

### 3. Table and Data Load



# SAP HANA Cloud Trial 접속

## SAP HANA Cloud 인스턴스 관리자

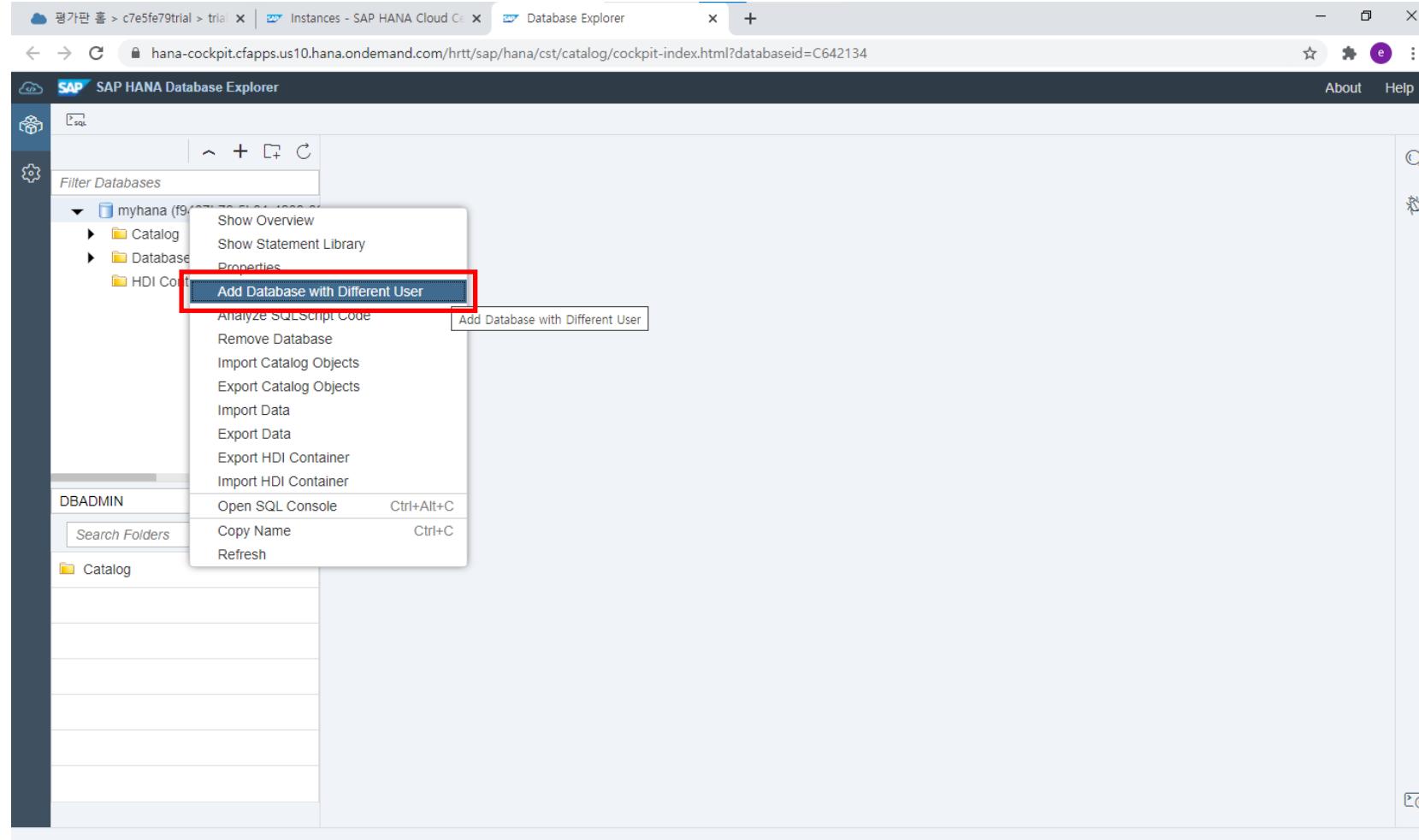
The screenshot shows the SAP HANA Cloud Central Instances page. It displays two instances: **myhana** (SAP HANA) and **myndl** (Data Lake). The **myhana** instance is currently running with 30 GB Memory and 120 GB Storage. A context menu is open over the **myhana** instance, listing options like Edit, Add Data Lake, Copy SQL Endpoint, Copy Instance ID, Stop, Upgrade, Delete, and three options under "Open in SAP HANA": Open in SAP HANA Cockpit, Open in SAP HANA Database Explorer (which is highlighted with a red box), and Open SQL Console.

## SAP HANA Cloud 인스턴스 관리자

- myhana 인스턴스의 “Actions” 컬럼을 클릭
- Popup 메뉴에서 “**Open in SAP HANA Database Explorer**”을 클릭

# SAP HANA Database Explorer

## 신규 Connection 생성

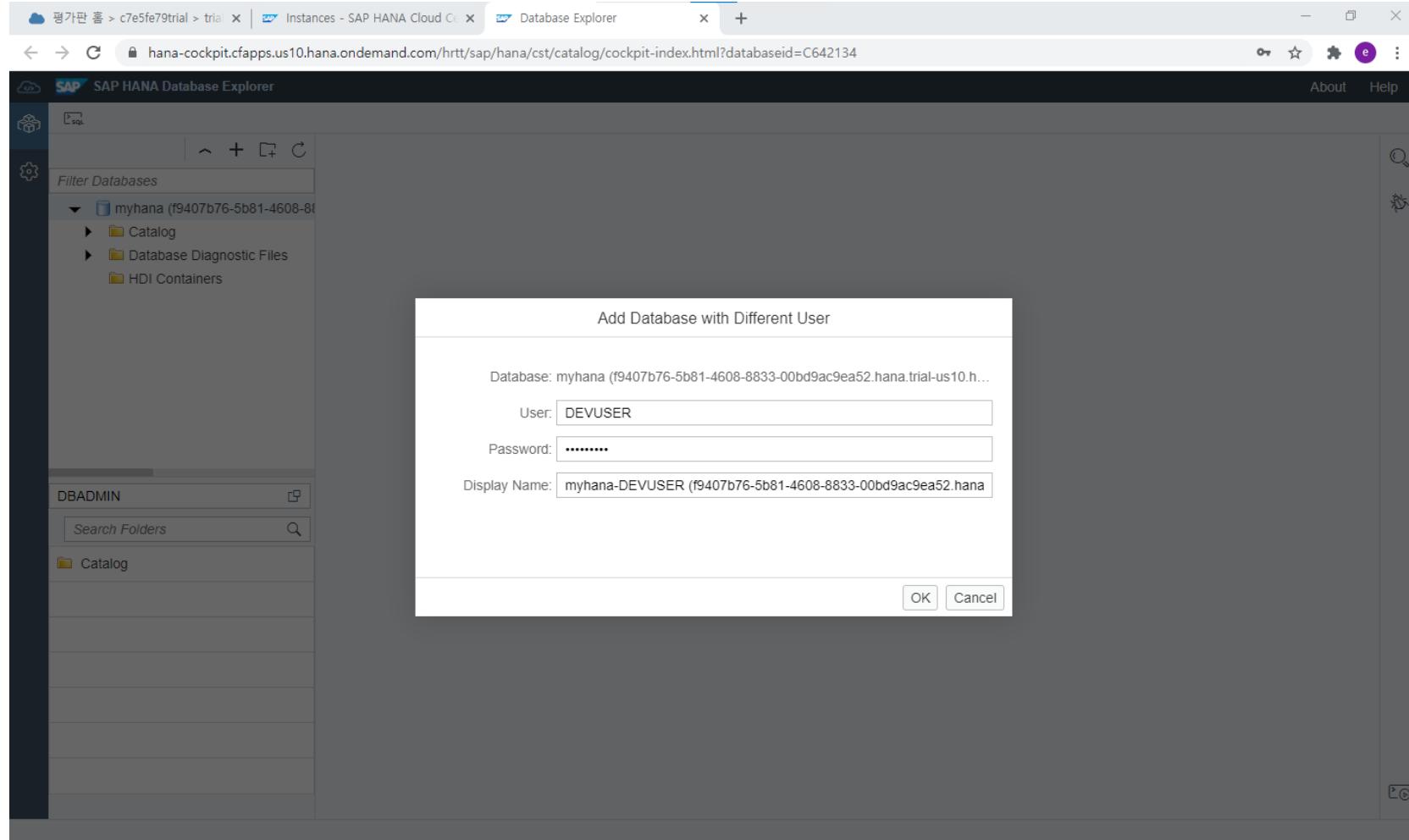


## SAP HANA Database Explorer

- myhana 시스템에서 우 클릭
- Popup 메뉴에서 “**Add Database with Different User**”을 클릭

# SAP HANA Database Explorer

## 신규 Connection 생성

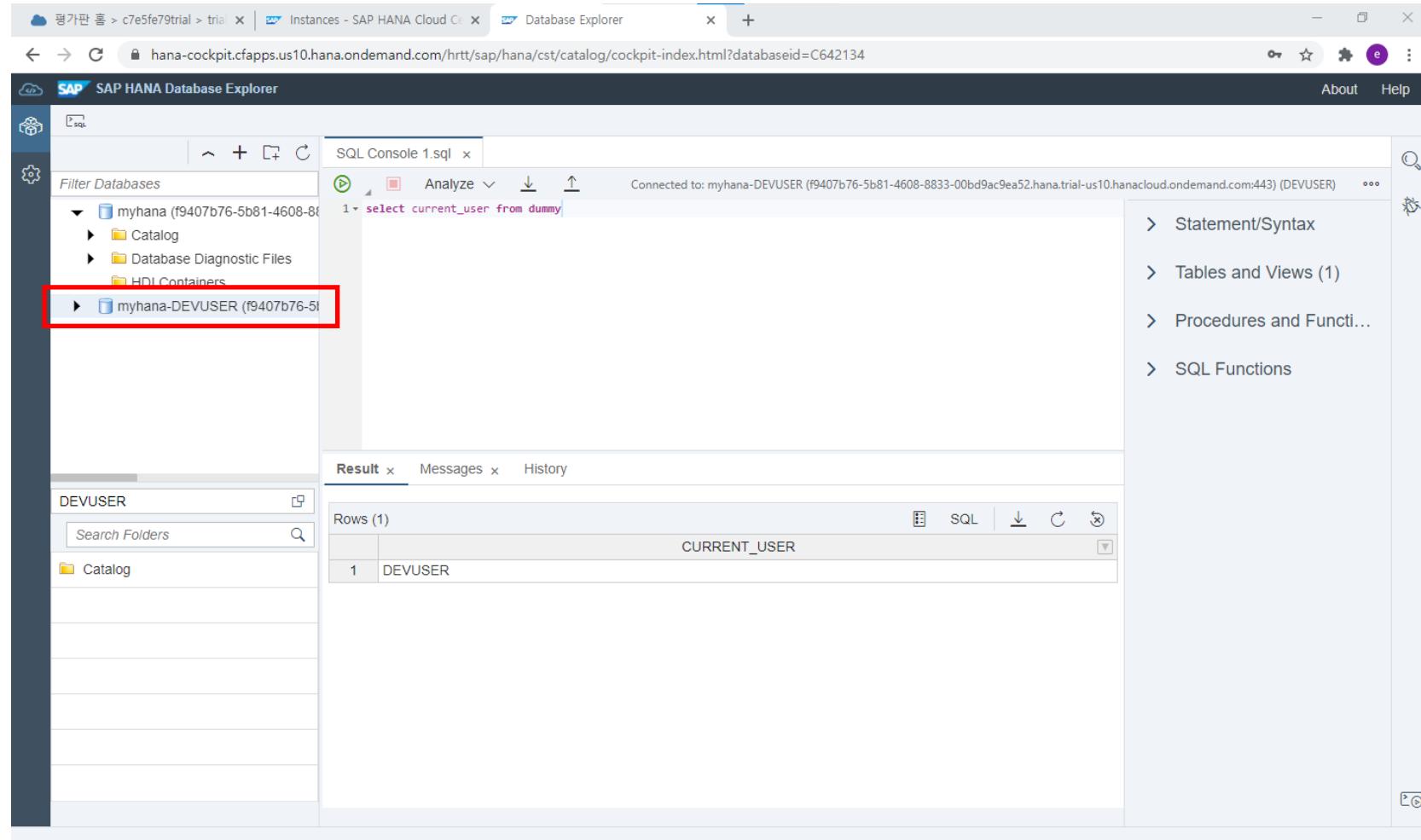


## SAP HANA Database Explorer

- User : **DEVUSER**
- Password : **Welcome01**
- Display Name : **myhana-DEVUSER ...**
- “OK” 버튼 클릭

# SAP HANA Database Explorer

## 신규 Connection 생성

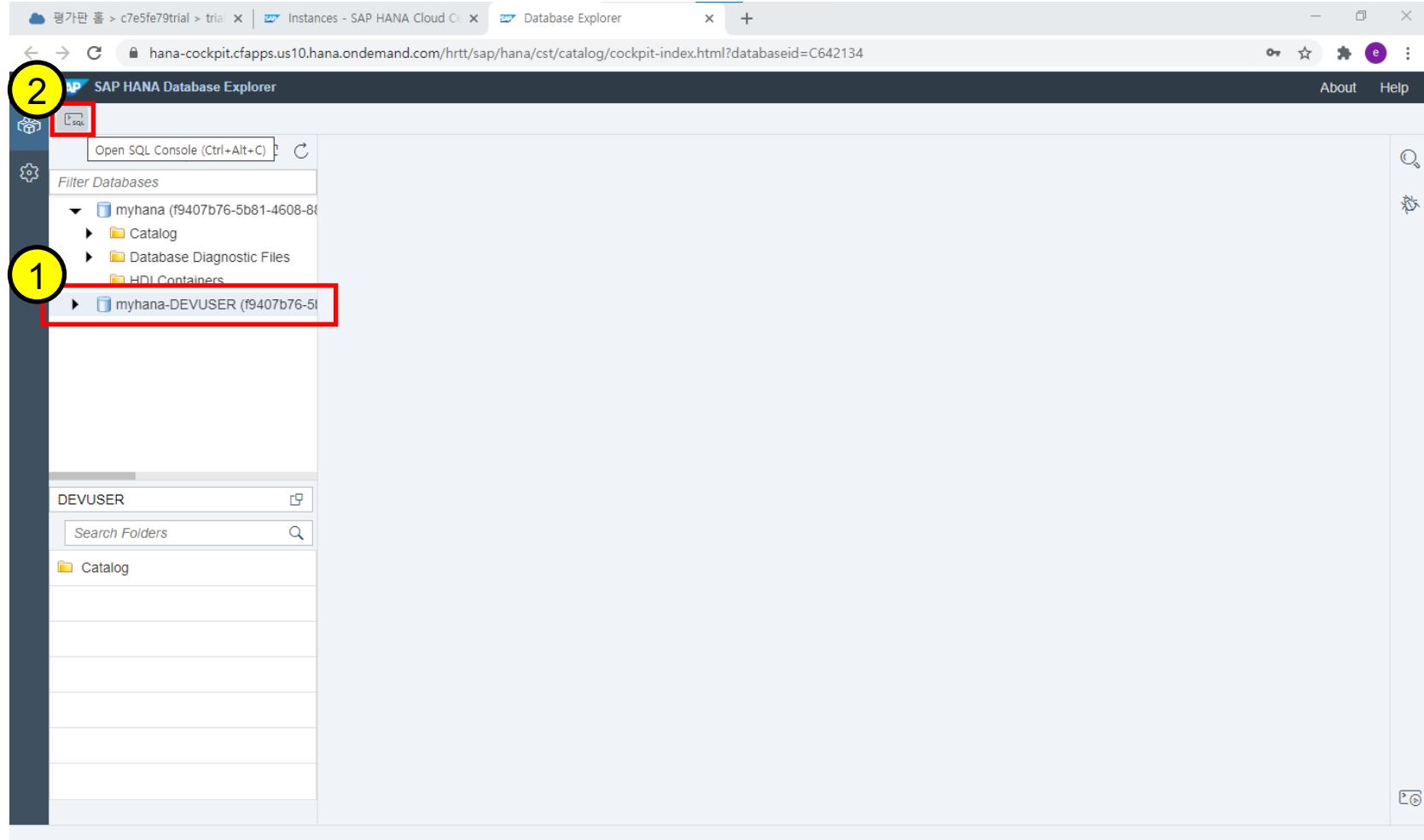


## SAP HANA Database Explorer

- 신규 Connection 생성 확인

# SAP HANA Database Explorer

## SQL Console

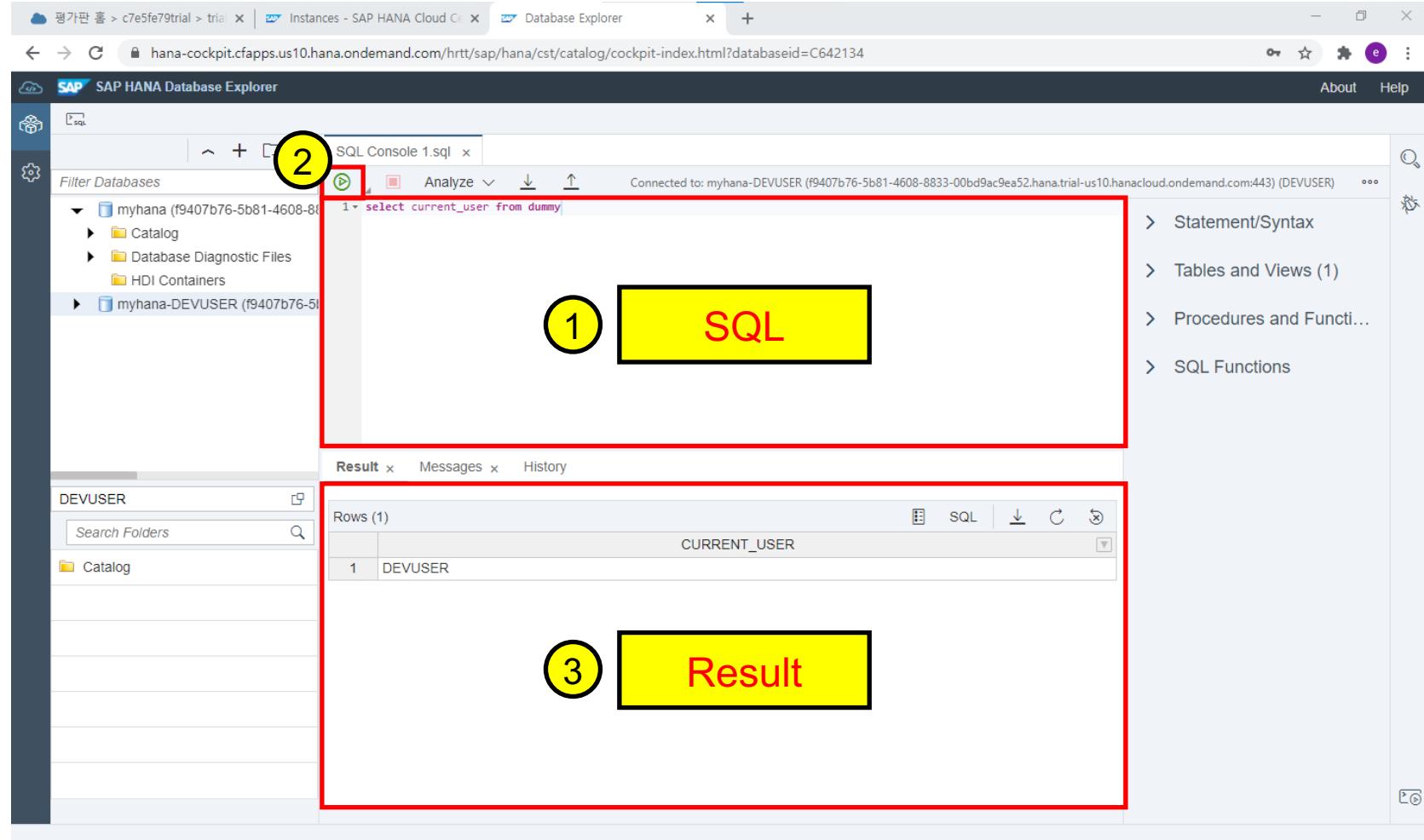


## SAP HANA Database Explorer

- 신규 Connection 클릭
- “SQL” 버튼 클릭

# SAP HANA Database Explorer

## SQL Console



## SAP HANA Database Explorer

- SQL을 입력할 수 있는 창이 오픈
- “select current\_user from dummy” 입력
- 버튼 클릭하면 해당 SQL 실행
- 하단의 Result 부분에 현재 접속한 User 조회 : DEVUSER

# SAP HANA Database Explorer

## Table 생성

File Location :

[https://github.com/euimankim/HANA\\_Cloud\\_Enablement](https://github.com/euimankim/HANA_Cloud_Enablement)

The screenshot shows the SAP HANA Database Explorer interface. On the left, the sidebar displays the database structure with nodes like 'myhana' and 'myhana-DEVUSER'. The main area contains two SQL consoles:

- SQL Console 1.sql**: Contains the SQL code for creating the 'DBGEN\_VERSION' table. A yellow circle labeled '1' highlights the word 'SQL'.
- SQL Console 2.sql**: Contains the SQL code for creating the 'CUSTOMER\_ADDRESS' table. A yellow circle labeled '2' highlights the number '2' in the tab bar.

On the right, there is a sidebar with navigation links: Statement/Syntax, Tables and Views, Procedures and Functi..., and SQL Functions. Below the sidebar, the 'Result' section is highlighted with a red box and a yellow circle labeled '3', showing the execution results for both statements.

```
CREATE COLUMN TABLE DBGEN_VERSION
(
    DV_VERSION NVARCHAR(16),
    DV_CREATE_DATE DATE,
    DV_CREATE_TIME TIME,
    DV_CMDLINE_ARGS NVARCHAR(200)
);

CREATE COLUMN TABLE CUSTOMER_ADDRESS
(
    CA_ADDRESS_SK NVARCHAR(16),
    CA_ADDRESS_ID NVARCHAR(10),
    CA_STREET_NUMBER NVARCHAR(15),
    CA_STREET_NAME NVARCHAR(10),
    CA_STREET_TYPE CHAR(15),
    CA_SUITE_NUMBER CHAR(10),
    CA_CITY NVARCHAR(60),
    CA_COUNTY NVARCHAR(30),
    CA_STATE CHAR(2),
    CA_ZIP CHAR(10),
    CA_COUNTRY NVARCHAR(20),
    CA_GMT_OFFSET DECIMAL(5,2),
    CA_LOCATION_TYPE CHAR(20)
);
```

Messages x History

```
Statement: CREATE COLUMN TABLE DBGEN_VERSION ( DV_VERSION NVARCHAR(16) ...
Client elapsed time: 13.00 ms
Statement prepare time: 2.499 ms elapsed time, 1.03 ms CPU time
Statement execute time: 10.03 ms elapsed time, 6.63 ms CPU time
Peak memory consumed: 3.119 MB

Statement: CREATE COLUMN TABLE CUSTOMER_ADDRESS
Client elapsed time: 9.000 ms
Statement prepare time: 1.592 ms elapsed time, 1.384 ms CPU time
```

## SAP HANA Database Explorer

- 새로운 SQL Console을 오픈
- create\_table.sql 파일의 내용을 전체 복사 후 붙여넣기
- ▶ 버튼 클릭하면 해당 SQL 실행
- 하단의 Result 부분에 실행 결과 조회

# SAP HANA Database Explorer

## Table 생성

The screenshot shows the SAP HANA Database Explorer interface. On the left, the sidebar has a red box around the 'Tables' section under 'Remote Subscriptions'. A yellow circle labeled '1' is on the 'Tables' button. Below it, a red box highlights several tables: CALL\_CENTER, CATALOG\_PAGE, CATALOG RETURNS, CATALOG SALES, CUSTOMER, CUSTOMER ADDRESS, and CUSTOMER DEMOGRAPHICS. A yellow circle labeled '2' is on the 'CUSTOMER ADDRESS' table. The main area shows two SQL statements being executed:

```
CREATE COLUMN TABLE DBGEN_VERSION
(
    DV_VERSION NVARCHAR(16),
    DV_CREATE_DATE DATE,
    DV_CREATE_TIME TIME,
    DV_CMDLINE_ARGS NVARCHAR(200)
);

CREATE COLUMN TABLE CUSTOMER_ADDRESS
(
    CA_ADDRESS_SK INTEGER NOT NULL,
    CA_ADDRESS_ID CHAR(16) NOT NULL,
    CA_STREET_NUMBER CHAR(10),
    CA_STREET_NAME NVARCHAR(60),
    CA_STREET_TYPE CHAR(15),
    CA_SUITE_NUMBER CHAR(10),
    CA_CITY NVARCHAR(60),
    CA_COUNTY NVARCHAR(30),
    CA_STATE CHAR(2),
    CA_ZIP CHAR(10),
    CA_COUNTRY NVARCHAR(20),
    CA_GMT_OFFSET DECIMAL(5,2),
    CA_LOCATION_TYPE CHAR(20)
);
```

The 'Messages' tab at the bottom shows the execution details for both statements.

## SAP HANA Database Explorer

- 좌측 메뉴에서 Catalog >> Tables 클릭
- 좌측 하단에 생성한 Table 리스트 확인

# SAP HANA Database Explorer

## Table 생성

The screenshot shows the SAP HANA Database Explorer interface. On the left, the sidebar lists databases and tables. A yellow circle labeled '1' highlights the 'CUSTOMER' table in the list. A red box surrounds the 'CUSTOMER' table name. On the right, the main panel displays the SQL code for creating the 'CUSTOMER' table:

```
CREATE COLUMN TABLE CUSTOMER (SK INTEGER NOT NULL, ID CHAR(16) NOT NULL, NAME NVARCHAR(60), TYPE CHAR(15), ADDRESS_SK NUMBER, ADDRESS_NAME NVARCHAR(60), ADDRESS_TYPE NVARCHAR(30), ADDRESS_STREET CHAR(2), ADDRESS_POSTAL_CODE CHAR(10), ADDRESS_CITY NVARCHAR(20), ADDRESS_STATE DECIMAL(5,2), ADDRESS_COUNTRY CHAR(20))
```

Below the code, it shows the execution results:

Statement: CREATE COLUMN TABLE CUSTOMER (SK INTEGER NOT NULL, ID CHAR(16) NOT NULL, NAME NVARCHAR(60), TYPE CHAR(15), ADDRESS\_SK NUMBER, ADDRESS\_NAME NVARCHAR(60), ADDRESS\_TYPE NVARCHAR(30), ADDRESS\_STREET CHAR(2), ADDRESS\_POSTAL\_CODE CHAR(10), ADDRESS\_CITY NVARCHAR(20), ADDRESS\_STATE DECIMAL(5,2), ADDRESS\_COUNTRY CHAR(20))  
Client elapsed time: 9.000 ms  
Statement prepare time: 1.592 ms elapsed time, 1.384 ms CPU time

A yellow circle labeled '2' highlights the 'Open' option in the context menu for the 'CUSTOMER' table. A red box surrounds the 'Open' option. The context menu also includes options like 'Open Data', 'Delete', 'Find Dependencies', 'Create Shortcut', 'Import Data', 'Export Data', 'Generate CREATE Statement', 'Generate SELECT Statement', 'Generate INSERT Statement', 'Load Into Memory', 'Unload From Memory', and 'Export Catalog Objects'. The right side of the interface shows a sidebar with links to 'Statement/Syntax', 'Tables and Views', 'Procedures and Function...', and 'SQL Functions'.

## SAP HANA Database Explorer

- CUSTOMER 테이블을 클릭하거나 우클릭을 통해 Popup 메뉴에서 “Open” 클릭

# SAP HANA Database Explorer

## Table 생성

The screenshot shows the SAP HANA Database Explorer interface. The left sidebar lists databases and tables under the schema 'DEVUSER'. The main area displays the 'CUSTOMER' table structure with 14 columns. The columns are:

	Name	SQL Data Type	Key	Not Null	Default	Comment
1	C_CUSTOMER_SK	INTEGER	1	X	NULL	
2	C_CUSTOMER_ID	NCHAR(16)		X	NULL	
3	C_CURRENT_CDEMO_SK	INTEGER			NULL	
4	C_CURRENT_HDEMO_SK	INTEGER			NULL	
5	C_CURRENT_ADDR_SK	INTEGER			NULL	
6	C_FIRST_SHIPTO_DATE_SK	INTEGER			NULL	
7	C_FIRST_SALES_DATE_SK	INTEGER			NULL	
8	C_SALUTATION	NCHAR(10)			NULL	
9	C_FIRST_NAME	NCHAR(20)			NULL	
10	C_LAST_NAME	NCHAR(30)			NULL	
11	C_PREFERRED_CUST_FLAG	NCHAR(1)			NULL	
12	C_BIRTH_DAY	INTEGER			NULL	
13	C_BIRTH_MONTH	INTEGER			NULL	
14	C_BIRTH_YEAR	INTEGER			NULL	

## SAP HANA Database Explorer

- CUSTOMER 테이블의 정의를 조회

# SAP HANA Database Explorer

## Local Data Load

The screenshot shows the SAP HANA Database Explorer interface. On the left, the navigation pane lists various database objects under the schema DEVUSER, with the 'Tables' section currently selected. A yellow circle labeled '1' highlights the 'STORE' table in the list. A red box highlights the 'Import Data' option in the context menu for the 'STORE' table, which is also circled with a yellow '2'. The main panel displays the 'CUSTOMER' table structure with 14 columns. The 'Columns' tab is selected, showing details like column name, SQL Data Type, Key status, Not Null, Default, and Comment.

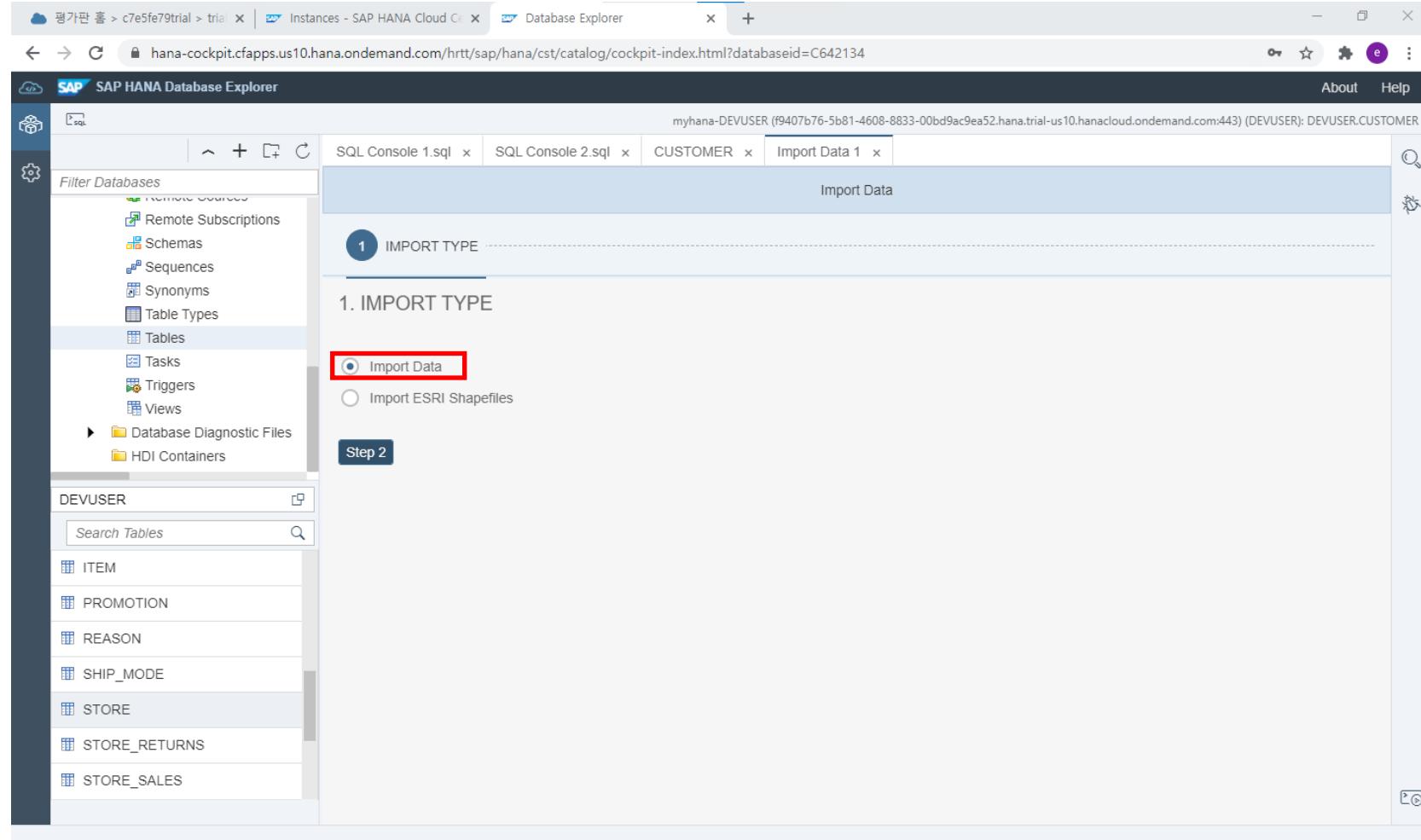
Column	Name	SQL Data Type	Key	Not Null	Default	Comment
1	C_CUSTOMER_SK	INTEGER	1	X	NULL	
2	R_ID	NCHAR(16)		X	NULL	
3	CDEMO_SK	INTEGER			NULL	
4	HDEMO_SK	INTEGER			NULL	
5	ADDR_SK	INTEGER			NULL	
6	PTO_DATE_SK	INTEGER			NULL	
7	LES_DATE_SK	INTEGER			NULL	
8	ON	NCHAR(10)			NULL	
9	ME	NCHAR(20)			NULL	
10	ME	NCHAR(30)			NULL	
11	ED_CUST_FLAG	NCHAR(1)			NULL	
12	C_DEMO_SK	INTEGER			NULL	
13	C_BIRTH_MONTH	INTEGER			NULL	
14	C_BIRTH_YEAR	INTEGER			NULL	

## SAP HANA Database Explorer

- STORE 테이블을 우 클릭
- Popup 메뉴에서 “Import Data” 클릭

# SAP HANA Database Explorer

## Local Data Load



## SAP HANA Database Explorer

- “Import Data” 선택
- “Step 2” 버튼 클릭

# SAP HANA Database Explorer

## Local Data Load

File Location :  
[https://github.com/euimankim/HANA\\_Cloud\\_Enablement](https://github.com/euimankim/HANA_Cloud_Enablement)

The screenshot shows the SAP HANA Database Explorer interface. On the left, there's a sidebar with database navigation and a table list. The main area is titled "Import Data" and is divided into three steps: 1. IMPORT TYPE, 2. IMPORT SOURCE, and 3. IMPORT TARGET. Step 2 is currently active. It has two main sections: "2. IMPORT SOURCE". In the first section, there's a dropdown menu "Import Data From:" with the option "Local" selected. In the second section, there's a file input field "File to Import:" containing "store.csv", with a checked checkbox "File has header in first row" next to it. Both the dropdown and the file input field are highlighted with a red box and a yellow circle numbered 1 and 2 respectively.

## SAP HANA Database Explorer

- “Import Data From” 드롭다운박스에서 “Local” 선택
- “File has header in first row” 체크박스 선택
- “File to Import”에서 store.csv 파일 선택
- store.csv 파일은 위 URL에서 Local PC로 미리 Download 필요
- “Step 3” 버튼 클릭

# SAP HANA Database Explorer

## Local Data Load

The screenshot shows the SAP HANA Database Explorer interface with the "Import Data" wizard open. The current step is "3. IMPORT TARGET". In the "Database Table Details" section, the "Add to an existing table" radio button is selected and highlighted with a red box. The "Schema:" dropdown is set to "DEVUSER" and the "Table:" dropdown is set to "STORE".

## SAP HANA Database Explorer

- “Add to an existing table” 선택
- Schema : DEVUSER
- Table : STORE
- “Step 4” 버튼 클릭

# SAP HANA Database Explorer

## Local Data Load

The screenshot shows the SAP HANA Database Explorer interface with the following details:

- Header:** SAP HANA Database Explorer, Instances - SAP HANA Cloud C...
- Toolbar:** Back, Forward, Refresh, Address bar: hana-cockpit.cfapps.us10.hana.ondemand.com/hrrt/sap/hana/cst/catalog/cockpit-index.html?databaseid=C642134, Stop, Help.
- Left Sidebar:** Filter Databases, Remote Subscriptions, Schemas, Sequences, Synonyms, Table Types, Tables, Tasks, Triggers, Views, Database Diagnostic Files, HDI Containers, DEVUSER (selected), Search Tables, ITEM, PROMOTION, REASON, SHIP\_MODE, STORE, STORE\_RETURNS, STORE\_SALES.
- Central Area:** Import Data Step 5: TABLE MAPPING. It shows the mapping between Source Columns and Database Columns for the CUSTOMER table. The table type is set to Column Store.

Source Column	Use Default Va...	Database Colu...	Data Type	Length	Scale	Key	Not Null
S_STO...	<input type="checkbox"/>	S_STORE_SK	INTEGER	10	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
S_STO...	<input type="checkbox"/>	S_STORE_ID	NCHAR	16		<input type="checkbox"/>	<input checked="" type="checkbox"/>
S_REC...	<input type="checkbox"/>	S_REC_START_DATE	DATE	10		<input type="checkbox"/>	<input type="checkbox"/>
S_REC...	<input type="checkbox"/>	S_REC_END_DATE	DATE	10		<input type="checkbox"/>	<input type="checkbox"/>
S_CLO...	<input type="checkbox"/>	S_CLOSED_DATE_SK	INTEGER	10	0	<input type="checkbox"/>	<input type="checkbox"/>
S_STO...	<input type="checkbox"/>	S_STORE_NAME	NVARCHAR	50		<input type="checkbox"/>	<input type="checkbox"/>
S_NUM...	<input type="checkbox"/>	S_NUMBER_EMPLOYEES	INTEGER	10	0	<input type="checkbox"/>	<input type="checkbox"/>
S_FLO...	<input type="checkbox"/>	S_FLOOR_SPACE	INTEGER	10	0	<input type="checkbox"/>	<input type="checkbox"/>
S_HOU...	<input type="checkbox"/>	S_HOURS	NCHAR	20		<input type="checkbox"/>	<input type="checkbox"/>
S_MAN...	<input type="checkbox"/>	S_MANAGER	NVARCHAR	40		<input type="checkbox"/>	<input type="checkbox"/>

- Bottom:** Step 5 button.

## SAP HANA Database Explorer

- CSV 파일의 Header Column과 Table Column과 매핑 필요
- 단, CSV 파일의 Header Column 이름과 Table Column 이름이 같으면 자동으로 매핑되고 이름이 다르면 수동으로 매핑
- “Step 5” 버튼 클릭

# SAP HANA Database Explorer

## Local Data Load

The screenshot shows the SAP HANA Database Explorer interface for a local data load. The main window title is "Import Data". The left sidebar lists database objects under "Tables": ITEM, PROMOTION, REASON, SHIP\_MODE, STORE, STORE RETURNS, and STORE SALES. The current table selected is STORE. The top navigation bar shows the URL: hana-cockpit.cfapps.us10.hana.ondemand.com/hana/cst/catalog/cockpit-index.html?databaseid=C642134. The right side of the interface displays the "Import Data" configuration steps:

- Step 1: IMPORT TYPE
- Step 2: IMPORT SOURCE
- Step 3: IMPORT TARGET
- Step 4: TABLE MAPPING
- Step 5: ERROR HANDLING (selected)

The "ERROR HANDLING" section contains the following options:

- Save all successful rows and list the errors (if any) (highlighted with a red border)
- Do not save any rows if there is an error
- Show me the error rows and let me decide

A "Review" button is located at the bottom left of the configuration area.

## SAP HANA Database Explorer

- 적재 작업 중 오류 발생 시 처리 방식 선택
- “Review” 버튼 클릭

# SAP HANA Database Explorer

## Local Data Load

The screenshot shows the SAP HANA Database Explorer interface. The left sidebar lists databases and tables under the schema 'DEVUSER'. The main area displays the 'Import Data 1' dialog. The 'Import Summary' tab is selected, showing the following configuration:

Setting	Value
File Name:	store.csv
File Has Header:	Yes
Table Exists:	Yes
Schema Name:	DEVUSER
Database Table Name:	STORE
Table Type:	Column Store

The 'TABLE MAPPING' section shows the mapping between source columns and database columns for the 'STORE' table:

Source Colu...	Use Default V...	Database Col...	Data Type	Length	Scale	Key	Not Null
S_STORE_SK	<input type="checkbox"/>	S_STORE_SK	INTEGER	10	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
S_STORE_ID	<input type="checkbox"/>	S_STORE_ID	NCHAR	16		<input type="checkbox"/>	<input checked="" type="checkbox"/>
S_REC_START_DATE	<input type="checkbox"/>	S_REC_START_DATE	DATE	10		<input type="checkbox"/>	<input type="checkbox"/>
S_REC_END_DATE	<input type="checkbox"/>	S_REC_END_DATE	DATE	10		<input type="checkbox"/>	<input type="checkbox"/>

## SAP HANA Database Explorer

- 설정 내용 확인
- “Import into Database” 버튼 클릭

# SAP HANA Database Explorer

## Local Data Load

The screenshot shows the SAP HANA Database Explorer interface. The title bar indicates the browser is connected to 'Instances - SAP HANA Cloud' at 'hana-cockpit.cfapps.us10.hana.ondemand.com'. The main window displays the 'Import Status' for a task named 'Import Data 1'. The status message says 'Saved all successful records.' with a green checkmark icon. It provides the following details:

Setting	Value
Schema Name:	DEVUSER
Database Table Name:	STORE
Records successfully imported:	12
Records with error:	0
Error handling mechanism:	Save all successful rows and list the errors (if any)
Import progress:	100% complete (green bar)

The left sidebar shows the database structure under 'myhana-DEVUSER' with 'Tables' selected. The 'ITEM' table is currently selected. A list of other tables is shown below: PROMOTION, REASON, SHIP\_MODE, STORE, STORE RETURNS, and STORE SALES.

## SAP HANA Database Explorer

- 적재 작업 완료 확인

# SAP HANA Database Explorer

## Local Data Load

The screenshot shows the SAP HANA Database Explorer interface. On the left, there's a sidebar with various database objects like Remote Subscriptions, Schemas, Sequences, Synonyms, Table Types, Tables, Tasks, Triggers, Views, and HDI Containers. A yellow circle labeled '1' highlights the 'STORE' table under the HDI Containers section. A context menu is open over the 'STORE' table, with a yellow circle labeled '2' highlighting the 'Open Data' option. The main panel displays the 'CUSTOMER' table schema with columns: C\_CUSTOMER\_SK, C\_CUSTOMER\_ID, MO\_SK, R\_SK, DATE\_SK, DATE\_SK, NATION\_CD, C\_BIRTH\_MONTH, C\_BIRTH\_YEAR, and JUST\_FLAG.

Name	SQL Data Type	Key	Not Null	Default	Comment
C_CUSTOMER_SK	INTEGER	1	X	NULL	
C_CUSTOMER_ID	NCHAR(16)		X	NULL	
MO_SK	INTEGER			NULL	
R_SK	INTEGER			NULL	
DATE_SK	INTEGER			NULL	
DATE_SK	INTEGER			NULL	
NATION_CD	NCHAR(10)			NULL	
	NCHAR(20)			NULL	
	NCHAR(30)			NULL	
JUST_FLAG	NCHAR(1)			NULL	
	INTEGER			NULL	
C_BIRTH_MONTH	INTEGER			NULL	
C_BIRTH_YEAR	INTEGER			NULL	

## SAP HANA Database Explorer

- STORE 테이블을 우 클릭
- Popup 메뉴에서 “Open Data” 클릭

# SAP HANA Database Explorer

## Local Data Load

The screenshot shows the SAP HANA Database Explorer interface. The left sidebar lists various database objects under 'Remote Sources' and a user named 'DEVUSER'. Under 'DEVUSER', there are tables like ITEM, PROMOTION, REASON, SHIP\_MODE, STORE, STORE RETURNS, and STORE SALES. The main area displays a table named 'STORE' with 12 rows of data. The columns are: S\_STORE\_SK, S\_STORE\_ID, S\_REC\_START\_DATE, S\_REC\_END\_DATE, S\_CLOSED\_DATE\_SK, S\_STORE\_NAME, and S\_NUMBER\_E. The data is as follows:

	S_STORE_SK	S_STORE_ID	S_REC_START_DATE	S_REC_END_DATE	S_CLOSED_DATE_SK	S_STORE_NAME	S_NUMBER_E
1	1	AAAAAAAABAAAAAAA	1997-03-13	NULL	2451189	ought	245
2	2	AAAAAAAACAAAAAAA	1997-03-13	2000-03-12	NULL	able	236
3	3	AAAAAAAACAAAAAAA	2000-03-13	NULL	NULL	able	236
4	4	AAAAAAAEAAAAAAA	1997-03-13	1999-03-13	2451044	ese	218
5	5	AAAAAAAEAAAAAAA	1999-03-14	2001-03-12	2450910	anti	288
6	6	AAAAAAAEAAAAAAA	2001-03-13	NULL	NULL	cally	229
7	7	AAAAAAAHAAAAAAA	1997-03-13	NULL	NULL	ation	297
8	8	AAAAAAIAAAAAAA	1997-03-13	2000-03-12	NULL	eing	278
9	9	AAAAAAIAAAAAAA	2000-03-13	NULL	NULL	eing	271
10	10	AAAAAAKAAAAAAA	1997-03-13	1999-03-13	NULL	bar	294
11	11	AAAAAAKAAAAAAA	1999-03-14	2001-03-12	NULL	ought	294
12	12	AAAAAAKAAAAAAA	2001-03-13	NULL	NULL	ought	294

## SAP HANA Database Explorer

- 적재 데이터 확인

# SAP HANA Database Explorer

## Local Data Load

The screenshot shows the SAP HANA Database Explorer interface. The left sidebar lists various database objects under 'myhana-DEVUSER'. Under 'Tables', 'STORE' is selected. The main area displays the 'Raw Data' view for the 'STORE' table, which has 12 rows of data. The columns are: S\_STORE\_SK, S\_STORE\_ID, S\_REC\_START\_DATE, S\_REC\_END\_DATE, S\_CLOSED\_DATE\_SK, S\_STORE\_NAME, and S\_NUMBER\_E.

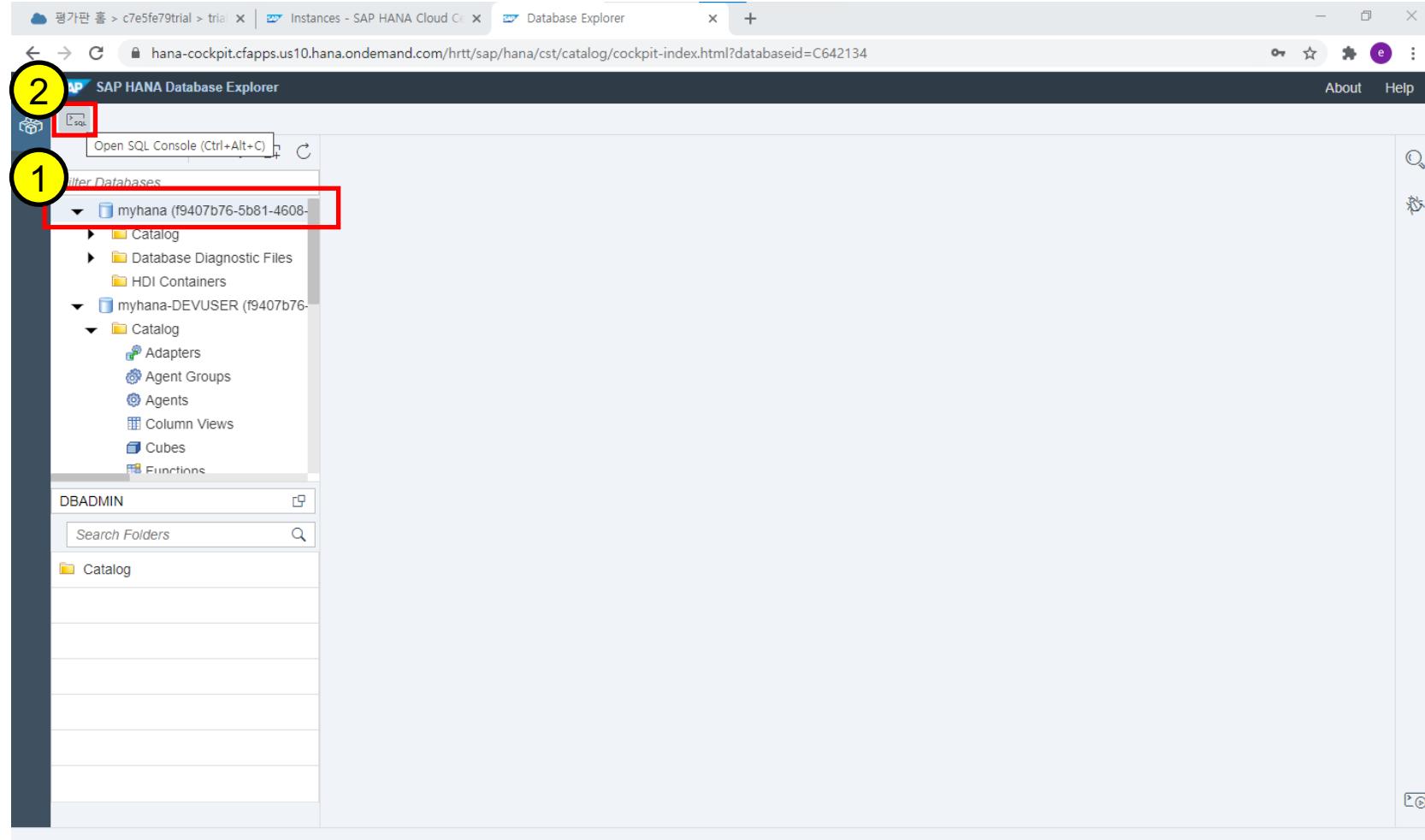
	S_STORE_SK	S_STORE_ID	S_REC_START_DATE	S_REC_END_DATE	S_CLOSED_DATE_SK	S_STORE_NAME	S_NUMBER_E
1	1	AAAAAAAABAAAAAAA	1997-03-13	NULL	2451189	ought	245
2	2	AAAAAAAACAAAAAAA	1997-03-13	2000-03-12	NULL	able	236
3	3	AAAAAAAACAAAAAAA	2000-03-13	NULL	NULL	able	236
4	4	AAAAAAAEEAAAAAAA	1997-03-13	1999-03-13	2451044	ese	218
5	5	AAAAAAAEEAAAAAAA	1999-03-14	2001-03-12	2450910	anti	288
6	6	AAAAAAAEEAAAAAAA	2001-03-13	NULL	NULL	cally	229
7	7	AAAAAAAHHAAAAAAA	1997-03-13	NULL	NULL	ation	297
8	8	AAAAAAAIAAAAAAA	1997-03-13	2000-03-12	NULL	eing	278
9	9	AAAAAAAIAAAAAAA	2000-03-13	NULL	NULL	eing	271
10	10	AAAAAAAOKAAAAAA	1997-03-13	1999-03-13	NULL	bar	294
11	11	AAAAAAAOKAAAAAA	1999-03-14	2001-03-12	NULL	ought	294
12	12	AAAAAAAOKAAAAAA	2001-03-13	NULL	NULL	ought	294

## SAP HANA Database Explorer

- 적재 데이터 확인

# SAP HANA Database Explorer

## Table 생성



## SAP HANA Database Explorer

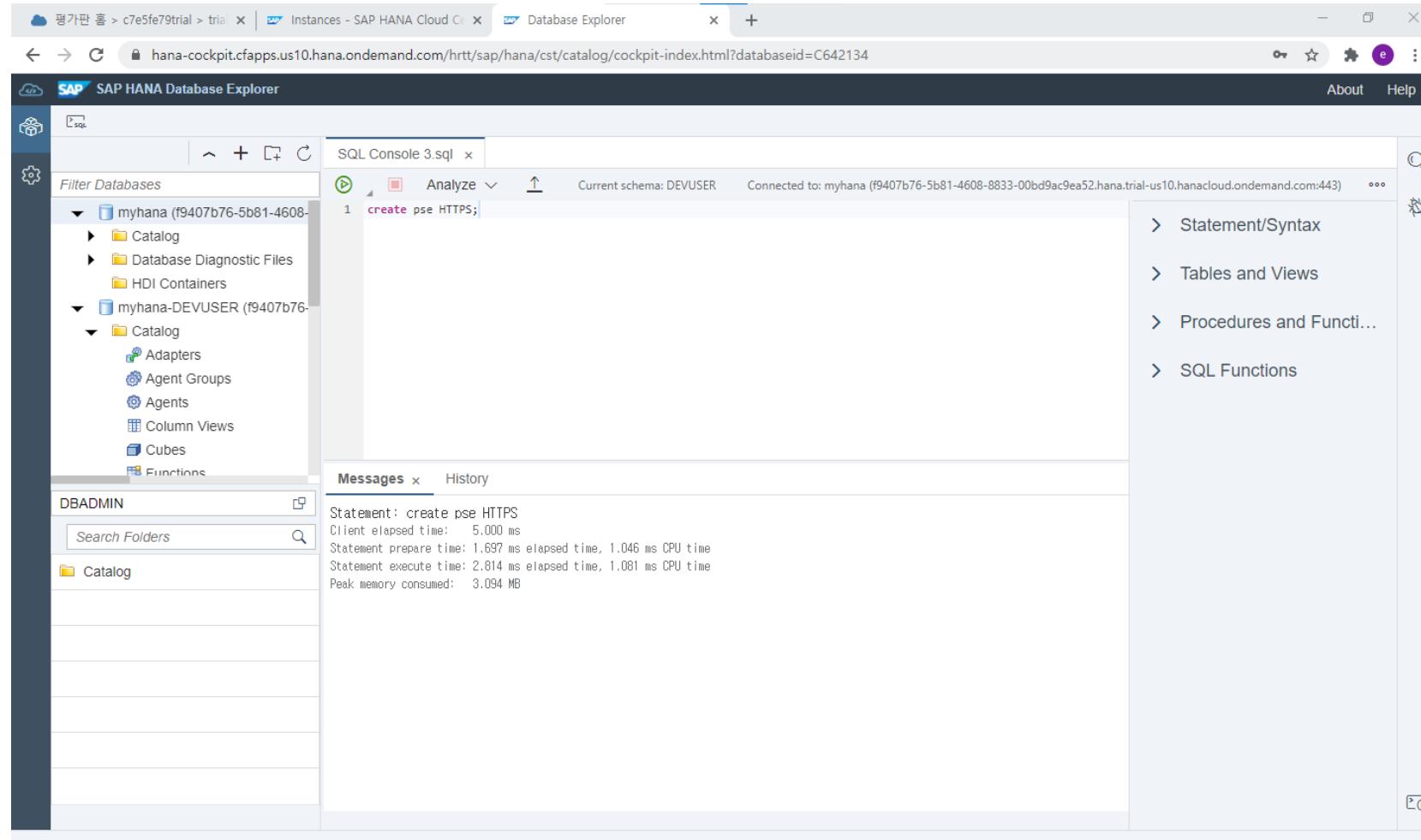
- DBADMIN Connection 클릭
- “SQL” 버튼 클릭

# SAP HANA Database Explorer

AWS S3 인증 등록

File Location :

[https://github.com/euimankim/HANA\\_Cloud\\_Enablement](https://github.com/euimankim/HANA_Cloud_Enablement)



## SAP HANA Database Explorer

- DBADMIN Connection 클릭
- aws\_S3\_certificate.sql 파일의 내용 중 1 단계 SQL을 복사 후 붙여넣기
- 버튼을 클릭하면 해당 SQL 실행

# SAP HANA Database Explorer

AWS S3 인증 등록

File Location :

[https://github.com/euimankim/HANA\\_Cloud\\_Enablement](https://github.com/euimankim/HANA_Cloud_Enablement)

The screenshot shows the SAP HANA Database Explorer interface. On the left, the database structure is displayed under 'myhana' and 'myhana-DEVUSER'. In the center, the 'SQL Console 3.sql' tab is active, containing a single SQL statement:

```
1 create certificate from
2 -----BEGIN CERTIFICATE-----
3 MIIEYzCCA0ugAwIBAgIQAYL4CYGj5ia5GjsnhB+5rzANBgkqhkiG9w0BAQsFADBa
4 MQswCQYDVQQGEwJJRTESMBAGA1UEChMjQmFsdG1tb3J1MRMwEQYDVQQLEwpDeWjI
5 c1RydxN0MSIwIAYDVQDEx1CYNx0aw1vcUgQ31izXJUcnVzcCBSb290MB4XDEt1
6 MTIwODEyMDUwNi0xDTI1MDUxDExyIDAwMFowZDELMkGA1UEBhVCVVMxF7ATBgNV
7 BAoTDERpZ21DXJ0IE1uYzEzZBcGA1UECxMQd3d3LmRpZ21jZXJ0LmNvbTEjMCEG
8 A1UEAxMaRG1naUN1cnQgQmFsdG1tb3J1IENBLTigRzIwggeiMA0GCSqGSIb3DQE8
9 AQUAA4IBDwAwggEKAoIBAQC75wD+AaFz75u18FwIdFBccHMF7V6H4O1I/3hwRM/
10 sSEGvJ3M2y24hxkx3tpFd01HVsF5y1P8m1ITykRhBtQkmsgOWBGmNU/oHTz6+
11 hjoD7J2taRVuvRZQHjaZ7bNS1x8CsukmLK/zKkf1+Hj41/UhAqeydjp10Kh8c
12 +GVQr834RaIL420Nh3e6onNs1lZ5QnNNnEr2sbQm8b2pFtbObYfAB8ZpPvTvgzm
13 +4/dDoOmp0daxhAvvcu6R84Inyc3KzkqwIIH5HKvCrjn70LsTsctQeg3dUnfc2
14 YMwmVJihidFwg/etKVkgz7s14dw5v0uWhrtQaJ4ggPAGWBAAQggEZMIIBFTAd
15 R0MhMEEFnImRvXHDnDmEnCvQGReIu70YFOu4uVnDPA1BRmwEoAlIS717MTJH
```

Below the SQL console, the 'Messages' and 'History' tabs are visible. The 'Messages' tab shows the execution details:

```
Statement: create certificate from '-----BEGIN CERTIFICATE----- ...'
Client elapsed time: 6.000 ms
Statement prepare time: 2.107 ms elapsed time, 1.651 ms CPU time
Statement execute time: 3.477 ms elapsed time, 1.490 ms CPU time
Peak memory consumed: 3.098 MB
```

## SAP HANA Database Explorer

- DBADMIN Connection 클릭
- aws\_S3\_certificate.sql 파일의 내용 중 2 단계 SQL을 복사 후 붙여넣기
- 버튼을 클릭하면 해당 SQL 실행

# SAP HANA Database Explorer

AWS S3 인증 등록

File Location :

[https://github.com/euimankim/HANA\\_Cloud\\_Enablement](https://github.com/euimankim/HANA_Cloud_Enablement)

The screenshot shows the SAP HANA Database Explorer interface. On the left, the database tree shows two databases: 'myhana' and 'myhana-DEVUSER'. In the central SQL Console, a query is run:

```
select CERTIFICATE_ID from CERTIFICATES where COMMENT = 'S3'
```

The result table shows one row with the value '157609' in the 'CERTIFICATE\_ID' column. This value is highlighted with a red box. To the right of the SQL console, there is a context menu with several options:

- Statement/Syntax
- Tables and Views (1)
- Procedures and Functi...
- SQL Functions

## SAP HANA Database Explorer

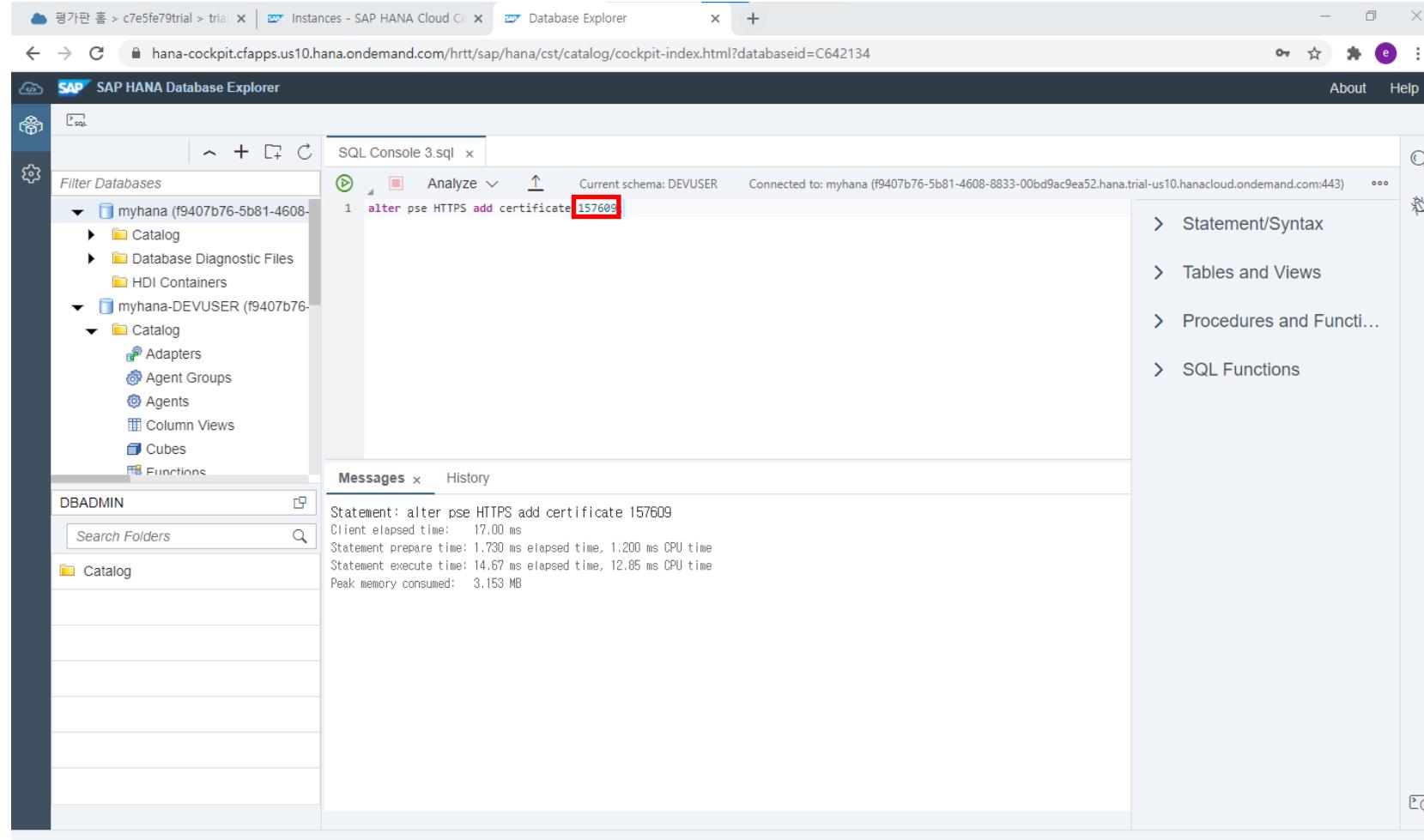
- DBADMIN Connection 클릭
- aws\_S3\_certificate.sql 파일의 내용 중 3 단계 SQL을 복사 후 붙여넣기
- 버튼을 클릭하면 해당 SQL 실행
- Result에 조회된 CERTIFICATE\_ID 값을 다음 단계에서 사용

# SAP HANA Database Explorer

AWS S3 인증 등록

File Location :

[https://github.com/euimankim/HANA\\_Cloud\\_Enablement](https://github.com/euimankim/HANA_Cloud_Enablement)



## SAP HANA Database Explorer

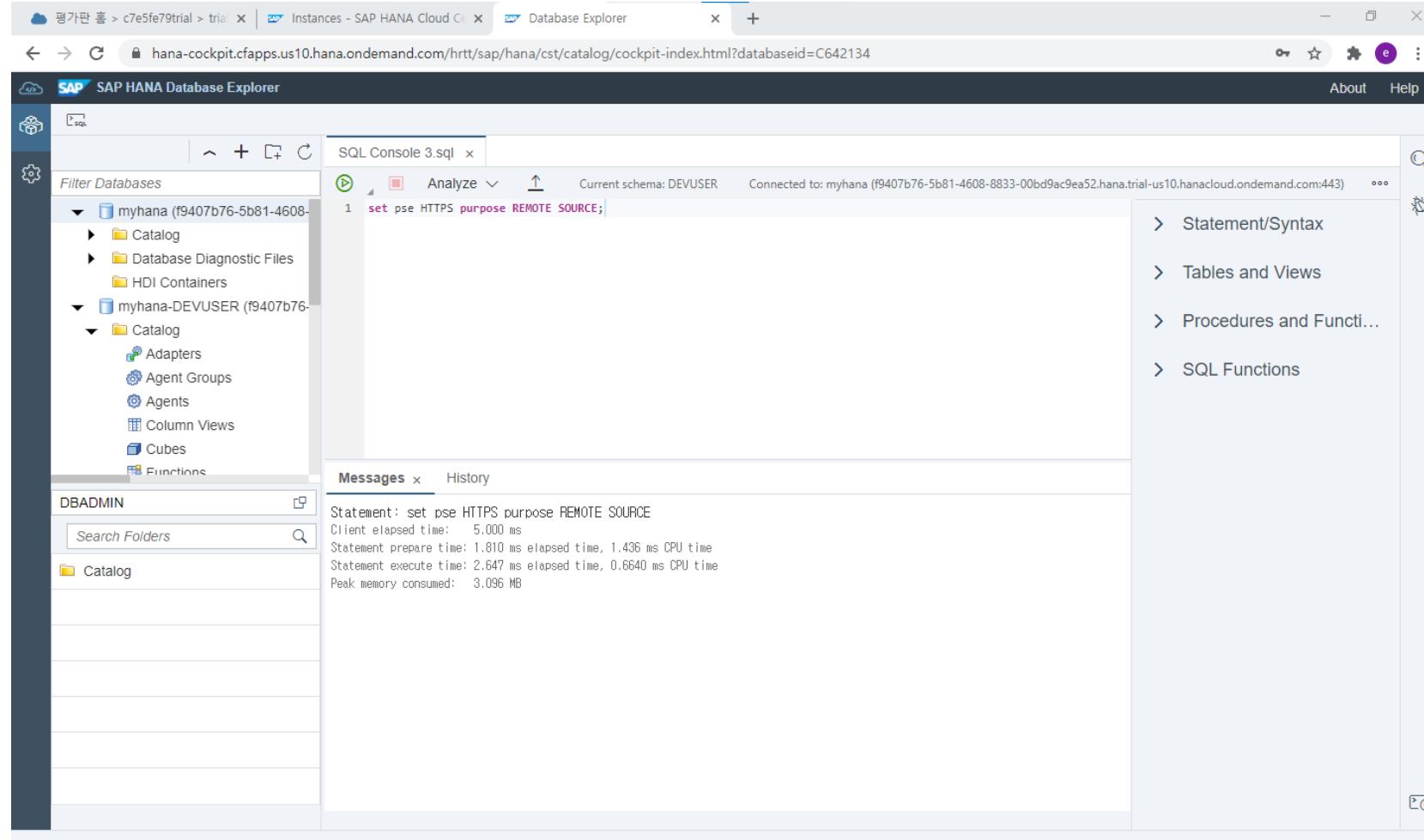
- DBADMIN Connection 클릭
- aws\_S3\_certificate.sql 파일의 내용 중 4 단계 SQL을 복사 후 붙여넣기
- <Certificate\_Id> 부분에 이전 단계의 CERTIFICATE\_ID 값으로 대체
- 버튼을 클릭하면 해당 SQL 실행

# SAP HANA Database Explorer

AWS S3 인증 등록

File Location :

[https://github.com/euimankim/HANA\\_Cloud\\_Enablement](https://github.com/euimankim/HANA_Cloud_Enablement)



## SAP HANA Database Explorer

- DBADMIN Connection 클릭
- aws\_S3\_certificate.sql 파일의 내용 중 5 단계 SQL을 복사 후 붙여넣기
- 버튼을 클릭하면 해당 SQL 실행

# SAP HANA Cockpit

## SAP HANA Cloud 인스턴스 관리자

The screenshot shows the SAP HANA Cloud Instances management interface. The left sidebar has 'SAP HANA Cloud Central' and 'Instances'. The main area is titled 'All Instances' with filters for Organization (c7e5fe79trial), Space (dev), Status, Alert, and Type (2개 항목). A table lists two instances: 'myhana' (SAP HANA, RUNNING, 30 GB Memory, 120 GB Storage) and 'myrdl' (Data Lake, RUNNING, 1 TB). A context menu is open over the 'myhana' row, listing actions: Edit, Add Data Lake, Copy SQL Endpoint, Copy Instance ID, Stop, Upgrade, Delete, Open in SAP HANA Cockpit (highlighted with a red box), Open in SAP HANA Database Explorer, and Open SQL Console.

Status	Name	Type	Notifications	Storage
RUNNING	myhana	SAP HANA		30 GB Memory 120 GB Storage
RUNNING	myrdl	Data Lake		1 TB

## SAP HANA Cloud 인스턴스 관리자

- myhana 인스턴스의 “Actions” 컬럼을 클릭
- Popup 메뉴에서 “Open in SAP HANA Cockpit”을 클릭

# SAP HANA Cockpit

## Import/Export 권한 부여

The screenshot shows the SAP HANA Cockpit Database Overview page. At the top left, there is a red box labeled '1' around the 'Security and User Management' dropdown menu. On the right side of the page, there is a red box labeled '2' around the 'User Management' link under the 'User & Role Management' section. The 'User Management' link is highlighted with a yellow circle.

1 Security and User Management ▾

Choose Authentication SQL Console

Database Status: Running Database User: DBADMIN Host: f9407b76-5b81-4608-8833-00bd9ac9ea52.hana.trial-us10.hanacloud.ondemand.com Instance: 0

2 User Management

User & Role Management

- User Management
- Role Assignment
- Privilege Assignment
- Role Management
- User Group Management
- Authorization Dependency Viewer

Data Encryption

Data Volume Encryption On  
Root key changed on 2021. 3. 3. AM 11:34:51

Redo Log Encryption On  
Root key changed on 2021. 3. 3. AM 11:34:51

Backup Encryption On  
Root key changed on 2021. 3. 3. AM 11:34:51

Auditing

Status On

Audit Trail Target Database table

Enabled Audit Policies 8

Disabled Audit Policies 0

Anonymization Report

[View available anonymization views](#)

Security Related Links

- Certificate Store
- Certificate Collections
- SAML Identity Providers
- JWT Identity Providers
- Security Administration Help
- SAP HANA Security Website

Authentication

Password Policy: Default

Single Sign-on: Not configured

Enter GUID here Enter

## SAP HANA Cockpit

- Security and User Management 화면 전환
- “User Management” 클릭

# SAP HANA Cockpit

## Import/Export 권한 부여

The screenshot shows the SAP HANA Cockpit User Management interface. On the left, a sidebar lists users under 'Users'. A red box highlights the 'DEVUSER' entry, which is circled with a yellow number '1'. The main panel displays the 'DEVUSER' details. At the bottom right of the main panel, there are two buttons: 'Assign' (highlighted with a red box) and 'Assign Privileges' (circled with a yellow number '2').

1 DEVUSER

2 Assign Privileges

General Information

User Name:	DEVUSER	Creation of Objects in Own Schema:	Yes
User Group:	DEFAULT	PUBLIC role:	Yes
User status:	Active	Disable ODBC/JDBC Access:	No
SYS		Creator:	DBADMIN
User Group:	None	Created At:	21. 3. 3. PM 9:19
User status:	Deactivated	Comment:	
SYSRDL#CG			
User Group:	None		
User status:	Active		
SYSRDL#CG_HANAREADER			
User Group:	None		
User status:	Active		
SYSRDL#CG_MANAGER			

AUTHORIZATION MODE

Authorization Mode:	Local
---------------------	-------

## SAP HANA Cockpit

- DEVUSER 클릭
- “Assign Privileges” 클릭

# SAP HANA Cockpit

## Import/Export 권한 부여

The screenshot shows the SAP HANA Cockpit interface. The title bar includes tabs for 'Instances - SAP HANA Cloud C...', 'myhana Assign Privileges – SAP', and 'Database Explorer'. The main content area is titled 'Assign Privileges' under 'myhana (DBADMIN)'. A search bar at the top has 'DEVUSER' entered. Below it, there are four tabs: 'SYSTEM PRIVILEGES (0)', 'OBJECT PRIVILEGES (1)', 'ANALYTIC PRIVILEGES (0)', and 'PRIVILEGES ON USERS (0)'. The 'SYSTEM PRIVILEGES (0)' tab is selected. A search bar with 'Search' and a magnifying glass icon is followed by a blue 'Edit' button with a red border. A message below the table says 'No system privileges granted'. The bottom of the page shows the URL 'hana-cockpit.cfapps.us10.hana.ondemand.com/cockpit/sap/hana/cockpit/cloud/index.html#userprivilegeseditor-show?resid=642134&/detail/156645'.

## SAP HANA Cockpit

- “Edit” 버튼 클릭

# SAP HANA Cockpit

## Import/Export 권한 부여

The screenshot shows the SAP HANA Cockpit interface for assigning privileges. The URL in the browser is [hana-cockpit.cfapps.us10.hana.ondemand.com/cockpit/sap/hana/cockpit/cloud/index.html#userprivilegeseditor-show?resid=642134&/detail/156645](https://hana-cockpit.cfapps.us10.hana.ondemand.com/cockpit/sap/hana/cockpit/cloud/index.html#userprivilegeseditor-show?resid=642134&/detail/156645). The page title is "Assign Privileges - SAP". The user is logged in as "myhana (DBADMIN)".

The main content area displays the following tabs:

- SYSTEM PRIVILEGES (0) (highlighted in blue)
- OBJECT PRIVILEGES (1)
- ANALYTIC PRIVILEGES (0)
- PRIVILEGES ON USERS (0)

Below the tabs, there is a search bar with a magnifying glass icon and a "Save" button. To the right of the search bar, the "Add" button is highlighted with a red box. Other buttons include "Cancel" and "Remove".

The main table has columns for "Privilege", "Grantor", and "Grantable to Others". A message at the bottom of the table says "To add a privilege, choose Add".

At the bottom left of the page, there is a footer link: [hana-cockpit.cfapps.us10.hana.ondemand.com/cockpit/sap/hana/cockpit.../index.ht...](https://hana-cockpit.cfapps.us10.hana.ondemand.com/cockpit/sap/hana/cockpit.../index.ht...)

## SAP HANA Cockpit

- “Add” 버튼 클릭

# SAP HANA Cockpit

## Import/Export 권한 부여

The screenshot shows the SAP HANA Cockpit interface with the title bar "Instances - SAP HANA Cloud Cockpit" and the URL "hana-cockpit.cfapps.us10.hana.ondemand.com/cockpit/sap/hana/cockpit/cloud/index.html#userprivilegeseditor-show?resid=642134&/detail/156645". The main menu has "Assign Privileges" selected. A modal dialog titled "Select System Privileges" is open, showing a list of system privileges. The "EXPORT" and "IMPORT" checkboxes are checked and highlighted with a red box.

System Privileges
<input type="checkbox"/> System Privileges
<input type="checkbox"/> CREATE REMOTE SOURCE
<input type="checkbox"/> CREATE SAML PROVIDER
<input type="checkbox"/> CREATE SCENARIO
<input type="checkbox"/> CREATE SCHEMA
<input type="checkbox"/> CREATE STRUCTURED PRIVILEGE
<input type="checkbox"/> CREATE USERGROUP
<input type="checkbox"/> CREATE X509 PROVIDER
<input type="checkbox"/> CREDENTIAL ADMIN
<input type="checkbox"/> DROP CLIENTSIDE ENCRYPTION KEYPAIR
<input type="checkbox"/> ENCRYPTION ROOT KEY ADMIN
<input checked="" type="checkbox"/> EXPORT
<input checked="" type="checkbox"/> IMPORT
<input type="checkbox"/> INIFILE ADMIN
<input type="checkbox"/> LDAP ADMIN
<input type="checkbox"/> LICENSE ADMIN

## SAP HANA Cockpit

- Export 및 Import 선택
- “Select” 버튼 클릭

# SAP HANA Cockpit

## Import/Export 권한 부여

Assign Privileges - myhana (DBADMIN)

DEVUSER

SYSTEM PRIVILEGES (0) OBJECT PRIVILEGES (1) ANALYTIC PRIVILEGES (0) PRIVILEGES ON USERS (0)

Privilege	Grantor	Grantable to Others
<input checked="" type="checkbox"/> IMPORT	DBADMIN	<input type="radio"/> NO
<input checked="" type="checkbox"/> EXPORT	DBADMIN	<input type="radio"/> NO

Save Cancel Add Remove

## SAP HANA Cockpit

- “Save” 버튼을 클릭

# SAP HANA Cockpit

## Import/Export 권한 부여

The screenshot shows the SAP HANA Cockpit interface for assigning privileges. The URL in the browser is [hana-cockpit.cfapps.us10.hana.ondemand.com/cockpit/sap/hana/cockpit/cloud/index.html#userprivilegeseditor-show?resid=642134&/detail/156645](https://hana-cockpit.cfapps.us10.hana.ondemand.com/cockpit/sap/hana/cockpit/cloud/index.html#userprivilegeseditor-show?resid=642134&/detail/156645). The page title is "Assign Privileges - SAP". The user is logged in as "myhana (DBADMIN)".

Search bar: DEVUSER

Privilege categories: SYSTEM PRIVILEGES (2), OBJECT PRIVILEGES (1), ANALYTIC PRIVILEGES (0), PRIVILEGES ON USERS (0)

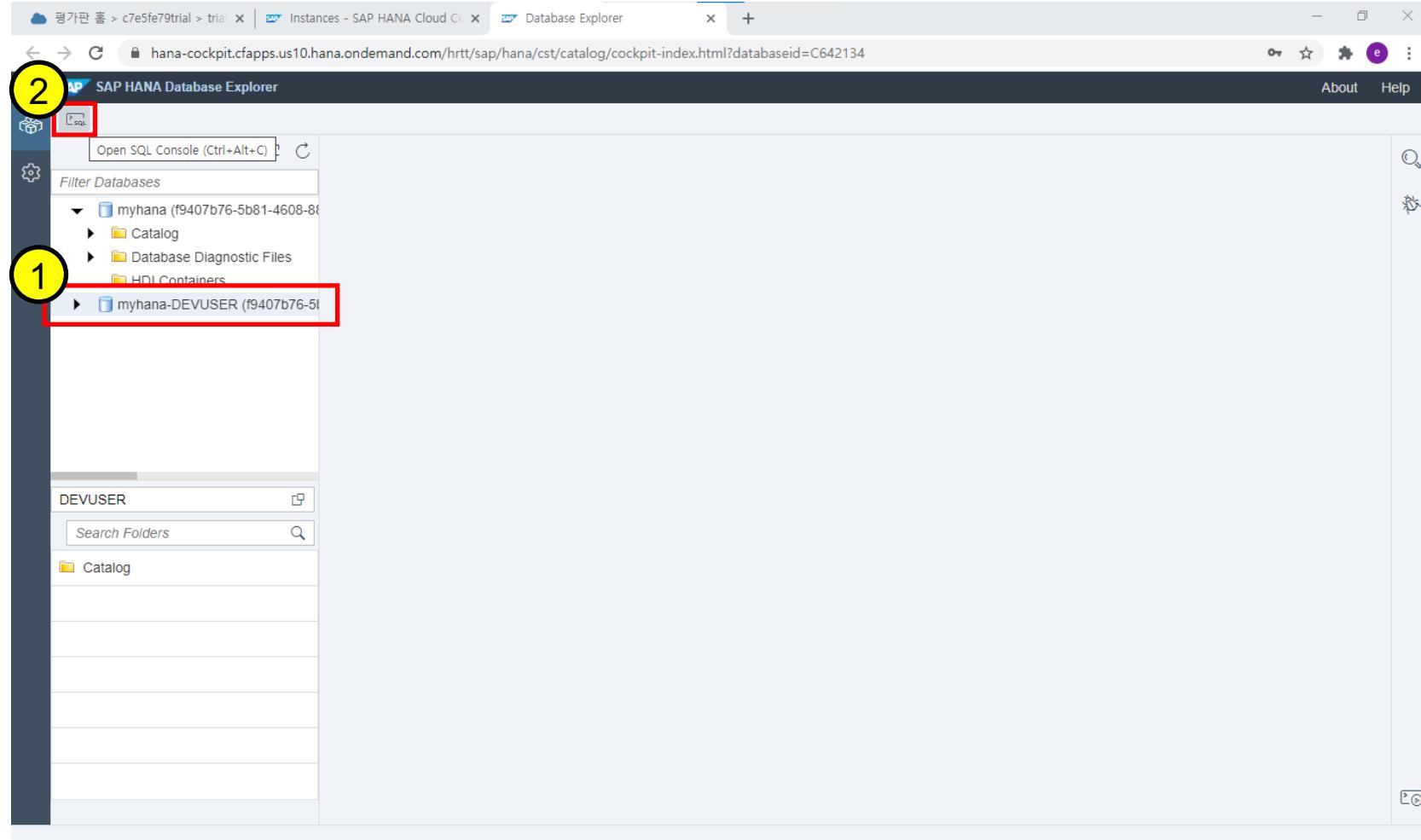
Privilege	Grantor	Grantable to Others
EXPORT	DBADMIN	No
IMPORT	DBADMIN	No

## SAP HANA Cockpit

- 결과 조회

# SAP HANA Database Explorer

## AWS S3 File to HANA Cloud Data Load



## SAP HANA Database Explorer

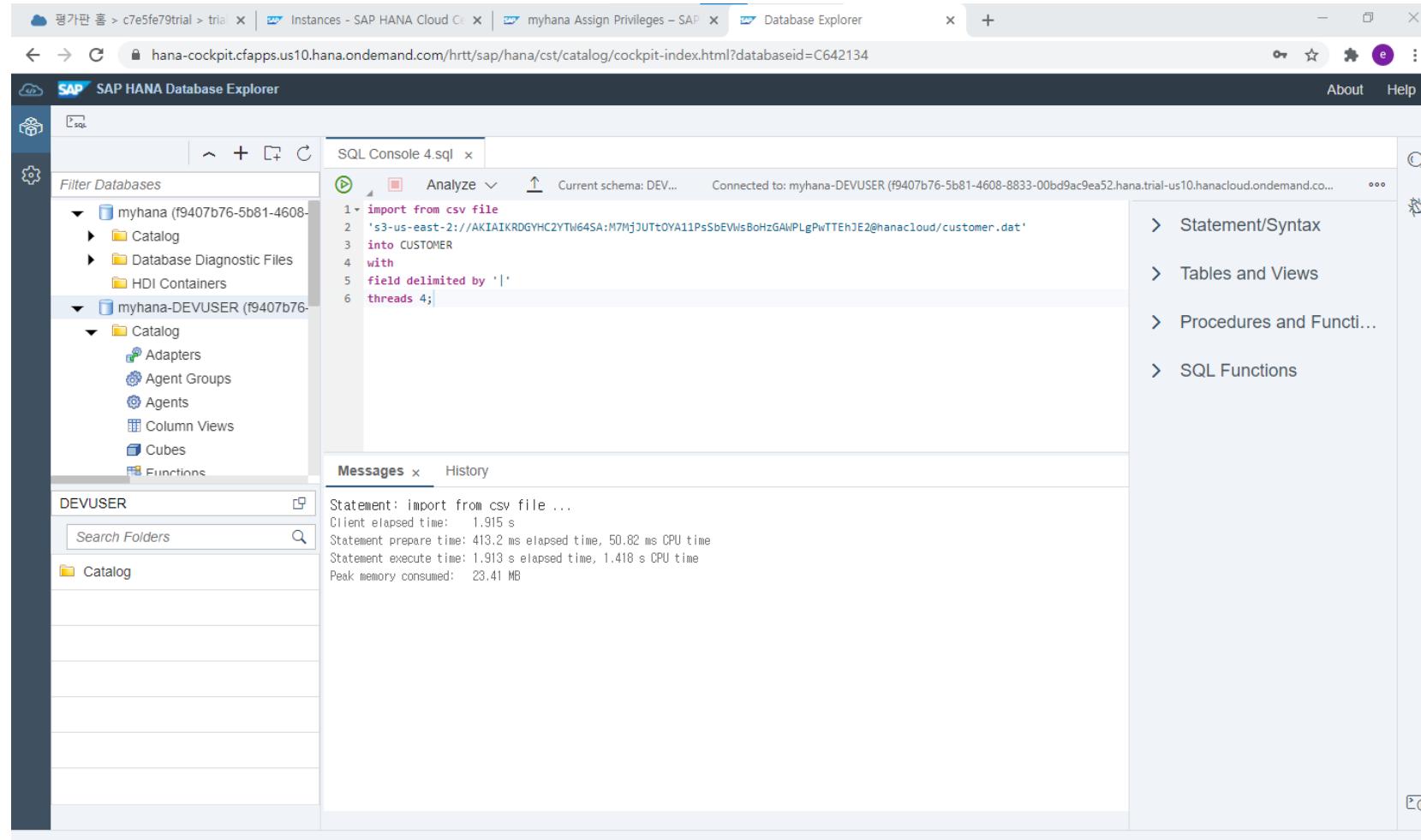
- DEVUSER Connection 클릭
- “SQL” 버튼 클릭

# SAP HANA Database Explorer

## AWS S3 File to HANA Cloud Data Load

File Location :

[https://github.com/euimankim/HANA\\_Cloud\\_Enablement](https://github.com/euimankim/HANA_Cloud_Enablement)



## SAP HANA Database Explorer

- import\_data\_hana\_cloud.sql 파일의 내용 중 1 단계 SQL을 복사 후 붙여넣기
- 버튼을 클릭하면 해당 SQL 실행
- CUSTOMER 테이블에 데이터 적재

# SAP HANA Database Explorer

## AWS S3 File to HANA Cloud Data Load

File Location :

[https://github.com/euimankim/HANA\\_Cloud\\_Enablement](https://github.com/euimankim/HANA_Cloud_Enablement)

The screenshot shows the SAP HANA Database Explorer interface. On the left, the Database Explorer sidebar lists databases and catalogs. In the center, a SQL Console window displays a query: `select count(*) from CUSTOMER`. The Result pane shows the output: Rows (1) with a single row containing COUNT(\*) = 100000. The value 100000 is highlighted with a red box.

## SAP HANA Database Explorer

- import\_data\_hana\_cloud.sql 파일의 내용 중 2 단계 SQL을 복사 후 붙여넣기
- 버튼을 클릭하면 해당 SQL 실행
- CUSTOMER 테이블의 적재 건수 확인

# SAP HANA Database Explorer

## AWS S3 File to HANA Cloud Data Load

File Location :

[https://github.com/euimankim/HANA\\_Cloud\\_Enablement](https://github.com/euimankim/HANA_Cloud_Enablement)

The screenshot shows the SAP HANA Database Explorer interface. On the left, the database structure is visible, including databases like 'myhana' and 'myhana-DEVUSER'. In the center, a SQL console window titled 'SQL Console 4.sql' displays the following SQL code:

```
import from csv file
's3-us-east-2://AKIAIKRDGYHC2YTW64SA:M7MjJUTtOYA11PsSbEVNsBoHzGAIPLgPwTTEhJE2@hanacloud/web_sales.dat'
into WEB_SALES
with
field delimited by '|'
threads 4;
```

Below the SQL code, the 'Messages' tab shows the execution results:

```
Statement: import from csv file ...
Client elapsed time: 9.004 s
Statement prepare time: 518.2 ms elapsed time, 107.1 ms CPU time
Statement execute time: 9.003 s elapsed time, 17.69 s CPU time
Peak memory consumed: 35.40 MB
```

## SAP HANA Database Explorer

- import\_data\_hana\_cloud.sql 파일의 내용 중 4 단계 SQL을 복사 후 붙여넣기
- 버튼을 클릭하면 해당 SQL 실행
- WEB\_SALES 테이블에 데이터 적재

# SAP HANA Database Explorer

## AWS S3 File to HANA Cloud Data Load

File Location :

[https://github.com/euimankim/HANA\\_Cloud\\_Enablement](https://github.com/euimankim/HANA_Cloud_Enablement)

The screenshot shows the SAP HANA Database Explorer interface. On the left, the Database Explorer sidebar lists databases: myhana (f9407b76-5b81-4608...) and myhana-DEVUSER (f9407b76-5b81-4608...). The main area is a SQL Console titled 'SQL Console 4.sql' containing the query: 'select count(\*) from WEB\_SALES'. The result pane shows a single row with the value '719384'. A red box highlights this value. To the right of the result pane is a context menu with options: Statement/Syntax, Tables and Views (1), Procedures and Function..., and SQL Functions (1).

## SAP HANA Database Explorer

- import\_data\_hana\_cloud.sql 파일의 내용 중 5 단계 SQL을 복사 후 붙여넣기
- 버튼을 클릭하면 해당 SQL 실행
- WEB\_SALES 테이블의 적재 건수 확인

# SAP HANA Database Explorer

## HANA Cloud + HANA Cloud Join Query

File Location :

[https://github.com/euimankim/HANA\\_Cloud\\_Enablement](https://github.com/euimankim/HANA_Cloud_Enablement)

The screenshot shows the SAP HANA Database Explorer interface. On the left, the sidebar lists various database objects: Remote Subscriptions, Schemas, Sequences, Synonyms, Table Types, Tables, Tasks, Triggers, and Views. Under Tables, 'CUSTOMER\_DEMOGRAPHICS' is selected. The main area has two tabs: 'SQL Console 2.sql' and 'Result'. The SQL tab contains the following query:

```
1 select c_customer_id, c_first_name || ' ' || c_last_name, sum(ws_net_profit)
2 from customer, web_sales
3 where c_customer_sk = ws_bill_customer_sk
4 group by c_customer_id, c_first_name || ' ' || c_last_name;
```

The 'Result' tab displays the output of the query, titled 'First 1000 rows'. The table has three columns: C\_CUSTOMER\_ID, C\_FIRST\_NAME|||C\_LAST\_NAME, and SUM(WS\_NET\_PROFIT). The data is as follows:

C_CUSTOMER_ID	C_FIRST_NAME   C_LAST_NAME	SUM(WS_NET_PROFIT)
1 AAAAAAAALBAAAAAA	Shawn Prather	-12892.97
2 AAAAAAAAPOAAAAAA	Elizabeth Smith	3398.77
3 AAAAAAAAFNBAAAAAA	Ambrose Callahan	11501.71
4 AAAAAAAAFOBAAAAAA	James Jones	-13677.38
5 AAAAAAAAPHCAAAAAA	Ethel Black	-10991.01
6 AAAAAAAAOBDAAAAAA	Theresa Harris	-11124.60
7 AAAAAAAALFDAAAAAA	Kizzle Larson	5987.89
8 AAAAAAAAOIDAAAAAA	Marian Schuler	-68.12
9 AAAAAAAAMPDAAAAAA	Robert Miller	-6445.54
10 AAAAAAAAHIEAAAAAA	Catherine Johnson	-24125.59
11 AAAAAAAAOEAAAAAA	Edwin Martinez	7109.91

## SAP HANA Database Explorer

- query.sql 파일의 내용 중 1 단계 SQL을 복사 후 붙여넣기
- ⏎ 버튼을 클릭하면 해당 SQL 실행
- Result에서 결과 조회