DP Agent Configuration tool: “q. Quit”.

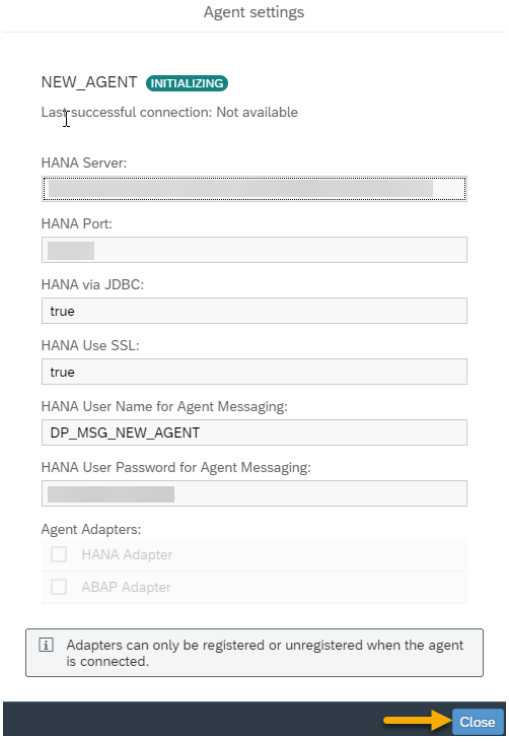
6.) Configure HANA XS Username and Password. Navigate to <DP Agent root>/bin and execute the following
Linux: ./agentcli.sh --setSecureProperty
Windows agentcli.bat --setSecureProperty
Set the user and password from the registration dialog in 3.) using the Option 1 and 2 in the following screen with these values:
HANA XS Username = HANA User for Agent Messaging
HANA XS Password = HANA User Password for Agent Messaging

In case you use a proxy and your proxy requires authentication also maintain the proxy user name and proxy password (option 3 and 4 in the Secure Storage Utility – see screenshot before).

Exit the DP Agent Configuration tool: “q. Quit”.

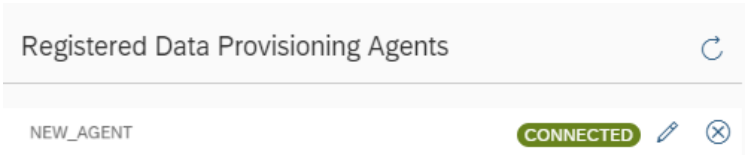
7.) Stop and restart the Data Provisioning agent – see step 5.)

8.) Now close the Data Provisioning Agent setting window:

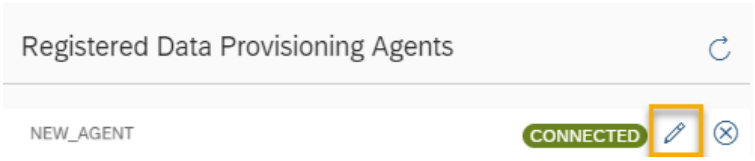


9.) As a result, the Data Provisioning Agent is now connected

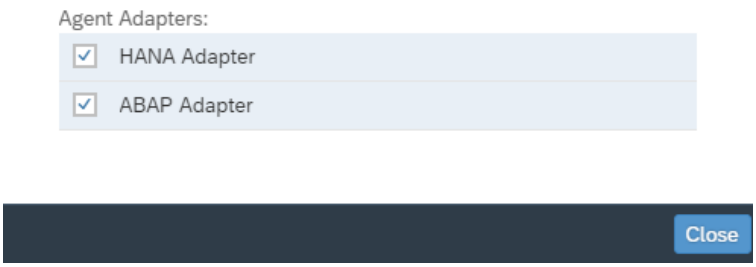
(you might need to refresh the view in case the status is not yet changed:):



10.)As a final step, enable the Adapters “HANA Adapter” and “ABAP ADAPTER”:
Edit the Data Provisioning Agent you have just created:



Select the adapters and close the dialog afterwards:



You have successfully setup the Data Provisioning Agent. You may now create connections to SAP HANA and SAP ABAP system.

TROUBLESHOOTING

This section will help you troubleshoot common issues that might occur during the installation or the configuration of the DP Agent with SAP Data Warehouse Cloud
In case the provided solution might have been applicable, please reach out to SAP.

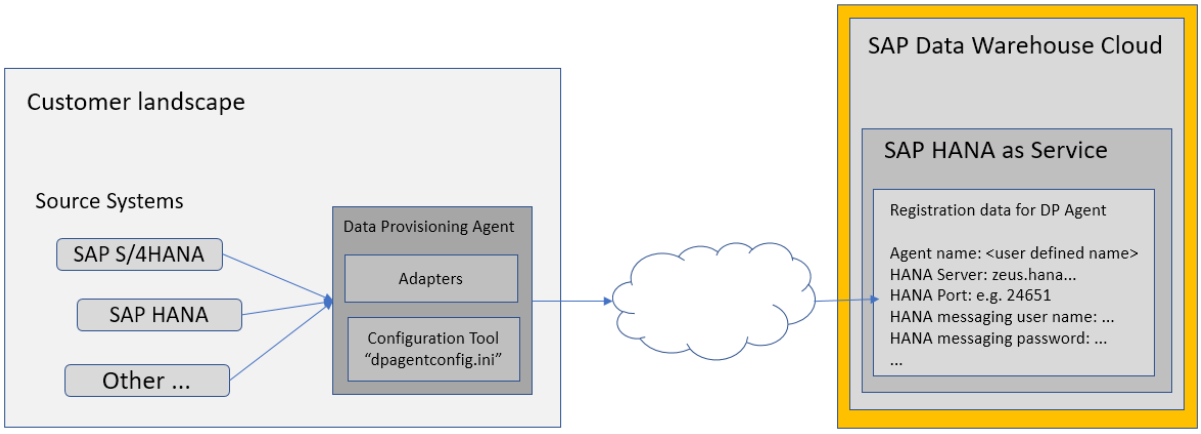
All screenshots are based on a Linux based installation of the Data Provisioning Agent.
In case your installation is on a Microsoft Windows system the forward slashes "/" must be replaced by backslashes "\".

Initial Checks

For a successful connection you will need to make sure that outbound connections from the DP Agent to the target host/port provided in the DP Agent registration information are not blocked by your firewall.

As mentioned before: please make sure to always have the latest version of the DP Agent installed.

The following architecture provides an overview of the involved components:



Java Installation

Check whether a Java installation is available by running java -version. In case you get a response like *java: command not found*, use the Java installation which is part of the Data Provisioning Agent installation. The Java executable is in folder <DP Agent Root>/sapjvm/bin.

```
:/usr/sap/dataprovagent/sapjvm/bin> ls
forkhelper  jjs      jvmmond  keytool  pack200     rmid         servertool  unpack200
java        jvmmon   jvmprof  orbd     policytool  rmiregistry  tnameserv
```

Data Warehouse Cloud IP Address

If the JDBC driver is unable to connect to the Data Warehouse Cloud tenant using the HANA server URL zeus.*…*.ondemand.com, try to connect using the tenant's IP.
Simply ping the URL, which you find in the Agent setting in SAP Data Warehouse Cloud to get the IP.

Remark: This should be regarded as a workaround only, as the IP address of SAP Data Warehouse Cloud tenant can change.

```
:~> ping zeus.hana.prod.eu-central-1.whitney.dbaas.ondemand.com
PING zeus.hana.prod.eu-central-1.whitney.dbaas.ondemand.com (18.196.126.43) 56(84) bytes of data.
64 bytes from ec2-18-196-126-43.eu-central-1.compute.amazonaws.com (18.196.126.43): icmp_seq=1 ttl=42 time=8.54 ms
64 bytes from ec2-18-196-126-43.eu-central-1.compute.amazonaws.com (18.196.126.43): icmp_seq=2 ttl=42 time=8.56 ms
64 bytes from ec2-18-196-126-43.eu-central-1.compute.amazonaws.com (18.196.126.43): icmp_seq=3 ttl=42 time=8.66 ms
64 bytes from ec2-18-196-126-43.eu-central-1.compute.amazonaws.com (18.196.126.43): icmp_seq=4 ttl=42 time=8.62 ms
^C
```

DP Agent Configuration

Please double check that the correct values have been maintain in the *<DPAgent_root>/dpagentconfig.ini* in your DP Agent installation.

Just maintain the following parameters; all other parameters can be left with their default values.

dpagentconfig.ini file	**Agent Settings in SAP Datawarehouse Cloud**
agent.name=<*Agent Name*>	Agent Name (user defined, case sensitive)
hana.port=<*HANA Port*>	HANA Port
hana.onCloud=false	n/a
hana.useSSL=true	HANA Use SSL
hana.server=<*HANA Server*>	HANA Server
jdbc.enabled=true	HANA via JDBC
jdbc.host=<*HANA Server*>	HANA Server
jdbc.port=<*HANA Port*>	HANA Port
jdbc.encrypt=true	n/a

Only if a proxy server is used in landscape, maintain the following parameters in addition:

dpagentconfig.ini file
proxyHost=<your Proxy host>
proxyPort=<your Proxy port>
proxyType=http
jdbc.proxyHost=<your Proxy host>
jdbc.proxyPort=<your Proxy Port>
jdbc.useProxy=true
jdbc.proxyHttp=true
jdbc.proxytype=http

Logs and Traces

For successfully troubleshooting connection issues you can enable logging and JDBC tracing for the DP Agent.

DP Agent Log Configuration

Ensure to set the log levels in the *.ini file correctly.

Check the following notes for setting the log levels:

- 2496051 - How to change "Logging Level" (Trace level) of a Data Provisioning Agent - SAP HANA Smart Data Integration
- 2461391 - Where to find Data Provisioning Agent Log Files

The parameters for the log level in the *<DPAgent_root>/dpagentconfig.ini* file are

framework.log.level
service.log.level

Possible values are:

- TRACE
- DEBUG
- ERROR
- ALL

Please make sure you restart the Data Provisioning Agent after changing the log level.

Remark:
Please note that the DEBUG setting will generate a lot of data, so set this for a short period of time while you are actively debugging the workings of the DP agent and set it to a lower information level after.

JDBC Tracing

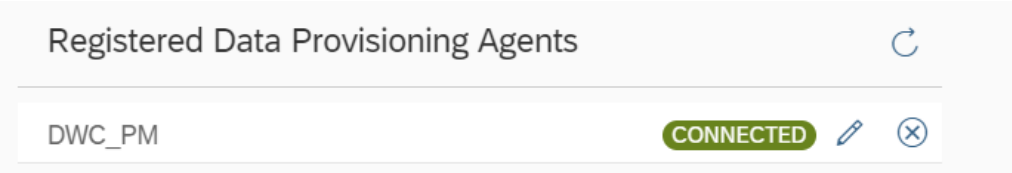
Check the Trace a JDBC Connection on the SAP Help portal here.

You need to execute the JDBC driver *.jar file from the <DP Agent root>/plugins folder in order to set the trace level.

Validating the connection from DP Agent to Data Warehouse Cloud

Via trace file

Check the DP agent framework trace file in the *<DP Agent root>/log* folder. If the file contains the following entries the connection could be successful established, and you will see a green Connected icon in the Data Warehouse Cloud tenant for the DP agent connection.



2019-08-20 15:14:38,326 [INFO] DPFramework | JDBCService.start [] - Starting JDBC service.
2019-08-20 15:14:38,326 [TRACE] DPFramework | JDBCConnector.read [] - Fetching messages...
2019-08-20 15:14:38,326 [INFO] DPFramework | JDBCConnector.registerAgent [] - Registering Agent: 78:69:REGISTER_AGENT:SDA:0:PAG_DPA12:null:null:null:0:0:REGISTER_AGENT:
2019-08-20 15:14:38,326 [DEBUG] DPFramework | JDBCConnector.writeMessage [] - >>78:69:REGISTER_AGENT:SDA:0:PAG_DPA12:null:null:null:0:0:REGISTER_AGENT:
2019-08-20 15:14:38,904 [DEBUG] DPFramework | JDBCConnector.makeConnection [] - JDBC connection (1) created.
2019-08-20 15:14:38,998 [DEBUG] DPFramework | JDBCConnector.writeMessage [] - <<118:69:SUCCESS_MSG:SDA:28358:PAG_DPA12::::0:0:REGISTER_AGENT:
2019-08-20 15:14:38,998 [INFO] DPFramework | JDBCConnector.registerAgent [] - Registration complete.
2019-08-20 15:14:38,998 [INFO] DPFramework | JDBCConnector.registerAgent [] - Server Protocol: SUPPORTS_2SP02_04_PROTOCOL

2019-08-20 15:14:38,998 [TRACE] DPFramework | JDBCConnector.getRegistrationToken [] - Token = 0000c134-f010-92f9-0000-000000000026
2019-08-20 15:14:38,998 [DEBUG] DPFramework | JDBCConnector.writeMessage [] - >>106:105:GET_AGENT_MSG:SDA:0:PAG_DPA12:null:null:0000c134-f010-92f9-0000-000000000026:0:0:GET_AGENT_MSG:
2019-08-20 15:14:39,373 [DEBUG] DPFramework | JDBCConnector.makeConnection [] - JDBC connection (2) created.

Via Command Line

To validate the connection from the server the DP Agent is running to the DWC tenant you can directly use the JDBC driver jar file from the command line interface (CLI). You must ensure that you're using the same JDBC driver which is also used by the DP Agent. The JDBC driver is in *<DP Agent Root>/plugins* and called something like com.sap.db.jdbc_*.jar

Pattern for the command line is:

java -jar <JDBC driver> -u <HANA User Name for Messaging Agent>,"<HANA User Password for Messaging Agent>" -n <HANA Server>:<Port> -o encrypt=true

Navigate to *<DP Agent root>/plugins* and execute the following commands depending on your landscape

1.) **Without Proxy**

../sapjvm/bin/java -jar com.sap.db.jdbc_2.4.60.19fd6e150fe962f67699068954cec2683ad41961.jar -u someUser,"somePassword" -n zeus.hana.prod.eu-central-1.whitney.dbaas.ondemand.com:12345 -o encrypt=true

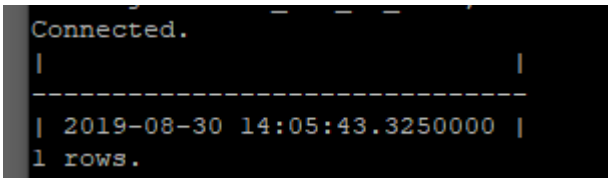
2.) **With proxy**:

../sapjvm/bin/java -jar com.sap.db.jdbc_2.4.60.19fd6e150fe962f67699068954cec2683ad41961.jar -u someUser,"somePassword" -n zeus.hana.prod.eu-central-1.whitney.dbaas.ondemand.com:12345 -o encrypt=true **-o proxyHostname=myproxy.org -o proxyPort=9876 -o proxyHttp=true -o proxytype=http**

3.) **With proxy with authentication required:**

../sapjvm/bin/java -jar com.sap.db.jdbc_2.4.60.19fd6e150fe962f67699068954cec2683ad41961.jar -u someUser,"somePassword" -n zeus.hana.prod.eu-central-1.whitney.dbaas.ondemand.com:12345 -o encrypt=true **-o proxyHostname=myproxy.org -o proxyPort=9876 -o proxyHttp=true -o proxytype=http -o proxyUserName=<your proxy user name> -o proxyPassword="<your proxy password>"**

If the connection works properly the statement should look like this:



Common Pitfalls

If you're unable to connect your DP Agent to the SAP Data Warehouse Cloud tenant check the framework log files in <DP Agent root>/log.
Open the trace file and check whether the output matches any of the below mentioned known issues.

You may first try any of the before mentioned CLI options to validate the connection.

Authentication failed
Log:

2019-08-20 14:51:03,508 [INFO] DPFramework | JDBCService.start [] - Starting JDBC service.
2019-08-20 14:51:03,508 [TRACE] DPFramework | JDBCConnector.read [] - Fetching messages...
2019-08-20 14:51:03,508 [INFO] DPFramework | JDBCConnector.registerAgent [] - Registering Agent: 78:69:REGISTER_AGENT:SDA:0:PAG_DPA11:null:null:null:0:0:REGISTER_AGENT:
2019-08-20 14:51:03,508 [DEBUG] DPFramework | JDBCConnector.writeMessage [] - >>78:69:REGISTER_AGENT:SDA:0:PAG_DPA11:null:null:null:0:0:REGISTER_AGENT:
2019-08-20 14:51:04,179 [ERROR] DPFramework | JDBCConnector.makeConnection [] - Failed to connect to server (1 of 10 attempts).
2019-08-20 14:51:04,179 [ERROR] DPFramework | JDBCConnector.makeConnection [] - com.sap.db.jdbc.exceptions.SQLInvalidAuthorizationSpecExceptionSapDB: [10]: authentication failed
2019-08-20 14:51:04,179 [INFO] DPFramework | JDBCConnector.makeConnection [] - Waiting for 30s to retry connection.

Failed authentication is due to an invalid user name / password stored in the *<DP Agent root>secure_storage* file.
It's best to

1. Rename the existing file, i.e. to secure_storage_archive
2. Set the HANA XS Username and password again using the –setSecureProperty option. This creates a new <DP Agent root>/secure_storage file.
3. Retry the connection.

Cannot connect to jdbc:sap://<Host>:<Port> [Unknown host <Host>/<Port> [<Proxy>], -709].
Log:

2019-08-20 14:08:41,433 [INFO] DPFramework | JDBCService.start [] - Starting JDBC service.
2019-08-20 14:08:41,433 [TRACE] DPFramework | JDBCConnector.read [] - Fetching messages...
2019-08-20 14:08:41,433 [INFO] DPFramework | JDBCConnector.registerAgent [] - Registering Agent: 77:68:REGISTER_AGENT:SDA:0:PAG_DPA9:null:null:null:0:0:REGISTER_AGENT:
2019-08-20 14:08:41,433 [DEBUG] DPFramework | JDBCConnector.writeMessage [] - >>77:68:REGISTER_AGENT:SDA:0:PAG_DPA9:null:null:null:0:0:REGISTER_AGENT:
2019-08-20 14:08:43,792 [ERROR] DPFramework | JDBCConnector.makeConnection [] - Failed to connect to server (1 of 10 attempts).
2019-08-20 14:08:43,792 [ERROR] DPFramework | JDBCConnector.makeConnection [] - com.sap.db.jdbc.exceptions.JDBCDriverException: SAP DBTech JDBC: Cannot connect to jdbc:sap://<Host>:<Port> [Unknown host <Host>:<Port> [<Proxy>], -709].
2019-08-20 14:08:43,792 [INFO] DPFramework | JDBCConnector.makeConnection [] - Waiting for 30s to retry connection.

This issue typically indicates, that the JDBC driver is not capable of resolving the HANA server URL to connect to the DWC tenant.

In this case the IP is required (see before) and the server's hosts file needs to be changed. On a Windows machine the file is located at C:/Windows/System23/drivers/etc.

Edit the file and add the following information:

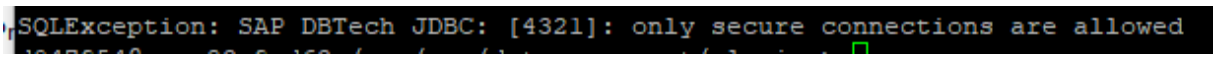
<IP> <HANA Server URL>

An example (for both scenarios) looks like this:
18.196.126.43 zeus.hana.prod.eu-central-1.whitney.dbaas.ondemand.com

Remark: This should be regarded as a workaround only, as the IP address of SAP Data Warehouse Cloud tenant can change.

Missing encryption: only secure connections are allowed

Check log output for missing encryption: -> only secure connections are allowed



When testing the connectivity directly with the JDBC driver, add the parameter

-o encrypt=true

SAP Notes for Data Provisioning Agent and support component

2511196 - What ports are used by Smart Data Integration

2091095 - SAP HANA Smart Data Integration and SAP HANA Smart Data Quality

2400022 - FAQ: SAP HANA Smart Data Integration (SDI)

2477204 - FAQ: SAP HANA Services and Ports

Support Component for SDI HAN-DP-SD

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