



Public

# **SAP Data Warehouse Cloud**

## DP Agent Setup, Configuration and Troubleshooting Guide

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## 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.

Before the Data Provisioning Agent can establish a connection to SAP Data Warehouse Cloud, the outgoing IPv4 address/address range of the server on which the Data Provisioning Agent runs has to be whitelisted. Please refer to the following note for further details: [2894588 - IP Whitelisting in SAP Data Warehouse Cloud](#)

### 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.

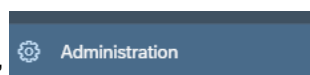
**Remark:** Please **do not** use the GUI interface to execute the configuration steps, but only use the CLI (command line interface). Not all configuration options of the DP Agent apply to set up the connection to SAP Data Warehouse Cloud.

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.

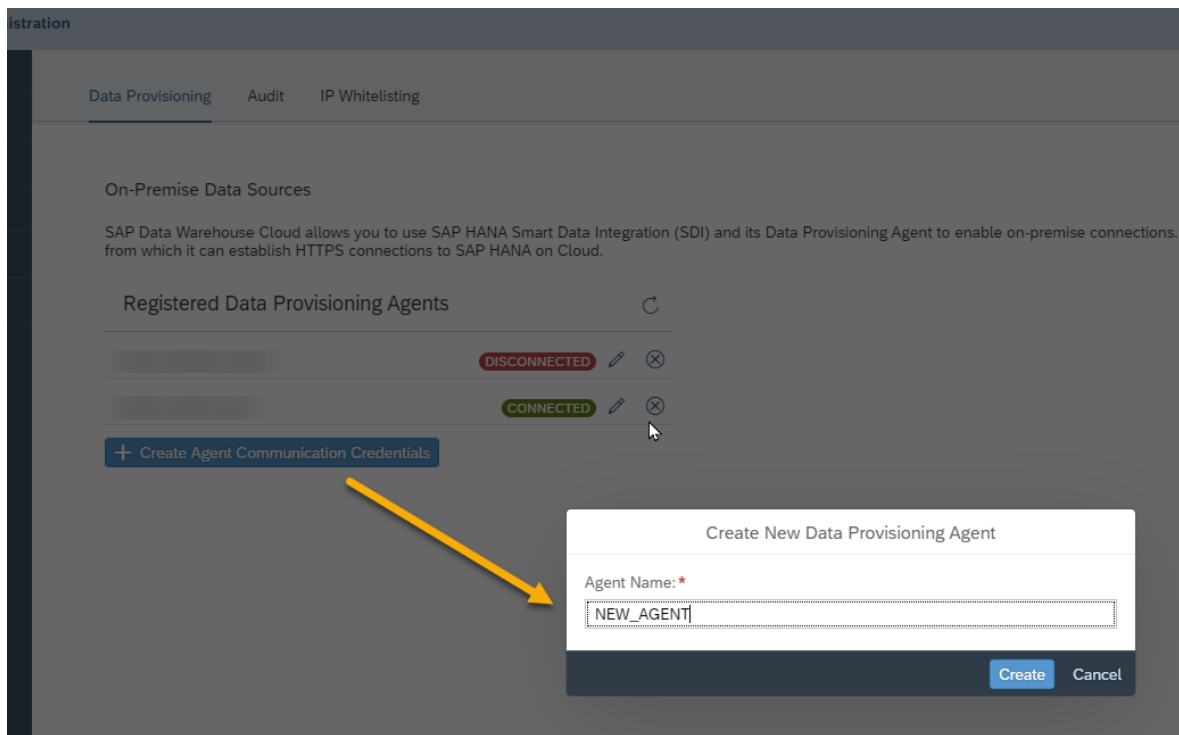
Use the following step by step guide including screenshots in addition to the documentation. In case you are using a proxy, please check the additional settings in the documentation.

- 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!) (Number 1.)
2. hana.port=<HANA Port> (Number 2.)
3. hana.onCloud=false
4. hana.server=<HANA Server> (Number 3.)
5. hana.useSSL=true
6. jdbc.enabled=true
7. jdbc.host=<HANA Server> (Number 3.)
8. jdbc.port=< HANA Port> (Number 2.)
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.proxyHost=<your Proxy host>
5. jdbc.proxyPort=<your Proxy Port>
6. jdbc.useProxy=true
7. jdbc.proxyHttp=true

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

```

DPAgent Configuration Tool
*****
1. Agent Status
2. Start or Stop Agent
3. Agent Preferences
4. Remote Source Credentials
5. SSL Keystores
6. SAP HANA Connection
7. Agent Registration
8. Adapter Registration
9. Custom Adapters
10. Agent & Adapter Versions
q. Quit
b. Back
*****
Enter Option:2
*****
Start or Stop Agent
*****
1. Start Agent
2. Stop Agent
3. Ping Agent
q. Quit
b. Back
*****
Enter Option:1

```

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 (Number 4.)

HANA XS Password = HANA User Password for Agent Messaging (Number 5.)

```
*****
Secure Storage Utility
*****
1. Set HANA XS Username
2. Set HANA XS Password
3. Set proxy username
4. Set proxy password
5. Set default keystore password (for Cloud Connectivity)
6. Set Adapter keystore password
7. Set Adapter truststore password
8. Set FileAdapter Access Token
9. Set ExcelAdapter Access Token
10. Set OutlookAdapter Access Token
11. Set Custom secure Property
12. Set Adapter Secure Property
q. Quit
b. Back
*****
Enter Option: █
```

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:

Agent Settings

NEW\_AGENT **INITIALIZING**

Last Successful Connection: Not Available

HANA Server:

HANA Port:

HANA via JDBC:

HANA User SSL:

HANA User Name for Agent Messaging:

HANA User Password for Agent Messaging:


Agent Adapters:

- ☐ ABAP Adapter
- ☐ HANA Adapter
- ☐ MssqlLogReaderAdapter
- ☐ OracleLogReaderAdapter

Adapters can only be registered or unregistered when the agent is connected.

**Close**

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

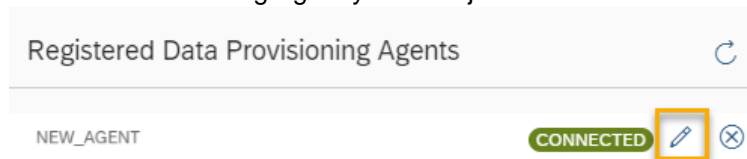
(you might need to refresh the view in case the status is not yet changed: ):

Registered Data Provisioning Agents	
NEW_AGENT	<b>CONNECTED</b>

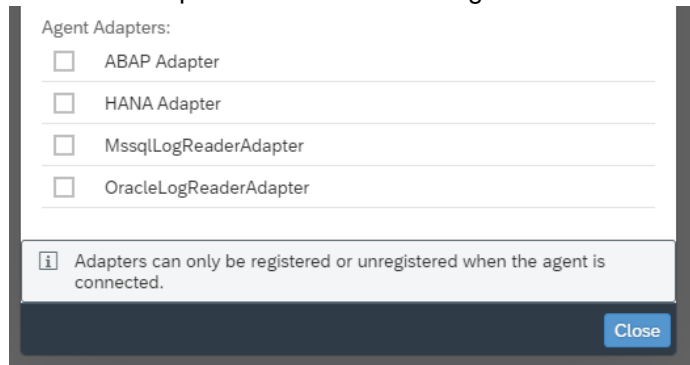
10.) As a final step, enable the Adapters you require

“HANA Adapter” and “ABAP Adapter” can be enabled without any prerequisites, while for any 3<sup>rd</sup> Party adapter, the respective jdbc jar file needs be copied to the <DP Agent root>/lib/ folder first. Please refer to this document for the exact version: [SAP HANA smart data integration Product Availability Matrix \(PAM\)](#)

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 can now create connections system for which the adapters were registered.**

## 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.

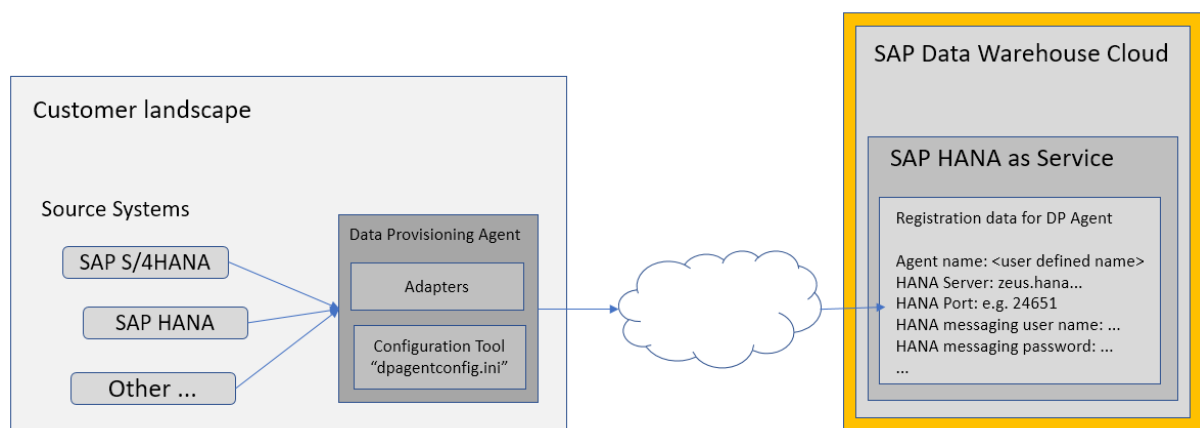
In case your installation is on a Microsoft Windows system the forward slashes "/" must be replaced by backslashes "\".

### 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.

```
root@xxxxx:/usr/sap/dataprovagent/sapjvm/bin> ls
forkhelper  jjs      jvmonnd  keytool  pack200  rmid      servertool  unpack200
java        jvmon   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

## 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

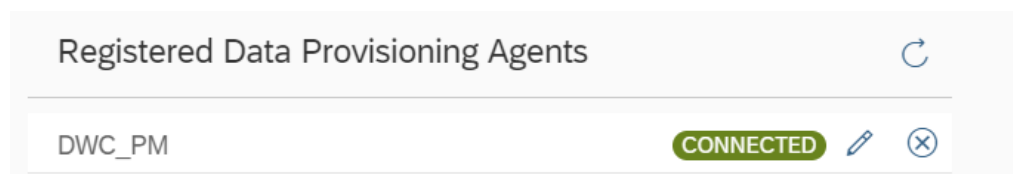
Check the Trace a JDBC Connection on the SAP Help portal [here](#).

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.sendMessage [] -
>>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
```

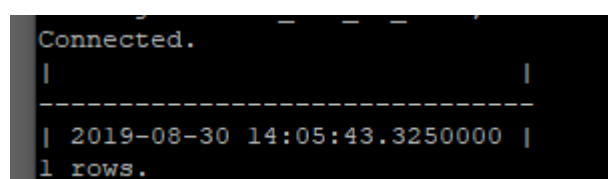
#### **2.) With proxy:**

```
../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:



```

Connected.
|
-----
| 2019-08-30 14:05:43.3250000 |
| 1 rows.                    |

```

## 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.JDBCException: 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/System32/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

```
SQLException: SAP DBTech JDBC: [4321]: 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

[www.sap.com/contactsap](http://www.sap.com/contactsap)

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**THE BEST RUN**

