Getting Started with SAP Data Warehouse Cloud
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1 Getting Started with SAP Data Warehouse Cloud

SAP Data Warehouse Cloud is a fully-managed, highly-integrated, open, and scalable cloud-native data warehouse solution.
Click an element to learn more about SAP Data Warehouse Cloud.

**Consume Data**

Use SAP Analytics Cloud and other analytics clients to consume views (exposed by the **Data Builder**) and perspectives (exposed by the **Business Builder**) and produce charts, dashboards, and other analytic artifacts.

For more information, see [Creating Charts and Dashboards](#) [page 28].

**Model Data**

Use the **Business Builder** to:

- Consume data entities as analytical datasets and dimensions (see [Create an Analytical Dataset](#) [page 25] and [Create a Dimension](#) [page 25]).
- Combine these business entities into fact or consumption models (see [Create a Fact Model](#) [page 26] and [Create a Consumption Model](#) [page 26]).
- Expose your data in lightweight, closely-focused perspectives to SAP Analytics Cloud and other analytics clients (see [Create a Perspective](#) [page 27]).
- Import SAP BW/4HANA queries as perspectives (see [Import an SAP BW/4HANA Query](#) [page 27]).

**Acquire Data**

Use the **Data Builder** to:

- Import tables from connections and other sources (see [Import a Table from a Source](#) [page 18]).
- Create a table by importing a CSV file (see [Import a CSV File](#) [page 18]).
- Create a data flow to bring data into your space with the possibility of applying transformations (see [Create a Data Flow](#) [page 19]).

**Integrate Data**

Integrate data from a wide variety of sources into your space:

- Prepare connections to source systems and databases to acquire data via remote tables or data flows (see [Integrating Data via Connections](#)).
- Create an Open SQL schema and use ETL/ELT tools to write data to it for use in your space (see [Integrating Data via Database Users/Open SQL Schemas](#)).
- Create connections to partner tools to acquire data from them via your Open SQL schema (see [Connections to Partner Tools](#)).
- Enable SAP SQL Data Warehousing on your SAP Data Warehouse Cloud tenant, and exchange data between HDI containers and your space (see [Exchanging Data with SAP SQL Data Warehousing HDI Containers](#)).
• Write data to and read data from the SAP HANA Data Lake via your Open SQL schema (see Integrating Data to and From SAP HANA Cloud Data Lake).
• Build selected BW Bridge data flows including complex ETL logic from extractors to composite providers in the public cloud using Eclipse-based modeling tools. These objects can then be brought into SAP Data Warehouse Cloud as remote tables (see Import Objects from BW Bridge [page 21]).

Import Content
Import table and view (entity) definitions to perform your data acquisition and preparation:
• Space administrators can import SAP and partner content to support end-to-end business scenarios from the Content Network and use the Transport app to move content between tenants (see Importing and Exporting Content).
• Modelers can import and export entity definitions in CSN files (see Importing Objects from a CSN/JSON File).

Import Existing SAP BW Models
Import SAP BW4HANA queries into SAP Data Warehouse Cloud as perspectives, along with their supporting InfoObjects and CompositeProviders, which are imported into the Business Builder and Data Builder.
For more information, see Import an SAP BW4HANA Query [page 27].

Prepare Data
• Create views to clean, combine, harmonize and otherwise prepare data (see Create a Graphical View [page 19] and Create an SQL View [page 19]).
• Create intelligent lookups to combine entities even if there are problems joining them (see Create an Intelligent Lookup [page 20]).
• Produce consumable views (analytical datasets and dimensions) to expose to the Business Builder or directly to SAP Analytics Cloud and other analytics clients.

Buy and Sell Data
Purchase data products from providers and download them directly into your space (see Purchase Data from Data Marketplace [page 22]).
You can become a data provider and offer your own data products for sale in Data Marketplace via the Data Sharing Cockpit (see Data Marketplace - Data Provider’s Guide).
SAP Data Warehouse Cloud allows you to converge data coming from SAP and third-party on-premise and cloud environments into a single, fully-managed cloud environment to allow your organization to radically simplify your data warehousing landscape. It provides:
• A secure environment supporting diverse data application needs including real-time analytics, governed data access, and data science (machine learning).
• Connections to a wide variety of cloud and on-premise sources, including data lakes.
• Spaces to enable discrete modeling environments for different departments or use cases.
• Powerful built-in SQL and data flow editors, along with support for 3rd party SQL tools and other SAP IDEs.
• Provision of SAP and partner business content to support end-to-end business scenarios for various industries and lines of business.
• Graphical low-code/no-code tools to support self-service modeling needs.
• Business semantic modeling, separated from physical data storage.
• Agile blending of centrally-governed sources with local files and external sources.
• Re-use and migration of trusted and governed meta and data models residing in on premise SAP Business Warehouse and SAP SQL Data Warehouse implementations.
• Cross-space collaboration and data sharing with support for row-level filtering.
• Seamless integration with SAP Analytics Cloud.
2 Logging Into SAP Data Warehouse Cloud

When you are added as a user to SAP Data Warehouse Cloud, you receive a welcome email. Click the **Activate Account** button to connect to the server and set your password.

The main panel of the SAP Data Warehouse Cloud Home screen gives access to shortcuts to help you get started.

- **Create Spaces** (see Preparing Your Space and Integrating Data [page 17])
- **Build Data** (see Acquiring Data [page 18])

To the right of this panel are buttons to send feedback to SAP and to view the SAP Data Warehouse Cloud blog, along with a list of your recent objects.

2.1 Changing Your Profile Settings

A user profile resembles a business card and consists of standard user data, such as your name and email address. The profile also includes user preferences as well as data privacy and task scheduling consent options.

**Overview**

To view and edit your user profile settings, click your user icon in the shell bar and select **Settings**.

The **Settings** dialog opens to display the profile setting options available.

**User Account**

You can view your user data: name and email address.

**Appearance**

You can view the SAP standard theme used for the visual appearance of SAP Data Warehouse Cloud.
### Language & Region

In this section, you can find the following settings, which are partially editable and saveable:

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Language</strong></td>
<td>Choose a language to view SAP Data Warehouse Cloud in.</td>
</tr>
</tbody>
</table>

**Note**

If you have already set a language in the SAP Analytics Cloud user settings, the setting from SAP Analytics Cloud is applied to SAP Data Warehouse Cloud.

If you have chosen a language in SAP Analytics Cloud that is not supported in SAP Data Warehouse Cloud, SAP Data Warehouse Cloud is set to its default language (currently English).

<table>
<thead>
<tr>
<th><strong>Data Access Language</strong></th>
<th>Choose a language for displaying stories created from live data connections. Currently, the default language is English.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Date Formatting</strong></td>
<td>Choose a date format from the list.</td>
</tr>
<tr>
<td><strong>Time Formatting</strong></td>
<td>Choose a time format from the list. You can choose either 12 h or 24 h.</td>
</tr>
</tbody>
</table>

**Example**

- 8:48:53 AM or 8:48:53
- 11:03:31 PM or 23:03:31

<table>
<thead>
<tr>
<th><strong>Number Formatting</strong></th>
<th>Choose a number format from the list.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scale Formatting</strong></td>
<td>Choose how to format the number scale. You can choose the System default, short (k, m, bn) or long (Thousand, Million, Billion).</td>
</tr>
<tr>
<td><strong>Currency Position</strong></td>
<td>View information about scale formatting and where the currency symbol (or ISO code) is displayed.</td>
</tr>
</tbody>
</table>

### Profile Picture

If you would like to have a profile picture for your user, there is no UI functionality to support this. However, you can get a profile picture by using a POST request with path `/sap/fpa/services/rest/epm/security/photo` and upload a file of type jpg.

In case there is an SAP Analytics Cloud tenant connected, you can switch to this tenant and upload the profile picture there with UI support. For more information, see [Edit Your Profile](#).

### UI Settings

You can choose the way names are shown in SAP Data Warehouse Cloud: business or technical name.

**Note**

By default, you see your object’s business name. To switch to its technical name, choose **Show Technical Name**. You will then see the technical name in the Data Builder UIs for graphical views, SQL views, and ER.
models and in the Data Integration Monitor UIs. You can switch back to show the business name at any time. Other UIs, such as the table editor, show both names.

Privacy

By default, SAP Data Warehouse Cloud keeps track of objects you’ve accessed, so you can quickly locate those objects or files again. The names of those objects appear in a Recent Files list displayed on the SAP Data Warehouse Cloud Home page, and in the Repository Explorer, where you can search for recently accessed objects. For each listing of recently accessed objects, SAP Data Warehouse Cloud provides a dropdown list of up to ten objects you last accessed that you can select. For example, in the Repository Explorer, you can select the Recent option from the left-side navigation pane to display the last ten objects you accessed, created, or edited. In addition, if you click in the search entry field in the Repository Explorer, the last ten successful search queries are shown in the autosuggest selection box.

When you first log into SAP Data Warehouse Cloud, a popup dialog box prompts whether you want to disable tracking of objects you access, create, or edit. (By default, object tracking is enabled.) Clicking the Manage Settings button opens the Settings dialog for your account where you can disable future tracking and optionally clear previously tracked data. In addition, you can always click your user icon in the shell bar, select Settings, and then select the Privacy setting option to change profile settings.

• To disable tracking of objects you access, clear the Remember My Searches and Opened Objects checkbox and click Save.
• To clear any existing data for previous searches and recent objects you’ve accessed, click the Clear My Data button.

After disabling the tracking of accessed objects, or confirming the selection to clear tracked data, the changes will take effect immediately. If you want to reenable object and search tracking, just reopen the Privacy settings dialog, select the Remember My Searches and Opened Objects checkbox again, and click Save.

Schedule Consent Settings

You can give or revoke your consent to let SAP Data Warehouse Cloud run scheduled tasks you own. Data integration tasks such as data replication, persisting views, or executing data flows can be scheduled. Scheduled tasks run asynchronously in the background according to the settings defined in the schedule. Note that when you do not provide your consent or revoke your consent, tasks you have scheduled to run won’t be executed.

Note

Your consent is valid for 12 months. After the consent has expired, a log informs you that future tasks you have scheduled to run will no longer be executed. Renew your consent to resume task execution according to their original schedules.

For more information, see Schedule a Data Integration Task.

2.2 How to Find Help

SAP Data Warehouse Cloud has integrated in-app help.

The following video shows you where to find what’s new information and help in SAP Data Warehouse Cloud.
Help

To open the in-app help, click the question mark on the upper right hand corner.

A short description gives you a general idea what can be done on this screen. When you click on this short description, you get a longer text with conceptual information, a step by step procedure or even a video tutorial.

**i Note**

The in-app help is context sensitive. The help topics change depending on where you are in SAP Data Warehouse Cloud.

What's New Information

When the in-app help panel is open, click the megaphone icon to view the what's new topics.

A short description gives you general information of the new or changed features sorted by SAP Data Warehouse Cloud version. When you click on this short description, you get a longer and more detailed text about these new or changed features.

For more information, see What's New in SAP Data Warehouse Cloud.
# 3 Navigating in SAP Data Warehouse Cloud

Use the left navigation area to access all the applications available in SAP Data Warehouse Cloud.

**i Note**

You need specific privileges to access each application, and some may not be visible to you (see Roles and Privileges by App and Feature).

The applications contained in SAP Data Warehouse Cloud are available from the left navigation area.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>☟ (Expand)</td>
<td>Expand the side navigation area.</td>
</tr>
<tr>
<td>☮ (Home)</td>
<td>View shortcuts, recent objects, and article feed.</td>
</tr>
<tr>
<td>☪ (Repository Explorer)</td>
<td>Browse and create objects (see Repository Explorer).</td>
</tr>
<tr>
<td>☄ (Data Marketplace)</td>
<td>Purchase data products from providers and download them directly into your space (see Purchasing Data from Data Marketplace).</td>
</tr>
<tr>
<td>☮ (Business Builder)</td>
<td>Create business entities, fact models, and consumption models to present your data to analytics clients (see Modeling Data [page 25]).</td>
</tr>
<tr>
<td>☥ (Data Builder)</td>
<td>Create or import tables and views, and create data flows and entity-relationship diagrams (see Acquiring Data [page 18]).</td>
</tr>
<tr>
<td>☫ (Data Access Controls)</td>
<td>Create criteria-based privileges to filter the data accessible in views and business layer objects (see Securing Data with Data Access Controls).</td>
</tr>
<tr>
<td>☬ (Data Integration Monitor)</td>
<td>Monitor remote tables, persisted views, and data flows (see Managing and Monitoring Data Integration).</td>
</tr>
<tr>
<td>☦ (Connections)</td>
<td>Create connections to source systems to allow accessing and importing data into SAP Data Warehouse Cloud (see Integrating Data via Connections).</td>
</tr>
</tbody>
</table>

**i Note**

To open an application in a new browser tab, right-click it and select **Open App in New Tab**.

Administration tools are available from the bottom of the left navigation area.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>☪ (Space Management)</td>
<td>Set up, configure, and monitor your spaces, including assigning users to them (see Preparing Your Space and Integrating Data [page 17]).</td>
</tr>
<tr>
<td>Item</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>🚬 (System Monitor)</td>
<td>Monitor the performance of your system and identify storage, task, out-of-memory, and other issues (see Monitoring SAP Data Warehouse Cloud).</td>
</tr>
<tr>
<td>📷 (Content Network)</td>
<td>Import business content into your space (see Importing and Exporting Content).</td>
</tr>
<tr>
<td>🏀 (Security)</td>
<td>Contains the following tools:&lt;br&gt;• 🚫 (Users) - See Managing SAP Data Warehouse Cloud Users.  &lt;br&gt;• ⌘ (Roles) - See Managing Roles and Privileges.  &lt;br&gt;• ⌱ (Activities) - See Monitor Object Changes with Activities.</td>
</tr>
<tr>
<td>🫐 (Transport)</td>
<td>Contains the following tools:&lt;br&gt;• ⚡ (Export) - Export objects from your space for transfer to another space or tenant (see Exporting Content for Sharing with Other Tenants).  &lt;br&gt;• ⚪ (Import) - Import objects from another space or tenant into your space (see Importing Content from Another Tenant).</td>
</tr>
<tr>
<td>🕒 (Data Sharing Cockpit)</td>
<td>Become a data provider and make your data products available in Data Marketplace (see Data Marketplace - Data Provider’s Guide).</td>
</tr>
<tr>
<td>🍔 (System)</td>
<td>Contains the following tools:&lt;br&gt;• 🗽 (Configuration) - See Administering SAP Data Warehouse Cloud.  &lt;br&gt;• 🕵 (Administration) - See Administering SAP Data Warehouse Cloud.  &lt;br&gt;• ⚙ (About) - Obtain technical information about your version of SAP Data Warehouse Cloud.</td>
</tr>
</tbody>
</table>

General tools are available in the shell bar.

<table>
<thead>
<tr>
<th>Tool</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>🚹 (Notifications)</td>
<td>Open the Notifications panel.</td>
</tr>
<tr>
<td>🛢 (Support)</td>
<td>Open the Support dialog.</td>
</tr>
<tr>
<td>📚 (Help)</td>
<td>Open the Help panel.</td>
</tr>
<tr>
<td>⚡ (Profile)</td>
<td>Open the Settings dialog (see Changing Your Profile Settings [page 9]) or log out.</td>
</tr>
<tr>
<td>⚹️ (Product Switch)</td>
<td>Click here and select Analytics to navigate to your organization’s SAP Analytics Cloud tenant.</td>
</tr>
</tbody>
</table>

**i Note**

The Product Switch is available if an administrator has configured a connection to an SAP Analytics Cloud tenant (see Consume Data in SAP Analytics Cloud) and you are assigned one or more BI roles.

For detailed information about working with SAP Analytics Cloud, see the SAP Analytics Cloud documentation.
3.1 Finding and Organizing SAP Data Warehouse Cloud Objects

When you are given access to SAP Data Warehouse Cloud, you are assigned as a member to one or more spaces, and have access to the objects in those spaces.

You can find and act on objects in the following screens:

- **Repository Explorer** - All SAP Data Warehouse Cloud objects in all the spaces to which you have access are listed here (see Repository Explorer).
- **Business Builder** - All business entities, consumption models, and other business objects in the selected space are listed here (see Modeling Data in the Business Builder).
- **Data Builder** - All views, tables, and other data objects in the selected space are listed here (see Acquiring Data in the Data Builder).
- **Data Access Controls** - All data access controls in the selected space are listed here (see Securing Data with Data Access Controls).
4 Creating Users and Spaces and Preparing Connectivity

Administrators configure, manage, and monitor the SAP Data Warehouse Cloud tenant to support the work of acquiring, preparing, and modeling data for analytics. They manage users, create spaces and allocate storage to them, prepare and monitor connectivity for data integration, and perform ongoing monitoring and maintenance of the tenant.

1. Create SAP Data Warehouse Cloud users manually or by import from a *.csv file (see Managing SAP Data Warehouse Cloud Users).
2. Assign roles to your users (see Managing Roles and Privileges).
3. Create spaces, specify processing priority and storage assignments, and assign space administrators to them (see Creating Spaces and Allocating Storage).
4. Prepare SAP Data Warehouse Cloud for creating connections to source systems in spaces (see Preparing Connectivity for Connections).
5. Connect SAP Data Warehouse Cloud to an SAP Analytics Cloud tenant (see Consume Data in SAP Analytics Cloud).
6. View repository activity and audit logs (see Audit Logging).
5 Preparing Your Space and Integrating Data

Space Administrators and Integrators create connections to source systems and databases and use other methods to bring data into their space and schedule and monitor replication. Space Administrators can create data access controls to secure data and import and export content via the Content Network, and are responsible for maintaining the list of space members and monitoring and managing the space.

An administrator will assign you the DW Space Administrator role, create your space, and add you to it as a member. Once this is done, you can prepare your space as follows:

1. In the (Space Management) app:
   - Add SAP Data Warehouse Cloud users as members of your space (see Assign Members to Your Space).
   - Create database users to allow external tools to connect to the space and write data to Open SQL schemas associated with the space (see Integrating Data via Database Users/Open SQL Schemas). If your space has access to the SAP HANA Cloud, data lake, you can access it via an Open SQL schema (see Integrating Data to and From SAP HANA Cloud Data Lake).
   - Add SAP HDI containers to your space (see Exchanging Data with SAP SQL Data Warehousing HDI Containers).
   - Generate a time table and associated time dimension views for use in the space (see Create Time Data and Dimensions).
   - Enable logging of space activities (see Enable Audit Logging).

2. In the (Connections) app, create connections to source systems to allow space members to acquire data from those systems (see Integrating Data via Connections).

3. In the (Content Network) app, import SAP and partner business content to support end-to-end business scenarios for various industries and lines of business (see Importing and Exporting Content).

4. In the (Data Access Controls) app, create data access controls to provide row-level filtering of your space data (see Securing Data with Data Access Controls).
6  Acquiring Data

Modelers import data directly from source system and database connections, Open SQL Schemas, and HDI containers into the **Data Builder**. They can also create data flows to optionally transform the data before loading and import CSV files.

For complete documentation, see Acquiring Data in the Data Builder.

6.1  Import a Table from a Source

Import tables and views from a connection, Open SQL schema, HDI container or other source available in your space.

To import a table:

1. Drag it from the Sources tab of the **Source Browser** in one of the **Data Builder** editors.
2. Open the imported table in the table editor and review its properties.
3. By default, tables imported from connections do not have their data copied into SAP Data Warehouse Cloud, but you can enable manual or scheduled replication in the Remote section.

For more information, see Importing Tables and Views from Sources.

6.2  Import a CSV File

Import a .csv file to create a table and fill it with the data from the file.

To import a .csv file:

1. Click **Import > Import CSV File**.
2. Select your .csv and click Upload.
3. Review and clean your data as appropriate. You can exclude, concatenate, and split columns, perform other transforms, change data types, and filter the data to be imported.
4. Click Deploy, enter a business and technical name for your table, and click Deploy again to save and deploy the table.

For more information, see Creating a Local Table from a CSV File.
6.3 Create a Data Flow

Create a data flow to move and transform data in an intuitive graphical interface.

To create a data flow:
1. Click the New Data Flow tile to enter the editor.
2. Drag and drop at least one source from the Source Browser.
3. Create joins or a union as appropriate.
4. Add other operators to remove or create columns, filter or aggregate data, or run a Python script.
5. Create a table (or drag and drop a table from the repository) to receive the output of the flow.
6. Save and execute your data flow.

For more information, see Creating a Data Flow.

6.4 Create a Graphical View

Create a view to query sources in an intuitive graphical interface.

To create a graphical view:
1. Click the New Graphical View tile to enter the editor.
2. Drag and drop sources from the Source Browser.
3. Create joins or a union as appropriate.
4. Add other operators to remove or create columns and filter or aggregate data.
5. Specify measures, if appropriate, and other aspects of your output structure in the output node.
6. Save and deploy your view.

**Note**
To make your view consumable by SAP Analytics Cloud, you must set its type to Analytical Dataset and enable the Expose for Consumption switch. SAP Analytics Cloud can access dimensions, hierarchies and other entities to which your analytical dataset points via associations, even if they have not themselves been exposed. Other analytics clients can consume views of any type that have the Expose for Consumption switch enabled.

For more information, see Creating a Graphical View.

6.5 Create an SQL View

Create a view to query sources in a powerful SQL editor.

To create an SQL view:
1. Click the **New SQL View** tile to open the editor.
2. Drag and drop sources from the **Source Browser** or enter them by hand.
3. Choose between SQL (standard query) or SQL Script (table function) and enter your code.
4. Specify measures, if appropriate, and other aspects of your output structure in the output node.
5. Save and deploy your view.

**Note**

To make your view consumable by SAP Analytics Cloud, you must set its type to **Analytical Dataset** and enable the **Expose for Consumption** switch. SAP Analytics Cloud can access dimensions, hierarchies and other entities to which your analytical dataset points via associations, even if they have not themselves been exposed. Other analytics clients can consume views of any type that have the **Expose for Consumption** switch enabled.

For more information, see Creating an SQL View.

### 6.6 Create an Intelligent Lookup

Create an intelligent lookup to merge data from two entities even if there are problems joining them.

To create an intelligent lookup:
1. Click the **New Intelligent Lookup** tile to enter the editor.
2. Drag sources from the **Source Browser** to the **Input** and **Lookup** placeholders and specify your pairing column and return columns.
3. Specify one or more exact or fuzzy match rules to match records.
4. Save, deploy and run the intelligent lookup to apply the rules.
5. Use the tabs in the **Data Preview** panel to review and process the results.

For more information, see Creating an Intelligent Lookup.

### 6.7 Create an Entity-Relationship Model

Create an E/R model to import, visualize, edit, and deploy multiple data entities (tables and views) together.

To create an entity-relationship model:
1. Click the **New Entity-Relationship Model** tile to open the editor.
2. Add objects to the diagram. You can create new tables and views directly in the diagram or add them from:
   - The repository.
   - A connection (this will also import them into the repository).
   - A .csn file (this will also import them into the repository).
3. Create associations between objects to indicate how they are created and ease the creation of joins in your joins.
4. Modify the properties of objects, including providing business names for them to make them easier to identify and use for non-technical users.
5. Save and deploy all your changes to the objects visualized in the diagram.

For more information, see Creating an Entity-Relationship Model.

### 6.8 Import Objects from BW Bridge

Import objects from BW bridge into the dedicated **SAP BW Bridge** space and from there share them with other spaces.

**Note**
You must request the SAP Data Warehouse Cloud SAP BW bridge option to create the **SAP BW Bridge** space and connection.

To import objects from BW bridge:

1. In the **Data Builder**, open the **SAP BW Bridge** space.
2. Click **Import** → **Remote Tables** to open the wizard, select the SAP BW objects to import and click **Import and Deploy**.
   - The objects are imported as remote tables and listed in the **Data Builder** start page.
3. Select the objects that you want to share to other spaces, click **(Share)**, select the spaces, and click **Share**.
   - The shared objects are available for use in views and ER models in the selected spaces in the source browser **Repository** tab, in the **Shared Objects** category.

For more information, see Importing Objects into SAP Data Warehouse Cloud.

### 6.9 Import a CSN File

Import a `.csn` file to create one or more empty tables and views.

To import a `.csn` file:

1. Click **Import** → **Import CSN File**.
2. Select your `.csn` and click **Open**.
3. Select the objects you want to import in the list.
4. Click **Import**, to import the objects.

For more information, see Importing Objects from a CSN/JSON File.
6.10 Purchase Data from Data Marketplace

Purchase data from a data provider and download it to your space.

To purchase data:
1. Open the Data Marketplace and search for the data you want to buy.
2. Review the available data products to understand what is included, whether and how often it is updated and what the pricing model is. Some data products offer sample data to download to help you test if they are right for you.
3. Obtain a license key or request access to the product if appropriate.
4. Click Load..., select the space to load the product to, and then click Load Product.
   The data is loaded into a table in the selected space and can be used in views and data flows as any other entity.

For more information, see Purchasing Data from Data Marketplace
7  Preparing Data

Modelers use views and intelligent lookups in the Data Builder to combine, clean, and otherwise prepare data. Views can be exposed directly to SAP Analytics Cloud and other analytics clients. Alternatively Data Builder objects can be consumed by the Business Builder for further modeling.

For complete documentation, see Preparing Data in the Data Builder.

7.1  Create a Graphical View

Create a view to query sources in an intuitive graphical interface.

To create a graphical view:
1. Click the New Graphical View tile to enter the editor.
2. Drag and drop sources from the Source Browser.
3. Create joins or a union as appropriate.
4. Add other operators to remove or create columns and filter or aggregate data.
5. Specify measures, if appropriate, and other aspects of your output structure in the output node.
6. Save and deploy your view.

**i Note**
To make your view consumable by SAP Analytics Cloud, you must set its type to Analytical Dataset and enable the Expose for Consumption switch. SAP Analytics Cloud can access dimensions, hierarchies and other entities to which your analytical dataset points via associations, even if they have not themselves been exposed. Other analytics clients can consume views of any type that have the Expose for Consumption switch enabled.

For more information, see Creating a Graphical View.

7.2  Create an SQL View

Create a view to query sources in a powerful SQL editor.

To create an SQL view:
1. Click the New SQL View tile to open the editor.
2. Drag and drop sources from the Source Browser or enter them by hand.
3. Choose between SQL (standard query) or SQL Script (table function) and enter your code.
4. Specify measures, if appropriate, and other aspects of your output structure in the output node.
5. Save and deploy your view.

**i Note**

To make your view consumable by SAP Analytics Cloud, you must set its type to *Analytical Dataset* and enable the *Expose for Consumption* switch. SAP Analytics Cloud can access dimensions, hierarchies and other entities to which your analytical dataset points via associations, even if they have not themselves been exposed. Other analytics clients can consume views of any type that have the *Expose for Consumption* switch enabled.

For more information, see *Creating an SQL View*.

### 7.3 Create an Intelligent Lookup

Create an intelligent lookup to merge data from two entities even if there are problems joining them.

To create an intelligent lookup:
1. Click the *New Intelligent Lookup* tile to enter the editor.
2. Drag sources from the *Source Browser* to the *Input* and *Lookup* placeholders and specify your pairing column and return columns.
3. Specify one or more exact or fuzzy match rules to match records.
4. Save, deploy and run the intelligent lookup to apply the rules.
5. Use the tabs in the *Data Preview* panel to review and process the results.

For more information, see *Creating an Intelligent Lookup*.

### 7.4 Create an Entity-Relationship Model

Create an E/R model to import, visualize, edit, and deploy multiple data entities (tables and views) together.

To create an entity-relationship model:
1. Click the *New Entity-Relationship Model* tile to open the editor.
2. Add objects to the diagram. You can create new tables and views directly in the diagram or add them from:
   - The repository.
   - A connection (this will also import them into the repository).
   - A .csn file (this will also import them into the repository).
3. Create associations between objects to indicate how they are created and ease the creation of joins in your joins.
4. Modify the properties of objects, including providing business names for them to make them easier to identify and use for non-technical users.
5. Save and deploy all your changes to the objects visualized in the diagram.

For more information, see *Creating an Entity-Relationship Model*. 
8 Modeling Data

Business users use the Business Builder editors to create their models using a more semantic approach on with sources from the Data Builder. They combine, refine, and enrich the data models with further semantic information before exposing lightweight, tightly-focused perspectives for consumption by SAP Analytics Cloud and other analytic clients.

For complete documentation, see Modeling Data in the Business Builder.

8.1 Create an Analytical Dataset

Create an analytical dataset to identify a set of measures for use in fact and consumption models.

Business entities provide the interface to the data layer. They allow data to flow into the Business Builder and are combined together to produce fact models and consumption models.

To create a business entity:

1. Click the New Analytical Dataset tile to open a dialog listing available data entities.
2. Choose an appropriate data entity to provide data to your business entity and click Create.
3. Add or create measures, attributes, key definitions, associations, and other properties of the business entity as appropriate.

<table>
<thead>
<tr>
<th>i Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>You must define at least one measure for an analytical dataset.</td>
</tr>
</tbody>
</table>

4. Link an authorization scenario to your business entity to restrict access to its data or select Allow public data access to make the data generally available to all users.
5. Save your business entity to make it available for use in fact models and consumption models.

For more information, see Creating a Business Entity.

8.2 Create a Dimension

Create a dimension to identify a set of master data attributes and keys for use in fact and consumption models.

Business entities provide the interface to the data layer. They allow data to flow into the Business Builder and are combined together to produce fact models and consumption models.

To create a business entity:

1. Click the New Dimension tile to open a dialog listing available data entities.
2. Choose an appropriate data entity to provide data to your business entity and click Create.
3. Add or create measures, attributes, key definitions, associations, and other properties of the business entity as appropriate.

   ![Note]
   You must define a key for a dimension.

4. Link an authorization scenario to your business entity to restrict access to its data or select *Allow public data access* to make the data generally available to all users.

5. Save your business entity to make it available for use in fact models and consumption models.

For more information, see *Creating a Business Entity*.

### 8.3 Create a Fact Model

Create a fact model to group analytical datasets and dimensions together for use in multiple consumption models.

Fact models are not required in order to make your data available for consumption, but can be used as an intermediate grouping of business entities for use in consumption models.

To create a fact model:

1. Click the *New Fact Model* tile to open the wizard, specify a name for your model, and click *Step 2*.
2. Select an analytical dataset, dimension, or fact model to use as the initial fact source in your model, and click *Create*.
3. [optional] Add further fact sources and dimension sources as appropriate.
4. Add or create measures, attributes, filters, and set other properties of the model as appropriate.
5. Save your fact model to make it available for use in other fact models and consumption models.

For more information, see *Creating a Fact Model*.

### 8.4 Create a Consumption Model

Create a consumption model to consume analytical datasets and dimensions or a fact model, as the basis for defining consumable perspectives.

Consumption models are built on top of business entities and fact models and allow you to define one or more perspectives, which, when deployed, are exposed for consumption by analytics clients.

To create a consumption model:

1. Click the *New Consumption Model* tile to open the wizard, specify a name for your model, and click *Step 2*.
2. Select an analytical dataset, dimension, or fact model to use as the initial fact source in your model, and click *Create*.
3. [optional] Add further fact sources and dimension sources as appropriate.
4. Add or create measures, attributes, filters, and set other properties of the model as appropriate.
5. Save your consumption model.
For more information, see Creating a Consumption Model.

8.5 Create a Perspective

Create a lightweight, closely-focused perspective for consumption in SAP Analytics Cloud and other analytics clients.

Perspectives are the final consumption unit produced by the SAP Data Warehouse Cloud Business Builder.

To create a perspective:

1. Open the consumption model containing the measures and attributes you want to include in your perspective, and click the Perspectives tab.
2. Click the New Perspective button to open the Data Preview screen.
3. Drag items within and between the Perspective Fields, Measures, and Dimensions lists to configure the perspective columns as appropriate.
4. [optional] Click the Actions button on an item to specify filters and sorting as appropriate.
5. Click Save New and enter a business and technical name to save your perspective.
6. Click the consumption model name in the shell bar breadcrumbs to return to it, and then click the Perspectives tab.
7. Locate your perspective in the list and click the Deploy button to make it available for consumption in SAP Analytics Cloud and other analytics clients.

For more information, see Define Perspectives.

8.6 Import an SAP BW/4HANA Query

Import an SAP BW/4/HANA query, along with its supporting InfoObjects and CompositeProviders to SAP Data Warehouse Cloud.

To import a SAP BW/4HANA query:

1. Click Import > Import from Connection tile to open a dialog listing available SAP BW/4HANA connections.
2. Select a connection and click Next to list the available analytical queries.
3. Select a query in the left panel to list the objects that will be imported in the right panel. The query and all its supporting objects are listed on the Business Builder and Data Builder tabs, along with their import statuses.
4. Click Import to import the query and its supporting objects.

For more information, see Importing SAP BW/4HANA Models.
9  Creating Charts and Dashboards

Consume your exposed views and perspectives to produce charts, dashboards, and other analytical artifacts in SAP Analytics Cloud and other analytics clients.

Click the (Product Switch) in the shell bar and select Analytics to navigate to your organization’s SAP Analytics Cloud tenant.

**i Note**

The Product Switch is available if an administrator has configured a connection to an SAP Analytics Cloud tenant (see Consume Data in SAP Analytics Cloud) and you are assigned one or more BI roles.

For detailed information about working with SAP Analytics Cloud, see the SAP Analytics Cloud documentation.

In order to connect third party analytics clients, you must request a database user from your DW Space Administrator and then create the connection to your client (see Consume Data in a Third-Party BI Client).
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